

Fire Safety Management of a Selected Government Hospital in Pasig City: An Assessment of Personnel Awareness and The Extent of Fire Safety Compliance

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Abstract

Hospital fire safety requires effective institutional protection systems and personnel capable of recognizing hazards and responding appropriately during emergencies. This study assessed fire safety awareness and the perceived extent of fire safety compliance among personnel of a selected Level 2 government hospital in Pasig City, Philippines, including differences according to demographic and professional characteristics, relationships between awareness and compliance, and challenges affecting fire safety management. A quantitative descriptive-evaluative, descriptive-comparative, and descriptive-correlational design was employed among 350 randomly sampled hospital personnel. Data were collected using a researcher-developed and modified questionnaire adapted from the Bureau of Fire Protection manual and analyzed using descriptive and inferential statistics. Personnel demonstrated generally favorable fire safety awareness and perceived a high extent of institutional compliance. Awareness was highest in hazardous materials management (WM = 3.44) and fire safety planning (WM = 3.43), while passive fire protection was lowest (WM = 2.97). Perceived compliance was likewise highest in hazardous materials management (WM = 3.27) and lowest in passive fire protection (WM = 2.87). Fire safety training and educational attainment were associated with differences in both awareness and perceived compliance, while age was associated with awareness. A significant positive relationship was found between awareness and perceived compliance. Challenges included equipment maintenance and resource limitations, irregular training, workplace hazards, obstructed exits, evacuation preparedness, and personnel accountability. The findings support continuous training, preventive maintenance, practical emergency exercises, evacuation preparedness, and periodic fire safety audits. The study aligns with SDG 3, SDG 11, and SDG 16 by supporting safer healthcare environments, resilient communities, and institutional safety. It contributes to public health, community, socio-economic, and institutional sustainability by strengthening hospital preparedness and operational resilience.

Keywords: Emergency Preparedness, Fire Safety Awareness, Fire Safety Compliance, Fire Safety Management, Government Hospital, Hazardous Materials Management, Hospital Personnel, Passive Fire Protection

1. Introduction

Hospitals are complex healthcare environments in which fire emergencies can threaten patients, personnel, visitors, infrastructure, and continuity of care. Their vulnerability arises from the presence of electrical and medical equipment, hazardous materials, oxygen supplies, and patients who may be critically ill, dependent on life-support equipment, or unable to evacuate independently. Effective hospital fire safety management therefore

requires both adequate physical protection systems and personnel who possess the awareness, preparedness, and competence necessary to respond appropriately during emergencies. Fire remains a significant public safety concern internationally and within healthcare institutions. Hospital fire incidents demonstrate that the consequences can be particularly severe when evacuation is difficult or when combustible and hazardous materials contribute to fire development. In the Philippines, major hospital fires have likewise resulted in fatalities, patient transfers, infrastructure damage, and disruption of healthcare services. These risks emphasize the importance of integrating fire safety programs, active and passive fire protection, emergency planning, hazardous materials management, personnel preparedness, and institutional compliance. Against this context, the present study assesses fire safety awareness and the perceived extent of fire safety compliance among personnel of a selected government hospital in Pasig City. It considers personnel characteristics, differences in awareness and perceived compliance, the relationship between these variables, and challenges affecting hospital fire safety management. The study consequently addresses fire safety as both an individual preparedness concern and an institutional responsibility within a healthcare environment.

Hospitals are generally perceived as places of safety and healing, yet their physical and operational complexity creates distinct fire risks. Electrical and medical equipment, hazardous materials, oxygen supplies, and patients with limited mobility increase the potential consequences of a fire. Unlike occupants of ordinary buildings, many hospital patients cannot evacuate independently or rapidly because of illness, mobility limitations, or dependence on medical equipment (Asghari & Azizi, 2024). Hospital fire safety therefore depends on appropriate physical protection systems together with knowledgeable and trained personnel capable of responding effectively during emergencies. Fire remains a substantial threat to life and property. In the United States, 1,388,000 fires were recorded in 2024, resulting in 3,920 civilian deaths, 11,780 civilian injuries, and 62 firefighter deaths (Hall, 2025). Healthcare facilities are similarly vulnerable because fires may originate from cooking equipment, electrical systems, appliances, or intentional acts. Although some incidents remain confined to their points of origin, fires that spread through healthcare facilities pose considerably greater risks to patients, personnel, and property. International hospital fire incidents further illustrate the consequences of inadequate preparedness. The 2011 fire at the Advanced Medical Research Institute Hospital in Dhakuria, India, caused numerous fatalities and demonstrated the difficulty of protecting and evacuating hospital occupants. Fires in intensive care units during the COVID-19 pandemic similarly highlighted the dangers associated with oxygen-rich healthcare environments (Wood et al., 2021). Such incidents emphasize the need for comprehensive prevention, preparedness, emergency response, and evacuation planning.

Hospital fire safety management involves interconnected components comprising fire safety programs, active fire protection, passive fire protection, fire safety planning, and hazardous materials management. Active fire protection includes equipment and systems such as alarms, smoke detectors, sprinklers, and portable fire extinguishers. Passive fire protection consists of structural features intended to contain or delay fire spread, including fire-resistant construction, compartmentation, and protected exits. Fire safety planning encompasses emergency procedures, evacuation arrangements, communication systems, and drills, while hazardous materials management concerns the safe storage, handling, segregation, and control of flammable and hazardous substances. The availability of these measures alone does not ensure effective preparedness. Hospital personnel must recognize fire hazards, understand their emergency roles, know evacuation procedures, and be capable of using available fire protection equipment. At the institutional level, fire safety compliance requires regular inspection, equipment maintenance, personnel training, emergency planning, and continuing evaluation (Agus Salim et al., 2023). Thus, personnel awareness and institutional implementation operate as complementary elements of hospital fire safety management. This relationship is particularly important in healthcare settings because effective emergency response depends on coordinated human and institutional capacity. Personnel knowledge supports the appropriate use of fire protection measures, while institutional systems provide the equipment, procedures, infrastructure, and organizational arrangements necessary for personnel to act effectively during an emergency.

Globally, persistent fire incidents demonstrate that improvements in fire prevention have not eliminated threats to life, property, and institutional operations. Healthcare facilities require heightened preparedness because their occupants include patients who may be unable to respond independently during emergencies. International hospital fires, particularly those involving intensive care environments and oxygen supplies, illustrate how healthcare-specific conditions can intensify fire risks and complicate evacuation. At the national level, the Philippines has experienced significant hospital fires. The 1998 Lung Center of the Philippines fire lasted approximately 13 hours and resulted in deaths, loss of medical records, and extensive infrastructure damage. In 2021, a fire at the Philippine General Hospital necessitated patient transfers and caused property damage. These incidents demonstrate that major healthcare institutions remain vulnerable despite their essential role in protecting public health. The Philippine regulatory framework for fire safety is anchored in Republic Act No. 9514 (2008), or the Fire Code of the Philippines of 2008, which establishes national requirements for fire prevention and suppression and the enforcement of standard fire prevention and safety measures. For hospitals, compliance has particular importance because effective fire safety must combine structural protection with the capacity of personnel to recognize hazards and respond appropriately. Within the local context, government hospitals must

translate these regulatory requirements and broader principles of hospital fire safety into functional institutional practices. The selected government hospital in Pasig City provides a setting for examining how personnel awareness relates to their perceptions of institutional compliance and for identifying challenges that may affect preparedness.

The study conceptualizes hospital fire safety management through five interconnected dimensions: fire safety programs, active fire protection, passive fire protection, fire safety planning, and hazardous materials management. These dimensions represent both organizational and operational aspects of preparedness. Personnel awareness reflects the extent to which hospital workers understand relevant fire safety measures, hazards, systems, plans, and practices. Perceived fire safety compliance, in contrast, concerns personnel assessments of the extent to which the hospital implements applicable fire safety requirements across the same dimensions. Examining these variables together recognizes that hospital fire safety involves both individual knowledge and institutional implementation. The study further considers demographic and professional characteristics that may be associated with variations in awareness and perceived compliance. These include age, sex, area of assignment, length of service, fire safety training, and educational attainment. The conceptual approach therefore allows the assessment of fire safety management at the intersection of personnel characteristics, individual awareness, institutional practices, and operational challenges.

Despite the recognized importance of hospital fire safety, the availability of fire protection systems does not necessarily indicate that personnel are sufficiently prepared or that institutional requirements are consistently implemented. Evidence from healthcare settings has demonstrated continuing gaps in personnel fire safety knowledge and emergency preparedness, reinforcing the importance of targeted training and institutional safety protocols (Johannes & Koray, 2025). Hospital evacuation preparedness also requires deliberate planning and coordination, as deficiencies in evacuation protocols, surge planning, and multiagency collaboration can limit institutional readiness during emergencies (Phattharapornjaroen et al., 2023). Physical equipment and structural safeguards must be complemented by personnel who understand hazards, emergency procedures, evacuation responsibilities, and the appropriate use of fire protection equipment. There is consequently a need to examine the relationship between personnel awareness and the implementation of fire safety measures in local healthcare institutions. Determining whether demographic and professional characteristics, particularly training and educational preparation, are associated with awareness and perceived compliance can provide evidence for identifying areas requiring improvement. The study addresses this need by assessing fire safety awareness and the perceived extent of fire safety compliance among personnel of a selected government hospital in Pasig City. Specifically, it considers respondent characteristics, evaluates awareness and perceived institutional compliance across major fire safety dimensions, examines differences according to selected demographic and professional characteristics, determines the relationship between awareness and compliance, and identifies challenges encountered in hospital fire safety management. In doing so, the study provides an institution-specific assessment that can inform efforts to strengthen preparedness, personnel capability, and fire safety management.

The study is most directly aligned with SDG 3 – Good Health and Well-Being because fire safety is integral to maintaining a safe healthcare environment. Hospitals must be capable of protecting patients, healthcare personnel, visitors, and other occupants during emergencies. Strengthening awareness, preparedness, fire protection, evacuation procedures, and institutional compliance supports the capacity of healthcare facilities to provide services within a safer environment. The study is also relevant to SDG 11 – Sustainable Cities and Communities, particularly through its emphasis on institutional safety, emergency preparedness, and resilience. Government hospitals constitute essential public infrastructure, and their capacity to prevent and manage fire emergencies contributes to safer and more resilient communities. Effective protection systems, evacuation planning, personnel preparedness, and hazardous materials management can reduce vulnerabilities that could otherwise disrupt essential healthcare services. A further connection exists with SDG 16 – Peace, Justice, and Strong Institutions through institutional adherence to established fire safety requirements. Assessing compliance with fire safety measures and identifying operational challenges can support accountable institutional management and the continuing implementation of safety standards within a government healthcare facility.

The study contributes primarily to public health, socio-economic, community, and institutional sustainability by addressing the capacity of a government hospital to protect people, property, and essential healthcare operations from fire emergencies. From a public health perspective, fire preparedness supports the safety of vulnerable patients and healthcare personnel and helps reduce risks that could interrupt the delivery of medical services. Its relevance to community sustainability derives from the essential role of government hospitals in serving local populations. Fire incidents that damage hospital infrastructure or require patient evacuation and transfer can affect not only the institution but also communities dependent on its healthcare services. Strengthening preparedness and compliance therefore contributes to the resilience of healthcare services within the wider community. Institutionally, sustainable fire safety management requires more than the presence of equipment or compliance during periodic inspections. It depends on continuing personnel awareness, functional active and passive protection systems, effective emergency planning, appropriate hazardous materials management, regular

inspection and maintenance, training, and evaluation. Integrating these elements supports a continuing rather than episodic approach to organizational safety. The study also has socio-economic relevance because fire emergencies can threaten lives, damage public infrastructure and equipment, disrupt hospital operations, and affect the delivery of essential services. By examining personnel awareness, perceived institutional compliance, and existing fire safety challenges, the research provides a basis for strengthening the long-term safety, preparedness, and operational resilience of a government healthcare institution

2. Material and methods

2.1 Research Design

The study employed a quantitative research approach using descriptive-evaluative, descriptive-comparative, and descriptive-correlational designs. Quantitative research allows systematic collection and analysis of numerical data to describe variables, compare groups, and determine relationships among variables (Creswell & Guetterman, 2023). The descriptive-evaluative component assessed the level of fire safety awareness and perceived extent of hospital compliance with fire safety standards. The descriptive-comparative component determined whether awareness and perceived compliance differed according to selected demographic and professional characteristics, while the descriptive-correlational component examined the relationship between fire safety awareness and perceived compliance without implying causality.

2.2 Locale of the Study

The study was conducted in one selected Level 2 government hospital in Pasig City, Philippines. The PhilHealth-accredited public healthcare institution provides pediatrics, surgery, obstetrics and gynecology, internal medicine, dental and diagnostic services, emergency care, and neonatal services, primarily serving residents of Pasig City and surrounding communities. Four Level 2 government hospitals were initially considered, but only one granted permission to participate. The other institutions declined or were unable to participate because of confidentiality concerns, institutional circumstances, workload, and staff availability; thus, the study was limited to one hospital.

2.3 Respondents of the Study

The study population consisted of 406 eligible hospital personnel, including nurses, physicians, and ancillary service personnel assigned to different hospital units. Eligible participants were at least 18 years old, currently employed by the hospital, and had at least one month of work experience. Previous fire safety training was not required, allowing the inclusion of both trained and untrained personnel. Employees who were on leave or unavailable during data collection were excluded.

2.4 Sample and Sampling Procedure

A total of 350 hospital personnel participated in the study, representing an 86.2% response rate from the 406 eligible employees. Random sampling was used to provide eligible personnel with an equal opportunity for inclusion and minimize selection bias. Respondents represented key hospital areas, including the Emergency Room, Medical-Surgical Ward, Operating Room, Obstetrics and Gynecology Ward, Pediatric Ward, and Outpatient Department.

2.5 Research Instrument

Data were collected using a researcher-developed and modified questionnaire adapted from the Bureau of Fire Protection (2012) Fire Safety Enforcement Manual. Highly technical parameters intended primarily for engineers, architects, and fire safety professionals were excluded to focus the instrument on fire safety concepts applicable to general hospital personnel. The questionnaire consisted of four parts. The first gathered demographic and professional information, including age, sex, area of assignment, length of service, fire safety training attended during the previous year, and highest educational attainment. The second assessed fire safety awareness in terms of fire safety programs, active and passive fire protection, fire safety planning, and hazardous materials management using a four-point scale ranging from 4 = Extremely Aware to 1 = Not at All Aware. The third assessed perceived hospital compliance across the same dimensions using a scale from 4 = Fully Compliant to 1 = Not Compliant. The fourth assessed challenges in fire safety management using a four-point agreement scale ranging from 4 = Strongly Agree to 1 = Strongly Disagree. Content validity was established through expert evaluation of the questionnaire for clarity, relevance, appropriateness, and alignment with the study objectives, with revisions made based on expert recommendations. A pilot test involving 20 hospital personnel from a hospital in Navotas City, who were excluded from the actual study, was conducted to assess internal consistency using Cronbach's alpha. The fire safety awareness scale obtained a Cronbach's alpha of 0.960, the fire safety compliance scale obtained 0.958, and the challenges scale obtained 0.716, indicating excellent internal consistency for the awareness and compliance measures and acceptable internal consistency for the challenges measure.

2.6 Data Gathering Procedure

Following approval of the research protocol and incorporation of the research panel's recommendations, permission was obtained from the appropriate institutional authorities. Ethical approval was secured under

protocol number 2024-IERC3-20228. Eligible participants were informed of the study objectives, voluntary nature of participation, confidentiality procedures, potential risks, and benefits, and written informed consent was obtained before questionnaire administration. The researcher personally distributed and retrieved the questionnaires. Completed questionnaires were coded, securely stored, and prepared for statistical analysis. Data were encoded in a password-protected Microsoft Excel file and subsequently analyzed using the Statistical Package for the Social Sciences (SPSS).

2.7 Data Analysis Techniques

Frequency and percentage distributions were used to summarize respondent characteristics, while weighted means determined the level of fire safety awareness and perceived extent of compliance. For the four-point Likert scale, weighted means of 3.26–4.00 represented Strongly Agree/Fully Compliant, 2.51–3.25 represented Agree/Moderately Compliant, 1.76–2.50 represented Disagree/Slightly Compliant, and 1.00–1.75 represented Strongly Disagree/Not Compliant. Inferential statistical procedures were used to examine differences and relationships among variables. Analysis of variance and the Kruskal-Wallis H test were used for comparisons involving independent groups, as appropriate to the characteristics and distribution of the data. Chi-square analysis examined associations between categorical variables, while Pearson's correlation coefficient determined the relationship between fire safety awareness and perceived compliance. Statistical significance was evaluated using the study's predetermined level of significance.

2.8 Ethical Considerations

The study observed the principles of autonomy, confidentiality, voluntary participation, and academic integrity. Participants were informed of their right to withdraw without penalty or prejudice, while hospital and participant identities were protected through de-identification. Physical research records were securely stored, and electronic files were password protected and backed up using encrypted storage. Research records were scheduled for retention for five years in accordance with institutional research guidelines, after which physical records would be shredded and electronic records permanently deleted. The completed manuscript also underwent an institutional originality assessment and obtained a reported similarity score of 10%.

3. Results and Discussion

3.1 Fire Safety Awareness and Perceived Compliance among Hospital Personnel

3.1.1 Characteristics of the Respondents

A total of 350 hospital personnel participated from 406 eligible employees, representing an 86.2% response rate. Respondents aged 26–30 years comprised the largest age group at 38%, while females represented 62% of the sample. Participants included nurses, physicians, and ancillary service personnel assigned to the Emergency Room, Medical-Surgical Ward, Operating Room, Obstetrics and Gynecology Ward, Pediatric Ward, and Outpatient Department. Most had attained tertiary education and attended fire safety training programs, while their varying lengths of service provided representation across different professional and employment characteristics. The diversity of the respondents in terms of age, area of assignment, occupation, educational attainment, fire safety training, and length of service provided a basis for examining whether these characteristics were associated with differences in fire safety awareness and perceived compliance. Representation across clinical and support areas also allowed the study to assess fire safety from the perspectives of personnel performing different hospital functions.

3.1.2 Level of Fire Safety Awareness

Hospital personnel demonstrated a generally favorable level of fire safety awareness. Awareness was highest in hazardous materials management (WM = 3.44), followed by fire safety planning (WM = 3.43) and fire safety programs (WM = 3.35). Active fire protection obtained a weighted mean of 3.23, while passive fire protection received the lowest rating at 2.97. Thus, personnel showed stronger awareness of hazardous materials, emergency planning, and fire safety programs than of structural and building-based fire protection measures. The higher awareness of hazardous materials management and fire safety planning may reflect their practical relevance to routine hospital operations, where personnel encounter medications, disinfectants, oxygen supplies, and other materials requiring proper handling and storage. Personnel may also receive greater exposure to evacuation procedures and emergency protocols through institutional orientations and drills. In contrast, passive fire protection depends largely on structural features such as fire-resistant walls and doors, compartmentation, and protected corridors, which may be less familiar to general hospital personnel. This suggests a need to broaden personnel training beyond extinguishers, alarms, and evacuation procedures to include basic passive fire protection concepts.

3.1.3 Perceived Extent of Fire Safety Compliance

Respondents generally perceived the hospital as having a high extent of fire safety compliance. Hazardous materials management received the highest rating (WM = 3.27), followed by fire safety planning (WM = 3.26), active fire protection (WM = 3.08), and fire safety programs (WM = 3.02). Passive fire protection received the

lowest rating at 2.87. Although all dimensions were rated favorably, none reached the maximum possible score of 4.00, indicating that respondents perceived existing fire safety measures while recognizing areas for improvement. The pattern of perceived compliance was similar to that of personnel awareness, with hazardous materials management and fire safety planning receiving the strongest assessments and passive fire protection the lowest. The generally favorable ratings indicate that fire safety measures were perceived to be implemented within the institution; however, they should not be interpreted as evidence of complete implementation. The lower assessment of passive fire protection and the absence of uniformly maximum ratings indicate the continuing importance of monitoring, maintenance, and improvement of hospital fire safety systems.

3.2 Differences in Fire Safety Awareness and Perceived Compliance

3.2.1 Differences in Fire Safety Awareness According to Respondent Characteristics

Significant differences in fire safety awareness were observed when respondents were grouped according to age, fire safety training attended, and educational attainment. In contrast, gender, area of assignment, and length of service did not demonstrate meaningful differences in awareness. The findings indicate that awareness varied more substantially according to selected characteristics related to age, training, and educational preparation than according to gender, work assignment, or duration of service. The association between fire safety training and awareness highlights the importance of structured training in developing personnel knowledge, familiarity with emergency procedures, understanding of assigned responsibilities, and competence in using fire protection equipment. Regular training may be particularly important because fire safety knowledge can diminish without periodic practice and updated information. Educational attainment may likewise influence exposure to formal safety concepts, organizational procedures, and risk management principles. However, educational preparation does not replace specialized fire safety training because practical competencies require structured instruction, drills, and hands-on exercises.

3.2.2 Differences in Perceived Fire Safety Compliance According to Respondent Characteristics

Significant differences in respondents' assessments of hospital fire safety compliance were observed according to fire safety training attended and educational attainment. These findings indicate that personnel with different levels of training and educational preparation differed in how they evaluated institutional fire safety practices. The findings suggest that training and educational preparation may influence how personnel recognize and evaluate the implementation of fire safety measures. Personnel with greater preparation may have stronger familiarity with safety requirements and organizational practices, affecting their assessment of institutional preparedness. The results therefore emphasize the importance of continuous professional development and structured fire safety education in strengthening both personnel awareness and their understanding of institutional fire safety practices.

3.3 Relationship Between Fire Safety Awareness and Perceived Compliance

A significant positive relationship was found between fire safety awareness and perceived compliance across fire safety programs, active fire protection, passive fire protection, fire safety planning, and hazardous materials management. Personnel with higher awareness tended to provide more favorable assessments of the hospital's implementation of fire safety measures. Because the study employed a correlational design, however, this relationship indicates association rather than causation. The positive relationship emphasizes the connection between personnel knowledge and institutional fire safety implementation. Personnel with greater awareness may be better able to recognize whether fire safety measures are available and appropriately implemented. Conversely, greater institutional implementation may increase personnel exposure to fire safety practices and reinforce awareness. The direction of the relationship cannot be established because of the correlational design, but the findings indicate that personnel education and institutional implementation are closely associated and should be addressed as complementary aspects of hospital fire safety management.

3.4 Challenges in Hospital Fire Safety Management

Respondents identified several challenges affecting fire safety management, including inadequate maintenance and inspection of fire protection and suppression equipment, insufficient fire safety equipment and resources, lack of regular or annual fire emergency training, workplace fire hazards, obstructed emergency exits, inadequate personnel accounting during fire drills, and weaknesses in evacuation preparedness. These concerns show that fire safety challenges extend beyond personnel knowledge to equipment readiness, resource availability, maintenance, evacuation procedures, workplace conditions, and emergency accountability. These challenges qualify the generally favorable assessments of fire safety compliance. Fire protection equipment can effectively protect occupants only when it remains operational, accessible, properly inspected, and maintained, while obstructed emergency exits can compromise otherwise adequate evacuation procedures. Inadequate personnel accounting during drills is particularly relevant in hospitals because emergency evacuation involves not only employees but also patients, visitors, contractors, and other occupants. Effective fire safety management therefore requires an integrated approach connecting personnel training, equipment maintenance, structural protection, emergency planning, evacuation preparedness, hazardous materials management, emergency accountability, and periodic evaluation.

3.5 Integrated Findings on Hospital Fire Safety Management

Overall, personnel of the selected government hospital demonstrated favorable fire safety awareness and perceived the institution as having a high extent of fire safety compliance. Awareness and compliance were strongest in hazardous materials management and fire safety planning, while passive fire protection received comparatively lower ratings. Fire safety training and educational attainment were associated with differences in both awareness and perceived compliance, while age was associated with differences in awareness. A significant positive relationship was also observed between awareness and perceived compliance. Despite these favorable findings, operational challenges involving equipment maintenance, resources, training, emergency exits, workplace hazards, evacuation preparedness, and personnel accountability remained evident. Collectively, the findings indicate that hospital fire preparedness depends on both individual competence and institutional capacity. Favorable personnel awareness and perceived compliance do not eliminate operational vulnerabilities, particularly when equipment, structural protection, emergency procedures, or accountability systems require improvement. Hospital fire safety should therefore function as an integrated management system in which personnel education is supported by functional equipment, maintained protection systems, accessible evacuation routes, regular drills, clear emergency responsibilities, hazardous materials management, and continuing evaluation.

4. Conclusion & Recommendations

Personnel of the selected government hospital in Pasig City demonstrated generally favorable fire safety awareness and perceived the institution as having a high extent of compliance with fire safety standards, with the strongest assessments in hazardous materials management and fire safety planning and comparatively lower ratings in passive fire protection. Fire safety training and educational attainment were associated with both awareness and perceived compliance, while age was associated with awareness; gender, area of assignment, and length of service showed limited influence. The significant positive relationship between fire safety awareness and perceived compliance indicates that personnel knowledge and institutional implementation are closely associated. However, inadequate equipment maintenance and resources, irregular training, workplace hazards, obstructed exits, weaknesses in evacuation preparedness, and inadequate personnel accounting demonstrate that operational vulnerabilities remain despite generally favorable assessments.

The hospital should institutionalize the SAFE Hospital (Strengthening Awareness & Fire Equipment in Hospitals) Training Program Framework through continuous training, refresher sessions, competency assessments, and practical exercises while strengthening preventive maintenance and regular inspection of fire protection and suppression systems. Fire emergency training should include alarm activation, communication, extinguisher use, evacuation procedures, emergency responsibilities, hazardous materials management, and coordination with emergency responders, with greater attention to passive fire protection. Regular and realistic fire drills should incorporate personnel accountability and consideration of patients, visitors, and other occupants, while emergency exits and evacuation routes should remain unobstructed. The hospital should also address fire safety resource gaps, provide appropriate safety information to patients and visitors, and conduct periodic fire safety audits. Future studies should include other government and private hospitals with larger and more diverse samples and may incorporate observational audits, document reviews, equipment inspection records, and objective measures of fire safety performance.

The findings are limited to one government hospital because other institutions considered for participation did not grant permission; therefore, the results cannot be generalized to all hospitals in Pasig City or government hospitals in other locations. The study relied primarily on self-reported assessments, which may be affected by recall bias, social desirability, and individual interpretations, and the reported compliance reflects personnel perceptions rather than an independent technical compliance audit. Highly technical assessments of structural fire protection systems were also excluded because they were beyond the intended scope of general hospital personnel. Finally, the correlational design establishes an association between fire safety awareness and perceived compliance but does not establish that increased awareness causes improved institutional compliance.

5. Compliance with ethical standards

The authors conducted the study in accordance with the approved ethical procedures. They secured ethical approval under protocol number 2024-IERC3-20228 and ensured voluntary participation. The authors informed participants of the study objectives, confidentiality procedures, potential risks and benefits, and their right to withdraw without penalty or prejudice. They obtained written informed consent before questionnaire administration and protected participant and hospital identities through de-identification. The authors also ensured secure storage of research records, with electronic data password protected and backed up using encrypted storage. Research records were scheduled for retention for five years in accordance with institutional research guidelines, after which physical and electronic records would be appropriately destroyed.

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