ENSIGN GLOBAL COLLEGE

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ASSESSING HOUSEHOLD COMPLIANCE TO FIRE SAFETY PREPAREDNESS IN THE ASHIAMAN MUNICIPALITY OF THE GREATER ACCRA REGION OF GHANA

BY

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DECLARATION

I declare that this submission is my work for the master's degree in public health and that, to the best of my knowledge, it does not contain any material that has been previously published by another person or material that has been accepted for the award of any other degree from the college, except any instances where appropriate acknowledgement has been made in the text.

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DEDICATION

I sincerely dedicate this study to my parents, who have supported me throughout this journey and served as my source of inspiration.

To my sisters, friends, and classmates who gave me words of wisdom and motivation to complete this research.

ACKNOWLEDGEMENT

I thank God for making this work a reality. I equally extend my appreciation to my faculty members and other staff of Ensign Global College especially my supervisor Dr. Edward Sutherland, for all the support I received throughout this journey. I am more than grateful to him for painstakingly taking me through this work. I also thank my parents, Mr. and Mrs. Ocran and to my lovely wife Mrs. Ama Mbroba Ocran and my children for their understanding sacrifice and support.

ABSTRACT

Background: In recent years, fire breakouts have gained global attention. Globally, fire is seen as a possible danger to sustainable development because to its influence on ecosystems, contribution to carbon emissions, and effect on biodiversity. The Earth has been plagued by a series of natural catastrophes. In Ghana, fires have contributed to a number of man-made catastrophes with various property and life losses. Fire safety readiness encompasses the availability and successful use of processes, infrastructure, and equipment, as well as the understanding and positive attitude of building occupants and employees toward the fulfilment of fire safety preparedness rules. **Objective:** The main objective of the study was to assess the knowledge and attitude of households' and their compliance to fire safety preparedness in the Tema-Ashaiman Municipality. **Method:** This study adopted the quantitative approach. The research employed a systematic sampling approach to select 413 participants from different households in the study area. The data collection instrument was questionnaire which covered the knowledge, attitudes and compliance to fire safety among households. Through the use of IBM SPSS v 26.0, the data was analysed using descriptive analytical tools specifically, measures of central tendencies such as means, frequency, percentage and standard deviation. **Results:** The assessment of knowledge regarding fire safety measures among participants highlights the success of prior awareness campaigns, with nearly half of the respondents demonstrating a strong understanding of these measures. a significant deficiency was observed in terms of active fire control systems within residential buildings. By addressing both the successes and challenges in fire safety preparedness and compliance, communities can work towards creating a safer and more resilient living environment.

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CHAPTER ONE

1.0 INTRODUCTION

1.1 Background of the Study

In recent years, fire breakouts have gained global attention. Fire is seen as a possible danger to sustainable growth on a global scale as of its influence on ecosystems, contribution to carbon emissions, and impact on biodiversity (Tacconi and Muttaqin, 2019) (Tacconi and Research (CIFOR), 2003). Numerous natural calamities, including flooding, fire, storms, earthquakes, volcanic activity, and landslides, have befallen the planet. In Ghana, a number of man-made catastrophes with various property and life losses is related to fire (Agyekum *et al*., 2016b). Fire breakouts are calamities that are directly or indirectly caused by human acts. Fire safety encompasses all operations targeted toward preventing, detecting, and controlling fires.

Fire and safety preparation is one of the four stages of fire emergency management focused on reducing the likelihood of a fire tragedy. This is a constant cycle of planning, organizing, training, equipping, exercising, reviewing, and enhancing tactics to enable efficient cooperation and capability development in response to fire catastrophes (FEMA, 2017). Preparedness for fire safety is crucial for both environmental and workplace safety and health. Many workplaces have been damaged by fires, which are an example of a physical hazard, and the majority of them are caused by poor techniques for fire safety measures, identification as well as fire management. The possibility of loss of life or harm due to a fire-related occurrence is one of the gravest threats an institution may face. To increase fire safety, urbanized regions such as Ashaiman Municipality should have a thorough fire safety preparation program. A good fire safety program requires meticulous design, execution, and ongoing maintenance. Residents of the Ashaiman municipality are required to comply with fire safety readiness regulations due to injury (AMA, 2022). Fire safety

readiness consists of the knowledge and good mood of the people living there, as well as the availability and good use of processes, infrastructure, and equipment toward the application of fire safety preparedness rules. In many institutions, lives have been saved by smoke detectors in the few years after their introduction and widespread usage.

Shared attempts to eradicate house fire-related fatalities in the Ashaiman municipality highlight the need for the deployment of smoke detectors, laws mandating the installation of fire detection and management equipment in all homes, and enforcement of current fire-safety rules (Istre and Mallonee, 2000). The enforcement of laws and fire safety preparation requirements is essential for improving fire safety. In metropolitan areas, fires result in fatalities, the loss of houses and property, and psychological anguish for those impacted. Therefore, it is incumbent upon occupants to ensure that these facilities are devoid of fire dangers. By strengthening fire safety preparation via the supply of infrastructure, equipment, and fire rules, it is possible to create fire-free centers. This necessitates a proactive attitude on the part of authorities and all other individuals to ensure the execution of solutions for fire safety preparation. Preparedness for fire safety increases the attainment of fire disaster management objectives and avoids and mitigates the harmful effects of fire breakouts. There are three necessary conditions for a fire outbreak to begin. Participating in a chemical reaction is oxygen, a combustible material. Figure 1 depicts a trio of these variables necessary for the initiation and maintenance of a fire. Hence, fire prevention focuses on preventing the incidence of one or all three factors (Caplan, 2018)

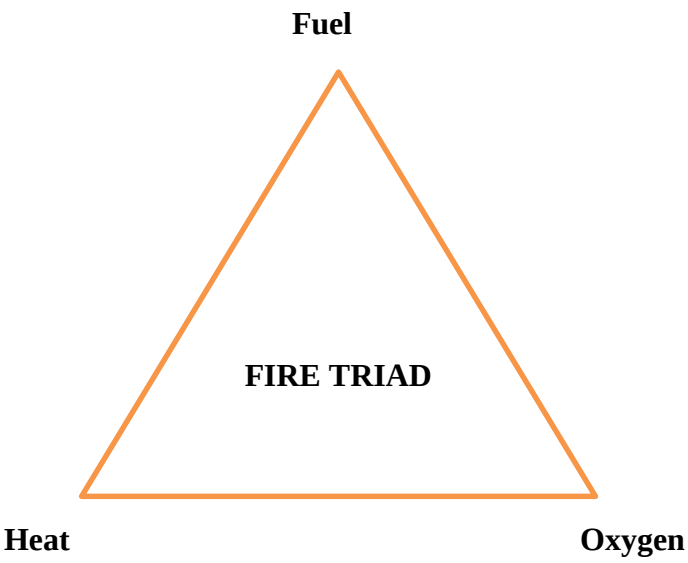

Figure 1: Fire Triad

Source: (Caplan, 2018)

Effective fire safety preparation increases the likelihood that fires will be handled and controlled promptly, efficiently, and safely if they occur. Also, if a fire breaks out and spreads, the occupants are able to reach a safe location rapidly and effortlessly. Fire outbreaks have disastrous effects not just on people, but also on organizations, communities, and, by extension, countries. Injuries to workers and students, fatalities and disabilities, psychological trauma, lost of assets, financial loss to the institutions and parents/guardians, and the closure of academic institutions are all results of institutional fires. interruption of education and job losses. There are also several negative impacts of burning on the ecology, particularly chemical fires that generate hazardous gasses and pollutants (Degher, 2020). One of the most important phases is fire avoidance, but when fires do develop, the best results rely on coordinated teamwork (Hart et al., 2011). This necessitates the empowering of individuals with essential information on fire safety preparation and the modification of attitudes and perceptions around the subject. Individuals must be schooled in fire safety readiness and be willing to adjust existing attitudes/perceptions in order to properly implement the correct fire safety preparedness rules.

Communities must have well-organized and coordinated fire emergency management procedures in place, and fire rescue teams and firefighting agencies/bodies must collaborate across sectors. The possibility of loss of life or harm due to a fire-related occurrence is one of the greatest dangers Ashaiman faces. To comply with environmental and occupational safety and health standards, therefore, Ashaiman municipality must have a thorough fire safety preparedness program. To achieve fire safety preparation, every educational institution must have enough fire safety knowledge and fire safety devices, techniques, and safeguards readily available. Given the risk of harm or death posed by fire-related incidents, individuals must adhere to fire safety regulations (AMA, 2022).

Fire extinguishers serve as the first line of defence for any fire prevention system. Unfortunately, not all occupants recognize the need to train their employees in the proper functioning of fire extinguishers. This is essential to recognize that utilizing the proper kind of extinguisher on a minor fire may prevent it from becoming a huge, destructive fire. Buildings should also be equipped with fire safety precautions. This comprises the supply of ways of fire escape, commonly known as a fire action plan, how well a building can endure the effects of fire as well as to reduce the spreading of smoke and fire, and the availability of means of access to allow firefighters to evacuate and fight fire efficiently. (Hong Kong Government, 2019). Consequently, fire control necessitates fire safety education backed by strategic administration. These plans are mandated by law, forcing businesses, to reach statutory fire safety goals as part of their commitment to the health and safety of their employees.

Nonetheless, numerous locations in the Ashaiman municipality keep exposing people to fire hazards that negatively impact their, social, physical and mental health. It is vital, however, to evaluate the awareness and attitude of Ashaiman municipality households on fire safety

preparedness methods, safeguards, and infrastructure to react to fire breakouts. Several people and buildings in the Ashaiman municipality are in danger of fire catastrophes if fire safety measures are not adhered to. Hence, Ashaiman municipality must implement the fire safety preparation criteria mentioned in the law and policy regulations.

1.2 Statement of the Problem

There has been a worldwide uproar about the occurrence of fires. In the United States, about 1.5 to 2 million fires occur annually, with many more remaining undocumented (Department of Environmental Health and Safety, 2021). According to the International Disaster Control (IDC) (2018), African nations are responsible for more than 60 percent of the world's fire catastrophes in educational institutions, which account for 1.6 million (70 percent) of the total number of casualties in schools. In their research evaluating fire incidences in Ghana between 2000 and 2013, (Addai et al., 2016) discovered a continuous rising trend in annual fire occurrences. In the Ashaiman municipality, flames have broken out in several locations, resulting in injuries, deaths, and extensive property loss (NADMO, 2019).

In recent years, fire breakouts have gained international attention. Fire is seen as a possible danger to sustainable growth on a global scale because of its influence on ecosystems, contribution to carbon emissions, and impact on biodiversity (Tacconi and Muttaqin, 2019). Numerous natural calamities have befallen the planet. These events include the largest fire that happened in the municipality of Ashaiman in February 2023 (Daily Graphic, 2023). In Ghana, a number of man-made catastrophes with various property and life losses are related to fire (NADMO, 2019).

Moreover, a large number of Ashaiman's structures are poorly built and of a sloppy character, creating considerable fire threats to the inhabitants. In addition, supply of water, drainage and

sewage, paved roads, lighting and energy supply, public transportation, and waste disposal locations are sometimes unavailable, resulting in the creation of enormous dangers (Nguluma and Lupala, 2020). The prevalence of fires in the Ashaiman municipality is particularly scary and terrible (GNFS February Report, 2023). The absence of sufficient roads, the problem of lack of accessibility, and possibly the dense nature of the area (overcrowding) makes it easy for fire to spread between buildings in the municipality, putting the population at risk and limiting the ability of emergency services to reach affected areas in the event of fire incidents. The Ashaiman municipality is in danger of fire breakouts due to these and several more causes. Despite the magnitude of the threat suggested because of the fire outbreak, hard data on fire safety preparedness are lacking in Ghana, it is evident that the Ashaiman Municipality has been affected by numerous fire outbreaks but very few studies have considered Ashaiman Municipality, (AMA, 2022). Hence, the need for this study.

1.3 Rationale of Study

Even though there has been a surge in fire incidents within the Ashaiman municipality, a significant number of individuals have failed to adhere to the necessary fire safety requirements. Consequently, many people remain vulnerable to fire outbreaks. All communities maintain the prescribed level of fire safety preparedness to ensure a secure environment. Unfortunately, this is not the case when individuals lack proper knowledge, hold negative attitudes, and workplaces lack essential fire safety equipment, protocols, precautions, and other necessary preparations. The heightened incidence of fires in the Ashaiman municipality should serve as a warning to the Ghanaian authorities, indicating fire disasters can strike at any time, putting lives and property at risk. Therefore, it is essential for individuals to take proactive measures in fire safety preparedness

to create safer workplaces. Assessing the risks of fire and ensuring compliance with fire safety preparedness guidelines in the Ashaiman municipality is of utmost importance. Despite these efforts, the Ashaiman municipality has yet to establish a comprehensive fire safety preparedness policy to fulfill its obligation of providing a safe working environment. Consequently, this study aims to evaluate the level of fire safety preparedness within households in the Ashaiman municipality to determine their adherence to fire safety guidelines.

1.4 Conceptual Framework

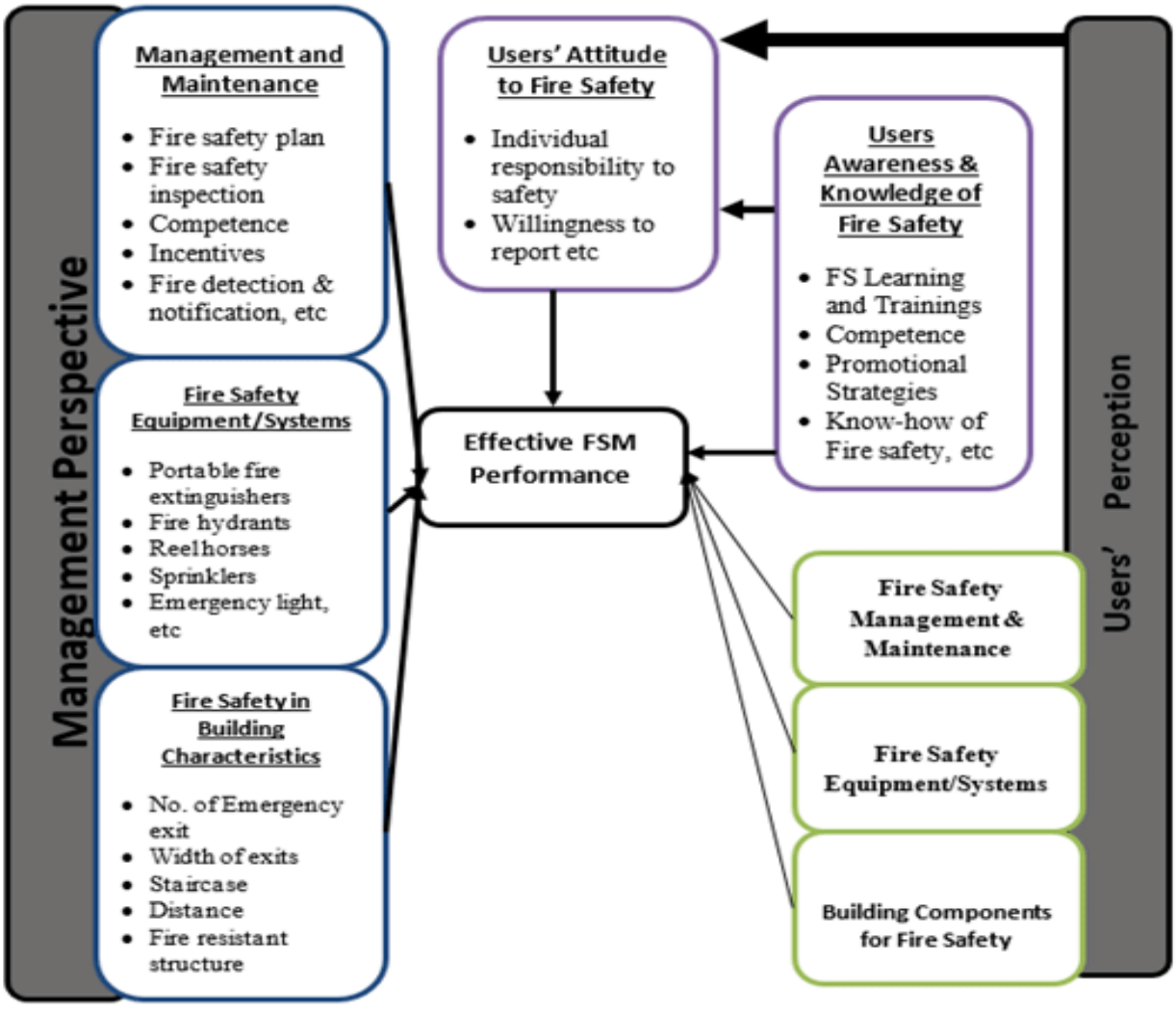

Figure 2: Conceptual Framework

Source: (Ebenehi *et al*., 2018)

The conceptual framework for assessing household compliance with fire safety preparedness in the Ashiaman Municipality of the Greater Accra Region of Ghana from a management perspective comprises several interrelated components. At its core, effective management and maintenance practices, encompassing fire safety plans and regular inspections, form the foundation for ensuring household preparedness. These are complemented by the competence of residents in detecting and responding to fires, which is closely tied to the functionality of fire detection and notification systems.

Moreover, the availability and condition of fire safety equipment and systems, such as portable fire extinguishers and fire hydrants, are pivotal in household fire safety. The physical characteristics of buildings, such as the number and width of emergency exits and fire-resistant structures, directly impact safety preparedness, necessitating ongoing management and maintenance efforts.

A key element in this framework is the attitudes and perceptions of household members, reflecting their individual responsibility for safety and willingness to report hazards. The management strategies for enhancing users' awareness and knowledge, like educational campaigns and training, are inextricably linked to these attitudes.

In summary, these components, while distinct, form a complex web of interdependencies that collectively decide the level of household compliance with fire safety preparedness. Effective management practices, informed by user awareness and knowledge, underpin the functionality of equipment, building characteristics, and residents' attitudes, ultimately shaping the perception of safety preparedness.

1.5 Research Questions

1. What is the level of knowledge on fire safety preparedness among households in the Ashaiman Municipality?
2. What are the attitudes of households in the Ashaiman Municipality on fire safety preparedness?
3. How do households in the Ashaiman Municipality comply with fire safety preparedness?

1.6 General Objective

The main objective of the study is to assess the knowledge and attitude of households' compliance to fire safety preparedness in the Ashaiman Municipality.

1.7 Specific Objectives

Specifically, this study sought to:

1. determine knowledge of fire safety preparedness among households in the Ashaiman Municipality.
2. describe the attitudes of households in the Ashaiman Municipality on fire safety preparedness.
3. determine households in the Ashaiman Municipality compliance to fire safety preparedness.

1.8 Profile of Study Area

The 2010 Population and Housing Census found that there were 190,972 people living in the Ashaiman Municipality. This was 4.8% of the total population of the region. Within this population, males made up 49.1 per cent, while females comprised 50.9 per cent. The entire

municipality is classified as urban, and there is a sex ratio of 94.1, indicating slightly more females than males.

Around 31.9 per cent of the municipality's population falls within the youthful age group of 0-14 years, resulting in a population pyramid with a broad base that narrows down significantly when considering elderly individuals, who make up a mere 2.4 per cent of the population. The overall number of older people who rely on the municipality is 52.1., and this ratio is consistent for both males and females.

The municipality is home to 185,804 residents residing in a total of 49,936 households. On average, each household in the municipality consists of 3.7 individuals. Notably, children make up the largest segment of the household structure, accounting for 38.4 percent of the population. The nuclear household system, which includes the head of the household, their spouse(s), and children, constitutes 30.7 percent of all households in the municipality.

The Ashaiman Municipal Assembly covers an area of approximately 45 square kilometers and had a population of 190,721 as per the 2010 Population and Housing Census. It was established in 2008 as one of the newly created districts, separate from the former Tema Municipality (now the Tema Metropolitan Authority), under Legal Instrument 1889 and the Local Government Act of 1993 (Act 462). According to the Local Government Act of 1993 (Act 462) and the National Development Planning System Act of 1994 (Act 480), the Municipal Assembly is designated as the Planning Authority, responsible for planning, initiating, and executing local-level development programs.

The Ashaiman Municipality is situated approximately 4 kilometers north of Tema and roughly 30 kilometers from Accra, the capital of Ghana. While Tema is positioned along the Greenwich

Meridian at Longitude 00, Ashaiman's coordinates are Latitude 5° 42' North and Longitude 0° 01' West.

Ashaiman shares its boundaries to the North and East with the Kpone-Katamanso District and to the South and West with the Tema Metropolis. It encompasses a total land area of 45 square kilometers. Its close proximity to Tema and Accra provides residents with convenient access to essential social amenities and infrastructure like well-maintained roads, water supply, healthcare facilities, and electricity. Additionally, Ashaiman functions as a residential area for individuals working in various industries within the Tema Township.

Ashaiman is located within the Accra-Togo plains, which means it experiences a climate pattern that extends from the eastern coast of Ghana into Togo.

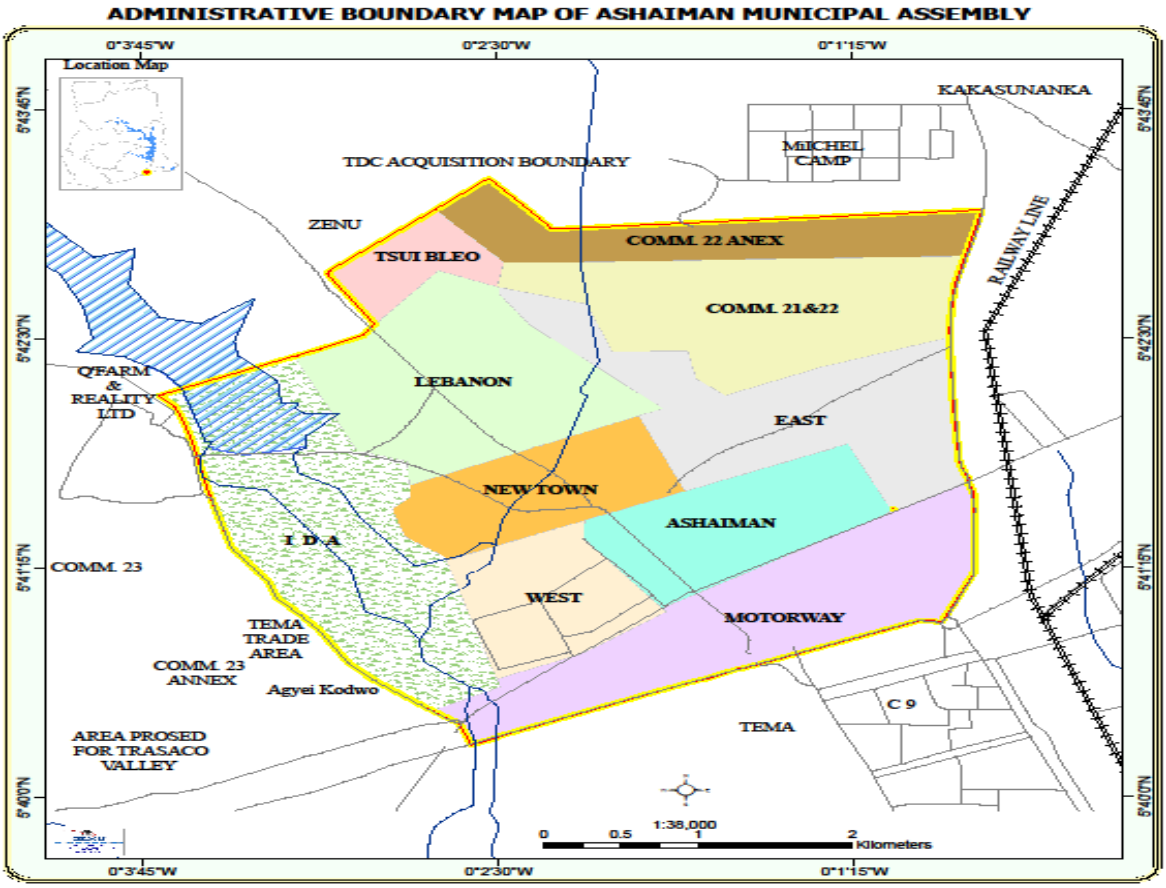

Figure 3: Map of Ashaiman Municipality District

Source: Composite Budget for Ashaiman Municipality, 2019

1.9 Scope of the Study

The study is delimited to focus on assessing the knowledge and attitude of households' compliance with fire safety preparedness. The study considered the Ashaiman Municipality as the geographical scope of the study but limited its respondents to households' persons.

1.10 Organization of the Study

The research was structured across six chapters. In Chapter One, we covered the initial overview, encompassing the study's background, problem statement, justification for the research, conceptual framework, research inquiries, overall goals, specific aims, a brief description of the study area, the study's limitations, and the structure of the research. Chapter Two dealt with a literature review which entailed a theoretical review, the conceptual and the empirical base of the study. Chapter Three dealt with methodology components which were research methods and design, data collection techniques and tools, study population, study variables, sampling, pre-testing, data handling, data analysis, ethical consideration, limitation of study and assumptions. Chapter Four dealt with the results. Chapter Five dealt with discussions whereas Chapter Six dealt with conclusions and recommendations.

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Introduction

In this chapter, we have compiled a comprehensive review of existing research on the topic of fire safety preparedness. We gathered relevant literature from both published and unpublished sources, including journal articles and research papers. The primary objective was to uncover the findings of previous researchers regarding three key aspects: knowledge of fire safety preparedness within households, the attitudes of households toward fire safety preparedness, and the level of compliance among households in terms of fire safety preparedness.

2.2 Conceptual Review

2.2.1 Overview of the Ghana National Fire Service

One of the organizations within the Ministry of the Interior is the Ghana National Fire Service (GNFS). The Ghana National Fire Service Act, 1997, Act 537, was a parliamentary act that reestablished the service in 1997. The Service's goal is to control and prevent unwanted fires. The Ghana National Fire Service is mandated by the mother ministry's strategic objectives to ensure sufficient protection of life and property, as well as to raise awareness of fire safety measures and offer technical assistance and advice to schools, markets, MMDAs, lorry parks, and other institutions across the country.

2.2.2 Functions

For the GNFS to accomplish her goals, the following tasks must be completed:

1. Conduct public awareness programs with the goal of both raising awareness about fire hazards and emphasizing the role of individuals in preventing fires.

2. Provide expert guidance for architectural plans, focusing on machinery and building layouts that facilitate safe evacuation during fire emergencies and efficiency.
3. Inspect and provide expert advice on fire extinguisher usage.
4. Coordinate and offer guidance for the training of personnel within institutional firefighting departments across the country.
5. Train and establish community-based fire volunteer teams.
6. Provide recovery and rescue operations services to people who are trapped by fires or other emergencies.
7. Undertake any additional tasks related to the service's overarching objectives.

2.2.3 Vision

By containing fires and lowering the number of fire-related incidents and fatalities, the GNFS is dedicated to providing safer communities throughout the country.

2.2.4 Mission

The goal of GNFS is to protect people, the environment, and the economy by providing effective and valuable fire and rescue services, fulfilling legal requirements, and maintaining and enhancing public safety from fires and related emergencies. This is achieved by having a highly motivated workforce and sufficient resources.

2.2.5 The Global Concept

Fires have prompted a worldwide response. To illustrate, in the United States, an estimated 1.5 to 2 million fires occur annually, and a significant number of additional fires likely go unrecorded. These fires result in the loss of approximately 3,500 to 4,000 lives each year, while another 20,000 to 30,000 individuals suffer injuries due to fire-related incidents (DEH/S, 2021). The United

Kingdom says that there were about 2,000 fires in hotels, boarding houses, and other similar places in 2016 (Klemola, 2018). In the United States, Ahrens (Ahrens, 2018) discovered that hotels with sprinklers had no fire-related fatalities between 2013 and 2017, and materials losses were 73 per cent lower than in hotels without sprinklers. This highlighted the need to place sprinklers in all buildings to manage and control fires. Researchers who looked into the state of fire safety in hotels in Spain found that some of the mistakes they found were related to paperwork. For example, there wasn't a technical installation project certificate or certifications of required maintenance contracts for the fire protection equipment. There were also problems with the signs, the lack of smoke detectors and alarm systems, and the difficulty in getting to the firefighting gear (Francisco et al., 2004). According to the survey, hotels in Spain have a high degree of fire safety readiness in terms of compliance with fire safety preparedness equipment, with 90.4 per cent compliance in quantity and accessibility of fire extinguishers. In addition, alarm push buttons were appropriately situated in corridor areas, and most hotels included an alarm center with continuous monitoring. However, several hotels did not comply with fire detection systems since they lacked smoke detectors in their rooms and hallways (Francisco et al., 2004).

Residential properties that have fire escape or evacuation plans in place may not necessarily know how to effectively put them into action during a fire emergency. An examination involving adults residing households in the United States revealed that a significant portion of those surveyed had devised escape plans in case of a fire outbreak. However, a majority of them had not actually put these plans into practice. Interestingly, 75 per cent of the respondents were aware that it takes 10 minutes or less for a fire to become life-threatening, indicating their understanding of the importance of practising an escape plan to expedite a safe evacuation. In this context, it was observed that there was a disconnect between people's knowledge and their actual behaviour

(Interactive, 2004, as cited in Adum et al., 2017). According to the Harris survey, just 8% of Americans who heard their smoke alarms believed there was a fire and that they should leave their home. If they were building a new home, less than half of the respondents thought they could install a home fire sprinkler. Some who had a different view claimed that the damage caused by the fire sprinklers was greater than the actual fire damage and that they were costly. Unfortunately, these results show that people don't think they are ready for fire safety, which means they don't follow fire safety precautions. Although the majority of American homes (90%) contain a minimum of a smoke alarm, 25–30% of them were found to be inoperable (Douglas et al., 1999), quoted in Adum et al., 2017). This information was obtained from a study of homes about smoke alarms and the prevention of house fire-related deaths and injuries. Many individuals are at danger of fire because certain higher education institutions have not yet complied with the fire safety readiness criteria. This is supported by a survey carried out by the Malaysian Ministry of Education, which discovered that the institutions' fire safety readiness status was at a 76% compliance level. Low staff knowledge and attitude were some of the things that were found to be lacking in fire safety readiness. towards the significance of fire safety preparedness (Muindi, 2014).

2.2.6 The Concept of Preparedness for Fire Safety in Africa

Fire catastrophes have also occurred in Africa. For instance, in the first quarter of the year 2023, Nigeria recorded 106 fire outbreaks (Federal Fire Services, 2023). To lessen the effect of fires, building compliance with fire safety readiness rules should be maintained. Research on disaster risk analysis in Kenya discovered that the majority of institutions lack balconies and had just one egress for stored structures. As a result, the availability of balconies as a crucial component in disaster response as landing platforms for persons awaiting rescue was disregarded (Adinku,

2003). According to the same survey, the majority of Nigerians lacked disaster management training. Most institutions and families lacked fire extinguishers, and the majority of accessible extinguishers were inoperable (Adinku, 2003).

2.2.7 The Concept of Fire Safety Preparedness in Ghana

Multiple regions of Ghana have been devastated by fire outbreaks, the majority of which have gone undetected. According to the Ghana National Fire (2023), Ghana has recorded 2177 fire outbreaks within the first quarter of the year 2023. This makes it difficult for managers and policymakers to estimate the national effect of fires (NADMO, 2023). Due to poor logistics on the part of the Ghana National Fire Service, compiling national data on fire breakouts in the country is becoming more difficult, but a few studies have been done to measure compliance with fire safety preparation recommendations in Ghana. A survey conducted on safety awareness and preparedness in Senior High Schools within the Ahafo Region of Ghana revealed that a significant portion of the teachers lacked the knowledge of how to use fire extinguishers effectively. This knowledge gap was attributed to the absence of school safety awareness programs, particularly the absence of fire drills, in Senior High Schools across the Ahafo Region (GNFS Regional Report-Ahafo, 2022). The study also noted a low level of compliance with fire safety preparedness measures, which was mainly linked to the provision of fire safety training and awareness initiatives.

A cross-sectional survey conducted in 2019 on fire safety among students at the University of Cape Coast found that many students perceived themselves to be at risk of fire-related hazards. A majority of the respondents (71%) identified electricity as the primary fire hazard. While over half of the respondents claimed to have some knowledge of what fire drills entail, fewer than 50%

believed they knew how to correctly extinguish a fire (Amo, 2019). This research concluded that ineffective fire emergency management contributed to the loss of lives and significant property damage, primarily due to inadequate knowledge of fire safety preparedness procedures, fire detection methods, and firefighting equipment (Amo, 2019). Additionally, the study pointed out that the infrastructure of educational institutions' buildings did not adequately promote fire safety preparedness.

2.2.8 Fire Safety Policy in Ghana

Most organizations typically establish practical fire safety policies, with the specific content of these policies determined by the top executive council. This council often includes the organization's fire director or the individual responsible for safety within the organization (Alao et al., 2021). While the details of these policies may vary among organizations, the overarching goal is consistently the achievement of fire safety standards (Chow, 2016).

According to Chow (2016), the common thread in all organization fire safety policies is a focus on the key responsibilities of all individuals involved in fire safety. The aim is to prevent fire incidents, thereby ensuring the safety of workers and providing a comfortable working environment. Consequently, the fundamental objective shared by all organizations is the attainment of fire safety goals, making the implementation of a fire safety policy a vital component of an organization's overall mission in ensuring fire safety.

Fire safety organization represents a critical element in the successful execution of a fire safety management program. This facet of management is dedicated to addressing fire safety concerns and plays a central role in the effective management of fire safety measures. As per Malhotra (1987) as cited in Alao et al. (2021), the coordination of management activities involves the

allocation of resources related to methods, record-keeping, personnel, and fire safety facilities to enable the efficient implementation of organizational fire safety functions (Chow, 2016). The essential function of a fire safety organization is to guide institutions or companies in the establishment, operation, and upkeep of fire safety equipment and services. This is done with the objective of maintaining control, fostering collaboration among building managers and occupants, facilitating effective communication, and promoting competence in fire safety measures.

2.2.9 The Concept of Fire Outbreak

Fire represents the rapid oxidation of material through an exothermic chemical process known as combustion, resulting in the release of heat, light, and various reaction byproducts (Charles, 2022). It is characterized by a swift, self-sustaining oxidation process that generates heat and light to varying degrees. Fires initiate when a flammable or combustible substance, combined with a sufficient amount of an oxidizer like oxygen gas or another oxygen-rich compound, comes into contact with a source of heat or ambient temperatures exceeding the fuel's flash point. This allows the sustenance of a rapid oxidation rate, leading to a chain reaction, a concept often referred to as the fire tetrahedron (Parmar & Rathod, 2012).

Fire is typically associated with the presence of four essential elements: fuel, an ignition source, an oxidizing agent (usually atmospheric oxygen), and a mechanism for the reaction to occur. Common sources of fuel that can lead to fires include flammable gases used for household cooking, various materials like furniture and clothing, everyday solvents such as kerosene and gasoline, as well as combustible dust particles like toner in office settings and starch found in markets.

2.2.10 Causes of Fire in Buildings

In the exothermic chemical process of combustion, fire is the fast oxidation of a substance (Wahab, 2015). It comprises the release of heat, light, and reactive substances (Pyne, 2017). As per (Wahab, 2015), fire may ignite in a variety of ways and is a potentially devastating force in people's lives. Numerous big marketplaces and office spaces in the central business areas of numerous nations have been destroyed by fire, resulting in the loss of lives and valuables worth millions of dollars (Wahab, 2015). Fire is a quick, self-sustaining oxidation process accompanied by the emission of different intensities of heat and light (Addai et al., 2016). For fire to exist in a structure, four essential components must be present: fuel, ignition source, oxidant, and reaction mechanism (Addai et al., 2016). In the majority of instances, carelessness is the cause of the fire, spanning from direct reasons such as cigarettes left lit to causes such as improper installation, overloaded of electrical equipment, and lack of maintenance of electrical wiring (Agyekum et al., 2016b). These factors cannot be eliminated fully in practice (Agyekum et al., 2016b). In Ghana, power oscillations known locally as "dumsor" may also trigger fire breakouts (Twum-Barima, 2014). When the power goes out, many forget to switch off their electronic devices. When the electricity returns and they are not there, the strong voltage that accompanies it tends to ignite electrical appliances that are likely on. Also, overloading of electrical equipment may create fires in the markets, particularly when market women use extension sockets improperly and without regard for their repercussions. Outdated and improperly installed electrical wiring represents a significant fire hazard. When these wires come into close proximity to dry, flammable materials, the risk of fire ignition becomes considerable, potentially leading to large-scale fires in marketplaces (Twum-Barima, 2014). The use of open flames for cooking in both homes and workplaces is another common cause of fire disasters.

Fires start when people throw away things that can catch on fire on their own, like oily rags used to polish or finish wood, or when organic materials like green hay, grains, or woodchips pile up, or when people store flammable trash close to things that could start a fire.(Pyne, 2017).

Anaglatey (2013) noted in his research that one of the primary causes of building fires in Ghana has been electrical issues arising from faulty wiring and the improper use of electrical devices. Other studies conducted in Ghana have also pinpointed various factors contributing to building fires, including inadequately designed and constructed electrical circuits, improper electrical fittings, the use of substandard electrical materials, faulty generators, power fluctuations, and illegal connections to the national grid (Addai et al., 2016). Furthermore, Addai et al. (2016) reported that the increase in building fire incidents can be attributed to factors such as the overloading of electrical appliances on the same circuit, improper electrical installations in both residential and commercial settings, as well as the dry harmattan weather, among other causes.

Despite the growing frequency of building fires in Ghana, including recent incidents in state buildings and major town central business districts, the problem continues to escalate with no clear solutions to control it.

Fire disasters are inherently tragic events, bringing about significant and immeasurable losses to individuals, communities, human lives, buildings, and their contents. Such incidents may stem from a variety of factors, often linked to human actions and the characteristics of the structures themselves. Consequently, it is imperative that all stakeholders collaborate to establish a practical framework for identifying the root causes, proposing solutions, and implementing effective measures to mitigate the impact of fire disasters.

As revealed by the British Columbia District of Canada in 2009, human errors were responsible for 48% of fire disasters. Additionally, inadequate management and carelessness in handling flammable materials within various structures were identified as primary contributors to these disasters. A research study conducted by Ebenehi et al. (2018) similarly underscored that human errors are the leading cause of fires, emphasizing that the most effective approach to reducing fire disasters involves minimizing fire risks, safeguarding building occupants, and protecting the facilities within these structures.

2.2.11 The Concept of Fire Safety Management

It is widely acknowledged that fire serves humanity as a valuable tool but becomes a formidable adversary when it emerges uninvited. Fire poses a substantial threat not only to those within a building but also to the structure itself and its contents. It is recognized as an adversary of human beings. Hence, it is crucial for buildings to implement effective fire safety management to attain an acceptable level of fire safety. In the construction of a building, three critical considerations must be taken into account: the safety of occupants, the well-being of the building, and the preservation of equipment.

Debora (2019) says that different fire safety procedures must be used in a building in order to meet safety standards. However, effective fire safety management in a building should encompass a proactive plan to minimize the risk of a fire outbreak. Several studies have indicated that building occupants, at times, not only contribute to the causes of fire outbreaks but also inadvertently spread the fire due to ignorance and panic. This can lead to loss of life and property destruction if occupants are not adequately skilled and knowledgeable about fire risks. The incidence of fire outbreaks has been on the rise in recent times due to various factors, including both human

behaviour and building-related aspects. The losses resulting from fire incidents can have adverse environmental and socio-economic consequences for a nation, as well as threaten the lives of building occupants. The adverse effects of fire incidents on public buildings worldwide have prompted the call for practical measures to mitigate the impacts of fire risks (Howarth and Kara-Zaitri, 1999, as cited in Alao et al., 2021).

Fire safety management, as described by Howarth and Kara-Zaitri (1999) and cited in Alao et al. (2021), involves the application of policies, fire safety rules, information, and the job of studying, judging, and managing it. The practice of building fire safety management encompasses various elements and considerations, including policy knowledge, fire safety training, maintenance of fire safety equipment, a well-structured fire safety organization, and effective fire safety communication, among others. According to Baker et al. (2013), fire safety management is an ongoing process throughout a building's life cycle. In broad terms, management is viewed as the coordination of activities involving managers and teams to achieve specific objectives. From a safety perspective, it can be regarded as the coordination of activities aimed at preventing fire disasters, including roles such as fire safety training, the formulation of fire safety policies, communication of fire safety measures, fire safety investigation and reporting, fire safety audits, fire risk assessments, emergency planning, and the establishment of fire safety procedures. Management plays a pivotal role in ensuring the safety of building occupants.

Typically, a fire occurs without notice. Whenever this occurs, building inhabitants have a limited amount of time to either fight the fire or evacuate (Agyekum et al., 2016a).

As stated by Spadaccini (1998) and referenced in Agyekum et al. (2016a), when fire is not effectively controlled, it can lead to injuries, and in some cases, even loss of life. Along with other

effects, it damages property and may mean that buildings have to be closed for a while or permanently. Therefore, it is highly recommended to implement comprehensive fire safety management measures to mitigate these risks. Fire safety management has been a subject of study by numerous researchers worldwide (Salleh and Ahmad, 2009). This has come to recognize the critical role of effective fire management in reducing the growing number of accidental fires (Ong and Suleiman, 2015).

Traditionally, the implementation of suitable fire safety measures within buildings has been viewed a regulatory issue guided by prescriptive construction and compartmentation standards. However, it is now understood that effective fire safety management should encompass the entire lifespan of a building, starting from its initial design and extending to all aspects of its occupancy, maintenance, modifications, and eventual decommissioning and demolition (Agyekum et al., 2016a).

Chow, (2016) reported that “the main objectives of fire safety management include: to ensure that the fire safety measures provided are kept in good order; to initiate actions in case of fire which would help occupants to reach a safe place; and to review adequacy of existing fire safety measures where there is a change of building, a change of building use and new technology on fire services installation”. Fire safety management, as defined by Nadzim and Taib (2014), entails the coordination of various activities and programs aimed at preventing damage caused by fires. These programs encompass elements such as fire drill training, staff education, fire prevention measures, and the establishment of escape routes, among others. Another definition characterizes fire safety management as "the application of policies, standards, tools, information, and practices by a manager to the task of analyzing, evaluating, and controlling fire safety" (Obasa, Mbamali, and Okolie, 2020).

Shipp (1999), as referenced in Obasa, Mbamali, and Okolie (2020), described fire safety management as an "ongoing process throughout the life cycle of a building." This perspective is corroborated by Todd (1992), cited in Agyekum et al. (2016a), who emphasized that "fire safety management cannot be sporadic" and should be an integral part of building management arrangements, often mandated by legal requirements. Effective fire safety management, when meticulously developed, can yield various benefits, including lowered property insurance costs, the prevention of business interruptions, enhanced customer service, and an improved public image, among other advantages. As noted by Ramachandran (2019), safety stands as the opposite of risk, and by reducing risk, safety is enhanced. The primary objective of fire safety and risk management is, therefore, to decrease the potential risks to life and property to levels that are deemed very low and acceptable to property owners and society at large.

This objective can be accomplished through the implementation of fire prevention measures that significantly reduce the frequency of fires and the installation of both passive and active fire protection measures that work to minimize damage when fires do occur. Furthermore, effective maintenance practices are essential to ensure that, in the event of a fire, all safety measures are readily available for use and perform effectively.

It is also vital to ensure that there is sufficient fire insurance coverage in place to account for both Losses in direct and indirect ways, as emphasized by Ramachandran (1999). The aforementioned measures for fire prevention, protection, and insurance should be put in place before any fire incident occurs within a building. In the event of a fire, it is critical to implement well-prepared actions that provide necessary assistance to occupants, enabling them to reach safety zones both inside and outside the affected building. These actions encompass conducting fire drills and

providing staff training in the use of basic firefighting techniques, including the proper handling of fire extinguishers.

After a fire has been successfully extinguished, additional steps should be taken, including salvage operations, repairing damaged parts of the building, and filing an insurance claim to seek compensation. These post-fire actions are aimed at ensuring that any disrupted activities can resume as swiftly as possible, in line with the insights provided by Ramachandran (1999).

2.2.12 Factors Affecting the Implementation of Proper Fire Safety Management Practice

The establishment of an effective fire safety management program should be considered during both the construction and post-construction phases of buildings, as highlighted by Kaseem, Yatim, and Mahmood (2021). As a result, research has demonstrated that the successful execution of a fire safety management program during these phases is crucial in realizing fire safety goals. The demand for a safe, healthy, and comfortable environment for work and living has seen a significant upsurge. Nevertheless, the factors that influence the implementation of sound fire safety management practices in buildings are elaborated upon below.

Frequently occurring fires in buildings are typically attributable to faulty or nonexistent fire apparatus, which is essential for fighting and managing fires (Ramachandran, 1999). NFPA (2018) examined the effectiveness of numerous fire protection systems and found that active and passive fire safety equipment is essential for attaining building fire safety requirements. In addition, (Hall, 2018) conducted a study on the contributing factors to numerous fire disasters in higher education institutions. The study's findings indicate that the significant causes of such disasters were the non-performance of fire safety protection systems installed in the building and, in some instances, the

absence of proper equipment. Appropriate fire protection measures should be built and maintained at all times in order to improve fire safety.

Another important part of fire safety management is fire risk assessment. This is the main way that fire safety rules are put into place in an organization. One way that Ramachandran (1999) says that fire risk assessments can be used to solve fire safety problems is for fire safety managers and building managers to learn how to do them. Hassanain, Al-Harogi, and Ibrahim (2022) said that putting fire risk assessments into practice is the same thing as meeting fire safety goals.

2.3 EMPIRICAL REVIEW

2.3.1 Knowledge and Attitude of Households on Fire Safety Preparedness

It means doing things before a fire happens that make you more ready to handle it, or improving your operational capability. This is called fire safety preparedness (Agyekum et al., 2016b). Brewerton (2019) also said that it means planning, preparing, training, and practicing so that people can prevent, protect, lessen, and respond to any kind of fire emergency. Being ready is meant to help you respond effectively when a disaster happens. (Ahenkorah-Marfo, and Borteye, 2010). Colonna (2001) says that one of the most important things to do to be ready for a fire disaster is to keep fire extinguishers and other firefighting gear like dry risers, wet risers, sprinklers, fire detectors, and sensors where they are needed. Furthermore, it is necessary for these facilities to have their equipment regularly checked and fixed any problems that are found as soon as possible in order to meet workplace standards (Murage, 2012). It's also important to keep a record of this maintenance (Colonna, 2001).

A survey was done in South Kolkata, Dhakuria, India, to see how ready hospitals were for fire disasters in both public and private buildings. It turned out that some hospitals' fire pumps had

stopped working.. Besides that, many hospitals did not have working fire and smoke alarms. The study showed the dangers that patients would face in the event of a fire (Reuters, 2014). Every workplace needs to have clear escape routes that are always open so that everyone can get out in case of an emergency or fire (Mfinanga, 2007). In the event that an emergency exit or escape route needs to be blocked for any reason, other plans must be made and shared with everyone in the building (Mfinanga, 2007).

People's behaviour in a fire was studied in London. The results showed people are more likely to move in a familiar direction, even if it's farther away than to use a common but unfamiliar fire escape route as much as exit is not blocked. The study said that every building should have the right fire signs so that they are easy to find in case of a fire (GNFS, 2018). Bowker (1996) said that making sure people in high-rise buildings know about fire safety rules and procedures is important for being ready for a fire. People can learn about the different parts of a fire disaster through educational and training programs that focus on fire safety (Bowker, 1996). In the UK, all employees working in a building, a construction site, or any other busy area are required by law to go through fire safety training. This helps them learn important information and skills like how to use fire extinguishers and how to properly escape a fire (Proulx, 1999).

In addition, Ouellette (1997) said that getting fire protection in theory is very different from putting it into practice. Fire drills help people get away from danger without getting hurt (Ouellette, 1997). At least once a year, there needs to be a fire drill. For safety reasons, this will help workers get out of the building as quickly as possible in case of a fire (Ouellette, 2017). Finally, the Occupational Safety and Health Act (OSHA) says that all companies with more than ten workers must have a written emergency action plan. But for companies with less than ten employees, the plan can be

told over the phone. Reviewing and practising the evacuation plan is important to make sure it works (GNFS, 2018).

Sholihah, Setyaningrum, Husaini, and Hanafi, 2015) discovered a significant link between the understanding of fire preventive measures and the presence of fire extinguishers at home, underscoring the necessity for increased education to enhance preparedness. A study by Yeturu *et al*, 2016 involved a total of 270 participants. It was observed that almost 50 per cent of these respondents exhibited a favourable attitude towards fire safety.

2.3.2 Households Compliance to Fire Safety Preparedness

Adhering fully to established fire safety regulations and routinely conducting building audits, using these regulations as a benchmark for assessing compliance, typically leads to an enhancement in the fire safety performance of any structure. Julia (2017) highlights the significance of employing the fire safety regulation requirements as a metric for gauging compliance with these regulations.

The utilization of checklists derived from fire safety codes and standards serves to elevate the level of fire safety standards. Commonly utilized legislations for compliance encompass the National Fire Safety Code (2013), the National Building Code (2006), and the National Fire Protection Association, among others. It's worth noting that each country may have its own set of legislative standards in this regard.

The company should give the people who live in the building enough help with their emergency plan so that they can safely leave in case of a fire. It has an evacuation plan, first aid supplies, and a connection to a nearby hospital so that firefighters can get care (Nano, 2017). Because of this, the organization's emergency plan and fire safety procedure keep fires from happening by keeping

the building safe from fire risks. Another thing that NFPA (2018) said was that the fire safety emergency plan sets up a safe and orderly way to leave the building in case of a fire. Additionally, a proper fire safety emergency plan needs to be created in order to meet fire safety goals..

Having trained people who live or work in a building to be more aware of fire safety helps prevent fires by making sure that people know exactly what to do in a fire emergency. For fire safety goals to be met, occupants must be trained on a regular basis. An investigation by Malhotra (1987), on the other hand, showed that fire safety training is an important part of fire safety management that, when done right, can make an organization safer from fire. There was general agreement among the people who took part in similar studies by Daily (2022) that fire safety training is an important part of fire safety management that helps an organization do a better job with fire safety. Howarth and Kara-Zaitri (1999) say that how people feel about fire safety affects how they react to safety situations, whether they are positive or negative. Also, people who live or work in public buildings have different ideas about risks and different levels of willingness to take them. An organization's practical fire safety program can only work if the people who work there are more open to safety.. In the study conducted by Oloke, Oluwunmi, Oyeyemi, Ayedun, and Peter, (2021), it was discovered that in peri-urban neighbourhoods, there is generally strong adherence to passive fire control guidelines. However, a significant deficiency was observed in terms of active fire control systems within residential buildings. The main challenges identified that hinder effective fire control measures in these neighbourhoods included the absence of active fire control equipment, a lack of community fire safety tools, and an unreliable water supply.

2.4 Chapter Summary

The review of related literature concepts on household compliance to fire safety preparedness. The increasing trend of lack of compliance to fore safety preparedness among households across the globe was expatriated. The review of household compliance to fire safety preparedness in literature elaborated on the decreasing rate to household compliance to fire safety preparedness and how household can comply fully to fire safety preparedness rules. However, there were no accounts in literature on household compliance to fire safety preparedness in Ghana. Therefore, this study tries to address the identified gap in the literature..

CHAPTER THREE

3.0 METHODOLOGY

3.1 Research Methods and Design

The main aim of this study is to assess knowledge and attitude of households' compliance to fire safety preparedness in the Ashaiman Municipality. The nature of data to be used for the research, involved the use of quantitative research analysis and approach. This is common today, as many researchers have involved the use of quantitative research approaches in single research (Nalere, and Yago, 2015). Aside from the quantitative approach, the design was more descriptive, specifically, systematic sampling method of design in nature. Cross-sectional design is a way of gathering information to find out about the subject's status in a study (Mugenda and Mugenda 2003). The researcher hence found the quantitative design appropriate because it did not only provide in-depth analysis and description of knowledge and attitude of households' compliance to fire safety preparedness but also helped to provide explanation to the aspects of the observed relationship. On the other hand, (Ghauri and Grönhaug, 2015) stated that quantitative design relates more to drawing of inferences based on statistical procedures; often make use of graphs and figures in its analysis. For the purposes of this study, a quantitative design was employed because of assessing knowledge and attitude of households' compliance to fire safety preparedness required empirical measurements of variables for the purpose.

3.2 Data Collection Techniques and Tools

An introduction letter was sent to the Ashaiman Municipal Assembly, which sought for approval from the Assembly. The letter described the purpose of the study and gave description of the researcher. A copy of the letters was given to the Assembly members within the Tulaku community to inform them about the data collection date for this study in their community. Oral consent was

obtained from the respondents by explaining the process of the study carefully in the language the respondents understand and will be conversant with. The study adopted the close-ended questionnaire as the data collection instrument. There were four main parts to the questionnaire (i.e., A to D). In Part A, questions were asked about the respondents' ages, genders, and other characteristics. Section B asked people what they knew about being ready for fire safety in their homes. In Section C, the respondents were asked to rate how prepared their homes were for fire safety, and in Section D, they were asked to rate how well their homes were following through on their fire safety plans. This is because it is known to help people understand and make the environment calm and healthy so that people can easily work together, answer questions, and clear up any confusion about any part of the study (Kumekpo, 2002 as cited in (Mensah, 2010). The questionnaire was also less expensive as compared to other data collection instruments economic-wise. The researcher self-administered the questionnaires; an approach that offered the researcher the opportunity to verbally explain questions to respondents who had difficulties understanding some questions and waited for collection. Just like any close-ended questions, the multiple-choice answers represented the close-ended questions. McBuney (2014) defined closed–ended questionnaires as these same questions that only let people answer one of a few options chosen by the researcher. During the preparation of the questionnaire, extra care was taken; such that appropriate questions and in their rightful wording, form and sequence were considered. Primarily, the advantages of using questionnaires: which is a cheaper means of obtaining more impersonal information and data from a larger group as well as the flexibility it offers respondents in providing answers to questions actually informed the researcher's choice of selection. Though the questionnaire is limited to only literature, it did not give room for other methods when it was employed and it did not offer motivation to respondents.

3.3 Study Population

The target population was household persons in the Ashaiman Municipality but the accessible population was households within the Tulaku community in the Ashaiman Municipality. The population of the persons in the Tulaku community is 9,000 people (Ghana Statistical Service, 2021).

3.3.1 Inclusion Criteria

The eligibility criteria for the study respondents will be at least one member of a household persons age 18 years and above and households willing to participate in the study within the Tulaku community in the Ashaiman municipality were included.

3.3.2 Exclusion Criteria

All persons within the Ashaiman Municipality but **not** within the Tulaku community were excluded from the study. All persons within the Tulaku community of the Ashaiman Municipality who were less than eighteen (18) years were excluded from the study and all household persons' who were eighteen (18) years and above and within the Tulaku community of the Ashaiman Municipality who decided to opt-out were excluded.

3.4 Study Variables

The study variables in this study included independent and dependent variables. In this study, household compliance, which included knowledge and attitudes about fire safety preparedness, was the independent variable. Fire safety preparedness was the dependent variable.

3.5 Sampling

The study adopted the systematic sampling technique. The reason for adopting the systematic random sampling technique. Every *nth* member of a population was chosen through a systematic technique to create the sample for the study (Levy and Lemeshow, 2013). The list of households in the designated areas within the Tulaku community served as the study sample frame. The researcher selected the first household randomly, and the preceding houses were then chosen depending on the sampling fraction at regular intervals. The number of households in the population was divided by the desired sample size.

3.6 Pre-testing

Ten per cent of the sample size was used to test the data collection tools ahead of time. Based on what was learned from the pilot study, the questionnaires were changed. We used the results of the pre-test to make the data collection tools more valid and the research results more reliable. A group of people who were not part of the main study were used for pre-testing.

3.7 Data Handling

Data (hard copies) were securely kept in a locked filing cabinet. Soft copies were stored on a pen drive that was securely protected with a password. All data were kept confidential for 5 years after which, it was destroyed.

3.8 Data Analysis

The study considered descriptive analysis, specifically, measures of central tendencies, thus, mean, and standard deviation. The study used a computer program known as SPSS version 26 which is a software for research analysis.

3.9 Ethical Consideration

Ethical approval for this study was sought from the Ensign Global College Research Ethical Committee. Permission was obtained from the Ashaiman Municipal Assembly. In addition, the researcher ensured all the following ethical guidelines in conducting research are duly followed:

3.9.1 Inform Consent

The participants gave their informed consent orally, by explaining the process of the study carefully in the language the respondents understood and were conversant with. Respondents were also made aware that they had the choice to choose not to take part in the study or not answer a question if they found it uncomfortable.

3.9.2 Confidentiality/privacy

All information given during the study was treated as confidential. Codes were used as an identification.

3.9.3 Benefits

There are no material benefits for participating in this study but respondents were that their participation would help inform policymakers as well as stakeholders within the municipality to implement policies towards fire safety preparedness

3.9.4 Data Storage/Usage

All data were kept confidential for 5 years after which, it was destroyed.

3.9.5 Risks

The study did not involve any risk but friendly conversation.

3.10 Limitation of Study

Funding and timing were major hindrances for this study. However, the study was limited to household persons of the Tulaku community in the Ashaiman municipality, which reduced the challenges of both funding and timing. Most of the people who were asked might not have been willing to help because the research problem being looked into was sensitive and could have legal repercussions. to provide answers to the questions but respondents were assured of confidentiality and anonymity and that, the work is solely for academic purposes and for that matter, respondents were encouraged to provide honest and genuine information as answers to the questions.

3.11 Assumptions

In this study, it was assumed that the people who answered the questions would be honest, which would allow an accurate assessment of the research goals, and that the people who volunteered to take part in the study would not be biased. The researcher believed that he did not affect the response of the participants. Another assumption was that the sample size represented the research areas' overall population.

CHAPTER 4

4.0 RESULTS

4.1 Introduction

This chapter presents the findings obtained from the data analysis in accordance with the study's objectives.

4.2 Response Rate

To gather data for this study, a sample of 413 participants was selected from the target population. Out of the 413 surveys distributed to the participants, 374 usable responses were collected, yielding a response rate of approximately 90.5%. The achieved response rate of 90.5% indicates a high level of engagement and willingness of participants to contribute to the study.

4.3 Background Data of Respondents

Table 1 provides insight into the composition of respondents based on their relationship with the house owner. The majority of respondents are house owners themselves (58.8%), followed by spouses of house owners (26.7%), and finally, sons/daughters of house owners (14.4%).

The provided descriptive table presents a breakdown of individuals based on their gender and their homeownership status, categorized into two groups: those who are not house owners and those who are the head of the household. The data reveals that a higher percentage of females (60.8%) are not house owners than males (39.2%). Among those who are heads of their households, a significantly larger proportion is males (79.5%) compared to females (20.5%).

Source: Field survey (2023)

The table provides insight into the relationship between individuals' level of education and their homeownership status, as well as their role as the head of their household. The data suggests that

a significant percentage of individuals who are not house owners have basic education (28.9%). However, the majority in terms of head of household were secondary leavers which constitute 20.6%.

The table categorizes respondents based on the number of years they have lived in their current house. The largest group of respondents falls within this time interval, comprising 47% of the total. Approximately 35% of the respondents have lived in their current house for ten to fifteen years. This interval indicates that 18% of the respondents have been living in their current house for a duration ranging from one to four years.

The presented descriptive statistics provide valuable insights into the age distribution of respondents based on their homeownership status. The ages range from a minimum of 23 years to a maximum of 60 years for both house owners and those who are not house owners. The data suggests that, on average, individuals who are house owners tend to be older (mean age of 41) compared to those who are not house owners (mean age of 34). The standard deviation values for both groups provide information about the dispersion or spread of ages within each group. The smaller standard deviation for house owners (0.89%) indicates that the ages of house owners are clustered closely around the mean age of 41. On the other hand, the larger standard deviation for non-house owners (6.11%) suggests a wider range of ages in this group.

The provided descriptive statistics offer insights into the distribution of head of household income in terms of the mean and standard deviation. The mean household income of GH¢1250 represents the average income level of the heads: The standard deviation of approximately GH¢1.648 suggests the extent to which household incomes vary around the mean of households.

Table 1: Background Data of Respondents

Background Data of Respondents	Frequency	Percent
Status of Respondent		
House owner	220	58.8
Spouse of the house owner	100	26.7
Son/daughter of house owner	54	14.4
Sex		
If not a house owner		
Male	62	17.0
Female	96	26.0
Head of household		
Male	175	47.0
Female	41	10.0
Level of education		
If not a house owner		
Basic	108	28.9
No formal	18	4.8
Secondary	4	1.1
Tertiary	24	6.4
Head of household		
Basic	74	19.8
No formal	46	12.3
Secondary	77	20.6
Tertiary	23	6.1
Number of years in the house		
1 - 4 years	69	18.0
5 – 9 years	177	47.0
10 – 15 years	128	35.0
Age of the Respondents	**Mean**	**Standard Deviation**
If not house owner	34	6.11
House owner	41	0.89
Head of household income	GH₵1250	1.648

Source: Field survey (2023)

4.3.1 Maintenance of Electrical Wires

The provided data on changing electrical wires in the past 10 years offers insight into maintenance practices and potential upgrades related to electrical systems. The data indicates that in the majority of the respondents 353 (94.0%), electrical wires have not been changed in the past 10 years meanwhile, only 17 (6.0%) respondents have seen a change in electrical wires in the past 10 years. This constitutes 4.6%

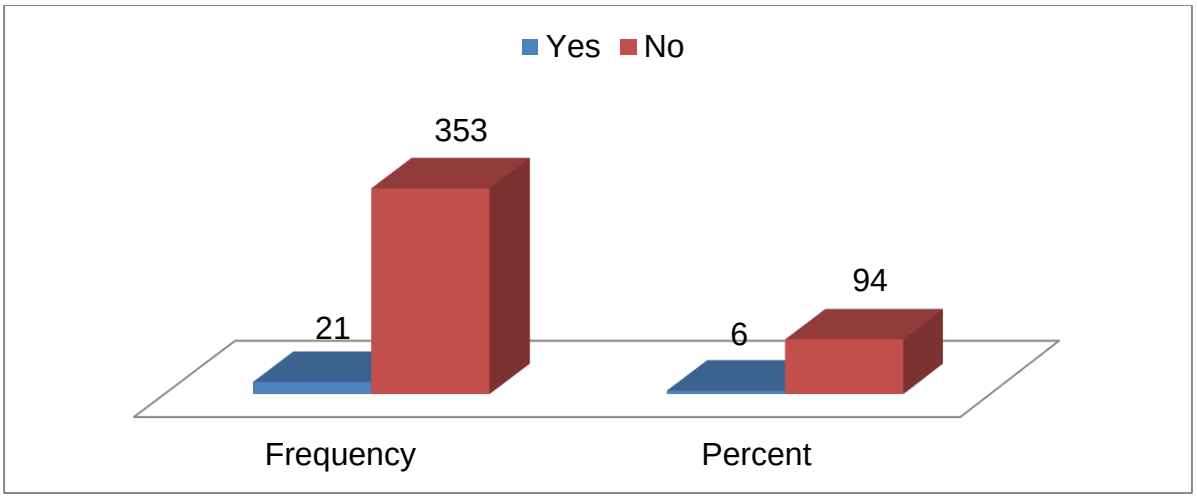

Figure 4: Maintenance of electrical wires

Source: Field survey (2023)

4.4 Objective One: Knowledge of Fire Safety Preparedness among Households

4.4.1 Awareness of fire safety

The table presents data on the awareness of fire safety. According to the data, 181 (48.0%) individuals are aware of fire safety meanwhile the data indicates that 193 (52.0%) individuals are not aware of fire safety.

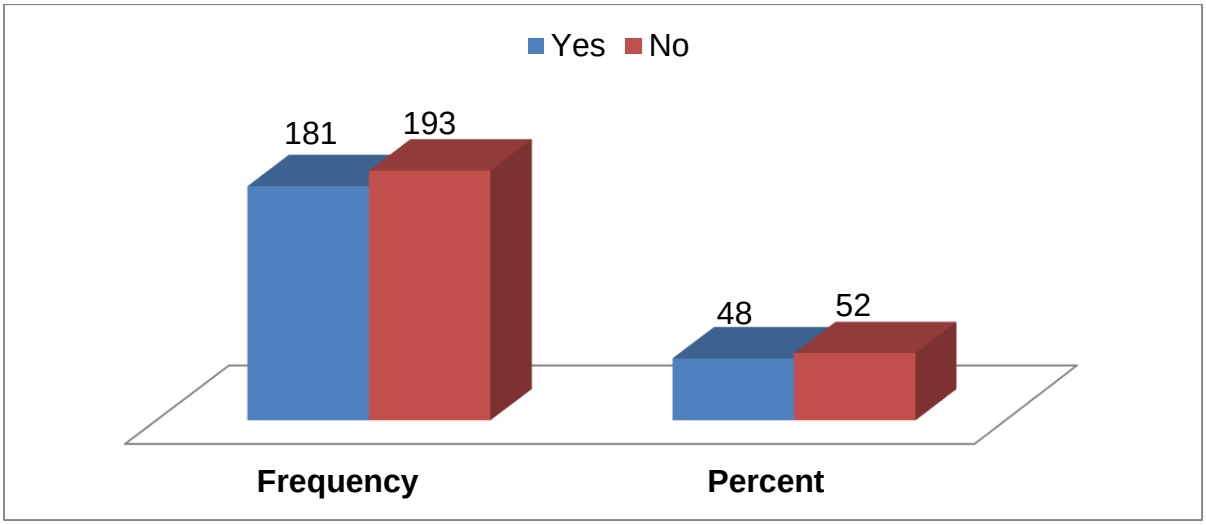

Figure 5: Awareness of fire safety

Source: Field survey (2023)

4.4.2 Source of Knowledge

The table shows the percentage of respondents who acquire knowledge of fire safety through various sources. 92% of the respondents acquire knowledge of fire safety through mass media, while 91% acquire it through education by GNFS. 83% of the respondents acquire knowledge of fire safety through school curricula.

The table presents the percentage of fire outbreaks caused as reported by respondents. The majority of fire outbreaks are caused by cooking (98%), heaters (97%), and electrical wires (95%). Careless use of candles and other naked flames is responsible for 80% of fire outbreaks, while reckless use of electrical appliances is the cause of 79% of fire outbreaks.

The table displays the reactions to fire outbreaks as reported by respondents. 95% searched for the fire's direction and a safe exit. 93% of respondents were assisted by their neighbours to escape during a fire outbreak. 80% searched for firefighting equipment to control the fire. 72% of respondents looked for an escape route and ran away when faced with a fire outbreak.

Table 2: Knowledge of Fire Safety Preparedness

Knowledge of Fire Safety Preparedness	Yes		No		Total	
	F	%	F	%	F	%
Sources knowledge of fire safety						
Through the mass media	344	92.0	30	8.0	374	100.0
Through education by GNFS	340	91.0	34	9.0	374	100.0
Through school curricula	310	83.0	64	17.0	374	100.0
Causes of Fire Outbreak						
Heater	364	97.0	10	3.0	374	100.0
Electrical wires	355	95.0	19	5.0	374	100.0
Careless use of candles and other naked flames	299	80.0	75	20.0	374	100.0
Cooking	367	98.0	7	2.0	374	100.0
Reckless use of electrical appliances	295	79.0	79	21.0	374	100.0
Reaction to fire outbreak						
I looked for the escape route and ran away	269	72.0	105	28.0	374	100.0

I looked for the direction of the fire and identified a safe place to escape	355	95.0	19	5.0	374	100.0
I looked for the firefighting equipment to control the fire	299	80.0	75	20.0	374	100.0
Assisted by neighbors to escape	348	93.0	26	7.0	374	100.0

Source: Field survey (2023)

4.4.3 Training on Fire Safety

The provided descriptive table presents data on whether individuals have received training on fire safety measures. According to the data, 71 (19.0%) individuals have received training on fire safety measures meanwhile the data indicates that 303 (81.0%) individuals have not received training on fire safety measures.

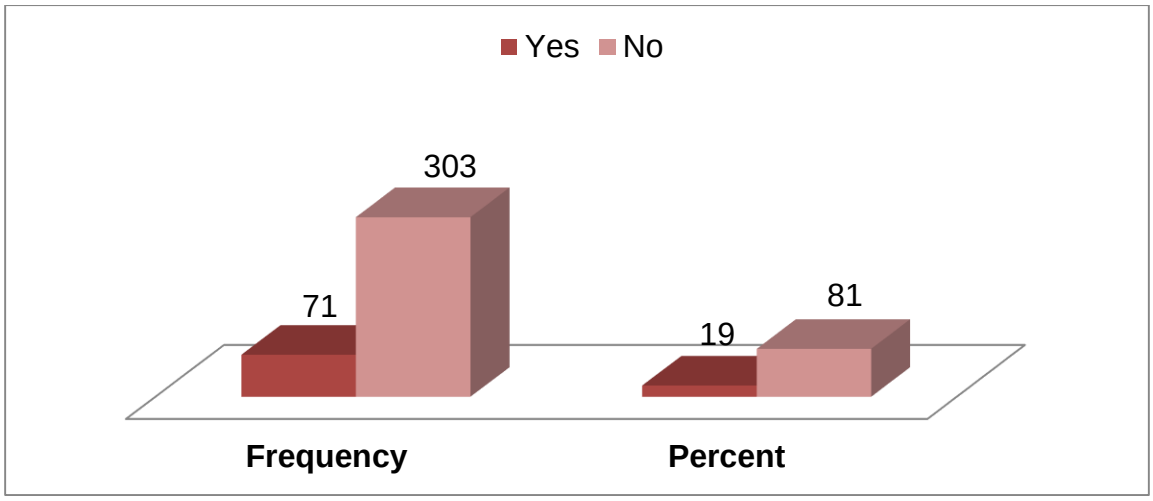

Figure 6: Training on fire safety

Source: Field survey (2023)

4.4.4 Experience in a Fire Outbreak

The provided descriptive table presents data on individuals' experiences with fire outbreaks. According to the data, 184 (49.0%) individuals have experienced a fire outbreak meanwhile 186 (51.0) individuals have not experienced a fire outbreak.

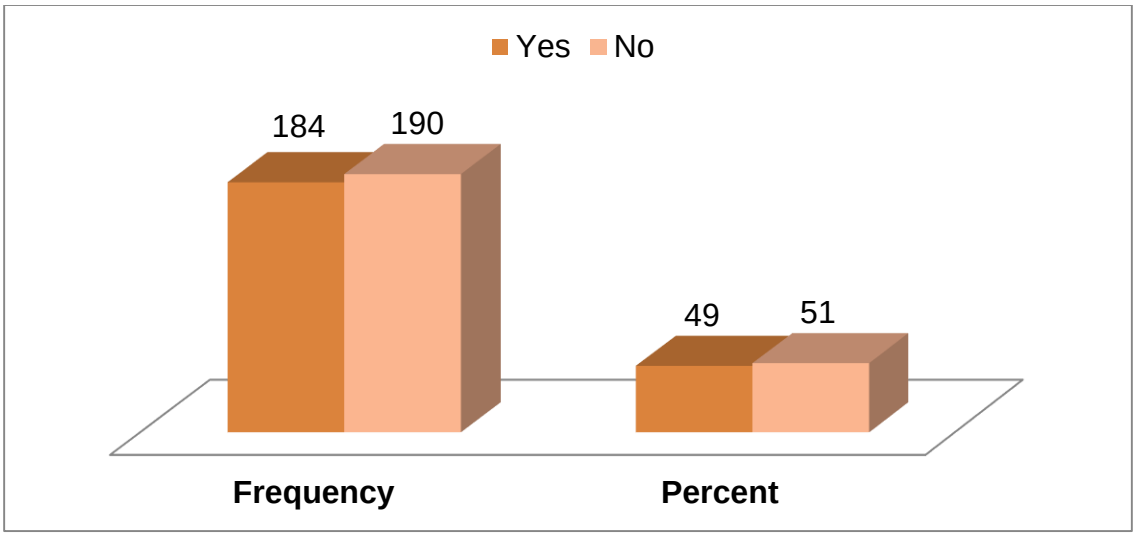

Figure 7: Experience with a fire outbreak

4.4.5 Awareness of Fire Prevention

The table presents data on individuals' awareness of fire prevention measures. According to the data, 206 (55.1%) individuals do not have awareness of fire prevention measures 160 (42.8%) individuals are aware of fire prevention measures meanwhile the data

Table 3: Awareness of Fire Prevention

Awareness of Fire Prevention	Frequency	Percent
Yes	206	57.2
No	160	42.8
Total	**374**	**100**

Source: Field survey (2023)

4.4.6 Fire Preventive Measures

The table presents the percentage of respondents' adherence to fire preventive measures. 98% are cautious when cooking. 90% of respondents use the right electrical wires as a fire preventive

measure. 89% adhere to signs and notices. 83% avoid overloading of electrical circuits. 80% exercise cautious use of naked flames. 77% use professional electricians for their electrical work.

Table 4: Fire Preventive Measures

Fire Preventive Measures	Yes		No		Total	
	F	%	F	%	F	%
The use of right electrical wires	337	90.0	37	10.0	374	100.0
Adherence to signs and notices	333	89.0	41	19.0	374	100.0
Cautious use of naked flames	299	80.0	75	20.0	374	100.0
Avoidance of overloading of electrical circuit	310	83.0	64	17.0	374	100.0
The use of professional electricians	288	77.0	86	23.0	374	100.0
Being cautious when cooking	367	98.0	7	2.0	374	100.0

Source: Field survey (2023)

4.4.7 Knowledge of Fire Control

The provided descriptive table presents data on individuals' awareness of fire prevention measures. The data indicates that 255 (72.9%) individuals do not have awareness of fire control measures meanwhile only 95 (27.1%) individuals are aware of fire prevention measures.

Table 5: Knowledge of Fire Control

Knowledge of fire control	Frequency	Percent
Yes	273	72.9
No	101	27.1
Total	**374**	**100.0**

Source: Field survey (2023)

4.4.8 Fire Control Measures

The table presents the percentage of respondents' use of fire control measures. 99% seek assistance from the Ghana National Fire Service. 97% of respondents use portable fire extinguishers as a fire control measure. 93% use fire blankets. 77% use sprinkler systems. 65% use fire buckets. 61% use hose reels.

Table 6: Fire Control Measures

Fire Control Measures	Yes		No		Total	
	F	**%**	**F**	**%**	F	%
The use of portable fire extinguishers	363	97.0	11	3.0	374	100.0
The use of fire blankets	348	93.0	26	7.0	374	100.0
Seeking assistance from Ghana National Fire service	370	99.0	4	1.0	374	100.0
The use of hose reels	228	61.0	146	39..0	374	100.0
The use of sprinkler system	288	77.0	86	23.0	374	100.0
The use of fire bucket	243	65.0	131	35.0	374	100.0

Source: Field survey (2023)

4.4.9 Awareness of the Emergency Contact Number for the Ghana National Fire Service

The provided descriptive table presents data on individuals' awareness of the emergency contact number for the Ghana National Fire Service. According to the data, 300 (80.0%) individuals do not know the emergency contact number for the Ghana National Fire Service meanwhile, 74 (20.0%) individuals are aware of the emergency contact number for the Ghana National Fire Service.

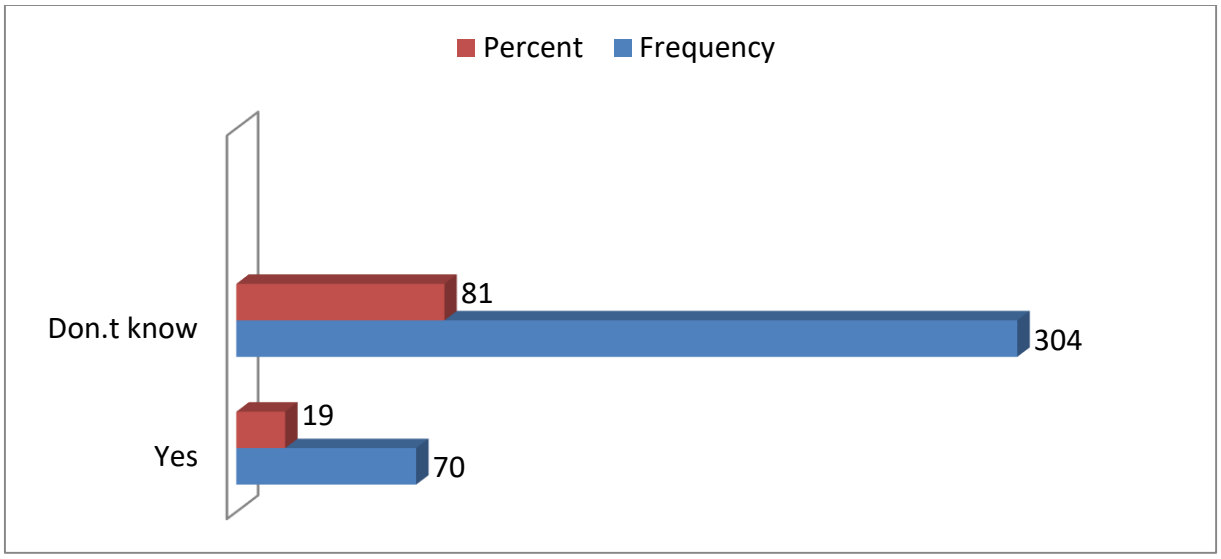

Figure 8: Awareness of the emergency contact number for the Ghana National Fire Service
Source: Field survey (2023)

4.4.10 Awareness of the Emergency Contact Number for the Ghana National Ambulance Service

The provided descriptive table presents data on individuals' awareness of the emergency contact number for the Ghana National Ambulance Service. The data indicates that 304 (81.0%) individuals do not know the emergency contact number for the Ghana National Ambulance Service meanwhile only 70 (19.0%) individuals are aware of the emergency contact number for the Ghana National Ambulance Service.

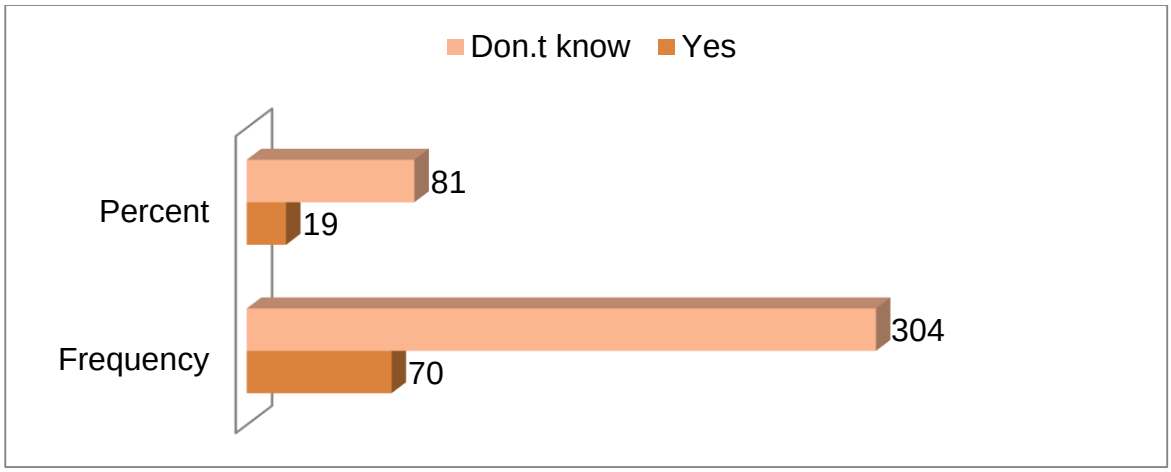

Figure 9: Awareness of the Emergency Contact number for the Ghana National Ambulance service

Source: Field survey (2023)

4.4.11 Awareness of Emergency Contact Number for National Disaster Management

The table presents data on individuals' awareness of the emergency contact number for the Ghana National Ambulance Service. The data indicates that 314 (84.0%) individuals do not know the emergency contact number for the Ghana National Ambulance Service meanwhile only 60 (16.0%) individuals are aware of the emergency contact number for the Ghana National Ambulance Service.

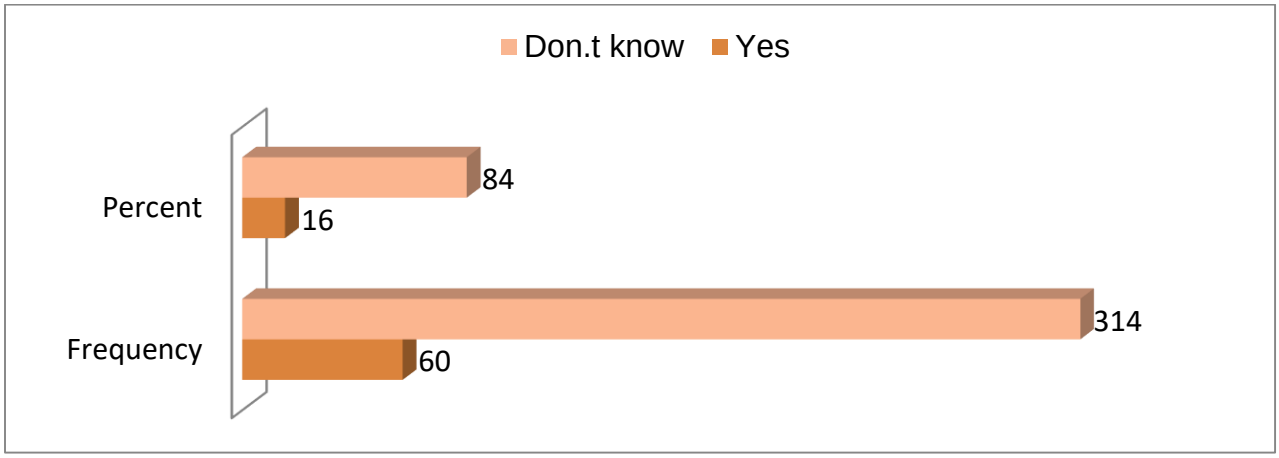

Figure 10: Awareness of emergency contact number for National Disaster Management

Source: Field survey (2023)

4.5 Objective Two: Attitudes of Households on Fire Safety Preparedness

Nearly all respondents (97.9%) agreed that a fire accident can occur in every household. This strong agreement reflects a high level of awareness about the potential risks of fire incidents. Similarly, 97.9% of respondents agreed that every individual should be knowledgeable about fire safety measures during emergencies. Like the earlier statements, 97.9% of respondents agreed that households should adhere to fire safety guidelines. A majority (91.7%) of respondents agreed that every individual should receive training in fire prevention and control. Similarly, 91.7% of respondents agreed that households should be inspected by concerned authorities A relatively low percentage (24.3%) agreed that investing in fire prevention and control is a waste of finances.

Table 7: Attitudes of Households on Fire Safety Preparedness

Attitudes of Households on Fire Safety Preparedness	Agree	No opinion	Disagree	Total
	%	%	%	%
A fire accident can occur in every household	97.9	2.1	0.0	100.0
Every individual should know the do's and don'ts of fire safety in the event of a fire emergency	97.9	2.1	0.0	100.0
Every individual should be trained in fire prevention and control	91.7	6.1	2.2	100.0
It is a waste of finances to invest in fire prevention and control	24.3	9.3	66.4	100.0
Every household should follow fire safety guidelines for fire prevention.	97.9	2.1	0.0	100.0
Every household should be inspected by the concerned authorities	91.7	6.1	2.2	100.0

Source: Field survey (2023)

4.6 Objective Three: Households' Compliance with Fire Safety Preparedness

4.6.1 Fire Preventive Measures Employed in Households

The table outlines various fire preventive measures that households have employed, along with the corresponding responses from the respondents. The response "not applicable" accounted for the majority of responses, at 83.2%. About 10.4% of respondents indicated that they have ensured physical accessibility to their building as a fire preventive measure. Approximately 4.3% of respondents reported having portable fire extinguishers in their households.

Table 8: Fire Preventive Measures Employed in Households

Fire Preventive Measures Employed in Households	Frequency	Percent
Physical accessibility to the building	39	10.4
Portable Fire Extinguishers	24	6.4
Not applicable	311	83.2
Total	**374**	**100.0**

Source: Field survey (2023)

4.6.2 Problems of Fire Safety Compliance

The table provides information about respondents' perceptions of problems related to fire safety compliance within households. A substantial percentage (96.0%) of respondents indicated that the lack of funds to procure fire safety equipment is a problem. Around 91.0% of respondents indicated that inadequate knowledge of the use of fire safety devices is a problem. Approximately 93.0% of respondents identified indiscipline among occupants in the use of naked flames while cooking as a problem.

Table 9: Problems of Fire Safety Compliance

Problems of Fire Safety Compliance	Yes		No		Total	
	F	%	F	%	F	%
Lack of funds to procure fire safety equipment	359	96.0	15	4.0	374	100.0
Inadequate knowledge of the use of fire safety devices	340	91.0	34	9.0	374	100.0
Indiscipline among occupants in the use of naked flame while cooking	348	93.0	26	7.0	374	100.0

Source: Field survey (2023).

4.6.3 Measures to Improve Domestic Fire Management

The table provides information on the fire preventive measures that households have employed. The largest percentage (48.1%) of respondents highlighted the smart use of fire and fuel to keep fires from starting. About 21.0% of respondents emphasized the importance of regular maintenance of fire safety equipment to prevent fire outbreaks. About 20.7% of respondents mentioned the availability of alternative routes to ensure a safe escape during a fire outbreak. Approximately 7.2% of respondents suggested having an insurance policy against fire as a measure to improve domestic fire management. Only 3.2% of respondents mentioned the availability of fire safety equipment in case of a fire outbreak.

Table 10: Measures to Improve Domestic Fire Management

Measures to Improve Domestic Fire Management	Frequency	Percent
Availability of fire safety equipment in case of a fire outbreak	12	3.2
Regular maintenance of fire safety equipment to prevent outbreaks of fire	90	24.0
Insurance policy against fire	27	7.2
Use of fire and fuel with care to stop fires from starting	180	48.1
Availability of alternative routes to ensure a safe escape	65	17.5
Total	**374**	**100.0**

Source: Field survey (2023)

CHAPTER 5

5.0 DISCUSSION

5.1 Introduction

This chapter presents the discussions of the final results of the study taking into account the various specific objectives.

5.2 Knowledge of Fire Safety Preparedness among Households

The fact that little above half of the participants, are not well-informed about fire safety measures reflects the need to enhance fire safety knowledge, thereby mitigating fire risks and reducing property damage. These initiatives, through various communication channels and strategies, could effectively reach a significant portion of the population. the findings from Diekman, Kearney, O'neil, and Mack's study conducted in 2007 are highly pertinent and offer valuable insights into the realm of household emergency preparedness, particularly in the context of fire safety. Their research revealed that despite a majority of participants possessing a satisfactory grasp of how to prepare for household emergencies, a significant portion of individuals still reported feeling inadequately prepared or acknowledged that they had not fulfilled some common preparatory measures.

This observation underscores a critical point within the fire safety literature—mere knowledge or awareness of emergency preparedness does not always equate to practical readiness. On the other hand, the existence of a substantial lack of awareness prompts the consideration of factors such as socioeconomic disparities, access to information, and the need for tailored outreach. Again, the balanced distribution of awareness of fire safety, as highlighted earlier, holds relevance when assessing household compliance with fire safety preparedness. The study findings suggest that a significant portion of the population lacks awareness of fire safety measures. This awareness gap

could potentially influence household compliance with fire safety preparedness measures in the mentioned region.

Similarly, the study assessed the source of knowledge on fire safety. It is worth knowing that, the sources through which individuals acquire knowledge about fire safety hold significant implications when considering the assessment of household compliance with fire safety preparedness. Learning about fire safety through mass media channels, encompassing platforms like television, radio, and online media, signifies the potential influence of widespread public awareness campaigns. Mass media has the unique ability to reach a broad audience and effectively convey important information. Households exposed to fire safety information through these channels may possess a heightened level of awareness, consequently positively impacting their inclination to comply with fire safety measures. Additionally, the role of public education initiatives, particularly those led by the Ghana National Fire Service (GNFS), is notable. Individuals who have received education through these targeted efforts are likely to have a more comprehensive understanding of fire safety practices. Such focused education can result in higher compliance rates, as households are armed with specific and actionable knowledge to enhance their preparedness for potential fire incidents.

Aside from the above, the estimation of the causes of fire outbreaks revealed that the primary causes of fire outbreaks offer a valuable lens through which to assess household compliance with fire safety preparedness. With cooking being the leading cause, responsible cooking practices and the presence of fire safety equipment must be examined. The significant contribution of electrical wire issues underscores the necessity of assessing compliance with proper electrical maintenance. Similarly, the proportion of fire outbreaks caused by careless use of candles and naked flame usage

demands an evaluation of household adherence to safer alternatives and candle usage safety guidelines.

Moreover, the incidents caused by heaters call for assessments of the proper use and placement of faulty heaters. By focusing on these distinct causes, compliance evaluations can be strategic, targeting specific areas to enhance overall household fire safety and preparedness in the region. This kind of cross-sectional poll about fire safety was done among students at the University of Cape Coast in 2019. Most of the students thought they were at risk of fire hazards. Almost all of the people who answered (71%) said that electricity was the biggest fire risk. More than half of the people who answered knew what a fire drill was, but less than half knew how to put out a fire properly (Amo., 2019). This study found that poor fire emergency management was one of the reasons many lives were lost and a lot of property was damaged. This was because people didn't know enough about fire safety procedures, fire detection equipment, and firefighting gear (Amo., 2019).

The results on control measures of fire outbreaks offer insights into respondents' approaches to fire control measures, which play a critical role in assessing their preparedness and awareness of fire safety. The responses reflect a range of strategies individuals consider when dealing with fire incidents within the context of the study. A significant number of participants said they had called the GNFS for help. This shows that professional help is seen as an important part of controlling fires. This underscores the understanding that expert support is vital in effectively handling fire emergencies. Another group of respondents mentioned using Portable Fire Extinguishers as a preventive measure, demonstrating a proactive stance towards fire safety. This approach signifies awareness about the value of having accessible tools to promptly address small fires before they escalate, aligning with the principle of taking immediate action to mitigate risks. This is in line

with, (Sholihah, Setyaningrum, Husaini, and Hanafi, 2015) who discovered a significant link between the understanding of fire prevention measures and the presence of fire extinguishers at home, underscoring the necessity for increased education to enhance preparedness. The research goes against what the GNFS Regional Report-Ahafo (2022) said about safety awareness and preparedness in senior high schools in Ghana's Ahafo Region. The report said that many of the instructors did not even know the right way to use a fire extinguisher. This was said to be because Senior High Schools in the Ahafo Region did not have a fire drill-based school safety program.

5.3 Attitudes of Households on Fire Safety Preparedness

The responses provided by the respondents offer significant insights into their perceptions and beliefs related to fire safety. The overwhelming consensus, with 97.9% agreement, that a fire accident can occur in any household indicates a high level of awareness regarding the potential risks associated with fire incidents. This acknowledgement underscores a realistic understanding of the ever-present threat of fires within residential spaces. The study confirms a study from Yeturu, Annapurani, Janakiram, Joseph, & Pentapati, (2016) which involved a total of 270 participants. It was observed that almost 50 per cent of these participants exhibited a favourable attitude towards fire safety. However, a notable finding was that only a small minority of the participants were knowledgeable about the proper utilization of fire control measures in the event of a fire-related incident.

Equally notable is the unanimous agreement (97.9%) among respondents that individuals should possess knowledge of fire safety measures during emergencies. This consensus reflects a collective recognition of the importance of being well-informed about appropriate actions. This emphasis on individual responsibility underscores the significance of preparedness and proactive behaviour.

The continued agreement (97.9%) that households should adhere to fire safety guidelines reaffirms the importance of following established safety protocols. This alignment with recommended guidelines further emphasizes the role of compliance in mitigating fire risks and ensuring the safety of residents.

Furthermore, the majority agreement (91.7%) that every individual should undergo training in fire prevention and control highlights the perceived value of education in promoting effective fire safety practices. This response underscores the belief that knowledge and preparedness can contribute significantly to minimizing fire incidents.

A similar percentage (91.7%) agreeing that households should undergo inspection by concerned authorities indicates a recognition of the role that oversight and regulation play in maintaining fire safety standards. This response reflects a willingness to ensure that safety measures are upheld through external checks.

In contrast, the relatively lower agreement (24.3%) that investing in fire prevention and control is a waste of finances presents an interesting perspective. This dissenting view might reflect concerns about the allocation of resources or a perception that fire incidents are unlikely. Addressing this viewpoint through education on the potential consequences of not investing in fire safety measures could contribute to changing this perception.

In summary, the respondents' viewpoints collectively emphasize a strong awareness of fire risks, the need for knowledge and compliance with safety measures, the value of training and inspection, and differing opinions about financial investment in fire prevention. These insights provide a valuable foundation for tailoring educational campaigns, promoting awareness, and encouraging the adoption of effective fire safety practices within the context of the study.

5.4 Households' Compliance with Fire Safety Preparedness

The findings indicate the array of fire preventive measures adopted by households, offering insight into their preparedness and awareness. While a notable proportion responded with "not applicable," indicating potential gaps in implementation, others displayed proactive approaches. The emphasis on ensuring physical accessibility to buildings highlights the recognition of unobstructed escape routes during emergencies. The presence of portable fire extinguishers demonstrates a readiness to take immediate action in fire prevention. The data underscores the need for targeted educational efforts to bridge awareness gaps and encourage consistent adoption of fire safety practices. By fostering a culture of proactive fire safety, households can better mitigate risks and contribute to overall community well-being. According to Colonna's (2017) study, one of the most important things to do to be ready for a fire disaster is to keep fire extinguishers and other firefighting gear like dry risers, wet risers, sprinklers, fire detectors, and sensors where they are needed. Also, In the study conducted by Oloke, Oluwunmi, Oyeyemi, Ayedun, and Peter, (2021), it was discovered that in peri-urban neighbourhoods, there is generally strong adherence to passive fire control guidelines. However, a significant deficiency was observed in terms of active fire control systems within residential buildings. The main challenges identified that hinder effective fire control measures in these neighbourhoods included the absence of active fire control equipment, a lack of community fire safety tools, and an unreliable water supply.

Additionally, the study delves into respondents' perspectives on issues related to fire safety compliance within households. A significant concern highlighted is the not having enough money to buy fire safety gear, reflecting financial barriers that hinder the acquisition of essential safety tools. Similarly, respondents identified inadequate knowledge of fire safety device usage as a challenge, pointing to potential gaps in education and training efforts. Additionally, concerns were

raised about occupants' indiscipline in using naked flames during cooking, underlining risky behaviours that can contribute to fire incidents. These findings underscore the complex range of challenges involved in achieving effective fire safety compliance, necessitating a multifaceted approach that addresses financial constraints, educational needs, and behaviour modification within households. This research affirms that the common occurrence of fires in buildings is often linked to the lack of operational or the absence of essential fire-fighting equipment, which plays a crucial role in fire management and containment (Ramachandran, 2019). Additionally, Hall (2018) study explored the factors contributing to numerous fire incidents in higher education institutions, revealing that the primary causes of such disasters were associated with the non-performance of fire safety protection systems within buildings. Furthermore, in some instances, the correct equipment was not installed. To enhance the prevention of fires, it is imperative to install and maintain effective fire prevention measures to ensure their functionality at all times.

The study again reveals a spectrum of measures employed by households to enhance their domestic fire management strategies. A significant proportion of respondents emphasize the careful use of fire and fuel, indicative of a keen awareness of responsible practices that can curtail fire outbreaks. This speaks to the crucial role individual behaviour plays in fire prevention. Similarly, the emphasis on regular maintenance of fire safety equipment underscores a proactive approach to ensuring the effectiveness of tools designed to mitigate fire risks. Notably, the consideration of alternative escape routes reflects a preparedness mindset, acknowledging the importance of safe evacuation plans in case of emergencies. The suggestion of having fire insurance policies showcases an understanding of the financial aspects of fire management and recovery. Lastly, the availability of firefighting equipment further emphasizes the importance of swift response options. Collectively, these measures underscore a holistic approach, blending responsible behaviour,

preparedness, and practical tools, all contributing to comprehensive domestic fire management strategies that mitigate risks and enhance safety within households. Thomson (2002) underscores the significance of accurate evaluations of fire-related risks and the implementation of control strategies. These measures should be consistently revised and enhanced. Collectively, the papers indicate that a forward-looking stance towards the maintenance of fire safety equipment plays a pivotal role in the success of managing fire-related risks.

CHAPTER 6

6.0 CONCLUSIONS AND RECOMMENDATIONS

6.1 Introduction

Based on the different research questions, this chapter comes to a conclusion and provides recommendations for the study.

6.2 Conclusion

In conclusion, the discussions presented offer valuable insights into various aspects of fire safety preparedness and compliance among households. The knowledge regarding fire safety measures among participants highlights the success of prior awareness campaigns, with nearly half of the respondents demonstrating a strong understanding of these measures. However, the existence of a significant lack of awareness indicates the need to address factors such as socioeconomic disparities and access to information.

Furthermore, the sources through which individuals acquire knowledge about fire safety, particularly through mass media channels and public education initiatives, underscore the potential influence of widespread awareness campaigns and targeted educational efforts led by institutions such as the GNFS.

The causes of fire outbreaks, ranging from cooking-related incidents to electrical issues, demand tailored evaluations of household practices and compliance with proper safety measures. By focusing on these distinct causes, compliance evaluations can strategically target specific areas to enhance overall household fire safety preparedness in the Ashaiman Municipality.

Moving on to attitudes towards fire safety preparedness, respondents' unanimous agreement on the likelihood of fire accidents and the importance of possessing fire safety knowledge during

emergencies reflects a high level of awareness. The consensus on adhering to fire safety guidelines and the significance of undergoing training and inspections further emphasizes the role of individual responsibility, education, and external oversight in mitigating fire risks.

Lastly, the discussions on households' compliance with fire safety preparedness reveal a mix of proactive measures and potential gaps in implementation. Respondents' emphasis on physical accessibility to buildings, the presence of fire extinguishers, and responsible fire and fuel usage highlight their preparedness and awareness. However, challenges related to financial constraints, knowledge gaps, and risky behaviours underscore the multifaceted nature of achieving effective fire safety compliance.

Overall, the insights gained from these discussions provide a foundation for informed decision-making in developing targeted educational campaigns, promoting awareness, and encouraging the adoption of effective fire safety practices within households. By addressing both the successes and challenges in fire safety preparedness and compliance, communities can work towards creating a safer and more resilient living environment.

6.3 Recommendations

Based on the research findings, the following recommendations were made:

i. The Ministry of Information should develop and implement targeted awareness campaigns that focus on reaching households with low awareness levels. Utilize various communication channels, including mass media, community workshops, and digital platforms, to disseminate information about fire safety measures, preventive practices, and the importance of compliance.

ii. The district or community leaders collaborate with institutions like the Ghana National Fire Service (GNFS) to organize regular educational programs and training sessions. These

efforts should aim to educate households about the correct usage of fire safety equipment, proper fire prevention practices, and effective response strategies during emergencies.

iii. Also, the households are encouraged to adopt a proactive approach by conducting regular inspections and maintenance of fire safety equipment. Provide guidelines to the household members on how to properly maintain fire extinguishers, smoke detectors, and other safety tools to ensure their effectiveness during emergencies.

6.4 Limitation of Study

Funding and timing were major hindrances for this study. However, the study was limited to household's persons of the Tulaku community in the Ashaiman municipality, which reduced the challenges of both funding and timing. There may have been people who didn't want to answer the questions because the research problem being looked into was sensitive and there could be legal consequences for doing so but respondents were assured of confidentiality and anonymity and that, the work is solely for academic purposes and for that matter, respondents were encouraged to provide honest and genuine information's as answers to the questions.

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APPENDIX

ASSESSING HOUSEHOLD COMPLIANCE TO FIRE SAFETY PREPAREDNESS IN THE ASHAIMAN MUNICIPALITY OF THE GREATER ACCRA REGION OF GHANA

QUESTIONNAIRES

SECTION A

Demographic Data

Instruction: (Tick [√] the applicable option)

1. Status of respondent [ ]
a=house owner [ ]
b=spouse of the house owner [ ]
c=son/daughter of house owner [ ]
d=care taker [ ]
e=others (specify) .....

2. Sex of respondent (if not house owner) .....
3. Level of education of respondent (if not house owner) .....
4.(a) Age of respondents (if not house owner) .....

4.(b) Age range of house owner/ caretaker
a. Below 30 years [ ]
b. 30 - 40 years [ ]
c. 41 – 50 years [ ]
d. 51 – 60 years [ ]
e. Above 60 years [ ]

5. Sex of the head of household: 1 = Male [ ] 2 = Female [ ]
6. Level of Education of the head of household
a= No formal [ ]
b= Basic [ ]
c = Secondary / S.H.S [ ]
d= Tertiary (Univ./Poly/Post-Sec.) [ ]
e= Others (Specify).....

7. Income range of head of household
a = Less than GH¢200.00 [ ]
b = GH¢201.00 – 500.00 [ ]
c = GH¢501.00 – 1000.00 [ ]
d = GH¢1001.00- 1500.00 [ ]

e= GH¢1501.00 – 2000.00 [ ]
f= Above GH¢2000 [ ]

8. What is the type of your building?
a= single storey [ ]
b= two storey [ ]
c= metal container [ ]
d= wooden structure [ ]
e= other (specify)

9. How many years have you lived in this house?.....

10. Has the electrical wires been changed within the past ten years? 1=Yes [ ] 2=No [ ]
11. If question 10 is yes, how many years now were they changed? .....

SECTION B

KNOWLEDGE ON FIRE SAFETY PREPAREDNESS AMONG HOUSEHOLDS

Instruction: Please tick (√) in the appropriate column

Each of the following statement is about the knowledge on fire safety preparedness among households.

Fire Safety Knowledge

12. Have you heard anything on fire safety before? 1=Yes [ ] 2=No [ ]

13. If answer to question 12 is yes, how did you become aware of the fire safety issues? ***[If No tick not applicable]***

a= through the mass Media [ ]
b= public education by GNFS [ ]
c= through school curricula [ ]
d= others (specify) .....
f= not applicable [ ]

14. Have you had any training on fire safety measures?

1=Yes [ ] 2=No [ ]

15. If answer to question 14 is yes, how many years now? ***[If no tick not applicable]***

a= less than one year [ ]
b= one to three years [ ]
c= four to six years [ ]
d= above six years [ ]
e= not applicable [ ]

16. Have you experienced any form of fire outbreak before?

1=Yes [ ] 2=No [ ] ***[if No, skip to question 20]***

17. If the answer to question 16 is yes, what caused the outbreak?

a= heater [ ]
b= lightning [ ]
c= electrical wires [ ]
d= careless use of candles and other naked flames [ ]

18. Apart from what caused the fire, what other causes of fire outbreak do you know?
[Tick all that apply]

a= heater [ ]
b= lightning [ ]
c= electrical wires [ ]
d= careless use of candles and other naked flames [ ]
e= cooking [ ]
f= reckless use of electrical appliances [ ]
g= others (specify) .....

19. What was your immediate reaction during the outbreak? ***[tick all that apply]***

a= I looked for the escape route and ran away [ ]
b= I looked for the direction of the fire and identified a safe place for escape [ ]
c= I looked for firefighting equipment to control the fire [ ]
d= Assisted by neighbours or fire management institutions to escape [ ]
e= Others, specify .....

20. If you have ***not*** experienced fire outbreak before, do you have any knowledge on what causes domestic fires? 1= Yes [ ] 2=No [ ]

21. If question 20 is yes, what are they? ***[If No tick not applicable]***
a= heater [ ]
b= lightning [ ]
c= electrical wires [ ]
d= careless use of candles and other naked flames [ ]
e= cooking [ ]
f= reckless use of electrical appliances [ ]
g= others (specify) .....
h= not applicable [ ]

22. Do you know anything about fire prevention 1=Yes [ ] 2=No [ ]

23. If answer to question 22 is yes, which of the fire preventive measures are you aware of? ***[If No tick not applicable]***

a= the use of right electrical wires [ ]
b= adherence to signs and notices [ ]
c= regular maintenance of fire detection system [ ]
d= cautious use of naked flames [ ]
e= avoidance of overloading of electrical circuits [ ]

f= the use of professional electricians [ ]
g= being cautious when cooking [ ]
h= others (specify).....
g= not applicable [ ]

24. Do you have any knowledge on fire control? 1=Yes [ ] 2=No [ ]

25. If the answer to question 24 is yes, what control measures are you aware of? ***[If No tick not applicable]***

a=the use of Portable Fire Extinguishers [ ]
b=the use of Fire Blankets [ ]
c=the use of Fire buckets [ ]
d= the use of Hose reels [ ]
e=the use of Sprinkler systems [ ]
f=seeking assistance from the Ghana National Fire Service [ ]
g=others (specify).....
h= not applicable [ ]

26. What would be your immediate reaction in an event of fire outbreak in your household? ***[Tick all that apply]***

a=I would look for the escape route and ran away [ ]
b=I would look for the direction of the fire and identify a safe place for escape [ ]
c=I would look for firefighting equipment to control the fire [ ]
d=I would wait for assistance from neighbours or fire management institutions for evacuation [ ]
e=others, specify .....
27. Do you know about fire triangle and its components? YES [ ] NO [ ]
28. Do you know about the different classes if fires? YES [ ] NO [ ]
29. Do you know about the acronym "PASS" method of fire control? YES [ ] NO [ ]
30. What is the emergency contact number for Ghana National Fire Service?
a) 0244508351 b) 192 c) 193 d) 911 e) Don't know
31. What is the emergency contact number for Ghana National Ambulance Service?
a) 0244508351 b) 192 c) 193 d) 911 e) Don't know
32. What is the emergency contact number for National Disaster Management Organization?
a) 0244508351 b) 192 c) 193 d) 911 e) Don't know
33. Have you used any fire safety device before? YES [ ] NO [ ]

34. Every building must be accessible to fire management authorities in case of fire outbreak YES [ ] NO [ ]
35. Every building must have alternate means of escape route. YES [ ] NO [ ]
36. Every building must have fire detection systems such as Smoke detectors, Emergency lightning system, Portable Fire Extinguishers, Fire Blankets, Fire buckets. YES [ ] NO [ ]

SECTION C

ATTITUDES OF HOUSEHOLDS ON FIRE SAFETY PREPAREDNESS

Instruction: Please tick (√) AGREE / NO OPINION / DISAGREE in the appropriate column

37. Each of the following statements is about the attitudes of households on fire safety preparedness.

	Agree	No opinion	Disag
38. A fire accident can occur in every household			
39. Every individual should know the do's and don'ts of fire safety in the event of fire emergency			
40. Every individual should be trained in fire prevention and control			
41. It is waste of finances to invest in fire prevention and control			
42. Every household should follow fire safety guidelines for fire prevention.			
43. Every household should be inspected by concerned authorities			

SECTION D

HOUSEHOLDS COMPLIANCE TO FIRE SAFETY PREPAREDNESS

Each of the following statement is about the household's ***Compliance to Fire Safety***

Preparedness

Instruction: Please tick (√) all that apply

44. What fire preventive measures do you have in your household? [tick all that apply]

a. Physical accessibility to building [ ]
b. Means of escape [ ]
c. Signs and notices [ ]
d. Smoke detectors [ ]
e. Emergency lightning system [ ]
f. Portable Fire Extinguishers [ ]
g. Fire Blankets [ ]
h. others (specify) ……
I= none of the above [ ]

45. What measures have you put in place to improve domestic fire management?

a=insurance policy against fire [ ]
b=availability of fire safety equipment in case of fire outbreak [ ]
c=regular maintenance of fire safety equipment to prevent outbreak of fire [ ]
d=Use of fire and fuel with care to stop fires from starting [ ]
e=availability of alternative routes to ensure safe escape [ ]
f=regular checks and maintenance of household gadgets to prevent fire outbreak [ ]
g=none of the above [ ]

46. What are some of the problems you think households face in fire safety compliance?
Instruction: Please tick all that apply

a= lack of funds to procure fire safety equipment [ ]
b= Inadequate knowledge on the use of fire safety devices [
c= indiscipline among occupants in the use of naked flame while cooking [ ]
d= others (specify)……