

Safety and Health Aspects in Education at Islamic Boarding Schools: An Exploratory Study

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ABSTRACT

Introduction: In contrast to non-residential schools, Islamic boarding schools, also known as pesantrens, operate as residential educational establishments where students live, study, and participate in everyday activities in communal settings. This presents complicated safety and health issues. There is still little empirical data on how safety and health are seen and handled in pesantren, despite its increasing importance in national educational systems. Thus, by analyzing four interconnected elements structural and environmental conditions, safety knowledge, safety behavior, and social support that are essential to creating a secure and long-lasting learning environment in residential education settings.

Objective: this study seeks to investigate stakeholders' perceptions of safety and health in pesantren.

Methods: A qualitative research design was employed to gain in-depth insights into how safety and health are perceived and managed in pesantren. Data were collected through semi-structured interviews to capture nuanced experiences and contextual understanding. The study involved 10 informants, all of whom are pesantren administrators responsible for student affairs and facilities management.

Results: Their perspectives provide a comprehensive overview of the current practices, challenges, and opportunities related to the implementation of safety and health measures in Islamic boarding schools. Overall, this study highlights the need for systematic safety education, structured guidelines, and capacity building for pesantren administrators.

Conclusions: The insights obtained can serve as a foundation for developing context-appropriate safety management initiatives and future interventions aimed at strengthening safety culture in Islamic boarding schools.

Keywords : Education, Islamic boarding School, Safety aspects

INTRODUCTION

Islamic boarding schools, or pesantren, represent one of the oldest and most influential educational institutions in Indonesia. As residential-based learning environments, pesantren integrate academic, religious, and social activities within a single ecosystem where students live, study, and interact continuously. This unique characteristic distinguishes pesantren from conventional schools and creates a complex setting in which safety and health risks may emerge more dynamically (Azra, 2015). Educational institutions such as Islamic boarding schools also have potential hazards, such as the case of a fire at the Karawang Islamic boarding school that resulted in fatalities and injuries. The fire was caused by an electrical short circuit in a damaged fan (Rahmawati, 2022). Recently, on September 29, 2025, at the Al Khoziny Islamic boarding school in Sidoarjo, East Java, a three-story mosque collapsed while students were performing the afternoon prayer, causing dozens of deaths and injuries due to construction failure during renovation (Gustati, 2025). In addition to these two cases, there have been many other reports of accidents at Islamic boarding schools in various regions of Indonesia, but there are no statistical records to report.

From health perspective, students at Islamic boarding schools also often experience health problems such as pulmonary tuberculosis, upper respiratory tract infections, diarrhea, and skin diseases (Sunnyo et al., 2023). Due to the above issues, Islamic boarding schools are not immune to safety and health problems. Ensuring a safe and healthy learning environment in such institutions is essential not only for preventing injuries and illnesses but also for supporting students' overall well-being and educational achievement.

Data shows that the school environment poses accident and health risks to the entire community, including students. This is influenced by the activities carried out, the characteristics of individuals at school, the layout of rooms, unsafe areas, and the existing culture of occupational safety and health (Shafira et al., 2025). Most of them only have a general understanding of occupational safety and health and lack other fundamental knowledge. Not all schools provide adequate occupational safety and health instruction during student practicums, resulting in many accidents. Islamic boarding schools have more student activities than public schools, which can lead to work accidents (PERTIWI & Febrianti, 2022).

Pesantren function as educational institutions within Islamic religious communities. At pesantren, students continue their understanding of Islam in an environment similar to junior high school. All students are required to live on campus during the academic year, so they need to be independent because they are far from parental supervision. Even though they are in the process of self-development, students still need attention regarding their welfare. This understanding can provide a positive perspective for pesantren administrators regarding occupational safety and health (OSH), and encourage them to pay more attention to the safety of students. In addition, individual attitudes also play an important role in OSH management (El-Ghifary et al., 2024).

Safety and health in educational settings have long been recognized as critical components of quality education. International frameworks emphasize that safe learning environments are fundamental to promoting students' physical, mental, and social development (WHO, 2021). School safety studies highlight four major domains that contribute to a comprehensive safety climate: structural and environmental safety, safety knowledge, safety behavior, and social support (Phuspa et al., 2025). These domains are equally relevant for pesantren, where high-density dormitories, communal facilities, and continuous student activities may heighten vulnerability to hazards such as fire, infectious diseases, inadequate sanitation, and behavioral risks. Islamic boarding schools have more activities than conventional schools, which has the potential to cause work accidents. In schools, there is also the possibility of accidents and health problems for everyone, including students, which can be influenced by school activities, student character, room layout, uncomfortable areas, and work safety and health culture (PERTIWI & Febrianti, 2022).

Despite their importance, empirical research on safety and health practices within pesantren remains limited. Existing studies predominantly discuss educational practices, religious pedagogy, or sociocultural aspects, with minimal exploration of systematic safety management or risk prevention strategies (Muafiah et al., 2022). Given the diversity of pesantren infrastructure and governance models, understanding how administrators perceive and practice safety is essential for developing context-specific interventions.

This exploratory qualitative study aims to examine pesantren administrators' understanding of safety and health aspects within the educational environment. Focusing on four key dimensions (structural and environmental conditions, safety knowledge, safety behavior, and social support) the study provides foundational insights that can inform policy development, institutional guidelines, and future safety management systems tailored to Islamic boarding schools.

MATERIALS AND METHODS

This study employed a descriptive research design with a qualitative approach to explore the understanding of safety and health aspects within the educational context of Islamic boarding schools. A qualitative design was selected to capture in-depth insights, contextual nuances, and the lived experiences of pesantren administrators in managing safety and health within their institutions. Data were collected through semi-structured interviews, which allowed flexibility for probing and clarifying participants' perspectives while maintaining consistency across key topics. The interviews were conducted with 10 informants who were administrators responsible for student affairs, facilities, and daily operational management in 6 Islamic boarding schools. To ensure diversity and representativeness, informants were selected from pesantren located on four major islands in Indonesia: Java, Sumatera, Kalimantan, and Sulawesi. This geographical spread enabled the study to capture variations in safety practices influenced by institutional size, environmental conditions, and regional contexts.



Figure 1. Location Distribution of Informants

The data collection period spanned from December 2024 to March 2025. All interviews were conducted semi-structured, either face-to-face or online, depending on the accessibility of the pesantren and logistical considerations. Each interview lasted between 45 and 60 minutes and was audio-recorded with participants' consent. The informants being asked about 10 questions of safety and health aspects at Islamic Boarding School context. Field notes were also taken to document contextual details and non-verbal cues considered relevant to the analysis.

The collected data were analyzed using thematic analysis, following the phases outlined by Bingham: (1) organizing the data, (2) sorting the data, (3) understanding the data, (4) interpreting the data, and (5) explaining the data (Bingham, 2023). This analytical approach enabled the identification of patterns and categories related to the four key aspects of safety and health examined

in the study: structural and environmental factors, safety knowledge, safety behavior, and social support. To ensure credibility, data coding and theme development were cross-checked by multiple researchers. This methodological approach allowed for a comprehensive understanding of safety and health perceptions within Islamic boarding schools across different regions in Indonesia.

RESULTS

Organizing the Data

In the first stage, all interview recordings were transcribed verbatim and organized into a structured dataset. Following transcription, the researchers organized the material according to each informant to allow clear identification of responses related to safety and health, structural environments, safety behavior, and social support. These four categories were determined deductively based on the results of previous literature reviews(Pluspa et al., 2025). Field notes from researcher observations were combined with the transcripts to provide contextual enrichment. This systematic organization ensured that the dataset was ready for detailed analysis. Additionally, the transcribed data served as the foundation for subsequent classification and thematic identification processes. This organization facilitated a comprehensive overview of participants' insights across diverse Islamic Boarding School.

Sorting the Data

After transcription, the research team conducted systematic classification of the data to identify emerging patterns and themes. Through open coding, a total of 29 codes or keywords were identified across all transcripts. Codes were grouped based on similarities and relevance to the four predefined aspects of safety and health. The sorting process reduced data complexity and allowed the researchers to cluster similar meanings into coherent categories. This stage also reflected the initial application of deductive thematic analysis based on predetermined concepts related to OSH in Islamic boarding schools.

Table 1 below explains the 29 keywords identified in the coding process.

Table 1. Coding result

No	Keywords	Aspects
1	Fire hazard awareness	Safety and Health
2	Sanitation and hygiene	
3	Communicable disease prevention	
4	First aid readiness	
5	Waste management practices	
6	Emergency preparedness	
7	Health education activities	
8	Personal protective practices	
9	Dormitory density	Structural Environments
10	Classroom ventilation	
11	Bathroom and ablution facility safety	
12	Lighting and electrical safety	
13	Building maintenance	
14	Pathway and accessibility safety	
15	Environmental cleanliness	
16	Compliance with safety rules	Safety Behavior
17	Unsafe student actions	
18	Use of prohibited items	
19	Smoking behavior	
20	Violence or bullying incidents	

21	Reporting unsafe conditions	
22	Participation in safety drills	
23	Habit-building of safe practices	
24	Teacher supervision	Social Support
25	Peer support in safety practices	
26	Collaboration among administrators	
27	Communication of safety information	
28	Involvement of student leaders	
29	Support from external health and safety agencies	

Understanding the Data

The third stage involved in-depth exploration of the categorized data to identify underlying meanings. Keywords that refer to **safety** aspects include **fire hazard awareness**, **Emergency preparedness**, **pathway and accessibility safety**, and **first aid readiness**. as there are many fire incidents in Islamic boarding school environments. This keyword is summarized from the following statement by an informant: "*This Islamic boarding school itself experienced a fire incident, maybe 3 years ago, if I'm not mistaken, and we learned from that, perhaps to be more prepared, including providing emergency exit and the first aid to response such disaster.*" Keywords that refer to **health education activities** and **personal protective practices** had mentioned by another informant in the context of another case, "*Students also have lack education about the problems caused by careless electrical management, such as the diesel engine. They were pretty confident. Even in the rain, they still work without personal protection equipment*". Furthermore, regarding health issues in Islamic boarding schools, the author found the keywords: **sanitation and hygiene**, **communicable disease prevention**, and **waste management practices**. These three things were conveyed by one informant when discussing the condition of the Islamic boarding school environment's cleanliness which affects the **health** of students, "*Personal hygiene and sanitation facilities are in place, but honestly, the quality isn't up to standard due to the large number of users. And because of this large number of users, disease transmission often occurs, which is difficult to prevent. The water used is also single-use and hasn't been managed efficiently due to limited resources.*"

Informants revealed concerns about **dormitory density**, **classroom ventilation**, **building maintenance**, were highlighting **structural environmental** vulnerabilities. An informant acknowledged that there was overcrowding in the student dormitory, "*Since we have a lot of students, the rooms are definitely crowded. The ventilation in the classrooms is good. As for maintenance... we have an annual budget, but sometimes it's not enough if there are a lot of repairs.*". Meanwhile, the keywords of **bathroom and ablution facility safety**, **lighting and electrical safety**, **environmental cleanliness** are already implied by the informants in the previous paragraph.

Keywords that lead to **safe and unsafe behavior** that often occurs in the Islamic boarding school environment were mentioned by informants, including: **Compliance with safety rules**, **Use of prohibited items**, **Smoking behavior**. As an informant said, "*There are many children, some of whom are easy to control, while others tend to break rules, for example, using prohibited items like cigarettes. Yes, actually, some of the ustaz are smokers, but none of the teachers smoke inside the boarding school.*" Keyword of **unsafe student actions** are mentioned by previous informant who told about the behavior of diesel operator. As in recent news reports about **bullying** in educational environments, several informants also admitted that this also occurs in Islamic boarding schools, and the victims were usually hesitate to **report the unsafe conditions**, "*As for bullying, it does happen. But there aren't many reports of it. Perhaps because there are so many*

students on guard, it's not that common. CCTV cameras are now widely installed around the boarding school.” On the other hand safe behavior is implied in the following keywords: **Participation in safety drills** and **Habit-building of safe practices**, “*We have safety SOPs, and we've shared SOPs for fire prevention at mosques. We also train the students, perhaps not daily but only once a semester. That's one way to build safe habits among students.*”

Keywords that refer to **social or external support** including **health and safety agencies**; and **communication of safety information**, “*Regarding the previous fire, we've coordinated with the electricity company (PLN) and the police. However, for other disasters, we haven't had a specific MoU with the Regional Disaster Management Agency (BPBD) or the social services. The most we've dealt with is the hospital, and that's because it's nearby. The health service has held several programs here, but none specifically focused on safety at the boarding school.*” The informant acknowledged the importance of coordination with external parties, but given the large number of Islamic boarding school members, the school should have good internal coordination to ensure safety within the school. This internal coordination includes: **Teacher supervision, Peer support in safety practices, Collaboration among administrators, and Involvement of student leaders**, “*It is indeed necessary to create an organization that focuses on implementing safety in Islamic boarding schools, at least providing training to class leaders and teachers, so that they collaborate with each other in implementing safety in Islamic boarding schools, with teacher supervision of course.*” Administrators also described varying levels of safety awareness among students, which were shaped by routine practices and institutional guidance. This stage clarified how daily experiences influenced stakeholders' perceptions of safety and health.

Interpreting the Data

In this stage, thematic patterns were constructed by connecting categories and identifying relationships among them. Four major themes emerged: (1) the need for improved structural and environmental safety, (2) inconsistent safety knowledge among students, (3) the importance of fostering safety behavior through discipline and modeling, and (4) the significance of social support from peers, teachers, and administrators. An additional theme concerning security issues, such as violence, theft, and disciplinary violations, was also interpreted as integral to the overall safety climate, highlighting the role of monitoring and CCTV systems.

Explaining the Data

The final stage involved articulating how the themes collectively reflect the safety and health landscape in pesantren. The results show that pesantren environments require comprehensive OSH strategies due to their dense population and communal activity patterns. Safety practices are shaped not only by infrastructure and facilities but also by cultural norms and social interactions within the boarding school system. Administrators emphasized the importance of early safety education, supportive supervision, and structured safety programs to minimize risks. The findings illustrate the interconnectedness of physical environment, behavioral guidance, and institutional support in creating a safe and healthy educational environment.

DISCUSSION

This exploratory study examined safety and health aspects in Islamic boarding schools, focusing on safety and health, structural environments, safety behavior, and social support. The findings deepen our understanding of how pesantren administrators perceive and implement occupational safety and health (OSH) practices within residential education. These insights align with recent studies suggesting that educational settings must adopt comprehensive safety strategies to support well-being and learning outcomes (Stilwell et al., 2024). This Islamic boarding school has many students from various regions in Indonesia and has various workspaces and facilities such as a

hall, classrooms, a canteen, dormitories, a place for wudu (ablution), and bathrooms. Many people spend time in public places. Therefore, Occupational Health and Safety (OHS) must be implemented to prevent illness and workplace accidents(Nurlina et al., 2021).

The results show that safety and health practices in pesantren are primarily preventive and experience-based rather than institutionalized. Administrators demonstrated awareness of hazards including sanitation issues, fire risks, and communal disease exposure, yet lacked formal systems to ensure consistency. This resonates with research highlighting the importance of structured OSH frameworks in schools to reduce risks and promote safe learning environments(Phuspa et al., 2025). Regarding structural environments, overcrowded dormitories, shared sanitation facilities, and facility maintenance gaps were recurrent concerns. High-occupancy living conditions and continuous use of diverse spaces increase vulnerability to hazards(Lorentzen et al., 2022). These findings mirror broader education safety research that identifies physical infrastructure and environmental quality as key determinants of school safety(Tidjani, 2023). (Bradshaw et al., 2021). Although formal rules exist, compliance varies, and unsafe behaviors, such as smoking or rule violations, remain challenges. The role of safety behavior as a core component of safety culture is well-supported in recent occupational safety literature, which emphasizes that individual practices and compliance significantly influence safety performance in educational and workplace contexts(Santoso et al., 2025).

The findings also highlight the significance of social support in shaping safety culture. Strong supervision by teachers, peer encouragement, and institutional collaboration were identified as essential for promoting safety practices among students(Graham et al., 2023). Previous research in Islamic boarding schools similarly shows that personal support and involvement positively influence safety perceptions and behaviors(Phuspa et al., 2025). For example, perceptions of OSH are linked to knowledge and attitudes among boarding school teachers, reinforcing the need for social engagement in safety initiatives (Pertiwi et al., 2024).

An effective way to prevent workplace accidents is through a culture of occupational health and safety (OHS) awareness(Claxton et al., 2022). All parties involved must ensure that OHS is implemented correctly. In September 2015, the Sustainable Development Goals (SDGs) were adopted as a global development agreement that will run from 2016 to 2030. Supporting well-being and ensuring healthy lives for all ages is one of the SDGs. To achieve this, OSH socialization and training must be carried out from an early age. This is due to the fact that learning about personality formation and personality values such as honesty, discipline, health, safety, mutual respect, and respect has begun well in early adolescence(Mindhayani & Asih, 2022).

One of the factors that supports the achievement of educational goals is a successful learning process. Cultural heritage and norms interact directly with the learning process for intrinsic value(Fusco Girard & Vecco, 2021). Teaching and learning activities have promoted the application and transmission of these values since then. Therefore, it is very important in the learning process to make students feel interested and involved in the learning process. Educational facilities and infrastructure are very important to create the right atmosphere, because the quality of school management and infrastructure affects the learning process(Zainudin & Badrudin, 2023).

Overall, improving safety and health in pesantren requires a holistic approach integrating infrastructure, behavior, knowledge, and social systems. Strengthening safety culture through structured OSH frameworks, early education, and collaborative support mechanisms can contribute to safer and healthier learning environments(Rielander et al., 2024). These findings provide empirical foundations for developing digital safety assessment tools tailored to the unique context of Islamic boarding schools.

CONCLUSIONS

The current research shows that Islamic boarding schools function as complex residential educational settings where exposure to safety and health hazards is greatly increased by communal

living, dense populations, and a variety of facilities. The results show that the majority of safety and health procedures in pesantren are experience-based and preventive, heavily depending on informal routines rather than conventional Occupational Safety and Health (OSH) systems. Authorities stressed that the creation of a strong safety culture, which may be promoted by early safety education, constant supervision, and the integration of safety principles into character-building procedures, is just as important to effective risk prevention as having sufficient infrastructure. The relevance of monitoring systems as helpful preventive measures was highlighted by the identification of security-related issues, such as misconduct, violence, and disciplinary infractions, as significant elements of the overall safety climate.

All things considered, the study emphasizes the necessity of a comprehensive and situation-specific approach to health and safety in Islamic boarding schools that incorporates social support, infrastructure management, safety behavior, and security measures. By creating and evaluating digital safety assessment tools or structured safety management models specifically designed for pesantren environments, future study should go beyond exploratory analysis. It is also advised to conduct longitudinal and multi-site studies to assess how well these treatments work to improve health and safety outcomes and promote safety culture in a variety of Islamic boarding schools.

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Availability of data and materials

The author did not provide raw data in the form of transcripts of the interviews to protect the informants' privacy. The informants also did not give permission for the interviews to be published, as many institutions were mentioned in their statements.

Authors' contributions

SMP as the first author is responsible for leading the research and writing the research report until the dissemination of the research results, FHM as the second author is responsible for collecting data through interviews and conducting thematic analysis (coding), ER and AR as the third and fourth authors are responsible for reviewing the results of the content analysis and validating the research results.

Conflict of Interest

The authors declare that they have no conflicts of interest to disclose. This research was funded by Research and Innovation Bureau of Universitas Darussalam Gontor which had no role in study design, data collection, or interpretation.

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