

Education, Communal Norms, and Environmental Health: A Study of Darul Muttaqien and Jam'iyah Islamiyyah Islamic Boarding Schools in Addressing Tuberculosis

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ABSTRACT

Tuberculosis (TB) cases in Indonesia are the second rank after India. This necessitates an investigation into behavior, communal norms, habits, and facilities present in educational institutions, particularly Islamic boarding schools. The objectives of this study examined the above-mentioned aspects concerning the prevention of TB in Islamic boarding schools with or without Puskestren or Islamic boarding school health post contributions. This study was conducted at Darul Muttaqien and Jam'iyah Islamiyyah Islamic Boarding Schools. For quantitative: parameter scores are accumulated and compared significantly between the two Islamic boarding schools using an independent t-test (CI: 95%, α : 0.05), focusing on assessing the environments of the Islamic boarding schools, student questionnaires, and indoor air quality measurements, including humidity, lighting, temperature, in accordance with Permenkes1077/2011. Qualitative in-depth interviews are used through health ethnography (traditions and value assessments). The result is that activating *Poskestren* for Islamic boarding schools has a better impact on implementing clean and healthy living behavior and preventing disease, especially TB.

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1. INTRODUCTION

The Sustainable Development Goals (SDGs) are development that maintains the continuous improvement of the economic welfare, social life, and quality of the community's environment. SDGs is a global and national commitment in an effort to improve the welfare of society, including 17 goals there are (1) No Poverty; (2) No Hunger; (3) Healthy and Prosperous Life; (4) Quality Education; (5) Gender Equality; (6) Clean Water and Adequate Sanitation; (7) Clean and Affordable Energy; (8) Decent Work and Economic Growth; (9) Industry, Innovation and Infrastructure; (10) Reducing Inequality; (11) Sustainable Cities and Settlements; (12) Responsible Consumption and Production; (13) Handling Climate Change; (14) Ocean Ecosystem; (15) Land Ecosystem; (16) Peace, Justice and Strong Institutions; (17) Partnership to Achieve Goal (Kementerian Perencanaan Pembangunan Nasional/Badan Perencanaan Pembangunan Nasional, 2021). This means that of the 17 goals set, there are seven environmental and public health commitments. The fulfillment of fresh air quality that is safe for breathing and in accordance with the threshold values will be available if massive control efforts are made. This is in synergy with efforts to reduce various disease rates.

It is important to pay attention to tuberculosis (TB). The bacteria species *Mycobacterium tuberculosis* complex become a major public health problem globally (Hou et al., 2020). TB in Indonesia, as a disease that affects environmental conditions and the second largest number of cases in the world after India, found that coverage of TB case discovery and treatment was achieved at 68.3% of the target of 90% with a performance achievement of 76%. The percentage of districts/cities that met environmental health quality was achieved at 53.11% of the target of 40% or with a performance achievement of 133%. In 2021, globally, it is estimated that there will be 10.6 million TB cases, an increase of around 4.5% compared to 10.1 million cases in 2020. Thus, the incidence rate increased by around 3.6% from 2020. WHO data published in the 2021 Global TB Report shows that the indicators used to achieve the goal of "End the Global TB epidemic" are the number of deaths due to TB per year, the incidence rate (incidence rate) per year as well as the percentage of households that bear the costs of TB treatment. According to the 2022 TB Global Report for Indonesia, the incidence rate (incidence) of TB in 2021 is 354 per 100,000 (around 969,000 TB patients), and 2.27% (22,000 cases) of them are TB/HIV. The TB death rate is 52 per 100,000 population (total deaths 144,000), excluding the death rate due to TB/HIV. WHO estimates that there are 28,000 cases of Multi-Drug Resistance (MDR) in Indonesia (Kementerian Kesehatan Republik Indonesia, 2022). The eradication of tuberculosis is covered by the Presidential Regulation of the Republic of Indonesia Number 67 of 2021 concerning Tuberculosis Management, which basically means that tuberculosis is still a health problem in Indonesia and creates very complex problems both from a medical, social, economic, and cultural perspective and requires stratified treatment (Peraturan Presiden Nomor 67 Tahun 2021 Tentang Penanggulangan Tuberculosis, 2021). TB is not just because of diseases but also because of its impact on the patients (Kementerian Kesehatan Republik Indonesia (Kemenkes RI), 2020).

TB control strategy in Indonesia 2020-2024 is being implemented to achieve the target of reducing the incidence of tuberculosis from 319 per 100,000 population in 2017 to 190 per 100,000 population and reducing the death rate due to tuberculosis from 42 per 100,000 population in 2017 to 37 per 100,000 population in 2024 (Kementerian Kesehatan Republik

Indonesia (Kemenkes RI, 2020).

TB cases in West Java are quite high (15,000) (Republika, 2022), and South Tangerang (Budi, 2023) is an interesting phenomenon, considering that this region is adjacent to the nation's capital. On the other hand, as a buffer area, various institutionalized learning activities become the center of activity for many people from various corners. Islamic boarding schools, as centers for Islamic studies that are a trusted reference for the community, will, of course, also have the potential to be of concern in terms of how environmental conditions are maintained, comfortable, and ensured to be healthy in accordance with predetermined criteria. The potential for a very large number of Islamic boarding schools (35,981) and a total of 4,883,533 *santri* has great leverage for the success of health development in Indonesia. Therefore, health improvement interventions in Islamic boarding schools need to receive serious attention because they create a superior future generation for the nation. Every party needs to strive for Islamic boarding schools's health. One way is to break the chain of TB transmission in Islamic boarding schools, considering that Islamic boarding schools from here are entities that are vulnerable to TB transmission. The daily life and communication patterns of Islamic boarding school communities, which are accustomed to not being distant from each other, are a typical communication model but have a high risk of disease transmission, one of which is TB. The experience of several Islamic boarding schools that have successfully carried out efforts to prevent and control TB is clear evidence of the independence of Islamic boarding schools (Ramdani MA dalam Kementerian Kesehatan Republik Indonesia, 2022).

The Islamic boarding school is the place where students learn about practicing religious beliefs while looking up to their *kyai* or *ustadz* as role models (Syarifah, 2023). In social life, various social organizations are based on religion (for example, Muhammadiyah, Nahdatul Ulama, etc.) and social organizations, for example, Family Welfare Development/PKK). In carrying out the public health program, health cadres have been formed in each village/sub-district (Kementerian Kesehatan Republik Indonesia (Kemenkes RI), 2020).

Regarding preventive and promotive efforts, in the Guidelines for the Implementation and Development of Islamic boarding schools health posts or *pos kesehatan pesantren* (*Poskestren*), it is stated that in order to accelerate the achievement of the vision of a healthy, independent, and just society, various efforts have been made, including increasing the role of Islamic boarding schools in mobilizing the community to develop health efforts based on community resources. The existence of the *Poskestren* will really help expand the scope of *Puskesmas's* performance, as well as expand health promotion. Health promotion is a health advocacy process in improving the quality of life for both personal (individual, family, and community), private (professional and business), and public (government) segments that support positive health practices that will become a social norm (Kudzma, 2021). The existence of *Poskestren* as the second part, specifically the *Puskesmas* Service Network, as concerned in Article 58 paragraph (1), the *Puskesmas* is supported by a *Puskesmas* service network. Community Health Centers, and article (3), namely the Community Health Center Network as referred to in paragraph (1), consists of clinics, hospitals, pharmacies, laboratories, independent practice places for Health Workers, and other Health Service Facilities (Peraturan Menteri Kesehatan Nomor 43 Tahun 2019 Tentang Pusat Kesehatan Masyarakat, 2019). This means including organizing efforts to prevent and control the disease.

The study's objectives are educating and socializing clean living behavior in environmental

health coverage at two pilot Islamic boarding schools to prevent TB disease with and without the existence of *Poskestren*.

2. METHODS

This survey research used a mixed method, carried out over two months (September-October 2023). Mixed methods involve combining or integrating qualitative and quantitative research and data in a research study. Qualitative data tends to be open-ended without predetermined responses, while quantitative data usually includes closed-ended responses such as those found on questionnaires or psychological instruments (Tanjung & Dewi, 2024).

The selection of research locations was carried out purposively in two provinces close to the National Capital, namely Islamic boarding schools Jamiyyah Islamiyyah in Jurangmangu, South Tangerang, Banten and Islamic boarding schools Darul Muttaqien Parung in Bogor Regency, West Java. In the quantitative approach, Researchers and research objects are independent, short-term, and not interactive (Creswell, 2014). In this term it measures the level of knowledge, attitudes, and behavior of students (n=35 at Jam'iyyah Islamiyyah, n=32 at Darul Muttaqien) regarding tuberculosis through filling out a questionnaire followed by statistical testing (independent t-test) and measuring indoor air quality in both Islamic boarding schools. The qualitative approach uses an ethnographic method, which is a very in-depth study of behavior that occurs naturally in a culture or a particular social group, with informants consisting of parents of students, teachers, students, employees, and guests of Islamic boarding schools.

3. RESULTS AND DISCUSSION

3.1. Respondent Characteristics

Jam'iyyah Islamiyyah Islamic Boarding School is located in Jurangmangu, South Tangerang, Banten, building the vision of "Making the Amin Syarbini Foundation Jam'iyyah Islamiyyah Islamic Boarding School one of the centers for integrated Islamic education, study and development to produce and produce quality, professional, faithful cadres, pious and have noble character. Darul Muttaqien Parung Islamic Boarding School in Bogor Regency, West Java, has a superior vision and is committed to creating a generation of quality Muslims who have strong *aqidah*, noble morals, love of worship, good knowledge, and a skilled spirit.

The following are the characteristics of respondents who are students of both Islamic boarding schools:

Table 1. *The univariate analysis of respondent characteristics (santri)*

Variables	Amounts (n=67)	Percentage (%)
Gender		
Boys	16	23,9
Girls	51	76,1
Islamic boarding schools		
Jamiyyah Islamiyyah (grade 10)	35	52,2
Darul Muttaqien (grade 11)	32	47,8
Confirmed tb in this two years		
Yes	2	3
No	60	89,5
NA	5	7,5

Respondents consisted of sixteen female students, all of whom came from the Islamic

boarding school Jamiyyah Islamiyyah, grade 10, and fifty-one female students from both Islamic boarding schools, grades 10 and 11. For adult-age health, childhood and adolescence are determining life phases. Some journals highlight the relevance of child and adolescent health for public health policies, practice, and science’s mandate to provide an encompassing data basis to support decision-makers in developing health promotion and prevention measures (Moor et al., 2020). All of the students had permanent status, and 89.5% had not been diagnosed with tuberculosis in the last two years, but this does not mean ignoring the importance of knowledge about TB being more widely disseminated because, based on the report from the South Tangerang Health Service, TB cases actually increased by around 60 percent to 4,505 in 2022 (Budi, 2023). This illustrates the importance of preventive and promotive actions in stages, including in the Islamic boarding schools' environment, which is strengthened by the effectiveness of the existence of *Poskestren*, which is also an extension of the working area of the *Puskesmas*. The existence of the Islamic boarding school can further complement the management component of the TB control program at the *Puskesmas* by implementing several strategies in Islamic boarding schools in a systematic, comprehensive, and sustainable manner. TB *Santri* Cadre Training is an effort to maintain the sustainability of the level of knowledge, attitudes, and behavior of the *santri* community by implementing education, promotions, and health awareness campaigns through various social media, websites, lectures, and health seminars. Furthermore, it is important to carry out early detection, monitoring, and evaluation of the health of Islamic boarding school students through collaboration with *Puskesmas* medical staff as a preventive measure for the massive spread of TB in Islamic boarding school communities. Psychosocial support for students and their families who are diagnosed with TB is sought by involving all relevant elements, including students, educators, school staff, families, and local health services. Factors in the availability of facilities in *Islamic* boarding schools that support TB prevention efforts require maintaining cleanliness and adequate ventilation of indoor spaces in the Islamic boarding schools’s environment. However, if confirmed, an integrated and consistent facility-based and community-based effort addressing prevention, early detection, and management of *M. tuberculosis* infection should be further investigated and strengthened for control of TB among young children (Hou et al., 2020).

3.2. Relationship between Knowledge, Attitudes, and Behavior

The table below is the result of a statistical analysis of the relationship between knowledge, attitudes, and behavior regarding tuberculosis in the two Islamic boarding schools, both at the Jamiyyah Islamiyyah and Darul Muttaqien, in 2023.

Table 2. *The statistical analysis of the relationship between knowledge, attitudes, and behavior regarding tuberculosis in the two Islamic boarding schools at the Jamiyyah Islamiyyah and Darul Muttaqien in 2023.*

No.	Variable	Mean	Standard Deviasi	p-value
1.	Score of Knowledge	31.00	16.17	0.002*
	Jamiyyah Islamiyah Darul Muttaqien	42.56	7.35	0.011*
2.	Score of Attitude and Behavior about tb			
	Jamiyyah Islamiyah Darul Muttaqien	45.27 45.63	3.787 4.106	0.007* 0.007*

*: significance

The knowledge level assessment includes 15 questions regarding TB information, sources of information, severity level, mode of transmission, signs and symptoms, length of exposure to the disease, segments of society affected by TB, and treatment methods. The component assessments were compiled and then tested using an unpaired (independent) T-test, resulting in a significant p-value or a mean difference in the level of knowledge between Islamic boarding schools Jamiyyah Islamiyah and Darul Muttaqien (0.002 and 0.011). The assessment of attitudes towards TB and treatment-seeking behavior consists of 5 outline questions regarding the respondent's feelings if he suffers from TB, the closest person to talk about TB with, actions if he suffers from TB, and actions if his closest family also suffers from TB. The variables were also added to obtain a significant p-value for respondents' attitudes and behavior at TB (0.007). Research on health behavior change examines how to help people engage in healthy behaviors to prevent the development or worsening of chronic disease and early mortality and to improve mental health and well-being (Davidson, 2021). Habit can be defined as a process whereby a cue automatically triggers an impulse to act based on cue–action associations learned through repeated performance; habitual behavior refers to action generated by this process (Gardner et al., 2019).

3.3. Environmental Health Quality Standard/Standard Baku Mutu Kesehatan Lingkungan (SBMKL) in Islamic boarding schools

These are the SBMKL at the locations (non-AC classroom, mosque, bedroom, corridor):

Table 3. SBMKL Jamiyyah Islamiyyah Islamic Boarding School, Tangerang Selatan, 2023 (without Poskestren)

No	Parameter	Range	Location	Results	Explanation
1	Temperature	(18-30 C)	Mosque	32,4**	
			Male dormitory	33,1**	
			Non-AC classroom	32,3**	
			Corridor	0	Not measured
2	Lighting	(Min. 60 Lux)	Mosque	64,13*	
			Male dormitory	87,65*	Lamp switch on
			Non-AC classroom	10,1***	Lamp switch off
			Corridor	69,98*	
3	Humidity	40-60 %Rh	Mosque	289*	
			Male dormitory	56*	
			Non-AC classroom	57*	
			Corridor	55*	
4	Ventilation flow	0,15-0,25 m/second	Corridor	0	Not measured
			Mosque	0,54**	
			Male dormitory	0,46**	
			Non-AC classroom	1,23**	

Table 3 continued...

No	Parameter	Range	Location	Results	Explanation
5	PM ₁₀	70 ug/m ³	Mosque	61*	
			Male dormitory	59*	
			Non-AC classroom	48*	
			Corridor	50*	
6	PM _{2,5}	25 ug/m ³	Mosque	39**	
			Male dormitory	37**	
			Non-AC classroom	32**	
			Corridor	31,5**	
7	Noise level	55 dB(A)	Mosque	65,75**	
			Male dormitory	54,51*	
			Non-AC classroom	56,41**	
			Corridor		Not measured

*: standardized

** : exceed quality standard

***: not standardized

Indoor air quality measurements consist of 7 parameters, including temperature, lighting, humidity, ventilation rate, PM₁₀, PM_{2,5}, and noise, with examinations in mosques, men's dormitory rooms, and non-AC classrooms. In lighting measurements, only the men's dormitory room, when the lights are off, does not meet the standard (10.1 Lux). When checking the humidity, all rooms meet quality standards. When measuring ventilation rates, all rooms exceed the quality standard (0.46-1.23 m/sec). All rooms in PM_{2,5} measurements exceed the quality standard (>25 ug/m³). In noise measurements, men's dormitory rooms meet the quality standards (54.2 and 54.51 dB (A)), while mosques and non-AC classrooms exceed the quality standards of 65.75 and 56.41 dB (A).

Table 4. SBMKL Darul Muttaqien Islamic Boarding School, Bogor 2023 (with Poskestren)

No	Parameter	Range	Location	Result
1	Temperature	(18-30° C)	Mosque	35**
			Female Dormitory	33,9**
			Non-AC Classroom	35**
			Corridor	36,5**
2	Lighting	(Min. 60 Lux)	Mosque	277,43*
			Female Dormitory	38,2***
			Non-AC Classroom	237,22*
			Corridor	6477,37*

Table 4 continued...

No	Parameter	Range	Location	Result
3	Humidity	40-60 %Rh	Mosque	39*
			Female Dormitory	44*
			Non-AC	
			Classroom	42**
			Corridor	37*
4	Ventilation flow	0,15-0,25 m/second	Mosque	2,65**
			Female Dormitory	0,33**
			Non-AC	
			Classroom	0,38**
			Corridor	Not measured
5	PM10	70 ug/m ³	Mosque	65*
			Female Dormitory	50*
			Non-AC	
			Classroom	47*
			Corridor	78**
6	PM2,5	25 ug/m ³	Mosque	39**
			Female Dormitory	30**
			Non-AC	
			Classroom	30**
			Corridor	43**
7	Noise level	55 dB(A)	Mosque	62,25**
			Female Dormitory	61,33**
			Non-AC	
			Classroom	48,4*
			Corridor	52,04*

standardized

** : exceed quality standard

*** : not standardized

Table 4 results from SBMKL measurements at Islamic boarding schools Darul Muttaqien. Temperature measurements in all rooms exceed quality standards. The lighting in the women's room does not meet quality standards, namely 38.2 Lux; the ventilation rate in all rooms exceeds quality standards. PM10 in the corridor exceeds quality standards. Namely, 78 ug/m³, as well as PM_{2,5} in all rooms, exceeds quality standards. The only rooms that meet quality standards for noise measurements are classrooms and corridors.

In 2020, the Ministry of Environment and Forestry issued Regulation of the Minister of

Environment and Forestry number 14 of 2020 concerning the Air Pollution Standard Index, which is a replacement for the Minister of Environment Decree no. 45 of 1997 concerning Calculation and Reporting and Information on Standard Air Pollution Indexes, including PM₁₀ and PM_{2.5} (Chaniago et al., 2020). Other physical examinations are supported by checking temperature, lighting, humidity, ventilation rate, and noise. The impact of air pollutants on health in and around the house can occur both directly and indirectly. Chronic bronchitis, Chronic Obstructive Pulmonary Disease (COPD), lung cancer, Low Birth Weight (LBW) deaths, deaths of babies less than one week old, otitis media and ARI, and tuberculosis are often found in environments with poor indoor air quality. Therefore, the public should be educated on these health efforts, including increasing air circulation, lighting as needed, opening windows, installing humidity equipment exhaust fans, regulating room layout, and using air conditioning according to the rules, namely keeping doors or windows open as a means of circulation before turning the AC back on in the room (Peraturan Menteri Kesehatan Republik Indonesia Nomor 1077/MENKES/PER/V/2011 Tentang Pedoman Penyehatan Udara Dalam Ruang Rumah, 2011).

According to in-depth interviews, preventive action for all types of diseases, not only tuberculosis, at an early stage is, of course, through teaching about health in these two Islamic boarding schools' environments. We should pay more attention to health education in schools and raise awareness among teachers and students about tuberculosis (You et al., 2019). The additional risk of TB due to exposure in the dorm room should be taken into account in planning TB prevention and control in boarding schools (Pan et al., 2019). Latent TB infection (LTI) prevention can be managed by controlling risk factors and leading a healthy and hygienic lifestyle in a clean environment and surroundings, which particularly needs to be done in Islamic boarding schools (Dinatha & Setyoningrum, 2022). At Islamic boarding schools, Jam'iyah Islamiyyah, the teachers convey matters related to the importance of health. In Islamic boarding schools' lives, sanitation, which is a means of cleaning Islamic boarding schools, is available in the clean water category. Food hygienic supervision needs to be improved, considering the environmental demands that every activity is always carried out together (in congregation) and the availability of food served in large quantities at once, so there is a need for better culinary logistics management arrangements because the process of disease transmission will have more potential occurs if they do not pay attention to personal ownership, cleanliness of the cutlery used, selection of food ingredients with good nutritional value, processing, to serving the food. At Darul Muttaqien Islamic Boarding School, the teachers convey matters related to the importance of health, emphasizing applying it to the environment. The facilities and size of Islamic boarding schools really support the cleanliness and healthy patterns of the Islamic boarding school environment. As the main tool in maintaining health and cleanliness, water is very clearly abundant and maintains its ecosystem and hygienic conditions. In fact, at certain times, Islamic boarding schools contribute water to local residents and become places where local residents can get clean water. Fiqh and moral subjects emphasize the need to throw trash in its place. In front of each building and in locations that are easily accessible to students, there are special water taps for washing hands, and are well maintained. The process of maintaining cleanliness is also carried out with well-maintained bathrooms, neatly growing trees and building locations that seem to blend with the natural surroundings. The canteen and place for students to eat are in a condition that is integrated with beautiful nature and the place to eat is well maintained and maintained. Concern for the environment has led to the Darul Muttaqien receiving the appreciation of the Cleanest Islamic

Boarding School in West Java 2023 (Ahmad, 2022). It is also impacted by the *kyai* leadership, which has a similar vision and mission in achieving the goals that have been set. Experts have developed and explained leadership theory. In his leadership model in Islamic boarding schools, *kyai* applies individual and collective leadership models (Kurniawan et al., 2022).

Although the risk factors for tuberculosis in Indonesia are smoking, malnutrition, and diabetes mellitus (Kementrian Kesehatan Republik Indonesia (Kemenkes RI), 2020), maintaining a healthy environment will be an important factor in how someone gets air circulation, lighting, and a livable place to live. Because students are required to live, Islamic boarding schools are also a place for them to live (*Mondok*), so the criteria for a healthy residence will be an important consideration for the continuity of the learning process by ensuring that the rooms receive sufficient sunlight and have good air circulation. So that the room gets enough sunlight and air, you should open the windows regularly in the morning and dry the mattress or mat regularly so that it doesn't get damp (Santi et al., 2023). Maintaining a healthy environment cannot be separated from good habits in waste management because if waste is not managed properly (piled up for a long period of time), it can cause a decrease in air quality (Dinas Lingkungan Hidup dan Kebersihan Kabupaten Bandung 2018), or not getting fresh air as it should. Waste is at potential risk of air pollution from the decomposition process and particulates, which can be spread to indoor/outdoor areas. Garbage produces methane gas, which can be stored as dangerous particulate matter if it sticks to indoor walls. Methane gas is a Greenhouse Gas (GHG) that can cause a greenhouse effect, which is the cause of global warming. There are approximately 450 landfills in big cities with an open dumping system, and only a small portion of them have been developed into controlled landfills. The potential waste that can be produced from 45 large cities in Indonesia reaches 4 million tons/year. The potential for methane gas that can be produced reaches 11,390 tons of CH₄ / year or the equivalent of 239,199 tons of CO₂ / year. This amount is 64% of the total waste emissions from 10 big cities, including Jakarta, Surabaya, Bandung, Medan, Semarang, Palembang Makasar, Bekasi, Depok, and Tangerang (Herlambang et al., 2010).

Jam'iyyah Islamiyyah Islamic Boarding School provides daily officers whose function is to transport rubbish. They come twice a day, every morning and afternoon, and those who come in the morning carry rubbish in the front area while in the afternoon in the back area. It's just that this is limited to transporting, and there is no waste sorting. As for the Darul Muttaqien Islamic Boarding School, they provide rubbish bins in every corner, and when it is full of rubbish, it will be taken away by the Islamic boarding school's cleaning staff on a regular basis. Both of those Islamic boarding schools claimed that waste is a problem that includes disturbing comfort, beauty, health, and traffic.

According to the support from the *kyai* and *ustadz* in handling this waste, at Jam'iyyah Islamiyyah Islamic Boarding School, the organization of students in waste management is carried out by each student with the organization by the management. Indeed, there are still deficiencies in terms of sanitation facilities and infrastructure, as well as the adequacy of bathing places and their maintenance. There is no balance between the ratio of the number of students and the facilities available. The facilities are still relatively minimal compared to the number of students. The location is also not very large, with buildings crowded together, and the availability of natural landscape is relatively minimal. At Darul Muttaqien Islamic Boarding School, teachers support waste management by teaching and organizing students in waste management, which is carried

out by each student within the organization and by the management. Senior *santri* are the administrators of each *santri* community in each building. They also participate in maintaining a healthy environment.

In terms of waste management methods, Jam'iyyah Islamiyyah applies an individual basis, namely that each individual is responsible for waste, but it is still limited in the form of appeals. In general, awareness of cleanliness is still not fully entrenched. The student organization is still not functioning optimally. Likewise at Darul Muttaqien, the method of managing waste is individual. That is, each individual is responsible for waste. Apart from the appeal, the realization that the Islamic boarding school's environment must always be clean from rubbish. Some special officers take care of this, in addition to the participation of students as a whole.

Regarding the use of waste management media, those two Islamic boarding schools use pamphlets to raise awareness or attention to waste and slogans about cleanliness. Islamic boarding schools Darul Muttaqien implements slogans about cleanliness, appeals, and control of the *ustadz*, namely "Cleanliness is part of Faith", "Clean body and soul is the habit of santri"

Real actions carried out by Jam'iyyah Islamiyah include providing rubbish bins, morning and afternoon cleaning staff, daily cleaning pickets, seminars on health and environmental cleanliness, and cleaning competitions. However, limited land and a relatively small location mean that hygiene management and the principles of maintaining health cannot be fully implemented. Another thing is that the monthly fee per student is no more than IDR 750 thousand per month for schools and dormitories. This is very different from Islamic boarding schools, such as Darul Muttaqin, which require IDR 1,700 thousand per month. The concrete action that is somewhat different from the Islamic boarding schools Darul Muttaqien is the food concentrated in one place with individual portions and not allowed to be brought into the room, making the food hygienic and free from bacteria. Islamic boarding schools also provide doctors for *santri* health services in *Puskestren*.

Islamic boarding schools are not only centers for religious-based learning with a focus on studying various materials but also on building personal characters. Islamic boarding schools have three functions: education, propaganda, and community empowerment (Heriyadi & Iqbal, 2022). The first main purpose of the Islamic boarding school was to prepare students to explore and master religious knowledge (*tafaqqahu fi al-dīn*), the institution of *ulama* cadre (caderitation of *ulama*), and the place of the teaching of religious knowledge (transfer of Islamic knowledge), maintaining Islamic traditions and Islamic character building (Fakhrurrazi et al., 2021). Islamic boarding schools' support system and facilities help the *santri* achieve a respectable position in society. *Islamic boarding schools* act as social reformers and such educational institutions that can serve as cornerstones for bringing a change in society (Assa'idi, 2021). This activity will run well if it also pays attention to environmental health aspects so that it will synergize with the success of the students for totality and quality in accepting, understanding, and applying all the scientific disciplines taught at the Islamic boarding school. One of the supporting capacities is to activate the existence of health posts and health centers as stated in the Regulation of the Minister of Health of the Republic of Indonesia (*Permenkes*) Number 1 of 2013 concerning Guidelines for the Implementation and Development of *Poskestren*. In this advocacy, it is stated that in order to accelerate the achievement of the vision of a healthy, independent, and just society, various efforts have been made, including increasing the role of Islamic boarding schools in mobilizing the community to develop health efforts based on community resources. Community empowerment

in Islamic boarding schools is a facilitation effort, so *santris* knows the problems they find, plan, and solve by utilizing local potential according to local situations, conditions, and needs. It is hoped that these facilitation efforts can also develop the ability of *santris* to become pioneers/actors and leaders who can mobilize society based on the principles of independence and togetherness. The Poskestren and Puskestren's existence will help expand the scope of *Puskesmas*'s performance. This system should be effective, efficient, and accountable, so that is why a structured organizational arrangement is mandatory. By placing health care in schools, a site that is convenient and familiar to youth and their families, SBHCs enable communities that have poorer access to care—including low-income, immigrant, and rural communities—to easily access these services. This helps eliminate barriers to care, such as costs, transportation, and trust, that traditionally prevent underserved communities, especially adolescents, from using the healthcare system (Love et al., 2019). Future research and development could improve school health operational infrastructures, strategic plans, policies, funding, and appropriate advocacy among collaborating local, state, national, and international organizations (Kolbe, 2019).

This TB prevention effort is in synergy with existing policy umbrellas at the national level, such as the 2020-2024 National Medium Term Development Plan, Minimum Service Standards (SPM) in the health sector in accordance with Minister of Health Regulation No. 4 of 2019 or Minister of Home Affairs Regulation No. 100 of 2018, Strategic Plan Ministry of Health of the Republic of Indonesia for 2020-2024 as well as the Minister of Health Regulation which regulates the management of Tuberculosis in Indonesia. The operationalization of this activity strategy is in the activity of carrying out active case finding in congregate settings such as prisons/remand centers, closed mines, refugee barracks, dormitories and islamic boarding schools, with the sub-activity namely Preparing Technical Guidelines for Tuberculosis Management for Dormitories/Pantis and islamic boarding schools at the implementation level ministries of health, religion and social affairs which is carried out twice per year, Socialization of Technical Guidelines for Tuberculosis Management for Dormitories/Pantis with *islamic* boarding schools at the implementation level of the 3 ministries and provincial, district and city regional governments which is carried out once/year during 2020-2024, Implementation Tuberculosis Management for Dormitories/Pantis with islamic boarding schools at the Dormitory/Pantis and islamic boarding schools implementation level in the 2020-2024 period, and Active Monitoring and Evaluation of case finding at the implementation level of the relevant ministries and regional governments which is carried out once/year during 2020-2024 (Kementrian Kesehatan Republik Indonesia (Kemenkes RI), 2020). With this special discussion regarding TB management in Islamic boarding schools, it is hoped that the *poskestren*'s function will continue as a forum for programmed disease prevention efforts and be in synergy with Indonesia's SDGs roadmap towards 2030.

The success of achieving health development is not only determined by the efforts of the health sector but is also influenced by the efforts and positive contributions of various other development sectors, including the private sector and society. Based on Presidential Regulation Number 67 of 2021, increasing the role of communities, stakeholders, and other multi-sectors in TB control is carried out through the formation of partnership platforms. The partnership is a collaboration between the TB control program and related government institutions, service provider stakeholders, and community organizations based on three principles, namely equality, openness, and mutual benefit. Minister of Health Regulation Number 67 of 2016 also states that

increasing TB partnerships is one of the national strategies for controlling TB. Partnership in an Islamic boarding school is a synergistic collaboration between two or more parties to carry out activities based on equality, openness, and mutual benefit (providing benefits) in order to achieve the goal of success in a healthy Islamic boarding school (Kementrian Kesehatan Republik Indonesia (Kemenkes RI), 2020).

CONCLUSION

Activating *Poskestren* for Islamic boarding schools provides a better impact in implementing clean and healthy living behavior and taking steps to prevent disease, especially TB. Appreciation to Darul Muttaqien Islamic Boarding School as the Cleanest Islamic boarding school in West Java 2023 proved that learning clean and healthy living behavior can be implemented in daily activities in Islamic boarding schools. The Islamic boarding schools have been carried out and have an effort to make efforts to live a clean life as safe as the *sunnah*. However, it is necessary to optimize the role of efforts to anticipate an increase in TB cases from environmental sanitation management in those two Islamic boarding schools, as well as sanitation and hygiene activities, in the implementation of comprehensive environmental health. The *Poskestren* activities that have been carried out have been able to become a modality for optimally implementing environmental health, such as waste management, which can prevent air pollution and also cause contamination, which has an impact on the distribution of particulates as well as clean water management which creates efficiency in recirculation which can utilize remaining water and everything that is needed. Likewise, waste water management and clean and healthy living behavior, both in terms of hygiene and sanitation, so that preventive efforts minimize the potential risk of the spread of tuberculosis in Jam'iyyah Islamiyyah and Darul Muttaqien.

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