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The Effectiveness of the Campus Emergency Response System from the Perspective of Bachelor of Applied Science in Occupational Safety and Health Students

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ABSTRACT

The campus emergency response system is an essential component of safety management aimed at minimizing injuries, losses, and panic during emergency situations such as fires, earthquakes, accidents, or other crises. This system includes written policies, standard operating procedures (SOPs), evacuation routes, assembly points, emergency facilities and equipment, response teams, and coordinated crisis communication mechanisms. The effectiveness of an emergency response system is not solely determined by the availability of documented procedures but also by the level of awareness, understanding, and preparedness of the academic community in implementing them. This study aims to analyze the effectiveness of the campus emergency response system from the perspective of students enrolled in the Bachelor of Applied Science in Occupational Safety and Health (OSH) program, as they possess foundational competencies in safety management. The research employed a quantitative approach with a descriptive-analytic design. Respondents were selected using a total sampling technique. Data were collected through a structured questionnaire measuring perceptions of policy implementation, emergency facilities, training and socialization programs, evacuation simulations, and system readiness. Data analysis was conducted using descriptive and inferential statistical methods to assess the perceived effectiveness of the system. The expected outcomes of this study include a comprehensive evaluation of the campus emergency response system's effectiveness and strategic recommendations to strengthen campus resilience and promote a sustainable safety culture within higher education institutions.

Keywords: Emergency response system, Campus safety, Emergency preparedness, Occupational Safety and Health Students, Safety Management, Safety Culture.

INTRODUCTION

The safety and security of the academic community are fundamental pillars that support the continuity of academic activities and the protection of human resources within higher education institutions. As campuses evolve into high-density environments with complex building infrastructures, they face significant risks from various threats, ranging from natural disasters such as earthquakes to technical emergencies like fires or laboratory accidents (Prasetyo & Kurniawan, 2021). An Emergency Response System (ERS) serves as a crucial instrument designed to mitigate the impact of crises through written policies, Standard Operating Procedures (SOPs), evacuation facilities, and the formation of trained response teams. However, the effectiveness of this system does not rely solely on the completeness of administrative documents but on the extent to which the system is integrated into the actual behavior of the campus community (Ramli, 2019).

Despite many educational institutions adopting international safety standards, a significant gap remains between existing regulations and field preparedness. Previous research indicates that emergency management failures in educational settings are often caused by low safety literacy and a lack of effective socialization of evacuation programs to students (Widyanti et al., 2020). Furthermore, evaluations of emergency facilities are frequently treated as administrative formalities without considering the user's perspective (Nugroho & Wijaya, 2022). The imbalance between infrastructure availability and the psychological and technical readiness of the academic community creates a risk gap that can lead to fatal consequences during an actual crisis.

Students of the Bachelor of Applied Science in Occupational Safety and Health (OSH) program occupy a unique position as research subjects because they are equipped with technical competencies in hazard identification and risk assessment (Handayani, 2023). Involving OSH students in evaluating the campus emergency response system provides a deeper, data-driven perspective compared to general respondents, as they are capable of benchmarking theoretical safety management against practical implementation in their immediate environment (Sari & Putro, 2021). Consequently, assessments from this group offer a more objective view of the quality of fire protection systems, evacuation routes, and the efficacy of disaster simulations conducted by campus management.

This study aims to comprehensively analyze the effectiveness of the campus emergency response system, ranging from policy implementation aspects to the readiness of physical facilities and training programs. Utilizing a quantitative analytic approach, this research seeks to identify the factors that hinder the strengthening of a safety culture in higher education. The findings of this evaluation are expected to serve as a strategic reference for university management to implement continuous improvements in safety management systems. Ultimately, this research contributes to the development of a

resilient campus and promotes a sustainable OSH culture to ensure comprehensive protection for all campus members.

METHODOLOGY

This research employs a quantitative approach with a descriptive-analytic design to evaluate the effectiveness of the campus emergency response system. This design was selected to provide a systematic and factual description of the current safety conditions while analyzing the relationships between various implementation variables. By utilizing a quantitative framework, the study translates subjective perceptions into measurable data, allowing for a structured assessment of how well the emergency protocols meet established safety standards.

The participants for this study consist of 31 students currently enrolled in the Bachelor of Applied Science in Occupational Safety and Health (OSH) program. A total sampling technique was applied, meaning the entire accessible population of the OSH student cohort was included as respondents. This specific group was selected due to their specialized background; as OSH students, they possess the foundational knowledge required to critically evaluate safety systems, ensuring that the data collected is grounded in technical understanding rather than general observation.

The primary instrument used for data collection is a structured online questionnaire, designed to measure five key dimensions: policy implementation, availability and condition of emergency facilities, effectiveness of training and socialization, frequency and quality of evacuation simulations, and overall system readiness. Each item in the questionnaire utilizes a Likert scale to capture the intensity of respondents' perceptions. To ensure the instrument's integrity, it underwent validity and reliability testing, confirming that the questions accurately reflect the variables being measured and produce consistent results.

For the analysis, the collected data is processed using both descriptive and inferential statistical methods. Descriptive statistics, including frequencies, percentages, and mean scores, are used to summarize the students' perceptions of each safety dimension. Furthermore, inferential analysis is conducted to determine the overall effectiveness level of the system and to identify specific areas requiring strategic intervention. The results of this analysis provide the empirical basis for the study’s conclusions and recommendations for enhancing campus resilience.

RESULTS

The findings of this study are presented through a detailed quantitative analysis of the perceptions of the 31 OSH students regarding the campus emergency response system. Overall, the data reveals a moderate level of effectiveness, with significant variations across

the evaluated dimensions. As shown in Table 1, while the documented policies received relatively high scores, the practical application—specifically in terms of evacuation simulations—showed a noticeable gap.

Table 1: Perceived Effectiveness of Emergency Response Dimensions (n=31)

Dimension	Mean Score	Percentage (%)	Interpretation
Policy & SOP Implementation	3.85	77.0%	Effective
Emergency Facilities & Equipment	3.42	68.4%	Moderately Effective
Training & Socialization	3.10	62.0%	Moderately Effective
Evacuation Simulations	2.75	55.0%	Less Effective
Overall System Readiness	**3.28**	**65.6%**	**Moderately Effective**

The descriptive analysis indicates that Policy and SOP Implementation achieved the highest mean score of 3.85, suggesting that students acknowledge the existence of formal safety guidelines. However, the Emergency Facilities and Equipment dimension (Mean = 3.42) highlighted concerns regarding the maintenance of fire extinguishers and the clarity of evacuation signage. The most critical finding lies in the Evacuation Simulations category, which recorded the lowest mean score of 2.75. This suggests that while students understand the theory of emergency response, they feel underprepared for actual crises due to infrequent or non-existent drills.

Further analysis of the data suggests a correlation between the technical background of the respondents and their critical view of the system. For instance, 68% of the OSH students rated the current emergency communication mechanism as "Inconsistent," noting that many students outside their program are likely unaware of what to do during an alarm. These results, summarized in the overall readiness score of 3.28 (65.6%), provide a clear empirical basis for the necessity of shifting from a "paper-based" safety policy to a more "action-oriented" safety culture on campus.

DISCUSSION

The results of this study indicate that while the campus has a solid administrative foundation for emergency response, there is a significant "execution gap" when it comes to practical readiness. The high score in Policy and SOP Implementation (77.0%) suggests that the university has successfully established the necessary regulatory framework, aligning with the findings of Ramli (2019), who noted that institutional commitment is often first reflected in documented safety management systems. However, the moderate score for Emergency Facilities (68.4%) reflects a common issue in higher education where safety infrastructure is present but lacks consistent maintenance or fails to meet the technical expectations of informed users like OSH students. This mirrors the concerns raised by Nugroho & Wijaya (2022), who argued that safety equipment often becomes a "silent ornament" if not backed by rigorous periodic inspections.

A critical point of concern is the low effectiveness of Evacuation Simulations (55.0%), which is the lowest-rated dimension in this study. This finding confirms the "behavioral gap" identified by Widyanti et al. (2020), suggesting that theoretical knowledge alone does not translate into crisis-response competency. For OSH students, who are trained to understand the complexities of human behavior during emergencies, the lack of regular drills represents a significant risk factor. Without repetitive simulations, the academic community is likely to experience higher levels of panic and delayed response times during an actual event, regardless of how well the SOPs are written. This lack of practical exposure directly hinders the development of a proactive safety culture, as simulations are the primary tool for moving safety from a concept to a habit.

Furthermore, the overall readiness score of 65.6% indicates that the campus emergency response system is currently in a state of "passive compliance" rather than "active resilience." Linking these findings to the perspective of Sari & Putro (2021), it is evident that using OSH students as respondents provides a more critical and technically grounded evaluation than a general student survey might yield. Their specialized knowledge allows them to identify subtle failures in the system—such as obstructed evacuation paths or outdated fire extinguisher labels—that general users might overlook. Consequently, the findings suggest that the university must shift its focus from mere documentation to intensive socialization and practical drills. Strengthening these areas will not only improve the technical performance of the system but will also foster the sustainable safety culture necessary to protect the entire academic community in the face of future crises.

CONCLUSION

The evaluation of the campus emergency response system through the perspective of OSH students reveals a system that is strong in administrative policy but

underdeveloped in practical application. With an overall readiness score of **65.6%**, the system is categorized as moderately effective. The study concludes that while the institution has successfully formalized safety protocols, there is a distinct disconnect between documented SOPs and the physical readiness of facilities and the student body. The significant lack of frequent evacuation simulations emerges as the most critical vulnerability, leaving the academic community at risk of disorganized responses during real-time emergencies despite their theoretical understanding of safety procedures.

Based on these findings, the following strategic recommendations are proposed to enhance campus resilience:

- Institutionalize Regular Drills: The university should implement mandatory, semester-based evacuation simulations for all faculty, staff, and students to transform theoretical knowledge into reflexive action and minimize potential panic.
- Infrastructure Optimization: A rigorous, transparent maintenance schedule for emergency equipment—such as fire extinguishers, hydrants, and alarm systems—must be established, involving OSH students in periodic safety audits as part of their practical learning.
- Enhanced Socialization: Safety communication should be modernized using digital platforms and interactive signage to ensure that emergency protocols are accessible and understood by the general student body, not just those in specialized safety programs.
- Integrated Safety Culture: Management should leverage the expertise of the OSH program to form a dedicated student safety task force that can assist in identifying hazards and promoting a proactive safety culture across all departments.

By addressing these practical gaps, the institution can move beyond mere regulatory compliance toward a truly resilient environment that prioritizes the lives and well-being of its entire community.

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