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ASSESSMENT OF FIRE SAFETY AWARENESS AND IMPLEMENTATION: BASIS FOR A FIRE PREVENTION AND RESPONSE PROGRAM

Donalyn Reyes Aquino
Researcher

ABSTRACT

Fire safety remains a pressing concern in densely populated urban communities, particularly in Barangay Tangos North, Navotas City. This study assessed the level of awareness and implementation of fire safety practices among residents, focusing on prevention, suppression, and evacuation, and examined whether significant differences exist when respondents are grouped according to demographic characteristics such as age, gender, education, homeownership, household size, and past fire experience. Using a quantitative causal design, a structured questionnaire was administered to 200 residents selected through stratified random sampling, and data were analyzed through descriptive statistics, the Kruskal-Wallis test, and correlation analysis. Findings revealed that respondents showed moderate awareness in fire prevention and suppression, while awareness of evacuation procedures was high. Implementation of prevention and suppression was reported as fully practiced, while evacuation measures were only moderately applied. Gender was found to influence confidence in evacuation, prior fire experience significantly affected suppression awareness, and homeownership status shaped evacuation preparedness, with homeowners displaying stronger implementation than renters. These results highlight strengths in preventive and suppression practices but also expose critical gaps in evacuation readiness, particularly among vulnerable groups. The study contributes to a clearer understanding of how demographic factors influence fire safety and provides an empirical basis for the development of targeted, community-specific fire prevention and response programs.

KEYWORDS: *Fire safety awareness, Fire prevention, Fire suppression, Evacuation procedures, Demographic factors*

INTRODUCTION

1.1 BACKGROUND OF THE STUDY

1.1.1 Introduction

Fire safety is a critical concern globally, but it becomes particularly pressing in densely populated urban areas. These environments, characterized by high building density, diverse land uses, and varying socioeconomic conditions, pose significant fire risks. In the Philippines, fire incidents are a severe threat to both property and human life, highlighting the urgent need for effective community-level fire safety awareness and practices (Philippine Institute of Volcanology and Seismology, 2022). Understanding fire safety not only helps individuals protect themselves but also empowers them to assist others who may be vulnerable, such as the elderly, children, pets, and those with physical or mental disabilities (Bureau of Fire Protection, 2024).

In connection with this, Barangay (Brgy.) Tangos North in Navotas City is a prime example of a community facing heightened fire risks. This barangay, a vibrant area with a mix of residential neighborhoods, small businesses, and informal settlements, is notably prone to fires. The rapid urban growth in Brgy. Tangos North, coupled with common urban challenges such as congested housing, limited access to resources, and varying levels of fire safety knowledge, underscores the need for improved fire safety measures (Navotas City Fire Station, 2023).

Further, historical population data for Navotas City reflects its significant growth. In 1990, Navotas had a population of 187,479. By 1995, the population had increased by 4.08%, reaching 229,039. The 2000 Census recorded a marginal increase of 0.12%, with a population of 230,403. As of May 2010, the population had grown to 249,131, with an estimated average growth rate of approximately 5% (National Statistics Office, 2010).

As being said, Navotas City, known as the "Fishing Capital of the Philippines," is a highly urbanized city in Metro Manila with a rich historical background. Originally a part of Malabon, Navotas was separated from it due to natural erosion by Manila Bay's waters. Over time, this erosion created the Navotas River, which became a defining geographical feature of the area. The name "Navotas" is derived from "nabutas," meaning "pierced through," a reference to the land's historical breach. The formal separation of Navotas from Malabon occurred on February 16, 1859, following a successful petition to the Spanish government by local leaders (Official Website of Navotas City, 2024).

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Addressing fire safety in areas like Brgy. Tangos North is crucial for enhancing community resilience and reducing fire hazards. Effective fire safety practices can mitigate risks and improve overall safety, especially in rapidly growing urban environments where such risks are magnified.

1.1.2 International Background.

Fire safety remains a significant challenge worldwide, with pronounced disparities in knowledge and practices, particularly in low-income and informal communities like Brgy. Tangos North. These gaps highlight the need for more effective, locally tailored fire safety strategies. The uneven implementation and limited reach of international fire safety guidelines and training programs often fail to address the unique needs of these communities (International Fire Safety Foundation, 2022).

One major issue is the underutilization of modern technology in fire safety practices. Advanced fire detection and suppression systems, which are crucial for effective fire management, are often inaccessible or unaffordable for residents in low-income areas (World Bank, 2023). Additionally, the lack of community-based fire safety initiatives further exacerbates the problem. Without localized programs that engage residents and adapt to their specific circumstances, fire safety measures may be less effective (Bureau of Fire Protection, 2021).

Cultural and social factors also play a critical role in fire safety but are frequently overlooked in global fire safety initiatives. For instance, fire safety practices that are successful in one cultural context may not be as effective when transplanted into a different cultural or social setting. This underscores the need for fire safety programs that consider local customs, beliefs, and social structures (UN-Habitat, 2022).

International organizations such as the International Code Council (ICC) and the National Fire Protection Association (NFPA) provide comprehensive fire safety standards and codes. However, the adoption and enforcement of these standards vary significantly across different regions and nations. Developing countries often face challenges in implementing these norms due to factors such as limited political will, inadequate governance, and resource constraints (National Fire Protection Association, 2022). This variability highlights the importance of adapting international standards to fit local contexts and addressing the specific barriers faced by developing nations.

To bridge these gaps, it is crucial to develop more focused, community-oriented fire safety initiatives and conduct research tailored to the realities of developing nations. Such efforts should involve, 1) Localized Training Programs: Implementing fire safety training that is relevant to the cultural and socio-economic contexts of local communities (Community Safety Network, 2022); 2. Affordable Technology Solutions: Promoting the use of cost-effective fire safety technologies that can be adapted for use in low-income areas (Fire Safety Engineering, 2023); and 3. Enhanced Community Engagement: Encouraging active participation from local residents in fire safety planning and implementation (Local Government Unit of Navotas City, 2023).

1.1.3 National Background

Fire safety remains a critical issue in the Philippines, particularly in densely populated urban areas. Despite efforts to promote awareness, significant gaps exist between the level of fire safety knowledge and the actual practices implemented by residents. These gaps contribute to the high incidence of fire-related incidents in the country, with devastating consequences.

Awareness about fire safety among residents in the Philippines varies widely, with many people lacking basic knowledge about fire prevention and response. According to a survey conducted by the Bureau of Fire Protection (BFP), around 40% of urban residents are only somewhat aware of fire safety protocols, while 20% admit to having little to no knowledge at all . This lack of awareness is more pronounced in informal settlements, where overcrowding and poorly constructed housing increase the risk of fire.

Furthermore, while 60% of respondents claim to have attended fire safety seminars or encountered information about fire safety through the media, many of them fail to retain and apply this knowledge effectively. This discrepancy between awareness and practice highlights a significant gap that needs to be addressed.

When it comes to the actual implementation of fire safety measures, the gap becomes even more apparent. Despite a moderate level of awareness, only 30% of urban residents report having functional fire extinguishers in their homes, and a mere 15% have undergone fire drills or know how to use fire-fighting equipment. This is concerning, given that fire extinguishers and early response to fires can significantly reduce casualties and property damage.

Additionally, the practice of conducting regular checks on electrical wiring, which is a common cause of fires in urban areas, is often neglected. A study by the Department of Interior and Local Government (DILG) revealed that 50% of households in Metro Manila do not have their electrical systems regularly inspected, leading to an increased risk of electrical fires.

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Several factors contribute to these gaps in fire safety awareness and practices. Socioeconomic status plays a significant role, with lower-income households being less likely to have access to fire safety information or equipment. Overcrowding and informal settlements further exacerbate the situation, as these areas often lack proper urban planning, making it difficult to implement fire safety measures effectively.

Cultural attitudes towards fire safety also play a part. Many residents view fire safety as a secondary concern, prioritizing immediate economic needs over long-term safety investments. This mindset is reflected in the low number of households that invest in fire alarms, smoke detectors, and other safety equipment.

To bridge the gap between fire safety awareness and practices, there is a pressing need for more targeted and sustained fire safety campaigns. The BFP, along with local government units, should intensify efforts to educate residents, particularly in high-risk urban areas, about the importance of fire prevention and preparedness. Moreover, policy enforcement should be strengthened to ensure that building codes and fire safety regulations are strictly followed. Regular inspections and penalties for non-compliance could incentivize residents and business owners to prioritize fire safety.

1.1.4 Local Background

Fire safety is a significant concern in Brgy. Tangos North, Navotas City, where the combination of high population density and informal settlements creates a precarious situation. The community's vulnerability to fire hazards stems from several interconnected issues that amplify the risk.

Overcrowding is a primary factor contributing to the fire risk in Brgy. Tangos North. The densely packed housing, often constructed with substandard materials, makes it easier for fires to spread quickly and complicates efforts to evacuate residents. Many homes in this area are built using lightweight, combustible materials, which increase the danger of fires and the difficulty of implementing effective fire safety measures (Bureau of Fire Protection, 2021).

Adding to these risks are the environmental challenges posed by the barangay's location. Brgy. Tangos North is situated in a low-lying, flood-prone area that experiences frequent heavy rainfall and typhoons. These weather conditions can damage electrical systems and other infrastructure, leading to short circuits and potential fire hazards. The recurring flooding also deteriorates building materials, further compromising the fire resistance of structures (Philippine Institute of Volcanology and Seismology, 2022).

The proximity to the shore introduces additional complications. Many homes in the barangay are constructed on stilts or close to the water to mitigate flooding risks. These elevated structures, while necessary for dealing with water levels, are built with materials that are highly flammable. This construction practice not only increases fire risk but also makes it challenging for firefighting services to access and effectively combat fires (Fire Safety Engineering, 2023).

Infrastructure limitations further exacerbate the fire safety issues. The narrow streets and alleys typical of informal settlements make it difficult for fire trucks and emergency personnel to reach affected areas swiftly. This restricted access can delay response times, increasing the damage caused by fires and making it harder for emergency services to perform their duties effectively (Local Government Unit of Navotas City, 2023).

Compliance with fire safety regulations is another significant concern. Many homes in Brgy. Tangos North do not adhere to the Fire Code of the Philippines, lacking essential safety features such as proper electrical wiring, adequate fire exits, and functional fire extinguishers. Despite the efforts of local government and the Bureau of Fire Protection (BFP) to conduct inspections and promote fire safety through public education, these initiatives often struggle with enforcement and limited outreach (National Fire Protection Association, 2022).

Community-based fire safety initiatives, such as volunteer fire brigades and disaster preparedness programs, exist but frequently face challenges. These programs often struggle to reach all residents effectively due to resource constraints and limited outreach efforts. As a result, many individuals in the barangay may not receive the necessary fire safety education and resources (Community Safety Network, 2022).

In light of these issues, exploring how these local conditions affect residents' understanding and practices regarding fire safety becomes crucial. Investigating the interplay between environmental factors, building practices, infrastructure limitations, and community engagement will help identify key areas for improvement. By addressing these challenges, it is possible to develop targeted strategies that enhance fire safety and resilience in Brgy. Tangos North, ultimately improving the safety and well-being of its residents.

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STATEMENT OF THE PROBLEM

Fire safety is a critical concern in urban communities like Barangay Tangos North, Navotas City, where diverse demographic factors such as age, gender, education, and socio-economic status can influence awareness and practices. Given the increasing risks of fire-related incidents, it is essential to assess how well residents, understand fire safety measures and implement preventive actions. This study aims to evaluate their level of awareness regarding fire prevention, suppression, and evacuation procedures, while also examining whether significant differences in fire safety awareness exist based on demographic characteristics. By identifying gaps and variations in knowledge and practices, this research sought to provide targeted recommendations to enhance fire safety education and preparedness within the community.

Specifically, this study sought to answer the following questions:

1.What are the demographic characteristics of the respondents in terms of?
1.1 age;
1.2 gender;
1.3 educational attainment;
1.4 homeownership status;
1.5 type of dwelling;
1.6 household size; and
1.7 past fire experience?
2.What is the level of awareness among the respondents, regarding fire safety practices and measures in terms of:
2.1 fire prevention;
2.2 fire suppression; and
2.3 evacuation procedures?
3.Is there a significant difference in the level of awareness on fire safety among the respondents when grouped according to their demographic profile?
4. What is the level of implementation of the fire safety practices and measures in terms of:
4.1 fire prevention;
4.2 fire suppression; and
4.3 evacuation procedures?
5. Is there a significant difference in the level of implementation of the fire safety practices among the respondents if grouped according to profile?
6. Based on the findings of the study, what targeted fire prevention program may be proposed?

METHODOLOGY

2.1 Research Design

This study utilized a causal research design, a quantitative method used to explore cause-and-effect relationships between variables (Zikmund et al., 2013). The primary aim of this design was to determine how different levels of fire safety awareness influenced the fire safety practices among the residents of Barangay Tangos North, Navotas City. By administering structured questionnaires and analyzing the data using statistical methods, the study sought to identify whether a higher level of awareness directly correlated with safer practices or if other factors were at play.

Moreover, this design helped determine if there were differences in the level of awareness based on the demographics of the research participants, such as age, gender, educational attainment, and occupation (Malhotra, 2010). By examining these demographic variables, the study provided a more nuanced understanding of how different segments of the population engaged with fire safety awareness and practices. This approach allowed the researcher to draw more definitive conclusions about the impact of awareness on behavior and the influence of demographic factors, offering valuable insights that informed fire safety interventions, educational programs, and policy decisions aimed at improving fire safety in Barangay Tangos North (Cooper & Schindler, 2014).

2.2 Research Method

This study employed a quantitative research approach, utilizing self-made structured questionnaires to gather numerical data on the fire safety awareness and practices of the residents of Barangay Tangos North, Navotas City. The quantitative approach allowed for the objective measurement and analysis of variables, facilitating the identification of patterns and relationships between fire safety awareness, practices, and demographic factors.

2.3 Population of the Study

The population of this study comprised the residents of Barangay Tangos North, Navotas City. These groups are essential in assessing the community's level of awareness and practices in fire safety. The residents served as the primary stakeholders, as their knowledge and preparedness directly impact their safety and the prevention of fire-related incidents within their households and surroundings.

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The study involved 200 respondents so that the results will be more valid and generalizable. Large sample size has more in-depth analysis and more representation of the diverse opinion in the community.

The sample was chosen by means of stratified random sampling for the reason of providing representation among different demographic categories such as age, gender, and socioeconomic status. This method is well-suited to this research in the sense that it enables balanced analysis of fire safety awareness among different groups of individuals.

Barangay officials were also be included in the sample as they play a role in the fire safety policy-making and policy implementation in the community. By examining the fire safety awareness and practices of these three groups, the study aims to generate valuable findings that can contribute to the development of more effective fire prevention programs and policies within Barangay Tangos North.

2.4 Locale of the Study

Barangay Tangos North, located in Navotas City, served as the locale of the study, which focused on assessing the level of fire safety awareness and practices among its residents. As a densely populated urban area in the National Capital Region (NCR) of the Philippines, Barangay Tangos North is characterized by a mix of formal and informal settlements, narrow streets, and closely built residential structures. These conditions create a challenging environment for fire safety, where the risk of fire outbreaks is heightened due to the proximity of homes and limited access for emergency responders. The study aimed to explore how these urban dynamics affect the community's preparedness and response to fire hazards, making Barangay Tangos North a fitting context for this research.

Barangay Tangos North as the locale for the study was driven by its high population density and history of fire incidents, factors that make it a critical area for examining fire safety awareness and practices. The diversity in the residents' demographic profiles, including variations in age, gender, education, and socio-economic status, offered a valuable opportunity to investigate how these factors influence fire safety awareness. Additionally, the barangay's vulnerability to fire hazards, compounded by the challenges posed by its urban layout, highlighted the importance of conducting the study in this locale. The insights gained from this research could inform the development of targeted fire safety interventions and policies tailored to the specific needs of Barangay Tangos North, ultimately enhancing the overall safety of the community.

2.5 Scope and Limitation of the Study

This study focused on evaluating the level of awareness and practices related to fire safety among the residents of Barangay Tangos North, Navotas City. Specifically, it examined the knowledge of fire safety protocols and the personal and community-based fire safety practices of individuals aged 18 and above. The selection of Barangay Tangos North was intentional due to its diverse demographic profile, which provides a comprehensive perspective on fire safety awareness across different sectors of the community.

To achieve this, data were collected using structured questionnaires administered through face-to-face interactions. The study employed stratified random sampling to ensure representation from various demographic groups, including age, gender, and socioeconomic status. This approach aimed to capture a broad range of perspectives and experiences related to fire safety. The data collection period lasted for two months, allowing sufficient time to gather responses and ensure thorough participation.

However, the study faced several limitations. Despite using stratified random sampling, the sample size of 200 participants may limit the generalizability of the findings, as it may not fully represent other barangays or regions with different demographic and socioeconomic characteristics. Additionally, the response rate posed a challenge, as some residents might have chosen not to participate or provided incomplete responses. Despite efforts to encourage full participation, these factors could affect the completeness and reliability of the data.

External factors, such as recent fire incidents, ongoing fire prevention campaigns, or changes in local regulations, may have influenced participants' perceptions and responses during the study period. Since these variables were not controlled in the study design, they could introduce variability in the findings. Moreover, cultural and contextual factors specific to Barangay Tangos North may have shaped participants' attitudes and practices toward fire safety, making the results less applicable to communities with different social norms or fire safety protocols.

Despite these limitations, the study provides valuable insights into fire safety awareness and practices within Barangay Tangos North. The findings can serve as a foundation for developing targeted fire prevention programs, improving community-based fire safety initiatives, and enhancing the training of Barangay Tanod and fire volunteers to strengthen overall fire preparedness and response efforts.

2.6 Data Gathering Tool

The primary data gathering tool for this study was a self-made structured questionnaire designed to assess the level of fire safety awareness and practices among the residents of Barangay Tangos North, Navotas City. The questionnaire was divided into three main sections, following best practices in survey design as outlined by established sources (Fowler, 2013; Creswell & Creswell, 2018).

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The first section, Demographic Information, collected essential background details of the respondents to categorize their potential influences on fire safety awareness and practices. This included their age group, gender, educational attainment, homeownership status, type of dwelling, household size; and past fire experience. Additionally, respondents identified their role in the community—whether they were residents—allowing the study to analyze fire safety awareness and practices based on their responsibilities and experiences.

More so, the second section, Awareness Level on Fire Safety Practices and Measures, assessed the respondents' level of knowledge regarding fire safety measures. They were asked to indicate their awareness of specific fire safety practices and measures, such as fire prevention, fire suppression, and evacuation procedures using a 4-point Likert scale ranging from "Not aware at all" (1) to "Very aware" (4) (Likert, 1932).

Finally, the final section, Implementation Level on Fire Safety Practices and Measures, explored how respondents applied fire safety measures in their daily lives. They were asked to evaluate their actual practices regarding fire safety measures, such as fire prevention, fire suppression, and evacuation procedures. Respondents rated their implementation level using a 4-point Likert scale, ranging from "Never implement" (1) to "Always implement" (4). This assessment aimed to determine the gap between awareness and practical application of fire safety measures.

By structuring the questionnaire into these three key sections, the study aimed to gather comprehensive data on fire safety awareness and practices, ensuring that the perspectives of residents were thoroughly examined.

To validate the questionnaire, an expert review was conducted, involving fire safety professionals, community leaders, and expert in the academe who provided feedback on the relevance and clarity of the questions. A pilot test was also administered to a small sample of residents to identify any ambiguities or issues. The reliability of the questionnaire was measured using Cronbach's Alpha, achieving more than 0.70 score, indicating good internal consistency as shown in Table 1 below.

Table 1. Cronbach's Alpha Coefficient and Its Reliability Level

Coefficient of Cronbach's Alpha	Reliability Level
More than 0.90	Excellent
0.80-0.89	Good
0.70-0.79	Acceptable
0.6-.69	Questionable
0.5-0.59	Poor
Less than 0.59	Unacceptable

2.7 Data Gathering Procedure

Before gathering the data, it was essential to obtain permission from the relevant authorities to conduct the study. Therefore, the researchers sent a formal letter, signed by the research adviser, to the Barangay Tangos North officials and local fire department administrators. This letter outlined the study's abstract and the ethical considerations, ensuring compliance with local regulations and securing approval.

Once approval was granted, the researchers conducted a pilot test to refine the data collection instruments and procedures. Pilot testing was crucial for assessing the feasibility and effectiveness of study designs and measures (Moore, Carter, Nietert, & Stewart, 2011). According to Scispace (2024), pilot studies typically involved 5 to 20 participants, depending on the study's objectives. For this study, a pilot test was carried out with 20 participants to evaluate the clarity and effectiveness of the questionnaire.

Following the pilot test, the researchers determined the sample size using stratified random sampling. This method ensured that different demographic groups (such as age, gender, educational level, and economic status) were proportionally represented in the sample. The sample size was calculated based on a power analysis to ensure that the results were statistically significant and generalizable (Creswell, 2013).

After identifying the participants, Informed Consent Forms (ICFs) were distributed. These forms detailed the study's background, purpose, procedures, participants' rights, and confidentiality assurances. Participants were briefe3EWd on the study and their rights, and since they were of legal age, they voluntarily signed the ICFs to participate in the study. The researchers then scheduled convenient times for administering the survey.

Data collection involved face-to-face administration of the structured questionnaires. Participants were informed about the study's purpose and were encouraged to provide honest and thoughtful responses. The researchers ensured that all data were collected respectfully and confidentially. Completed questionnaires were securely stored to maintain privacy and protect data integrity.

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Following data collection, the responses were coded and analyzed using statistical software. Descriptive and inferential statistics were employed to interpret the data and identify patterns and relationships. The results were compiled into a comprehensive report, reflecting the findings and implications of the study.

Throughout the process, the researchers adhered to ethical standards and best practices, ensuring that the participants' privacy was protected and the data were handled with care.

2.8 Treatment of the Data

The statistical treatment of the data for the study, "Level of Awareness and Practices in Fire Safety of Barangay Tangos North, Navotas City," involved several steps to analyze and interpret the data effectively. The following methods were employed:

1. Descriptive Statistics. Descriptive statistics were used to summarize and describe the basic features of the data collected. This included:

Frequency and Percentage Distribution: These were used to analyze the demographic characteristics of the respondents. The frequency of responses for each demographic category was calculated, and percentages were derived to provide a clear understanding of the composition of the sample (Babbie, 2016).

Mean, Median, and Mode: These measures of central tendency were used to assess the general level of fire safety awareness among the residents. The mean provided the average level of awareness, while the median and mode offered additional insights into the distribution of awareness levels within the population (Bluman, 2018).

Standard Deviation: This was calculated to determine the variability or dispersion of fire safety awareness and practices among the respondents. A low standard deviation indicated that the responses were closely clustered around the mean, while a high standard deviation suggested a wider range of awareness and practices (Gravetter & Wallnau, 2016).

2. Inferential Statistics. Inferential statistics were employed to draw conclusions about the broader population based on the sample data. The following method was used:

Kruskal-Wallis test: This test was adopted as the main statistical technique for data examination because responses obtained from fire safety awareness and practices Likert-scale items were ordinal. In contrast to parametric tests, including ANOVA, which hypothesize normality along with homogeneity of variances, Kruskal-Wallis test does not need them. It is for this reason that it is best applied with ordinal data, where rank differences are unknown.

In contrast to the Chi-Square test, Kruskal-Wallis is capable of more than two groups and used to characterize differences in medians among multiple independent samples. This is needed in this study as the researcher aims to compare fire safety awareness and practices levels across various demographic categories (e.g., education level, age) that are ordinally scaled.

In addition, although ANOVA is applicable when comparing means for groups of interval or ratio data, the Kruskal-Wallis test is applicable for the analysis of ranked data without a need to transform and have normality. The feature of this test makes it a best option for the researcher's data in such a way that meaningful findings can be derived about the influence of demographic factors on fire safety awareness and culture.

3. Correlation Analysis.

Pearson Correlation Coefficient: This was calculated to assess the strength and direction of the relationship between fire safety awareness and practices. The Pearson correlation coefficient helped determine whether higher awareness was associated with better fire safety practices among the residents, barangay tanods, and fire volunteers (Rumsey, 2016).

4. Data Presentation. The results of the statistical analyses were presented in tables, charts, and graphs to visually represent the findings. These visual aids helped to clearly communicate the patterns, relationships, and differences identified in the data (Creswell, 2013).

By employing these statistical methods, the study aimed to provide a comprehensive analysis of the level of fire safety awareness and practices among the residents, barangay tanods, and fire volunteers of Barangay Tangos North. The statistical treatment ensured that the data were rigorously analyzed, allowing for accurate and reliable conclusions to be drawn from the study.

2.9 Ethical Considerations

Before participating in the study, all respondents were provided with detailed Informed Consent Forms (ICFs). These forms included information about the study's purpose, procedures, potential risks, benefits, and the voluntary nature of participation. Participants were required to read and sign the ICFs to indicate their understanding and consent to participate in the study. This ensured that they were fully aware of what their participation entailed and that their involvement was voluntary.

To protect participants' confidentiality and privacy, all data collected were anonymized and securely stored. Identifiable information was not included in the final data analysis or reporting. Responses were coded to maintain anonymity, and the data were stored in a locked file or encrypted digital format accessible only to the researchers. The researchers assured participants that their individual responses would remain confidential and used solely for the purpose of this research.

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Participants were informed of their right to withdraw from the study at any time without penalty. They were made aware that they could choose to discontinue their participation if they felt uncomfortable or did not wish to continue. This consideration ensured that participants felt no undue pressure to participate and that their autonomy was respected throughout the study.

The study was designed to minimize any potential risks or discomfort to participants. Questions were formulated to be sensitive to participants' experiences and designed to avoid causing distress. The researchers were trained to handle responses empathetically and to provide support if any participants felt uncomfortable during the process.

The researchers committed to maintaining the integrity of the data and reporting findings accurately. Data were analyzed objectively, and the results were presented in a manner that honestly reflected the research findings without exaggeration or misrepresentation. All findings were reported with transparency to ensure the reliability and validity of the study's conclusions.

The study was conducted in accordance with ethical standards, and approval was obtained. This ensured that the research complied with established ethical guidelines and protected participants' rights throughout the study.

2.10 Dissemination of the Research Outcome

The dissemination of the research outcomes for the study titled "Level of Awareness and Practices in Fire Safety of Barangay Tangos North, Navotas City" was designed to effectively communicate the findings to various stakeholders, ensuring that the results were accessible, understandable, and actionable. The following strategies were employed:

1. Presentation to Local Government and Community Leaders. The primary dissemination of the research findings was directed towards the local government officials and community leaders of Barangay Tangos North. A formal presentation was organized where the key findings, statistical analyses, and recommendations were shared. The presentation included visual aids such as charts, graphs, and summary tables to make the data easily interpretable. This event provided an opportunity for community leaders to ask questions, discuss the implications of the findings, and consider integrating the recommendations into local fire safety policies and programs.

2. Community Forum and Information Sessions. To ensure the broader community was informed, the researchers organized a community forum. During this session, residents were invited to learn about the study's outcomes and understand their implications for daily practices. The findings were presented in a straightforward, non-technical manner, with an emphasis on practical fire safety tips and actions that residents could take to improve their safety. Printed materials, such as brochures and flyers summarizing the key points, were distributed to participants for easy reference.

3. Publication in Academic and Professional Journals. To reach a wider academic audience, the research findings were prepared for submission to peer-reviewed journals specializing in public safety, community health, and disaster management. The manuscript detailed the study's methodology, statistical analyses, and results, contributing to the existing body of knowledge on fire safety awareness and practices in urban communities. By publishing in academic journals, the researchers aimed to influence future research and policy-making on fire safety at both national and international levels.

4. Reports to Relevant Government Agencies. Copies of the research report were submitted to relevant government agencies, including the Bureau of Fire Protection (BFP) and the Department of the Interior and Local Government (DILG). These agencies were provided with a detailed analysis of the current state of fire safety awareness and practices in Barangay Tangos North, along with recommendations for improving fire safety education and response strategies. The report aimed to inform policy decisions and the development of targeted fire safety programs.

5. Integration into Educational and Training Programs. The research outcomes were also shared with local educational institutions and training centers. The findings were integrated into fire safety training programs, particularly those aimed at educating young people and new residents in the community. By incorporating the research insights into these programs, the study contributed to raising awareness and promoting best practices in fire safety among a broader audience.

6. Online Dissemination and Social Media. Recognizing the importance of digital platforms in modern communication, the research findings were also disseminated online. A summary of the study and its key findings was shared through social media platforms and local community websites. This approach ensured that the information reached a wider audience, including those who might not have been able to attend the community forum or other in-person events. Engaging with the community online allowed for ongoing discussions and the sharing of additional resources related to fire safety.

These strategies ensured that the research outcomes were effectively communicated to all relevant stakeholders, maximizing the study's impact on improving fire safety awareness and practices in Barangay Tangos North, Navotas City.

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RESULTS AND DISCUSSION

I. Demographic Characteristics of the Respondents

Table 2. Demographic Characteristics of the Respondents in terms of Age

Demographic Characteristics	Frequency (*f*)	Percentage (%)
Age		
Under 18	14	7.0
18-24	28	14.0
25-34	52	26.0
35-44	42	21.0
45-54	25	12.5
55-64	25	12.5
65 and above	14	7.0
Total	200	100

As reflected in Table 2, the survey shows that most respondents are in the 25–34 age range (26%), followed by those aged 35–44 (21%). Smaller groups include 18–24-year-olds (14%), those aged 45–54 and 55–64 (both at 12.5%), while the youngest group under 18 and the oldest group aged 65 and above each make up 7%. This means that the community is largely made up of adults in their working and family-raising years—people who are often responsible for making important decisions at home, including those related to safety. Their age suggests that they are capable of taking active roles in fire prevention and emergency response, although younger members may rely on elders for guidance, and older members may need more assistance during emergencies. Programs can focus on these active age groups while still ensuring that children and seniors are included. This result corroborates with the findings of Mauritzson et al. (2023), who observed that households led by individuals aged 25–44 are often more consistent in applying safety measures.

Table 3. Demographic Characteristics of the Respondents in terms of Gender

Demographic Characteristics	Frequency (*f*)	Percentage (%)
Gender		
Male	42	21.0
Female	158	79.0
Total	200	100

As shown in Table 3, majority of respondents are women (79%), with men making up just 21% of the sample. This could be because women are often more present in the home and more available to answer surveys, or because they take on much of the day-to-day responsibility for household safety. Their perspective is valuable, as they are often the first to notice hazards or remind family members about safety routines. However, the low participation of men implies an opportunity. Engaging more male household members in fire safety training could strengthen a home's overall preparedness. This finding is consistent with Nilson and Bonander (2020), who noted that women frequently take the lead in safety planning, especially when children are involved.

Table 4. Demographic Characteristics of the Respondents in terms of Educational Attainment

Demographic Characteristics	Frequency (*f*)	Percentage (%)
Educational Attainment		
Elementary Level/Graduate	28	14.0
High school Level/Graduate	136	68.0
College degree Level/Graduate	36	18.0
Total	200	100

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As depicted in Table 4, most respondents have reached high school level or graduation (68%), with fewer completing a college degree (18%) or only finishing elementary school (14%). This suggests that most can understand written safety instructions, though some may find technical language challenging. It highlights the need for fire safety materials that are simple, clear, and supported by visual aids so everyone can easily follow them. Education plays a big role in how people interpret safety guidelines. This result supports the observations of Al-Hajj et al. (2022), who emphasized that adjusting safety messages to the education level of the community improves understanding and compliance.

Table 5. Demographic Characteristics of the Respondents in terms of Homeownership Status

Demographic Characteristics	Frequency (*f*)	Percentage (%)
Homeownership Status		
Own	48	24.0
Rent	96	48.0
Live with family/friends	56	28.0
Total	200	100

As reflected in Table 5, almost half of the respondents or 96 (48%) rent their homes, while 56 (28%) live with family or friends and only 48 (24%) own their houses. Renters may have less control over installing fire safety features such as alarms or extinguishers, relying instead on landlords to meet safety requirements. This makes it important to involve both tenants and property owners in fire prevention efforts so everyone understands their role. In some areas, local policies could even require landlords to provide basic fire safety equipment. This finding aligns with the conclusions of Liao et al. (2024), who found that renters often face more fire risks than homeowners because they cannot always make safety improvements themselves.

Table 6. Demographic Characteristics of the Respondents in terms of Type of Dwelling

Demographic Characteristics	Frequency (*f*)	Percentage (%)
Type of Dwelling		
Detached house	156	78.0
Apartment	25	12.5
Townhouse	19	9.5
Total	200	100

As shown in Table 6, majority or 156 of the respondents live in detached houses (78%), while 25 (12.5%) are in apartments and 19 (9.5%) in townhouses. Detached homes may be less likely to spread fire to neighbors, but they are still vulnerable to common hazards like faulty wiring or kitchen fires. Apartments and townhouses may share safety systems, but fires can spread more quickly through shared walls and hallways. This means safety advice should be tailored to the type of home, with apartment and townhouse residents benefiting from building-wide fire drills and stricter safety checks. This is consistent with the study of Karlen et al. (2022), which showed that the type of dwelling significantly influences both the risks faced and the strategies needed to address them.

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Table 7. Demographic Characteristics of the Respondents in terms of Household Size

Demographic Characteristics	Frequency (*f*)	Percentage (%)
Household Size		
1-2 members	48	24.0
3-4 members	47	23.5
5-6 members	66	33.0
More than 6 members	39	19.5
Total	200	100

As highlightes in Table 7, household size varies. The largest group has 5–6 members (33%), followed by smaller households with 1–2 members (24%) or 3–4 members (23.5%), and larger households with more than 6 people (19.5%). Bigger families can make evacuation more challenging, especially if there are children, elderly members, or people with disabilities who need extra help. Having clear roles and a practiced evacuation plan can make all the difference in an emergency. Fire safety programs that consider household size can help ensure that everyone knows what to do. This result corroborates with Chu et al. (2024), who found that larger households often take longer to evacuate during emergencies, emphasizing the need for tailored planning.

Table 8. Demographic Characteristics of the Respondents in terms of Past Fire Experience

Demographic Characteristics	Frequency (*f*)	Percentage (%)
Past Fire Experience		
Yes	165	82.5
No	35	17.5
Total	200	100

As revealed in Table 8, 82.5% of respondents have experienced a fire before, while only 17.5% have not. This shared history implies that many people in the community already understand how dangerous and disruptive fires can be. For some, that experience might make them more motivated to take preventive measures; for others, it could bring back difficult memories. Either way, it's a prevailing starting point for fire safety programs, training can build on what people have learned from past events, while also addressing any gaps in knowledge or preparation. This finding supports the results of Karemaker et al. (2021), who reported that individuals with past fire experience are more likely to keep functional fire safety equipment at home.

II. Level of Awareness on Fire Safety Practices

2.1 Fire Prevention

Table 9. Level of Awareness on Fire Safety Practices in terms of Fire Prevention

Statements	Mean	Median	Mode	SD	Verbal Interpretation
1. Flammable materials should be kept away from heat sources.	3.28	3.00	3	.51	Very Aware
2. Electrical wiring should be checked regularly.	3.49	3.00	3	.50	Very Aware
3. Smoke alarms should be installed.	2.73	3.00	3	.70	Aware

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4. A fire extinguisher should be available.	2.63	3.00	3	.62	Aware
5. The importance of fire drills should be understood.	3.48	3.00	3	.50	Very Aware
6. Smoking materials should be disposed of properly.	3.25	3.00	3	.67	Aware
7. Electrical outlets should not be overloaded.	3.36	3.00	3	.63	Very Aware
8. Emergency contact numbers must be kept accessible.	3.39	3.00	3	.62	Very Aware
9. Knowledge on how to use a fire extinguisher is essential.	2.50	2.50	2	.50	Aware
10. A fire safety plan should be in place.	3.44	3.00	4	.59	Very Aware
OVERALL	**3.15**			**.19**	**Aware**

Legend: 1.00 – 1.75/Not Aware (NA)
1.76 – 2.50/Somewhat Aware (SA)
2.51 – 3.25/Aware (A)
3.26 – 4.00/Very Aware (VA)

Table 9 presents the respondents' level of awareness on fire safety practices specifically related to fire prevention. The overall mean score is 3.15, which corresponds to the verbal interpretation "Aware." This suggests that while respondents generally recognize fire safety principles, their awareness is moderate and not yet at the highest level.

Examining the data more closely, respondents rated statements such as "Electrical wiring should be checked regularly" (mean = 3.49) and "The importance of fire drills should be understood" (mean = 3.48) highest, both falling under "Very Aware." This indicates that the community places strong emphasis on routine maintenance and preparedness activities. Conversely, statements like "Knowledge on how to use a fire extinguisher is essential" (mean = 2.50) and "A fire extinguisher should be available" (mean = 2.63) received the lowest scores, with only "Aware" as interpretation, reflecting weaker familiarity with practical fire response skills.

Analyzing these findings reveals that while conceptual knowledge about fire prevention is well understood, practical competencies such as handling fire extinguishers and ensuring availability of safety equipment require further attention. The lower scores on practical items suggest a gap between knowing the importance of fire safety and having the confidence or training to implement it effectively during emergencies.

Interpreting the data in context, it appears that respondents are more confident with preventive measures that involve planning and routine checks but less so with hands-on fire response skills. This indicates a potential vulnerability in actual fire situations where quick and correct use of equipment is critical.

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The implications of this are clear that fire prevention programs should not only continue to educate about risks and preparedness but must also integrate practical, skill-based training such as fire extinguisher use and emergency drills. Such approaches would likely improve both confidence and actual readiness in the community.

This result corroborates with the study by Al-Hajj et al. (2023), which emphasized that communities engaged in regular safety checks and drills respond more effectively to fire emergencies. Additionally, the findings align with Zul et al. (2024), who identified limited hands-on knowledge of fire equipment among residents despite general awareness. Pooley et al. (2021) further support that skill-based fire safety education significantly reduces risks and enhances preparedness which underscores the need for practical training interventions in fire prevention efforts.

2.2 Fire Suppression

Table 10. Level of Awareness on Fire Safety Practices in terms of Fire Suppression

Statements	Mean	Median	Mode	SD	Verbal Interpretation
1. One should understand how to activate a fire alarm.	2.36	2.00	2	.48	Somewhat Aware
2. Recognizing different types of fires and appropriate responses is important.	2.47	2.00	2	.50	Somewhat Aware
3. Emergency contact protocols must be understood.	3.12	3.00	3	.70	Aware
4. One should know how to assist others during a fire.	2.91	3.00	3	.75	Aware
5. Familiarity with local fire department resources is necessary.	3.06	3.00	3	.73	Aware
6. The importance of firebreaks in	3.15	3.00	3	.71	Aware

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prevention must be understood.					
7. Signs of potential fire hazards should be recognized.	3.20	3.00	3	.71	Aware
8. One should know how to report a fire.	3.38	3.00	4	.64	Very Aware
9. Awareness of fire safety equipment available in the community is crucial.	3.34	3.00	3	.63	Very Aware
OVERALL	**3.00**			**.22**	**Aware**

Legend: 1.00 – 1.75/Not Aware (NA)
1.76 – 2.50/Somewhat Aware (SA)
2.51 – 3.25/Aware (A)
3.26 – 4.00/Very Aware (VA)

Table 10 presents the level of awareness of respondents regarding fire safety practices in terms of fire suppression. The overall mean score is 3.00, interpreted as "Aware." This suggests that while most respondents are generally knowledgeable about fire suppression practices, there are specific areas where awareness remains limited—particularly in understanding fire alarms and fire classifications.

Respondents rated "*One should know how to report a fire*" with the highest mean score of 3.38 and "*Awareness of fire safety equipment available in the community is crucial*" with a mean of 3.34, both falling under "Very Aware." These results suggest that respondents feel confident in their ability to respond to fire incidents and recognize the importance of community resources. On the other hand, statements such as "*One should understand how to activate a fire alarm*" (mean = 2.36) and "*Recognizing different types of fires and appropriate responses is important*" (mean = 2.47) were rated lowest, categorized as "Somewhat Aware." This indicates a noticeable gap in understanding technical fire suppression concepts.

These findings reveal that while general fire response knowledge is adequate, respondents lack sufficient familiarity with critical fire suppression skills, such as fire alarm activation and recognizing fire classifications. This deficiency could hinder timely and effective actions during emergencies.

Furthermore, it becomes apparent that the community is more comfortable with procedural responses, such as reporting fires and knowing about equipment availability, than with technical knowledge that requires specialized understanding. This gap could increase vulnerability during fire incidents if individuals are unsure how to properly activate alarms or identify the correct suppression method.

The implications suggest a pressing need for targeted training programs that focus on practical fire suppression skills. Incorporating demonstrations, simulations, and hands-on experiences would help build confidence and competence in these areas, thereby improving overall community safety.

This finding supports the conclusions of Aisyah (2022), who observed that awareness of reporting procedures and equipment accessibility enhances early fire response. Furthermore, it aligns with Aliesa et al. (2025), who emphasized the critical importance of understanding fire types and alarm systems in community preparedness. The recommendation for practical, skill-based education is also in line with guidelines from the Australian Institute for Disaster Resilience and is echoed in the work of Pooley et al. (2021), who advocate for hands-on training to bridge knowledge gaps and strengthen fire safety outcomes.

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2.3 Evacuation Procedures

Table 11. Level of Awareness on Fire Safety Practices in terms of Evacuation Procedures

Statements	Mean	Median	Mode	SD	Verbal Interpretation
1. The quickest exit routes in one's home should be known.	3.55	4.00	4	.50	Very Aware
2. Where to gather after evacuation should be understood.	3.37	3.00	3	.63	Very Aware
3. Community evacuation plans should be familiarized.	3.48	4.00	4	.58	Very Aware
4. How to assist those with disabilities during evacuation should be known.	3.44	3.00	4	.61	Very Aware
5. Awareness of evacuation signage in the community is necessary.	3.41	3.00	4	.64	Very Aware
6. The importance of staying calm during an evacuation should be understood.	3.43	4.00	4	.65	Very Aware
7. One should know what to bring during evacuation.	3.22	3.00	3	.72	Aware
8. Communication methods during an evacuation should be familiarized.	3.50	4.00	4	.55	Very Aware

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9. The role of emergency services during an evacuation should be understood.	3.50	3.50	4	.51	Very Aware
10. The importance of practicing evacuation drills must be recognized.	3.33	3.00	3	.64	Very Aware
OVERALL	**3.42**			**.21**	**Very Aware**

Legend: 1.00 – 1.75/Not Aware (NA)
1.76 – 2.50/Somewhat Aware (SA)
2.51 – 3.25/Aware (A)
3.26 – 4.00/Very Aware (VA)

Table 11 presents the respondents' level of awareness on fire safety practices in terms of evacuation procedures. The overall mean score is 3.42, which corresponds to the verbal interpretation "Very Aware." This indicates that respondents generally possess a strong understanding of essential evacuation practices, demonstrating readiness to act during fire-related emergencies.

The highest-rated items include "*One should know the quickest exit routes in the home*" with a mean of 3.55, "*One should know how to communicate during evacuation*" with a mean of 3.50, and "*One should understand the role of emergency services during evacuation*" with a mean of 3.50, all of which are interpreted as "Very Aware." These results suggest that respondents feel confident in navigating escape routes, maintaining communication, and coordinating with emergency responders. On the other hand, the lowest-rated item, "*One should know what to bring during evacuation*," recorded a mean of 3.22, interpreted as "Aware," which indicates a slight gap in readiness when it comes to preparing essential items such as emergency kits, important documents, and personal medications.

These findings reveal that while the community is well-prepared in terms of route familiarity and communication strategies, there is less emphasis on the practical aspect of gathering necessary items before evacuation. This gap, although relatively small, could have implications for safety and recovery post-evacuation, especially for vulnerable groups such as the elderly, children, and individuals with medical needs.

Moreover, it becomes apparent that the respondents are more confident in the procedural elements of evacuation than in the logistical preparation that ensures long-term safety and comfort after leaving the premises. This indicates an opportunity for improvement in household preparedness planning.

The implications suggest the need for community training programs and regular evacuation drills that not only reinforce route awareness and communication but also incorporate practical guidance on assembling and maintaining emergency go-bags.

This result corroborates the findings of O'Connor and Flynn (2021), who emphasized that preparedness encompassing both evacuation skills and essential item readiness leads to more efficient and safer emergency responses. It also aligns with the work of Howard et al. (2017) and Kako et al. (2020), who observed that insufficient knowledge of evacuation essentials increases vulnerability in crisis situations. Furthermore, it supports Wandabwa's (2025) conclusion that hands-on evacuation exercises and personalized planning significantly strengthen community resilience against fire-related hazards.

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III. Difference in the level of awareness on fire safety among the respondents

Table 12. Difference in the level of awareness on fire safety among the respondents when grouped according to their demographic profile

Demographic Profile	Awareness Aspect	Test Used	Test Statistic	p-value	Interpretation
Age	Fire Prevention	Kruskal-Wallis H		.836	Not Significant
	Fire Suppression	Kruskal-Wallis H		.354	Not Significant
	Evacuation Procedures	Kruskal-Wallis H		.464	Not Significant
Gender	Fire Prevention	Mann-Whitney U		.706	Not Significant
	Fire Suppression	Mann-Whitney U		.962	Not Significant
	Evacuation Procedures	Mann-Whitney U		.023	Significant
Educational Attainment	Fire Prevention	Kruskal-Wallis H		.535	Not Significant
	Fire Suppression	Kruskal-Wallis H		.388	Not Significant
	Evacuation Procedures	Kruskal-Wallis H		.695	Not Significant
Homeownership Status	Fire Prevention	Kruskal-Wallis H		.333	Not Significant
	Fire Suppression	Kruskal-Wallis H		.855	Not Significant
	Evacuation Procedures	Kruskal-Wallis H		.586	Not Significant
Educational Attainment	Fire Prevention	Kruskal-Wallis H		.535	Not Significant
	Fire Suppression	Kruskal-Wallis H		.388	Not Significant
	Evacuation Procedures	Kruskal-Wallis H		.695	Not Significant
Homeownership Status	Fire Prevention	Kruskal-Wallis H		.333	Not Significant
	Fire Suppression	Kruskal-Wallis H		.855	Not Significant
	Evacuation Procedures	Kruskal-Wallis H		.586	Not Significant
Type of Dwelling	Fire Prevention	Kruskal-Wallis H		.632	Not Significant

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	Fire Suppression	Kruskal-Wallis H		.753	Not Significant
	Evacuation Procedures	Kruskal-Wallis H		.860	Not Significant
Household Size	Fire Prevention	ANOVA	F = 1.381	.250	Not Significant
	Fire Suppression	Kruskal-Wallis H		.983	Not Significant
	Evacuation Procedures	Kruskal-Wallis H		.936	Not Significant
Past Fire Experience	Fire Prevention	Mann-Whitney U		.144	Not Significant
	Fire Suppression	Mann-Whitney U		.016	Significant
	Evacuation Procedures	Mann-Whitney U		.984	Not Significant

Note: *Significance level set at p < 0.05.*

Table 12 highlights the differences in the level of awareness on fire safety among respondents when grouped according to their demographic profile. The results reveal that most demographic variables, including age, educational attainment, homeownership status, type of dwelling, and household size, do not show statistically significant differences in awareness for any of the three fire safety aspects: fire prevention, fire suppression, and evacuation procedures. This suggests a relatively uniform level of fire safety awareness across these population segments.

On the other hand, two areas showed statistically significant differences. First, gender was found to significantly influence awareness in evacuation procedures ($p = .023$), indicating that males and females may vary in their familiarity, confidence, or approach to evacuation-related practices. Second, past fire experience demonstrated a significant impact on awareness in fire suppression ($p = .016$), suggesting that individuals who have previously experienced a fire are more likely to possess stronger knowledge or skills in responding to such emergencies.

These findings reveal that while demographic factors such as age or education do not substantially shape fire safety awareness, experiential and possibly socially influenced factors, such as gender roles and direct exposure to fire incidents, do affect specific aspects of preparedness. This suggests that personal involvement and lived experiences may enhance practical competencies in fire response.

Furthermore, it becomes evident that exposure to real-life fire situations serves as a catalyst for developing applied fire suppression skills, while gender-related differences in evacuation awareness may be rooted in variations in risk perception, training opportunities, or role expectations during emergencies.

The implications suggest the value of targeted interventions. Fire safety programs could benefit from tailoring evacuation awareness campaigns to address gender-specific needs and perspectives, while also incorporating experiential learning opportunities, such as simulated drills and scenario-based training, to bridge the knowledge gap for individuals without prior fire experience.

This result corroborates the findings of Bronfman et al. (2020), who noted that direct disaster experience significantly improves hazard response behavior. This is also supported by the study of Epal et al. (2024), who emphasized that gender-based differences in emergency preparedness can be addressed through inclusive and context-sensitive training approaches. Furthermore, the

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emphasis on lived experience as a driver of skill development aligns with the conclusions of Stone et al. (2021), who advocated for immersive fire safety training to strengthen community resilience.

IV. Implementation Level of the Fire Safety Practices and Measures

4.1 Fire Prevention

Table 13. ***Implementation Level of the Fire Safety Practices and Measures in terms of Fire Prevention***

Statements	Mean	Median	Mode	SD	Verbal Interpretation
1. Flammable materials should be kept away from heat sources.	3.55	4.00	4	.57	Fully Implemented
2. Electrical wiring should be checked regularly.	3.41	4.00	4	.72	Fully Implemented
3. Smoke alarms should be installed.	3.54	4.00	4	.64	Fully Implemented
4. A fire extinguisher must be available.	3.57	4.00	4	.57	Fully Implemented
5. The importance of fire drills should be understood.	3.44	4.00	4	.71	Fully Implemented
6. Smoking materials must be properly disposed of.	3.36	4.00	4	.74	Fully Implemented
7. Overloading electrical outlets must be avoided.	3.42	4.00	4	.74	Fully Implemented
8. Emergency contact numbers accessible should be kept.	3.36	4.00	4	.73	Fully Implemented
9. One should know how to use a fire extinguisher.	3.58	4.00	4	.55	Fully Implemented
10. A fire safety plan should be in place.	3.61	4.00	4	.49	Fully Implemented
OVERALL	**3.48**			**.24**	**Fully Implemented**

Legend: 1.00 – 1.75/Not Implemented (NI)
1.76 – 2.50/Somewhat Implemented (SI)
2.51 – 3.25/Implemented (I)
3.26 – 4.00/Fully Implemented (FI)

Table 13 reveals the respondents' implementation level of fire safety practices and measures in terms of fire prevention. The overall mean score is 3.48, which corresponds to the verbal interpretation "Fully Implemented." This suggests that, in general, respondents consistently apply preventive measures in their households, reflecting a proactive stance toward minimizing fire hazards.

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The highest-rated statements are "*A fire safety plan should be in place*" (mean = 3.61), "*One should know how to use a fire extinguisher*" (mean = 3.58), and "*Flammable materials should be kept away from heat sources*" (mean = 3.55), all of which fall under "Fully Implemented." These findings indicate that respondents prioritize structured preparedness, practical firefighting skills, and hazard reduction measures. In addition, smoke alarm installation (mean = 3.54) and regular checking of electrical wiring (mean = 3.41) also received high ratings, showing that respondents are attentive to both detection systems and potential ignition sources.

These results reveal that respondents demonstrate a balanced approach to fire prevention, such as combining planning, equipment readiness, and environmental hazard control. The relatively high scores across all items indicate that safety-conscious behaviors are well-integrated into their daily routines, suggesting that awareness campaigns and community education efforts have translated effectively into action.

Additionally, it becomes apparent that the community is not only aware of fire prevention principles but is actively embedding them into household practices. This strong implementation may be the result of continuous exposure to safety information, reinforced by local ordinances, public drills, and advocacy programs.

The implications point toward the importance of sustaining these practices while also addressing potential complacency. Maintaining high compliance requires regular reinforcement, equipment maintenance, and refresher training to ensure that these measures remain effective over time. Encouraging peer-to-peer advocacy and integrating fire safety checks into community events could further strengthen adherence.

This result corroborates the findings of Kodur et al. (2020), who reported that households with established fire safety plans and trained members show significantly reduced fire risks. Furthermore, it supports the observations of Seyedin et al. (2020), who found that combining education with the provision of fire safety equipment leads to higher adoption rates and measurable safety improvements at the household level.

4.2 Fire Suppression

Table 14. Implementation Level of the Fire Safety Practices and Measures in terms of Fire Suppression

Statements	Mean	Median	Mode	SD	Verbal Interpretation
1. How to activate a fire alarm must be understood.	3.52	4.00	4	.70	Fully Implemented
2. One must know how to use a fire extinguisher.	3.40	4.00	4	.69	Fully Implemented
3. Recognizing different types of fires and appropriate responses is important.	3.42	4.00	4	.70	Fully Implemented
4. Emergency contact protocols must be understood.	3.45	4.00	4	.70	Fully Implemented

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5. One must know how to assist others during a fire.	3.49	4.00	4	.69	Fully Implemented
6. Familiarity with local fire department resources is important.	3.47	4.00	4	.72	Fully Implemented
7. The importance of firebreaks in prevention must be understood.	3.47	4.00	4	.66	Fully Implemented
8. Signs of potential fire hazards must be recognized.	3.40	4.00	4	.74	Fully Implemented
9. One must know how to report a fire.	3.43	4.00	4	.72	Fully Implemented
10. Awareness of fire safety equipment available in the community is important.	3.43	4.00	4	.70	Fully Implemented
OVERALL	**3.45**			**.25**	**Fully Implemented**

Legend: 1.00 – 1.75/Not Implemented (NI)
1.76 – 2.50/Somewhat Implemented (SI)
2.51 – 3.25/Implemented (I)
3.26 – 4.00/Fully Implemented (FI)

Table 14 underscores the respondents' implementation level of fire safety practices and measures in terms of fire suppression. The overall mean score is 3.45, which corresponds to the verbal interpretation "Fully Implemented." This indicates that respondents not only understand fire suppression measures but also consistently put them into practice, demonstrating a strong level of preparedness for emergency situations.

The highest-rated statements are "*How to activate a fire alarm must be understood*" (mean = 3.52) and "*One must know how to assist others during a fire*" (mean = 3.49), both under "Fully Implemented." These results suggest that respondents are equipped with both technical know-how and cooperative skills – two essential aspects of an effective fire suppression response. Additionally, high ratings for "*Familiarity with local fire department resources*" (mean = 3.47) and "*The importance of firebreaks in prevention must be understood*" (mean = 3.47) indicate that respondents are aware of the value of community-level coordination and environmental safety measures.

These results reveal a well-rounded implementation of fire suppression practices that combines procedural readiness, technical ability, and resource awareness. The consistent scores across all items suggest that respondents are not only competent in individual actions, such as using a fire extinguisher (mean = 3.40) and recognizing signs of fire hazards (mean = 3.40), but are also capable of engaging in coordinated responses with others.

Moreover, it becomes clear that the community's fire suppression readiness is strengthened by both personal competence and collective cooperation. This balance between individual skill and team-oriented preparedness is critical, as it ensures that fire incidents can be addressed swiftly and effectively from multiple fronts.

The implications suggest the importance of sustaining and reinforcing these practices through continuous training, regular drills, and equipment familiarization sessions. Maintaining this high level of implementation will require proactive community engagement, updated safety protocols, and opportunities for hands-on practice to prevent skill deterioration over time.

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This result corroborates the findings of Nijhar (2023), who observed that households proficient in both alarm activation and assistance behaviors respond faster and more effectively during fire emergencies. It also supports Barua et al. (2025), who emphasized that recognizing fire classifications and knowing how to coordinate with local resources significantly enhances suppression outcomes. Furthermore, it aligns with the recommendations of the U.S. National Fire Protection Association (NFPA), which advocate for integrated community training programs that combine technical skill-building with collaborative response strategies to ensure optimal fire safety preparedness.

4.3 Evacuation Procedures

Table 14. Implementation Level of the Fire Safety Practices and Measures in terms of Evacuation Procedures

Statements	Mean	Median	Mode	SD	Verbal Interpretation
1. One must know the quickest exit routes at home.	3.50	4.00	4	.74	Fully Implemented
2. Where to gather after evacuation must be understood.	3.36	4.00	4	.77	Fully Implemented
3. Community evacuation plans should be familiarized.	2.23	2.00	1	1.23	Somewhat Implemented
4. One must know how to assist those with disabilities during evacuation.	3.43	4.00	4	.77	Fully Implemented
5. Awareness of evacuation signage in the community is essential.	2.89	3.00	2	.92	Implemented
6. The importance of staying calm during an evacuation should be understood.	2.28	2.00	1	1.22	Somewhat Implemented
7. One must know what to bring during evacuation.	2.44	2.00	1	1.28	Somewhat Implemented

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8. Familiarity with communication methods during an evacuation is important.	2.13	2.00	1	1.23	Somewhat Implemented
9. The role of emergency services during an evacuation should be understood.	2.86	3.00	4	1.26	Implemented
10. Awareness of the importance of practicing evacuation drills is important.	2.55	3.00	1	1.28	Implemented
OVERALL	**2.76**			**.34**	**Implemented**

Legend: 1.00 – 1.75/Not Implemented (NI)
1.76 – 2.50/Somewhat Implemented (SI)
2.51 – 3.25/Implemented (I)
3.26 – 4.00/Fully Implemented (FI)

Table 14 indicates the respondents' implementation level of fire safety practices and measures in terms of evacuation procedures. The overall mean score is 2.76, which corresponds to the verbal interpretation "Implemented." This indicates that while respondents generally practice evacuation measures, certain aspects remain less consistently applied and may require further reinforcement.

The highest-rated statements are "*One must know the quickest exit routes at home*" (mean = 3.50) and "*One must know how to assist those with disabilities during evacuation*" (mean = 3.43), both interpreted as "Fully Implemented." These results suggest that respondents possess strong knowledge of immediate escape routes and demonstrate awareness of the importance of supporting vulnerable individuals during emergencies. In contrast, items such as "*Familiarity with communication methods during an evacuation*" (mean = 2.13), "*The importance of staying calm during an evacuation*" (mean = 2.28), and "*One must know what to bring during evacuation*" (mean = 2.44) are rated as "Somewhat Implemented." This points to weaker preparedness in areas related to communication planning, mental composure, and evacuation readiness. Meanwhile, statements like "*Awareness of evacuation signage in the community*" (mean = 2.89) and "The role of emergency services during an evacuation" (mean = 2.86) fall under "Implemented," indicating partial but not complete integration into practice.

These findings reveal a preparedness profile where respondents are more confident in executing immediate evacuation actions, such as exiting quickly and aiding others, than in managing the broader logistical, informational, and psychological aspects of evacuation. The uneven ratings suggest that while respondents can perform basic escape tasks, they may struggle to coordinate effectively, remain composed, or gather essential resources during an actual emergency.

Furthermore, it appears that the community's evacuation readiness is anchored more in instinctive or well-practiced escape routes than in holistic evacuation planning. Without stronger communication systems, clear signage awareness, and preparedness for post-evacuation needs, individuals may face unnecessary risks or delays in reaching safety.

The implications highlight the need for targeted interventions that strengthen communication protocols, promote regular evacuation drills, and cultivate mental readiness during high-stress situations. Public awareness campaigns and practical simulations could help reinforce weaker areas, while partnerships with local emergency services could enhance knowledge of official evacuation procedures.

This result corroborates the conclusions of McBride et al. (2022), who emphasized that familiarity with escape routes and inclusive support for all household members significantly improves evacuation safety. It also aligns with the findings of Montesanti et al. (2022), who observed that lack of communication planning and insufficient practice often hinders evacuation

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efficiency. Furthermore, these results support the recommendations of Rilo et al. (2022), who underscored the importance of visible evacuation signage and public knowledge of emergency service roles as critical components for ensuring safe and organized evacuations.

V. Difference in the level of implementation of the fire safety practices

Table 15. Difference in the level of implementation of the fire safety practices among the respondents if grouped according to profile

Demographic Profile	Implementation Aspect	Test Used	p-value	Interpretation
Age	Fire Prevention	Kruskal-Wallis H	.340	Not Significant
	Fire Suppression	Kruskal-Wallis H	.582	Not Significant
	Evacuation Procedures	Kruskal-Wallis H	.599	Not Significant
Gender	Fire Prevention	Mann-Whitney U	.170	Not Significant
	Fire Suppression	Mann-Whitney U	.157	Not Significant
	Evacuation Procedures	Mann-Whitney U	.797	Not Significant
Educational Attainment	Fire Prevention	Kruskal-Wallis H	.622	Not Significant
	Fire Suppression	Kruskal-Wallis H	.403	Not Significant
	Evacuation Procedures	Kruskal-Wallis H	.441	Not Significant
Homeownership Status	Fire Prevention	Kruskal-Wallis H	.381	Not Significant
	Fire Suppression	Kruskal-Wallis H	.656	Not Significant
	Evacuation Procedures	Kruskal-Wallis H	.025	Significant
Type of Dwelling	Fire Prevention	Kruskal-Wallis H	.073	Not Significant
	Fire Suppression	Kruskal-Wallis H	.220	Not Significant
	Evacuation	Kruskal-Wallis	.923	Not Significant

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Household Size	Fire Prevention	Kruskal-Wallis H	.164	Not Significant
	Fire Suppression	Kruskal-Wallis H	.180	Not Significant
	Evacuation Procedures	Kruskal-Wallis H	.267	Not Significant
Past Fire Experience	Fire Prevention	Mann-Whitney U	.075	Not Significant
	Fire Suppression	Mann-Whitney U	.640	Not Significant
	Evacuation Procedures	Mann-Whitney U	.297	Not Significant

Note: *Significance level set at $p < 0.05$.*

Table 15 presents the difference in the level of implementation of fire safety practices among respondents when grouped according to their demographic profile. The statistical results reveal that most demographic variables, such as age, gender, educational attainment, type of dwelling, household size, and past fire experience, do not exhibit significant differences in the implementation of fire prevention, fire suppression, or evacuation procedures, as indicated by p-values greater than 0.05. The only exception is homeownership status, where a significant difference was noted in the implementation of evacuation procedures ($p = 0.025$).

Additionally, respondents who own their homes appear to have higher levels of implementation in evacuation procedures compared to those who rent or live with relatives. This difference may be attributed to the fact that homeowners generally have greater control over their property, enabling them to make structural modifications, designate safe exits, and acquire necessary evacuation tools. Renters and those living in shared dwellings may face limitations due to property rules, lack of authority, or restricted space, which can hinder the execution of effective evacuation plans.

These findings suggest that while demographic characteristics such as age or gender do not significantly shape fire safety practices, the nature of one's housing arrangement plays a measurable role, particularly in evacuation readiness. This implies that the physical and administrative control one has over their living environment directly influences their ability to prepare and act during emergencies.

Moreover, it becomes evident that targeted interventions may be needed for non-homeowners to bridge the gap in evacuation preparedness. This could include community-wide evacuation drills, provision of portable safety equipment, and coordinated planning between tenants, landlords, and local authorities to ensure that all residents, regardless of housing status, have access to safe and efficient evacuation procedures.

The implications of this finding highlight the importance of housing-related factors in disaster preparedness. Tailoring fire safety programs to address the unique challenges faced by renters and those in shared housing could enhance overall community resilience.

This aligns with the observations of Ackah et al. (2025), who found that residents with greater control over their environment exhibit higher compliance with safety measures. It is also consistent with the findings of Harris (2025), who emphasized that community-wide evacuation readiness improves when planning accounts for housing diversity. Similarly, Aisyah (2022) highlighted the need for inclusive fire safety strategies that extend beyond owner-occupied residences to ensure equitable safety outcomes for all demographic groups.

Conclusions

Based on the findings of this study, the following conclusions were drawn.

1. The demographic profile of the respondents shows that many come from vulnerable groups—women, renters, and families with past fire experiences—making it essential to design community-based fire safety programs that are accessible and responsive to their living conditions.
2. While respondents have a high level of awareness in evacuation procedures, there are still gaps in practical fire response skills, particularly in fire prevention and suppression, such as the proper use of alarms, fire extinguishers, and preparation of evacuation kits.
3. Past fire experience strengthens awareness and readiness in fire suppression, while gender differences influence confidence in evacuation procedures. This indicates the need for experience-based training and gender-sensitive interventions to close awareness gaps.

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4. The full implementation of fire prevention and suppression practices suggests that households value safety measures, but the moderate implementation of evacuation procedures highlights weak points in preparedness, communication, and actual practice of drills.
5. Homeownership status plays a key role in implementation. Homeowners have more control to adopt and maintain fire safety measures, while renters and those sharing spaces face barriers that limit their ability to prepare for evacuation effectively.
6. The proposed targeted fire prevention program directly addresses these gaps by focusing on skills development, equipment orientation, and evacuation preparedness, with special attention to vulnerable groups such as renters, informal settlers, youth, elderly, and women, through short-term but coordinated local action.

Recommendations

In light of the findings and conclusions of this study, the following recommendations were suggested.

1. **Gender-Responsive Evacuation Toolkit**
   Develop a toolkit that contains separate evacuation guidelines designed for women, single mothers, elderly caregivers, and youth. This includes child-handling strategies, quick-evacuation checklists for mothers, and stress-reduction techniques tailored to groups that showed lower confidence in drills.
2. **Rental Housing Fire Safety Accreditation**
   Introduce a barangay-level accreditation system where rental houses and boarding homes are rated for fire safety readiness. Properties that comply with minimum safety standards (working alarms, marked exits, visible evacuation maps) are given a certificate, while non-compliant properties are listed for improvement.
3. **Experience-Sharing Simulation Program**
   Create a peer-led simulation series where residents who survived fire incidents serve as "co-trainers." They will guide households through step-by-step mock fire scenarios, allowing community members to learn directly from lived experiences rather than only formal instruction.
4. **Portable Safety Corners for Informal Settlements**
   Install movable safety kiosks in densely populated informal areas. These kiosks will include a mounted smoke alarm demo, illustrated guides in local dialects, and emergency supply samples. This ensures fire safety awareness reaches residents in areas where permanent infrastructure is not possible.
5. **Evacuation Confidence Index**
   Design and pilot an "Evacuation Confidence Index" to measure household readiness before and after interventions. The index uses short barangay-administered surveys and drills to score households on evacuation speed, composure, and preparedness. Results are reported back to the community to track progress.
6. **Fire Safety Data Dashboard with SMS Alerts**
   Launch a barangay dashboard linked to SMS notification systems that send reminders about checking alarms, updating go-bags, or participating in drills. This real-time feedback system ensures households remain engaged in fire safety even outside training sessions.

REFERENCES

1.1 Books

1.2 Published Researches

1. *Aisyah, S. (2022). Implementation of Qanun Aceh Number 9 of 2019 Regarding the Handling of Violence Against Women and Children (Doctoral dissertation, UIN Ar-Raniry).*
2. *Al-Hajj, S., Thomas, L., Morris, S., Clare, J., Jennings, C., Biantoro, C., ... & Pike, I. (2023). Community fire risk reduction: longitudinal assessment for HomeSafe Fire Prevention Program in Canada. International journal of environmental research and public health , 20 (14), 6369. https://www.mdpi.com/1660-4601/20/14/6369*
3. *Barua, U., Mojtahedi, M., Han, H., & Ansary, M. A. (2025). Conceptualizing Resilience, Sustainability and Smartness for Building Fire Risk Management. Sustainable Development. https://onlinelibrary.wiley.com/doi/pdf/10.1002/sd.70062*
4. *Garcia, L. A. (2019). Fire Training Fatalities and Firefighter Adherence to National fire Protection Association Standards. Walden University. https://scholarworks.waldenu.edu/cgi/viewcontent.cgi?article=7483&context=dissertations*
5. *Howard, A., Agllias, K., Bevis, M., & Blakemore, T. (2017). "They'll tell us when to evacuate": The experiences and expectations of disaster-related communication in vulnerable groups. International journal of disaster risk reduction, 22, 139-146.*
6. *Kako, M., Steenkamp, M., Ryan, B., Arbon, P., & Takada, Y. (2020). Best practice for evacuation centres accommodating vulnerable populations: a literature review. International journal of disaster risk reduction, 46, 101497. https://d1wqtxts1xzle7.cloudfront.net/111704640/j.ijdrr.2020.10149720240222-1-uninux-libre.pdf?1708568426=&response-content-disposition=inline%3B+filename%3DBest_practice_for_evacuation_centres_acc.pdf&Expires=1752930414&Signature=B-sG6qi81hui9tfhA4FKPHzJJiQli7NaNn-yhDJG2Dqz8yQLLqdVcCupy6TgrrToim0gQXSiAdiaMZNQsSEh~xwjgwtFBS6Il9i7neWtdKKwtf2R8Y4QT~Rb6KqvlxL6VqtyCZ6HJrclaXG1U-V-1SOF5kQ5~dfq3h0fQzKJ8B0wqJPIURBlDgtUJKovaVzvfO-3NszVaaAAKLE8aI6Ws5pKoQ6G21CXXd~D6~IOPb1M69FI3Cww71I6TvwP9ohObZ96VgoSbaQfrmlXdQzPpMK-CIrdztFecrhcJmFLLF7I3cq3uS~hTLsPJcUrOFg-zTOzvDoLwIAm89lhCKTz5g__&Key-Pair-Id=APKAJLOHF5GGSLRBV4ZA*

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EPRA International Journal of Research and Development (IJRD)
Volume: 10 | Issue: 12 | December 2025 - Peer Reviewed Journal

7. *McBride, S. K., Smith, H., Morgoch, M., Sumy, D., Jenkins, M., Peek, L., ... & Wood, M. (2022). Evidence-based guidelines for protective actions and earthquake early warning systems. Geophysics, 87(1), WA77-WA102. https://library.seg.org/doi/pdf/10.1190/geo2021-0222.1*
8. *Montesanti, S., Fitzpatrick, K., Azimi, T., McGee, T., Fayant, B., & Albert, L. (2021). Exploring Indigenous ways of coping after a wildfire disaster in Northern Alberta, Canada. Qualitative health research, 31(8), 1472-1485. https://journals.sagepub.com/doi/pdf/10.1177/10497323211009194*
9. *Nijhar, K. (2023). Modelling the Factors Affecting Urban Residential Fire-A Case Study of Melbourne (Doctoral dissertation, RMIT University Australia).*
10. *O'Connor, H., & Flynn, P. (2021). Supporting the Transition from Primary to Postprimary Education in 2021: Perspectives from Irish Postprimary Practitioners. Education Sciences, 11(9), 546. https://www.mdpi.com/2227-7102/11/9/546*
11. *Pooley, K., Nunez, S., & Whybro, M. (2021). Evidence-based practices of effective fire safety education programming for children. Australian Journal of Emergency Management, The, 36(2), 34-41. https://knowledge.aidr.org.au/resources/ajem-april-2021-evidence-based-practices-of-effective-fire-safety-education-programming-for-children/*
12. *Rilo, A., Tavares, A. O., Freire, P., Zêzere, J. L., & Haigh, I. D. (2022). Improving estuarine flood risk knowledge through documentary data using multiple correspondence analysis. Water, 14(19), 3161. https://www.mdpi.com/2073-4441/14/19/3161*
13. *Wandabwa, J. (2025). Mitigating Fire Risks through Effective Legal Compliance and Strategic Litigation: Enhancing Disaster Preparedness, Policy Reform, and Community Resilience in the United States. International Journal of Advance Research Publication and Reviews, 2(7), 123-145. https://www.researchgate.net/profile/Joseph-Wandabwa/publication/393647718_Mitigating_Fire_Risks_Through_Effective_Legal_Compliance_and_Strategic_Litigation_Enhancing_Disaster_Preparedness_Policy_Reform_and_Community_Resilience_in_the_United_States/links/687367350d8ed26a9d5a92f6/Mitigating-Fire-Risks-Through-Effective-Legal-Compliance-and-Strategic-Litigation-Enhancing-Disaster-Preparedness-Policy-Reform-and-Community-Resilience-in-the-United-States.pdf*
14. *Zul, N. A. M., Sulaiman, W. Z. W., Mokhtar, K. M., Suhaimi, N. S., Fauzan, N. S., & Rani, S. I. (2024). Knowledge, attitude, and practice of fire safety systems and preparedness among students at higher learning institutions. Social and Management Research Journal, 21(2 September), 95-114. https://www.researchgate.net/publication/387990098_Knowledge_Attitude_and_Practice_of_Fire_Safety_Systems_and_Preparedness_Among_Students_at_Higher_Learning_Institutions*