FACTORS AFFECTING PREVENTION INTENTION TOWARDS FIRE OUTBREAKS IN PUBLIC MARKETS IN TANZANIA: THE MODERATING EFFECT OF ATTITUDE

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CERTIFICATION

The undersigned certify that they have read and hereby recommend for acceptance by The Open University of Tanzania a thesis titled, **"Factors Affecting Prevention Intention Towards Fire Outbreaks in Public Markets in Tanzania: The Moderating Effect of Attitude"**, in fulfillment of the requirements for the award of the Degree of Doctor of Philosophy (PhD) of the Open University of Tanzania.

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DECLARATION

I, **Billy Jimmy Mwakatage**, declare that the work presented in this thesis is original. It has never been presented to any other University or Institution. Where other people's works have been used, references have been provided. It is in this regard that I declare this work as originally mine bona fide. It is hereby presented in fulfilment of the requirement for the Degree of Doctor of Philosophy of the Open University of Tanzania.

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Signature

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Date

DEDICATION

This thesis is sincerely dedicated to my late parents Jimmy Lyama Mwakatage, Rose Mwandenene and my gorgeous family.

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ABSTRACT

This study examined the factors affecting prevention intention towards fire outbreaks in public markets using attitude as a moderating variable. The study specifically assessed the effects of perceived vulnerability, perceived severity, response efficacy, and self-efficacy on facilitating the intention to prevent fire outbreaks in public markets. Additionally, it examined the moderating effects of attitudes on prevention intentions and fire outbreaks in public markets. The research utilised quantitative methods, involving 384 respondents who were traders in public markets and the management of respective markets in the Dar es Salaam Region. A simple random sampling approach was employed to select respondents from 10 markets, and data analysis was conducted using the structural equation model. The findings indicated that perceived vulnerability did not directly affect the intention to prevent fire outbreaks in public markets while perceived severity, response efficacy, and self-efficacy demonstrated direct positive effects. The study also revealed that attitude positively moderated the relationship between vulnerability and the intention to prevent fire outbreaks in public markets, but it did not exhibit positive moderating effects on perceived severity, response efficacy, and self-efficacy. This study concludes that among the four factors under the study, three of them directly affect the intention to prevent fire. The study recommends that further research could explore the reasons why attitude does not positively moderate perceived severity, response efficacy, and self-efficacy in facilitating the intention to prevent fire outbreaks in public markets.

Keywords: *Vulnerability, Perceived Severity, Response Efficacy, Self-Efficacy, Prevention Intention of fire and Attitudes.*

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LIST OF ABBREVIATIONS

BBC	British Broadcasting Corporation
FGD	Focus Group Discussion
FRF	Fire and Rescue Force
HSE	Habit-Specific Efficacy
ITV	Independent Television
IVE	Immersive Virtual Environment
KNHANES	Korea National Health and Nutrition Examination Survey
MDS	Mahalanobis Distance Statistics
MI	Motivational Interference
MLRPM	Multiple Logistic Regression Prediction Modeling
NTV	Kenya General Entertainment Channel
OLS	Ordinary Least Square
PMD	Public Market Development
PMT	Protection Motivation Theory
RE	Response Efficacy
SE	Self Efficacy
URN	Uganda Radio Network
URT	United Republic of Tanzania
USA	United States of America
VIT	Vested Interest Theory
VOA	Voice of America
WUI	Wildland Urban Interface

CHAPTER ONE

INTRODUCTION

1.1 Overview

In this chapter, the background information of the study is presented, and the statement of the problem is explained. Additionally, the chapter outlines both the general and specific objectives, along with elucidating the significance of the study, the scope of the study as well as the organisation of the study.

1.2 Background to the Study

Throughout history, fires have led to substantial human casualties, infrastructure damage, environmental harm, and disruptions to business centres (Badger, 2017; Akhter, 2014; AlWaqfi et al., 2022; Mubita et al., 2023). The global impact of fire threats on people, properties, and economies is increasingly recognised (Oneugubu et al., 2021; Mubita et al., 2023; Ongoro & Muiya, 2023). The repercussions of fires extend beyond life and property loss thus affecting businesses and contributing to economic downturns, subsequently leading to unemployment (Bakirci, 2010; Lange et al., 2015; Bhandari and Takahashi, 2022). Notably, fire incidents have seen a rise in urban markets globally hence resulting in significant losses of properties and businesses (Mweetwa, 2018; Oneugubu et al., 2021).

Market fire outbreaks have become a prevalent concern in both developed and developing countries (Hatmoko & Larassati, 2021; Oneugubu et al., 2021). Examples include the Sentul market fires in Malaysia in 2017 and 2019 (Pressreader, 2020;

New Straits Times, 2020), the Daegu market fire in Korea in 2016 (The Korea Herald, 2016), the Kalibo public market fire in the Philippines in 2019 (Rappler, 2019; Panay News, 2019), and the Galas public market fire in Barangay San Isidro, the Philippines (Philippine News Agency, 2019). Additionally, incidents like the Camden Lock market fire in England in 2017, Sunrise Oriental market fire in the USA, La Merced market fire in Mexico in 2019, and Gariahat market fire in India in 2019 underscore the global nature of this issue (Hatmoko and Larassati, 2021). Massive fires in Bangladesh markets (Reuters, 2023) and the clothing market in the capital city (VOA, 2023) further contribute to the growing concern.

The increasing trend of fire outbreaks is evident, with incidents reported on the rise (Bushesha & Ndibalema, 2017; Waryoba & Mung'ong'o, 2023; Zulu & Shi, 2023). For instance, Nigeria experienced 39 market fires from 2012 to 2013 resulting in significant losses for traders (Popoola et al., 2016), and four market fire incidents from 2015 to 2018 (Hatmoko & Larassati, 2021). Similarly, Burundi reported 13 market fire outbreaks from 2006 to 2021. Uganda faced nine cases of market fires between 2010 and 2022 (VOA, 2011; Daily Monitor, 2021; URN, 2022; The Independent, 2022), while Kenya recorded 12 market fire incidents from 2015 to 2022 (Citizen Digital, 2022; BBC News, 2020; BBC News, 2018; Hilary et al., 2020; NTV, 2016; NTV, 2022). Tanzania alone witnessed 28 market fire incidents from 2010 to 2022 (URT, 2022; Mwidege and Rogath, 2014; Hilary et al., 2020; The Citizen, 2020; The Citizen, 2022; BBC News, 2021), including significant incidents like the Kariakoo public market fire in July 2021 (The Citizen, 2021), destruction of 500 shops in the Kariakoo inferno (Daily News, 2023), fires at Karume market in

2014, 2021, and 2022 (The Citizen, 2014; 2021; 2022), Mbagala market in 2018 and 2021, Musoma market in 2021 (The Citizen, 2021), Veterinary market in 2022 (Africa Press, 2022), and Tegeta market, all in Dar **e**s Salaam city.

Moreover, other regions in Tanzania, faced fire incidents which included SIDO market and Mwanjelwa Market in Mbeya (The Citizen, 2017), Samunge and Masai Market in Arusha (The Citizen, 2014). BBC News (2022) reports Dar-es-Salaam, Mbeya, Arusha, Mwanza and Geita as regions with high reported market fire incidences thus prompting the need for this study.

The evidence presented underscores the threat of fire outbreaks in public markets thus posing significant risks to traders for whom public markets serve as crucial sources of income. Various studies emphasi**s**e the predictive power of factors derived from the Protection Motivation Theory (PMT) in anticipating intentions for disaster prevention, particularly in the context of wildfires, residential fires, and bushfires (Kinateder et al., 2015; Martin et al., 2007; Karamaker et al., 2021; Jansen et al., 2020). For instance, Jansen et al. (2020) found that vulnerability predicts prevention intention, while severity and self-efficacy exhibit weaker relationships with prevention intention. On the other hand, Dupuis (2019) highlighted the strong predictive power of self-efficacy (SE) for preventive measures, whereas response efficacy (RE) did not significantly relate to prevention measures. Fitria et al. (2020) demonstrated that self-efficacy strongly predicts fire prevention in market fires.

Based on the arguments from scholars such as Fitria et al. (2020) this study adopted variables from PMT because it has been argued that they influence the prevention

of threats such as fire outbreaks. The key variables which were argued to influence prevention intention of fire outbreak are perceived vulnerability, perceived severity, response efficacy and self-efficacy. Thus, this study adopted these variables to examine its influence on prevention of fire outbreak in public markets in Tanzania.

However, Aning-Agyei (2018) argued that PMT does not explain how attitude might bring about changes in threat and coping appraisals. This study aim**ed** to address this gap by utili**s**ing attitude as a moderating factor, drawing on the Vested Interest Theory (Sivecek and Crano, 1982). The theory asserts that attitudes are effective predictors of future behavio**u**r (Adame, 2020; Adame and Corman, 2018; Donaldson et al., 2020). VIT has been successful in motivating disaster preparedness campaigns by linking attitudes with relevant behavio**u**rs (Adame, 2020; De Dominicis et al., 2021; Adame and Miller, 2015; Ao, 2020). Thus , attitude has been playing an important effect on the prediction of coping behaviours in the context of disasters (Ajzen & Cote, 2008; De Dominicis et al., 2021). Nevertheless, previous studies did not consider attitude as a moderating variable in their analyses to determine relationships between variables. Therefore, this study sought to fill this gap by employing attitude as a moderator in assessing the factors of vulnerability, severity, SE, RE, and prevention intention concerning fire outbreaks in public markets.

1.3 Statement of the Problem

The number of fire outbreaks occurring in public markets across Tanzania is on the rise, a trend that has prompted the government to take significant action to mitigate the associated impacts. In response to this alarming situation, various measures have

been implemented, including the establishment of comprehensive laws and regulations designed to enhance fire safety protocols (URT, 2007). The Fire and Rescue Force (FRF) plays a crucial role in this initiative, engaging in regular inspections, conducting training sessions for market vendors, and launching fire awareness campaigns. One notable campaign is titled "NINACHO NAJUA KUKITUMIA," which aims to educate the public about fire safety practices (URT, 2017; ITV, 2020).

In recent years, there has been notable progress in raising public awareness and preparedness regarding fire safety (Every et al., 2015). However, despite these proactive initiatives, the frequency of fire outbreaks in Tanzania continues to increase (Bushesha & Ndibalema, 2017; Kihila, 2017; Jongo et al., 2018; Waryoba & Mung'ong'o, 2023). From 2010 to 2022, a total of 28 fire incidents were reported in public markets, leading to substantial losses for traders. These incidents not only resulted in damage to property but also imposed significant financial burdens, caused injuries, and tragically, in some cases, led to fatalities (URT, 2022). To effectively address the challenges posed by these fire outbreaks, the need for empirical justification and detailed investigation has been emphasized, as argued by Kihila (2017).

Moreover, there exists a notable gap in research concerning the factors that influence the intention to prevent fire outbreaks specifically in Tanzanian public markets. Understanding these factors is critical for the country's overall efforts to tackle this pressing issue. This research gap is particularly striking when compared to studies

conducted in other contexts, such as wildfires (Mgina & Wawa, 2020), fire awareness programs in universities and secondary schools (Bushesha & Ndibalema, 2017; Kihila, 2017; Kileo et al., 2021; Waryoba & Mung'ong'o, 2023), construction sites (Jongo et al., 2018), and emergency preparedness in both private and public markets (William, 2022). Notably, the studies by Mgina and Wawa (2020) and William (2022) employed mixed-method approaches, whereas the present study adopts a purely quantitative methodology.

In light of these considerations, the researcher has selected the Protection Motivation Theory (PMT) as the primary theoretical framework for this investigation. PMT has demonstrated its effectiveness in predicting prevention intentions across a range of fire hazards, including wildfires, residential fires, and bushfires (Kinateder et al., 2015; Martin et al., 2009; Martin et al., 2007; Karemaker et al., 2021; Jansen et al., 2020). Furthermore, PMT has successfully been applied in predicting prevention intentions related to market fires, as evidenced by the findings of Fitria et al. (2020). The rationale for utilizing this theory lies in its established capacity to forecast fire prevention behaviors in market settings, as highlighted by Aning-Agyei (2018).

However, while previous empirical evidence has provided a broad overview of PMT, it has often fallen short of thoroughly exploring the contributions of each specific construct within the theory. As a result, the precise impact of these constructs on fire prevention efforts has remained somewhat unclear. This study is, therefore, critical, as it reveals that not all constructs of the theory effectively address fire prevention issues. In particular, the variable of vulnerability was found to have insignificant

results, whereas three other variables perceived severity, response efficacy, and self-efficacy demonstrated direct positive effects on the intention to prevent fire outbreaks in public markets. Additionally, one variable showed significant effects when moderated by attitude, as illustrated in the hypothetical model presented in figure 5.1. This nuanced understanding of the constructs of PMT can ultimately inform more effective strategies for fire prevention in Tanzanian public markets.

1.4 Research Objectives

1.4.1 General Objective

The main objective of this study was to assess the factors affecting prevention intention towards fire outbreaks in public markets using attitude as a moderating variable.

1.4.2 Specific Objectives

The specific objectives of this study were to:

i. To determine the effects of perceived vulnerability on enhancing prevention intention of fire outbreaks in public markets.
ii. To determine the effects of perceived severity on facilitating prevention intention of fire outbreaks in public markets.
iii. To determine the effects of response efficacy on enhancing prevention intention of fire outbreaks in public markets.
iv. To determine the effects of self-efficacy in facilitating prevention intention of fire outbreaks in public markets.

v. To determine the moderating effects of attitude on the relationship between prevention intention and fire outbreaks in public markets.

1.5 Relevance of the Study

First, this study holds significance across various domains. Firstly, it will provide traders and market users with valuable insights on adopting precautions and mitigation measures to prevent fire outbreaks in public markets. The study aims to cultivate a culture of prioritising safety by solely focusing on sales benefits thus encouraging habitual safety behaviour. Moreover, it gives an opportunity for regular fire drills to familiarise individuals with installed fire equipment and evacuation procedures during fire outbreaks. The anticipated outcome is an enhancement of safety performance hence reducing the risk of both human and property loss in public markets.

Furthermore, the findings of this study are expected to heighten awareness among researchers and other stakeholders regarding effective mitigation measures against fire hazards in Tanzanian public markets. Traders and stakeholders, with the assurance of fire safety for their lives and properties, may develop increased confidence and trust in market safety. This, in turn, may spur interest in insuring their properties with insurance companies to facilitate recovery in the event of fire damage.

Thus, the study aims to contribute valuable knowledge to market users, including traders and other stakeholders. The results are intended to provide a foundation for

policymakers to establish checks and balances concerning fire disasters in public markets thus promoting effective preventive measures.

Secondly, the existing literature predominantly focuses on studies conducted in developed nations such as the United States of America, Europe, and Australia. However, the majority of these studies centred on wildfires and bushfires rather than fires in public markets. Consequently, the findings of this study serve as an invitation to researchers in less developed countries like Tanzania to expand and broaden research efforts concerning the mitigation of fire outbreaks specifically in public markets. This is particularly crucial as there has been limited research conducted in Tanzania, particularly with regard to fire mitigation in public markets. Despite the fact that some studies have been carried out in Ghana, Nigeria, and Zambia, they were not directly related to prevention intention and did not incorporate the Protection Motivation Theory (PMT) along with the additional variable of attitude to enhance predictive power for instilling fire prevention intentions in public markets.

Thirdly, drawing from the outcomes of this study, policymakers will be better equipped to formulate policies that address fire prevention issues within public markets. The policy will, in turn, emphasise the importance of all market traders and stakeholders adhering to fire safety practices as a crucial measure to mitigate fire incidents in Tanzanian public markets.

In addition, theoretically, the facilitation and implementation of prevention intentions for market fires can only be achieved through the incorporation of variables from the Protection Motivation Theory (PMT), along with the inclusion of the moderating variable of attitude, which is a fundamental aspect of the Vested Interest Theory (VIT). This integration strengthens the capacity of PMT to boost prevention intentions specifically in public markets. Consequently, government officials and other stakeholders can utilise factors derived from PMT and attitude to effectively prevent market fires, a pressing issue currently leading to significant losses in terms of finances, injuries, environmental impact, property damage, and business disruptions.

1.6 Scope of the Study

This research was carried out within the public markets of Dar es Salaam, specifically by focusing on fire outbreaks. The choice of this location was influenced by the region's documented high frequency of fire incidents (URT, 2022) thus making it a suitable subject for investigation. The study participants were restricted to public market traders operating across all five municipal councils in Dar es Salaam. To address potential challenges arising from participants with inadequate record-keeping practices, seminars were conducted to provide guidance on techniques and ensure accuracy in data recording for both participants and research assistants.

1.7 Organisation of the Study

This thesis organised into six chapters as follows:

This chapter One: Provides the background of the problem, present researcher objectives, hypothesis, scope and significance of the study.

Chapter Two: Presents definition of terms, literature review which involves theoretical literature review and empirical findings, knowledge gap based on theory and empirical findings, conceptual framework and hypothesis statements developments.

Chapter three: Articulates the research philosophy, research design, study area, study population, sample size selection and data collection tools. Also, it involves reliability and validity test, as well as research ethics.

Chapter Four: Presents the results of the study. The results are presented according to the study variables and hypothesis. The presentation is in form of Tabulates, Figures and other statistics.

Chapter Five: Presents the discussion of the findings. The discussion is done based on each objectives/hypothesis of the study. In this part, new knowledge is generated by looking at the theoretical implications.

Chapter Six: Gives conclusions, recommendations and implication of the study findings.

CHAPTER TWO

LITERATURE REVIEW

2.1 Overview

This chapter presents the reviewed literature which relates to this study. The reviewed literature includes both relevant theory and empirical literature. The chapter also gives explanations on the research gap, conceptual framework and hypotheses.

2.2 Conceptual Definition

This subsection gives the definition of the key terms and these are: fire safety culture, mitigating fire outbreaks and public markets.

2.2.1 Attitude

Attitude, as articulated by Liu and Jiao (2017), refers to an individual's favorable evaluation or perception of a particular event or object. This concept is pivotal in understanding behavior, as demonstrated by Ajzen and Fishbein (1980), who posited that an individual's actions, especially those related to preventive intentions, can be effectively explained through their attitudes and other cognitive factors. In essence, attitude serves as an evaluative judgment that embodies the synthesis of cognitive and emotional experiences concerning a specific object or situation (Crano & Praslin, 2008).

Moreover, attitudes play a critical role in shaping individuals' behaviors across various contexts, as noted by Min and Hu (2020). They influence how individuals

respond to situations and decisions, particularly in contexts where risk and prevention are involved. In the context of this study, attitude specifically pertains to an individual's perceptions regarding their intentions to prevent fire outbreaks in public markets. This involves not only their evaluative judgments about the severity of potential fire risks but also their feelings and beliefs about the effectiveness of various preventive measures.

Understanding this nuanced definition of attitude is essential, as it lays the groundwork for exploring how these perceptions impact the behaviors of market vendors. By examining attitudes toward fire prevention, this study aims to uncover the underlying cognitive and emotional factors that influence traders' intentions to engage in proactive safety measures, ultimately contributing to improved fire safety practices in public markets.

2.2.2 Prevention Intention

Prevention intention, as defined by Boehmer et al. (2015), represents a personal commitment to engage in safety behaviors and to demonstrate coping efficacy in the face of potential threats. This concept underscores the proactive stance individuals take when they recognize the need to protect themselves and their surroundings from potential dangers. Similarly, Andarge et al. (2020) expand on this definition by describing prevention intention as a deliberate personal practice aimed at implementing preventive measures against perceived risks, which may encompass a variety of hazards, including fires, floods, earthquakes, and more.

This notion of prevention intention is not merely about awareness; it reflects a behavioral response shaped by the interplay of various factors. Jo and Baek (2024) highlight that individuals' intentions to take preventive actions are significantly influenced by their perceptions of threat how serious or imminent they believe the risk to be and their coping strategies, which include the resources and methods they feel capable of employing to mitigate those threats.

In the context of this study, prevention intention specifically pertains to the commitment of market vendors to adopt measures that reduce the risk of fire outbreaks. Understanding how prevention intention manifests in this setting involves examining the perceptions of risk that traders associate with fire hazards, as well as the confidence they have in their ability to implement effective safety practices. By investigating these dimensions, the study aims to reveal how various factors—such as perceived severity of fire risks, available coping strategies, and individual attitudes interact to shape the prevention intentions of market vendors. Ultimately, this assessement will contribute to the development of tailored interventions that can enhance fire safety and promote proactive behaviors in public markets.

2.2.3 Public Markets

Public markets are vibrant communal spaces or designated areas where locally produced food is not only promoted but also sold and consumed, providing a vital link between producers and consumers (Abwe, 2020; Brown & Miller, 2008; Hand and Martinez, 2010; Ekanem et al., 2016). These markets are characterized by their year-round operation and are often thoughtfully curated to reflect an internationally

diverse array of products and services. They typically consist of owner-operated shops, stalls, or “day tables,” which create a dynamic shopping environment that fosters community engagement (Public Market Development (PMD), 2017).

The significance of public markets extends beyond mere commerce; they serve a critical public purpose by showcasing the unique character and cultural heritage of the community. These markets not only meet everyday shopping needs but also provide a space for social interaction and cultural exchange, enriching the community fabric. They emphasize the sale of a wide variety of fresh, healthful, value-added, and prepared foods, with many of these products being sourced locally. This focus on local sourcing not only supports regional farmers and producers but also promotes sustainable practices and food security within the community (PMD, 2017). Furthermore, public markets often become focal points for community activities and events, enhancing their role as social hubs where people gather to share experiences and connect with one another. By fostering a sense of belonging and community pride, these markets contribute to the overall well-being of the neighborhoods they serve. In the context of this study, public markets are defined as locations and spaces where a large number of people gather for the buying and selling of goods and services, conducted with assured prevention measures in place.

2.3 Theoretical Literature Review

This section examines pertinent theories related to prevention intention concerning fire outbreaks in public markets. Various theories have been formulated to explain prevention intention in mitigating fire outbreaks, thus laying the foundation for

numerous studies in the field. These theories contribute to the formulation of hypotheses, thus leading to new discoveries that expand the scope of this specific area of study (Zachariah, 2015). However, this study was specifically guided by the variables of the Protection Motivation Theory (PMT) and the motivating influence of attitude from the Vested Interest Theory (VIT) to enhance Prevention Intention (PI) in addressing fire outbreaks within public markets

2.3.1 Protection Motivation Theory (PMT)

The Protection Motivation Theory (PMT) was introduced by Rogers in 1975 and has since been extensively applied to predict mitigation behaviors across various domains, including health, environmental protection, and safety measures (Rogers, 1975; Sommestad et al., 2015). PMT posits that engaging in protective behavior fundamentally depends on an individual's motivation for self-defense against perceived threats (Ezati Rad et al., 2021). The theory comprises two key appraisals related to behavior change: threat appraisal and coping appraisal.

Threat appraisal involves an individual's assessment of the danger posed by a specific risk. This appraisal includes two primary components: perceived severity, which is an individual's belief about how serious the threat is, and perceived vulnerability, which reflects their estimation of the likelihood of being affected by the threat. For example, if individuals believe that a fire outbreak could have catastrophic consequences for their livelihoods, they may rate the perceived severity as high. Similarly, if they feel personally at risk of experiencing such an event, their

perceived vulnerability increases. Together, these perceptions can significantly motivate individuals to take action to mitigate the threat.

On the other hand, coping appraisal pertains to how individuals evaluate their ability to effectively respond to the perceived threat. This appraisal consists of two critical components: response efficacy (RE) and self-efficacy (SE). Response efficacy refers to an individual's belief that the recommended protective behavior will successfully reduce the threat. For instance, if traders believe that implementing fire safety protocols will lower the risk of a fire outbreak, they are more likely to adopt those measures. Self-efficacy, conversely, involves an individual’s confidence in their ability to perform the necessary actions to prevent the threat. Higher self-efficacy can empower individuals to take proactive steps, as they feel capable of implementing effective measures.

Together, these appraisals threat and coping play a crucial role in determining whether individuals will engage in protective behaviors. By understanding and addressing these psychological factors, interventions can be designed to enhance both the perceived risks and the efficacy of protective measures, thereby increasing the likelihood of individuals taking action to safeguard themselves and their communities. This makes PMT a valuable framework for developing strategies aimed at enhancing fire prevention practices among market vendors, ensuring that they feel informed, capable, and motivated to act against potential threats.

The founder anticipated that PMT would be applied in diverse contexts, and this has proven true as it is currently used in various disciplines for safety prevention (Rogers, 1975; Westcott et al., 2017). PMT studies have tripled since 2014 thus underscoring the usefulness and development of the theory in the research arena (Mou et al., 2022). PMT's flexibility allows for its modification and adoption as a tool for postmortem analysis of future disasters to identify gaps and inform future disaster administration (Mou et al., 2022; Kudejira et al., 2022). Furthermore, PMT has the ability to illustrate people's habits in shielding themselves from danger (Marikyan & Papagiannidis, 2022) and is applicable to various social issues and diverse areas (Westcott et al., 2017; Marikyan et al., 2022). However, its weaknesses include the omission of environmental factors, cognitive processes, and moderators that could influence motivation toward protection (Rogers, 1975; Marikyan & Papagiannidis, 2022). Additionally, PMT does not account for the fact that individuals can sometimes be irrational in decision-making, assuming that individuals have the ability to assess threats and coping strategies rationally (Marikyan & Papagiannidis, 2022).

PMT has been widely applied in studying natural hazards such as drought (Kenshavas & Karami, 2016), earthquakes (Mulilis and Lippa, 1990; Egbelakin et al., 2015), safety driving campaigns (Glendon and Walker, 2013), flooding (Paussin et al., 2014; Oakley et al., 2020), wildfires (Larsen et al., 2021; McFarlane et al., 2011; Dupey and Smith, 2019), bushfires (Westcott et al., 2017), and fire mitigation behaviour (Liu & Jiao, 2017). However, studies have yielded mixed results regarding the strength of PMT in predicting intention and behaviour change. Dupey and Smith

(2019) found that response efficacy and self-efficacy were significant predictors of mitigating behaviour concerning future wildfire risks. On the contrary, self-efficacy was not found to be a significant predictor of intention (protection motivation) for future evacuation plans during wildfire outbreaks. Martin et al. (2007b) and Ezati Rad et al. (2021) discovered that individuals are more likely to consider mitigating their risk when they perceive vulnerability to the threat of a wildfire. Additionally, it has been reported that severity, vulnerability, response efficacy and self-efficacy facilitate adaptive behaviour, while an increase in rewards and response cost inhibits protective (mitigating) behaviour (Scheithauer, 2012; Sheeran et al., 2013; Inouye, 2014; Ezati Rad et al., 2021; Westcott et al., 2017; Liu & Jiao, 2017). Ezati Rad et al. (2021) found that rewards and cost response inhibit protective (mitigating) behaviour.

However, there is limited literature on the application of PMT in facilitating prevention intention concerning fire outbreaks in public markets. Aning-Agyei (2018) employed PMT in his study on managing post-disaster recovery for market fire victims in Ghana. The study revealed that the theory does not account for irrationality in threat appraisal (Aning-Agyei, 2018). This supports the study done by Maryakan and Papagiannidis (2022) that individuals are sometimes irrational in assessing threats and coping mechanisms. On the other hand, Aning-Agyei (2018) suggested that individuals' attitudes may influence perceptions of impending threats, the severity of threats, self-efficacy appraisal and the adoption of prevention interest towards fire disasters in markets. In this regard, PMT proved to be useful in the study.

Furthermore, no study related to fire outbreaks in public markets that applied PMT as the guiding theory has been conducted in Tanzania. Bushesha and Ndibalema (2017) guided by the Social Learning Theory (SLT), conducted a study to assess the levels of community awareness of fire outbreaks in public universities. Kileo et al. (2021) employed PMT in a study conducted in Kilimanjaro on knowledge regarding preparedness for fire disasters in secondary schools. However, these studies were not conducted in the context of public markets. Therefore, the researcher deemed PMT appropriate for this study.

The discussion above is justified by empirical evidence from Philippines which is known to be vulnerable to the severe effects of fire disasters as the country loses a considerable amount worth of damages due to fire disasters. According to Kurata, et al., (2023), who conducted a study in Philippines related to PMT, they found a significant result. The study aimed to determine the factors that significantly affect Filipinos' perceived effectiveness for fire prevention preparedness in urban areas by integrating Protection Motivation Theory and the extended Theory of Planned Behaviour. The study involved 503 respondents who voluntarily participated in the self-administered online survey questionnaire distributed among Filipinos residing in the National Capital Region, Philippines. Utilising the structural equation modelling (SEM) approach, its results showed that media platforms (MP), fire experience (FE), and fire insurance policies (FI) had significant effects on fire prevention knowledge (KFP). In addition, FE, FI, and KFP variables established significant effects on perceived severity (PS) and perceived vulnerability (PV) which eventually affected perceived behavioural control (PBC) and attitude toward the

behaviour (ATB). This study was conducted out of Tanzanian context and did not consider public market.

In addition, Brown, et al., (2022) examine the practices of Protection Motivation Theory (PMT) to identify the variables that influence fire safety preparedness in apartment buildings. PMT was extended to include an individual's perceived responsibility for fire safety within their building. A survey of 455 respondents living in apartments in Dublin, Ireland, was undertaken to ascertain the level of fire safety awareness and preparedness among residents. Data analysis included correlations, ordinary least squares regressions and probit analysis. The findings reveal a worrying lack of preparedness and that fire safety preparedness motivation is complex, sometimes producing counterintuitive results. For example, a high level of worry about a fire increased the probability that a respondent tested their smoke detector(s) by 27.4 %, yet was associated with a 33.3% reduction in the probability that a respondent acted in line with the building evacuation policy.

The factors which influenced preparedness motivation also varied depending on the specific safety measure. For instance, assuming a personal responsibility for fire safety in the building was positively associated with perceived preparedness and having an extinguisher or fire blanket. Conversely, no relationship was observed between personal responsibility for fire safety and the presence of household fire plans, appropriate fire alarm response behaviour, or smoke detector testing. The critical contribution of this study was the identification of factors that act as barriers to, or facilitators of, fire safety in residential apartments. But again, the theory was

not tested in public market. Based on that, it was important to conduct this study again in the Tanzanian context, since there have been prevailing problems of fire outbreak in public market.

2.3.2 Vested Interest Theory (VIT)

The Vested Interest Theory (VIT), proposed by Sivacek and Crano in 1982, posits that attitudes play a crucial role in shaping future behaviors, particularly when individuals have a strong personal interest in the matter at hand. This theory emphasizes that attitudes are not merely abstract beliefs; they are closely tied to personal stakes and emotional significance. Crano (2014) further clarified that vested interest specifically refers to attitudes that are directly relevant to personal behavior change and carry hedonistic implications, meaning they are associated with perceived benefits or costs to the individual. This intrinsic connection between personal interest and attitude underscores the importance of understanding how individuals perceive risks and make decisions regarding protective actions.

The effectiveness of VIT has been evidenced in a variety of contexts, including health-related scenarios and disaster situations. Research has shown that when individuals feel a personal stake in an issue such as health risks or potential disasters—they are more likely to be influenced by their attitudes, which in turn prompts them to take self-protective actions. For instance, Adame and Miller (2015) found that VIT effectively influences attitudes and perceptions related to risk among vulnerable populations, motivating them to implement coping mechanisms in

response to hazards. This highlights the theory's relevance in scenarios where immediate personal impact is perceived, thereby driving proactive behavior.

Building on this foundation, Skurka (2021) applied VIT to demonstrate that attitudes significantly contribute to predicting the intention to engage in preparedness activities. This connection suggests that when individuals believe that their actions can significantly alter outcomes related to risks, they are more likely to commit to preventive measures. However, it is essential to recognize that while positive attitudes can encourage preparedness, various external factors and personal experiences also shape these attitudes. Research by Hoffmann and Muttarak (2017), Yong and Lamyre (2019), and Salmawati et al. (2022) indicates that individuals susceptible to disasters frequently perceive potential loss and damage to their properties, which can profoundly influence their attitudes and subsequent behaviors.

Further supporting the relevance of VIT, Ao (2020) discovered a positive influence of individuals' attitudes on disaster preparedness, reinforcing the notion that fostering favorable attitudes can promote the adoption of preventive measures. This insight suggests that enhancing awareness and cultivating positive perceptions regarding risks and protective behaviors can be vital for effective disaster management strategies. Ultimately, by integrating the principles of VIT into interventions aimed at increasing fire prevention measures among market vendors, stakeholders can create more effective programs that resonate with personal interests and experiences, thereby fostering a culture of safety and preparedness.

VIT has also been utilised in developing guides for disaster preparedness, such as earthquakes and tornadoes (Adame & Miller, 2016), and as an effective tool for designing prevention strategies by linking attitudes with relevant behaviours (Adame, 2020). Despite its strengths, VIT has limitations in predicting intention when attitudes are low, as highlighted by Siagel et al. (2019) and Adame (2020). Recognising the growing use of VIT, researchers (e.g., Adame & Miller, 2016; Miller et al., 2013) propose expanding it to include response efficacy. In line with this, the present study aimed to employ attitude as a moderating variable in the Protection Motivation Theory (PMT) to determine prevention intentions regarding fire outbreaks in public markets (FOPM). In VIT, attitude stands as a primary element for explaining, predicting, and enhancing behaviour change (Adame, 2020).

Empirical evidence suggests the use of attitude as a moderating variable towards prevention of fire outbreak. For instance, McCaffrey et al. (2018) discovered that attitudes were moderating the relationship between efficacy of action and prevention intention of fire disasters. Nox and Myles (2017) found that attitude showed to have influence in intention to mitigate wildfires. Consequently, attitude emerges as a crucial element in determining prevention intentions as argued by Siagel et a*l.* (2019) who developed a connection between attitudes and Vested Interest (VI) by revealing primary effects of attitude and VI on substance use intentions. Consequently, the researcher advocates using attitude as a moderator for severity, vulnerability, response efficacy, self-efficacy, and prevention intention against FOPM. But these facts were not confirmed in Tanzanian context that is why it was important to conduct this study.

2.4 Empirical Literature Review

2.4.1 The Perceived Vulnerability and Prevention Intention of Fire

Vulnerability, as defined by Rogers and Prentice-Dunn (1997), refers to the perceived likelihood of a risk occurring. This perception plays a crucial role in shaping individuals' responses to potential threats. For instance, Dupey (2021) discovered that perceptions of vulnerability to fire risks are significantly influenced by the type of residency, suggesting that different living conditions can affect how individuals assess their risk of fire incidents. In a broader context, Martin et al. (2007) found that both vulnerability and perceived severity are key motivators for individuals to engage in preventive actions aimed at protecting themselves against future fire incidents. This highlights the interconnectedness of these constructs in driving proactive behavior.

However, Peveglio et al. (2018) and de Deogo et al. (2021) argue that vulnerability alone is insufficient for implementing comprehensive preventive measures against wildfires. They propose that while assessing vulnerability is important, it should be part of a more extensive planning approach that incorporates resources for firefighting and risk management, ultimately reducing the costs associated with fire suppression efforts. Fischer et al. (2014) further emphasize that individuals experiencing fear and anxiety about potential threats often associate their vulnerability with the need to engage in risk reduction behaviors. Notably, most of these studies have been conducted in developed countries, particularly the USA and Australia, focusing

predominantly on wildfires and bushfires rather than the specific context of fires in public markets.

In contrast, Elenwo's (2020) research in Nigeria highlights how a lack of awareness and preventive measures contributes to market fires, leaving traders particularly vulnerable to such incidents. The study notes that behaviors such as smoking cigarettes in the market can expose the entire community to fire risks. Additionally, the storage of flammable materials exacerbates this vulnerability (Elenwo, 2020; Oneugbu et al., 2021). Market fire vulnerability is further attributed to the types of building materials used and the absence of adequate preventive measures (Alabi et al., 2021; Popoola et al., 2016). Other factors, such as poorly designed entry and exit points, along with the activities conducted within markets, also increase susceptibility to fire incidents (Alabi et al., 2021).

Alkali (2022) adds another dimension by identifying that the presence of flammable materials, such as timber, significantly heightens perceived vulnerability among traders in markets. Furthermore, cultural and religious beliefs about fire risks have been shown to influence both preventive measures and effective responses to fire incidents (Abunyewah et al., 2022). Despite this, the issue of market fires has received insufficient attention in terms of public awareness and preparedness (Aboagye et al., 2018). It is crucial to note that these studies, primarily conducted in Nigeria and Ghana, often lacked a robust theoretical framework, raising questions about the reliability and

generalizability of their findings in addressing fire vulnerability. This gap in research underscores the need for further studies that rigorously examine these issues, prompting the hypothesis that:

> ***Null H01****: There is no positive relationship between perceived vulnerability and prevention intention on outbreaks of fire in public markets.*
>
> ***Alternative Ha1****: There is a positive relationship between perceived vulnerability and prevention intention on outbreaks of fire in public markets.*

2.4.2 Perceived Severity and Prevention Intention of Fire

Severity refers to the extent of adverse consequences that can result from a specific threat, as outlined by Bubeck et al. (2012). This concept plays a pivotal role in motivating individuals to take preventive actions in the face of potential dangers. For example, the investigation by Champ and Brenkert-Smith (2016) highlighted that individuals' perceptions of severity can significantly influence their decision-making processes regarding fire prevention. The study found a clear correlation between the level of severity perceived and the overall perception of risk, indicating that when people recognize the serious consequences associated with a threat, they are more likely to engage in protective behaviors. Furthermore, the research revealed that individuals who are knowledgeable about factors such as perceived severity, vulnerability, and response efficacy demonstrate heightened motivation to take behavioral actions aimed at risk mitigation (Karemaker et al., 2021). This knowledge not only informs their understanding but also enhances their participation in fire safety

measures, thereby reinforcing the importance of education and awareness in fostering proactive behaviors.

In a related context, Lin and Bautista (2016) explored how severity is influenced by response efficacy, particularly in shaping behavioral intentions towards preventive measures against haze. Their findings suggest that during haze incidents, perceived severity tends to evoke stronger emotional responses, such as fear and anxiety, compared to the effects of response efficacy. This dynamic is critical in the context of fire risks, where individuals often underestimate the severity of potential threats. Such underestimation can lead to a lack of active response to preventive measures, significantly diminishing the likelihood of survival in fire situations (Lin and Bautista, 2016). To analyze the relationships in their study, the researchers employed Partial Least Squares (PLS) analysis, which allowed for a nuanced understanding of the interactions among the variables involved. Based on these insights, this study hypothesizes that heightened perceptions of severity will positively influence the intention to engage in fire prevention measures, reflecting the crucial role that severity plays in motivating proactive safety behaviors.

> ***Null H02:*** *There is no positive relationship between perceived severity and prevention intention on outbreaks of fire in public markets.*
>
> ***Alternative Ha2:*** *There is a positive relationship between perceived severity and prevention intention on outbreaks of fire in public markets.*

2.4.3 Perceived Response Efficacy and Prevention intention of Fire

Response efficacy (RE) refers to an individual's belief that the recommended behaviour effectively reduces the danger (Rogers, 1983). Adoption of the

recommended behaviour, such as preventive measures against fire disasters, is more likely when there is a strong belief in RE (Beatson & McLennan, 2011). Positive effects of RE on preventive measures behaviour have been observed in various risk areas (Bubeck et al., 2012). In the context of fire risk reduction, coping appraisal, including both response efficacy and self-efficacy, has been found to be beneficial (Liu & Jiao, 2017). Additionally, information has been shown to enhance the perceived RE of preparedness measures (Liu & Jiao, 2017). However, Dupuis (2019) reported that RE is not statistically significant in relation to prevention measures. Liu and Jiao (2017) utilised path analysis with partial least square (PLS) for their analysis, and the study was conducted in China.

In the study by Lin and Bautista (2016), response efficacy played a mediating role in the relationship between self-efficacy and the intention to adopt protection measures during haze incidents. Nevertheless, the research revealed that affective attitude towards haze had a substantial predictive power over behavioural intention compared to RE. Additionally, trust in news media had a positive effect on the intention of young Singaporeans to take preventive measures (Lin & Bautista, 2016). This study was conducted in Singapore, and the analysis involved PLS as the statistical method for data analysis. Eendebak (2019) found a positive relationship between RE and self-reliant behaviour against fire in older adults, and the study done in Netherlands and analysed using hierarchical multiple regression. Therefore, this study hypothesised that:

> ***Null H03****: There is no positive relationship between* ***perceived*** *response efficacy and prevention intention on outbreaks of fire in public markets.*

Alternative Ha3*: There is a positive relationship* ***between*** *perceived response efficacy and prevention intention on outbreaks of fire in public markets.*

2.4.4 Self Efficacy and Prevention Intention of Fire

Self-efficacy (SE) refers to an individual's capacity to carry out necessary preventative actions (Martin et al., 2007). Karamaker et al. (2021) discovered that SE plays a crucial role in prompting individuals to take preventive measures against residential fires. A majority of the participants demonstrated both the ability and confidence to use installed equipment to extinguish a fire (Karamaker et al., 2021). Surprisingly, the study found that the elderly, despite not perceiving themselves as vulnerable to fire risks, still exhibited high self-efficacy in responding to fires (Karamaker et al., 2021). However, contradictory results emerged among some respondents, showing low self-efficacy in using available fire equipment to extinguish a fire (Karamaker et al., 2021). The study, conducted in the Netherlands, employed qualitative analysis through transcribing interviews and importing data into ATLAS.

Moreover, Marceron and Rohrbeck (2018) observed that self-efficacy and perceived threat work in tandem to influence individuals to adopt preventive measures. The moderating effects of self-efficacy were found to have the least impact on the relationship between perceived threat and preventive measures for those with low self-efficacy (Marceron & Rohrbeck, 2018). Both threat and self-efficacy were identified as crucial motivators for engaging in risk prevention behaviour (Marceron & Rohrbeck, 2018). It was also suggested that sufficient awareness of disasters leads

to a heightened sense of self-efficacy (Marceron & Rohrebeck, 2018). This study was conducted in the USA, analysed using the general linear model with Statistical Analysis System (SAS), and did not focus on market fire.

Conversely, Jansen et al. (2020) determined that lower self-efficacy had no impact on prevention behaviour. In situations where the severity was high, self-efficacy was negatively influenced, indicating a lack of confidence in responding to a grease fire properly (Jansen et al., 2020). Interestingly, severity and self-efficacy were not significantly related to prevention behaviour in this case, contrary to the findings in other studies (Jansen et al., 2020). The study, conducted in the Netherlands, utilised structural equation modeling (SEM) and confirmatory factor analysis (CFA).

In a study conducted in Indonesia, Fitria et al. (2020) established a significant correlation between self-efficacy, optimism, and anxiety among victims of market fires. The analysis employed independent T-square, Chi-square, and logistic regression prediction models. Therefore, this study hypothesised that:

> ***Null H04:*** *There is a positive relationship* ***between*** *perceived self-efficacy and prevention intention on outbreaks of fire in public markets.*
>
> ***Alternative Ha4****: There is a positive relationship between perceived self-efficacy and prevention intention on outbreaks of fire in public markets.*

2.4.5 Moderating Effect of Attitude

McCaffrey et al. (2018) discovered that the efficacy of action and attitudes towards prevention are pivotal factors in the prevention of fire disasters. Consequently, attitude emerges as a crucial element in determining prevention intentions (Yousefi et al., 2019). AlWaqfi et al. (2022) found that attitude has a positive influence on fire drills thus promoting fire safety performance and its prevention. Siagel et al. (2019)

established a connection between attitudes and Vested Interest (VI) by revealing primary effects of attitude and VI on substance use intentions. However, attitude exhibited the weakest association with the intention to prevent substance use (Siagel et al., 2019). It is important to note that Siagel's study focused on preventing substance use, while the current research aimed to investigate the intention to prevent fire outbreaks in public markets (FOPM). Wulandari et al. (2023) highlighted the significant role of attitude in fire prevention preparedness, underscoring its importance in the intention to prevent fires. Nonetheless, this study was conducted in Indonesia specifically on forest fires, not public market fires, and lacked a theoretical framework, raising questions about the reliability of its results. Conversely, Salmawati et al. (2022) found no relationship between attitude and fire prevention intention, contradicting other studies (Alquahtany and Abubakar, 2020; Adhandika, 2020; Kusonwattana et al., 2022) that supported the influence of attitude on fire prevention intention.

Aning-Agyei's study (2018) revealed that market fires led to negative psychological and economic impacts on traders, causing businesses to collapse and forcing traders into significant debt. Aning-Agyei (2018) argued that the Protection Motivation Theory (PMT) fails to elucidate how attitudes might impact the assessment of threat and coping mechanisms. Consequently, individual attitudes may shape perceptions of impending threats, severity, self-efficacy, and the adoption of prevention intentions towards FOPM. The study, conducted in Ghana, employed a pragmatic mixed-method approach, contributing to the understanding of these dynamics in a unique context.

In the current study, attitude serves as a moderator, aiding in the comprehension of whether it possesses the strength to enhance or diminish the relationship in the predictive power of factors related to fire outbreaks in public markets and prevention intentions. This study aimed to bridge the existing gap between independent constructs (factors) derived from PMT and the dependent variable (prevention intention) concerning fire outbreaks in public markets (FOPM). Therefore, it was anticipated that attitude had an impact on the predictive power of prevention intentions, given its considerable influence on factors contributing to FOPM. Therefore, the following hypotheses were developed:

> ***Null H05****: Attitude positively does not moderate the relationship between individual vulnerability towards fire outbreaks on pubic markets and prevention intention of fire outbreaks in public markets;*
>
> ***Alternative Ha5****: Attitude positively moderates the relationship between individual vulnerability towards fire outbreaks on public markets and prevention intention of fire outbreaks in public markets.*
>
> ***Null H06****: Attitude positively does not moderate the relationship between perceived* severity *towards fire outbreaks on public markets and prevention intention of fire outbreaks in public markets;*
>
> ***Alternative Ha6****: Attitude positively moderates the relationship between perceived severity towards fire* ***outbreaks*** *on public markets and prevention intention of fire outbreaks in public markets.*
>
> ***Null H07****: Attitude positively does not moderate the relationship between perceived response efficacy towards fire* ***outbreaks*** *on public markets and prevention intention of fire outbreaks in public markets;*
>
> ***Alternative Ha7****: Attitude positively moderates the relationship between perceived response efficacy towards fire outbreaks on public markets and prevention intention of fire outbreaks in public markets.*
>
> ***Null H08****: Attitude positively does not moderate the relationship between perceived self-efficacy towards fire* ***outbreaks*** *on public markets and prevention intention of fire outbreaks in public markets;*
>
> ***Alternative Ha8****: Attitude positively moderates the relationship between perceived self-efficacy towards fire* ***outbreaks*** *on public markets and prevention intention of fire outbreaks in public markets.*

2.5 Research Gap

Despite the wide use of Protection Motivation Theory (PMT) in prior researches in predicting mitigation behaviours, the theory itself and empirical studies have been validated to fit a certain country other than Tanzania. In addition, most studies concerning protection motivation theory have been tested much morein developed countries rather than developing countries like Tanzania. For instance, Fischer et al. (2014) conducted a study related to PMT in USA and Australia USA and expressed the view that the theory was applicable for protection of fire. These studies were conducted in developed countries. Likewise, Aning-Agyei (2018) conducted study in Ghana and utilised PMT constructs. However, Ghana differs from Tanzania. Therefore, these findings which were generated in different countries related to Protection Motivation Theory cannot be applicable for conclusion and decision making in the Tanzanian context.

The empirical literature surveyed reveals a lack of research utilising the Protection Motivation Theory (PMT) construct to investigate market fires. Most scholars argued in general point of view on the contribution of protection motivation towards fire in market. But the construct related with protection motivation were not much studied to examine its contribution on protection. For instance, Martin et al., (2007) argued that protection theory was crucial to be applicable for fire suppression while Aning-Agyei (2018) recommended that the applicability of PMT has been effective in predicting prevention in market fires. But this empirical evidence was based much on general overview. However, they did not dig much on each construct of the theory. In addition to that, majority of the empirical evidence was justified outside

Tanzania. These empirical studies highlighted fire prevention on general point of view without considering public market. For example, Liu and Jiao (2017) conducted a study in China while Aboagye et al., 2018) studied in Ghana. These studies were outside of the Tanzanian context.

Furthermore, many studies in terms of analysis used descriptive, correlation and regression analysis which has weak power to run multiple variables simultaneously. Others used qualitative approach to come up with the findings. For instance, Karamaker et al., (2021) conducted a study in the Netherlands, employed qualitative analysis and in fire protection. Thus, qualitative research need testing it for confirming the hypothesis developed after adopting theory. Therefore, it was important conducting this study to test the developed hypothesis under study.

Majority of the previous studies did not use moderating variable which is attitude (Jansen et al. 2020). However, this study incorporated attitude as a moderating factor between PMT variables and the intention to prevent fire outbreaks in public markets. The inclusion of attitude was aimed at enhancing the predictive power concerning the relationship between explanatory factors and the dependent variable. Furthermore, it was noteworthy that many studies in the field of fires (William, 2022; Bushesha & Ndibalema, 2017; Kihila, 2017; Mgina & Wawa, 2020; Jongo et al., 2018) did not adopt attitude as a moderating variable. Consequently, the results anticipated from this study aim to reconcile differing opinions found in the reviewed literature and establish a robust and generalisable outcome in the literature pertaining to the prevention of fire outbreaks in public markets.

Skurka (2021) argued that using vested interest theory through the use of attitudes contribute on moderating the predicting intention to engage in prevention of fire and other disaster outbreaks. However, these arguments from the theory have not been tested in public market in Tanzania. Thus, it was important to examine the VIT under attitudes towards fire prevention in public market in Tanzania. To the best of the researcher's knowledge, there is a dearth of studies in Tanzania examining factors influencing prevention intentions towards fire outbreaks in public markets with the moderating effect of attitude. Thus, the findings from this study are expected to address this knowledge gap and contribute valuable insights to the existing literature.

2.6 Conceptual Framework

A conceptual framework is a structure that the researcher believes can best explain the natural progression of the phenomenon to be studied (Aning-Agyei, 2018)). Karamaker et al., (2021) defined conceptual framework as a network or a plane of linked concepts. The plane of linked concepts is created from the grounded theory. Variables which have been described on the theoretical back ground are linked for developing the conceptual framework. Conceptual framework is important in research because it serves as the basis for understanding the causal or correlation patterns of interconnections across events, ideas, observations, concepts, knowledge, interpretations and other components of experience. Figure 2.1 presents the conceptual framework that comprises the independent variables, moderating variable and dependent variables. From this conceptual framework, the researcher developed hypotheses to back up the arguments on predictive constructs of habitual behaviour on mitigating fire outbreaks. The framework has been established from the protection

motivation theory (PMT) constructs and vested interest theory (VIT) as the theory is mainly determined by attitudes.

In this study therefore, the independent variables are perceived vulnerability, perceived severity, response efficacy and self-efficacy which assumed to influence prevention intention of fire outbreak in public market which is a dependent variable. In addition, attitude is a moderating variable which moderates the relationship between independent variables (perceived vulnerability, perceived severity, response efficacy and self-efficacy) and dependent variable which is prevention of fire outbreak in public markets in Tanzania.

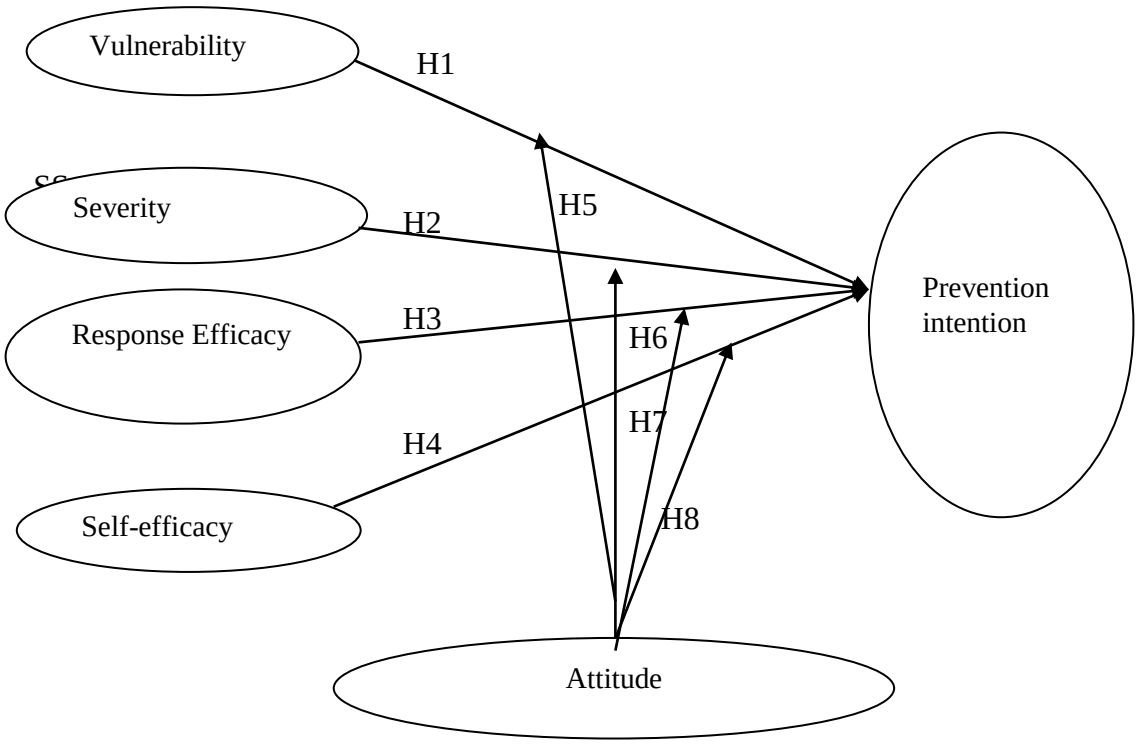

Figure 2.1: Conceptual framework

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Overview

This chapter outlines the methodology that was utilised in the research. It elucidates the research philosophy and approach, delineates the study area, defines the population, discusses the research design and strategy, details the sample size and sampling techniques, clarifies the data collection methods and the research instruments. Additionally, the chapter expounds on the techniques employed to ensure the reliability and validity of the research findings, and addresses ethical considerations.

3.2 Research Philosophy

This study adopted a positivist research philosophy, which is rooted in the belief that objective truths, facts, and natural laws can be discovered through systematic observation and empirical investigation. According to Mohajan (2020), positivism emphasizes the importance of formulating hypotheses that can be tested and analyzed to deduce logical conclusions. This approach seeks to identify, measure, and evaluate various phenomena, thereby providing rational explanations and establishing causal relationships between different variables within the study's subject matter. By grounding the research in established theories, positivism enables a structured analysis that enhances the credibility of the findings.

The overarching aim of positivist research is to generalize results from a well-defined and observed reality, allowing for the extrapolation of conclusions beyond

the specific sample studied (Collis & Hussey, 2009; Ragab & Arisha, 2018). This approach is particularly beneficial in disciplines where quantifiable data can elucidate patterns and trends, making it easier to formulate predictions about future occurrences. Positivism places a strong emphasis on empirical testing and the objective measurement of variables, which is essential for explaining the relationships that determine the causes influencing outcomes. Given the characteristics and objectives of this study, which involve analyzing specific constructs related to fire prevention behavior, a positivist approach was deemed appropriate. This philosophy not only aligns with the study's quantitative methodology but also enhances the reliability and validity of the research findings, ultimately contributing to a deeper understanding of the factors influencing fire safety practices.

3.3 Research Approach

This study utilised a deductive approach, as it is both quantitative and positivistic in its nature. This approach was considered suitable for the study, as it establishes the relationship between theory and reality. According to Saunders et al. (2019), the deductive approach, being a scientific method, emphasises structure, quantification, generalisation, and hypotheses testing to elucidate causal relationships between concepts and variables. Hence, the deductive approach was deemed appropriate for this study, involving the collection of data used to test hypotheses linked to the Protection Motivation Theory (PMT) and Vested Interest Theory (VIT), which serve as guiding theories to explain the causal relations between variables and concepts.

3.4 Research Design and Strategy

To achieve the objectives of this study, the employed research design was an explanatory (causal) research design. According to Rahi (2017) and Saunders *et al.* (2019), explanatory research designs serve to elucidate problems traditionally by exploring relationships between variables. This type of design aids in gaining a deeper understanding to build, elaborate, extend, or test hypotheses (Rahi, 2017). Consequently, the use of this design significantly assisted the researcher in establishing causal relationships between factors influencing the intention to prevent fire outbreaks in public markets.

For the purpose of this study, a survey was deemed an appropriate research strategy. As suggested by Saunders et al. (2019), an explanatory study utilises the survey strategy, thus enabling the researcher to collect and quantitatively analyse data through descriptive and inferential statistics. Additionally, the survey strategy allows for a wide range of data collection methods, not limited to questionnaires, but also incorporating structured observation and interviews.

3.5 Study Area and Population

This study was carried out in the Dar es Salaam region by focusing on traders in public markets as the population of interest. The selection of this region was based on the higher frequency of fire outbreaks in public markets compared to other regions. Specifically, Dar es Salaam experienced 16 incidents, while Mbeya had 4, Mwanza 3, Geita 2, Arusha 2, and Kilimanjaro and Songwe each had one incident. These incidents are from 2010 to 2022 (URT, 2010-2022). The data were collected

from individual traders in these public markets as well as the management of the respective markets. This study had a study population of 64753 traders found in public markets. These numbers of population were obtained at municipal councils found in Dare es Salaam region namely Kinondoni, Ilala, Temeke, Ubungo and Kigamboni. Therefore, this population was recognized as important to provide valuable information for the purposes of this study. Kumar (2010), argued that the target population for a study is important to be well selected since it is an entire set of units for which the survey data are used to draw conclusion. Thus, traders as a population in this study were assumed to have relevant information for drawing final conclusion and making recommendations.

3.6 Sample Size

The sample size for this study was determined using Cochran's formula (1977). This formula was chosen to enable the use of a large sample size, aiming to minimise sampling error in accordance with the acceptable 5% margin of error in social research (Taherdoost, 2020). It is worth noting, however, that, a large sample size does not guarantee precision (Bryman and Bell, 2003).

Therefore, the sample size for this study was as follows:

$$N = \frac{t^2 \times (p)\,(q)}{d^2} = \frac{1.96^2 \times (.5)\,(.5)}{.05^2}$$

$$= 384$$

Where N= Sample size, t= value for selected alpha level of .025 in each tail=1.96 (alpha level of .05 indicates the level of risk the researcher is willing to take that the

true margin of error may exceed the acceptable margin error), (p) (q) = estimate of variance = .25 and d= error a researcher is willing to accept = .05.

The sample size of 384 is related to the sample size suggested by Krejcie and Morgan (1970) as shown in Table 3.1 which describes that the highest sample size in survey study ranges between 379-384 when the population ranges between 30,000-100,000. Based on this sample size, the collected data were important to make conclusion and generalise the findings for the entire population.

Table 3.1: Chart for determining sample size from a given population

N	S	N	S	N	S	N	S	N	S
10	10	100	80	280	162	800	260	2800	338
15	14	110	86	290	165	850	265	3000	341
20	19	120	92	300	169	900	269	3500	246
25	24	130	97	320	175	950	274	4000	351
30	28	140	103	340	181	1000	278	4500	351
35	32	150	108	360	186	1100	285	5000	357
40	36	160	113	380	181	1200	291	6000	361
45	40	180	118	400	196	1300	297	7000	364
50	44	190	123	420	201	1400	302	8000	367
55	48	200	127	440	205	1500	306	9000	368
60	52	210	132	460	210	1600	310	10000	373
65	56	220	136	480	214	1700	313	15000	375
70	59	230	140	500	217	1800	317	20000	377
75	63	240	144	550	225	1900	320	30000	379
80	66	250	148	600	234	2000	322	40000	380
85	70	260	152	650	242	2200	327	50000	381
90	73	270	155	700	248	2400	331	75000	382
95	76	270	159	750	256	2600	335	100000	384

Note: "N" is population size
"S" is sample size.
Source: Krejcie and Morgan (1970)

3.7 Sampling Design and Procedures

The selection of a sample from the population was a pragmatic choice, acknowledging the limitation of resources to cover the entire population (Saunders et al., 2012; Saundrs et al., 2019). The author opted for a probability sampling technique, employing both multistage and random sampling methods to obtain a representative sample for the generalisation of the findings (Acharya et al., 2013). The sampling frame was derived from the population of traders in the 77 available public markets in Dar es Salaam, constituting a population of 64753 traders (https://www.dcc.go.tz). Multistage cluster sampling was used to ensure the representativeness of the study sample. Initially, trade officers in the respective districts of Dar es Salaam (Ilala, Kinondoni, Temeke, Ubungo, and Kigamboni) were identified through this method and they assisted the researcher in obtaining necessary information about the traders in the public markets. The markets were then randomly selected from the comprehensive list of public markets in Dar es Salaam, with a total of 10 markets chosen from all five municipal councils. The multistage sampling techniquewas adopted for its credibility in providing a high degree of representativeness, offering equal chances for sampling units to be included in the sample (Acharya et al., 2013; Saunders *et al.,* 2012; Saunders et al., 2019). Subsequently, a random selection of traders within the 10 selected markets was carried out.

3.8 Sources of Data and Collection Methods

In this study, the researcher gathered primary data using the self-administered questionnaire method. Structured questionnaires were distributed to the selected

respondents, with the use of this method thus helping the researcher to minimise costs in the study processes.

Additionally, documentary review was done on various published and unpublished documents. Online sources, including Google Scholar, Taylor and Francis database, Elsevier, Sage, and Emerald database, were utilised to obtain published documents. Keywords and Boolean symbols, such as "Prevention intention and Mitigating fire," "prevention intention OR mitigating fire outbreaks in markets," "prevention intention," "mitigating fire," and "fire outbreaks in markets," were employed in the search process. Documentary review was done to strengthen and increase the quality of the study.

Saunders et al. (2012) argued that using documentary review was important to increase the quality of the study. Therefore, documentation review was used to provide data interpretation, support and give evidence on the surveyed data. Acharya et al., (2013) argued that Scientists use documentary research methods to supplement and confirm information collected through social surveys.

3.9 Variables and Measurement Procedures

This study incorporated six variables, categorised as independent and dependent variables. The independent variables encompassed severity, vulnerability, response efficacy, self-efficacy, and attitude (as a moderator), while the dependent variable was prevention intention. The measurement variables adopted in this study were sourced from previous research that demonstrated statistical significance. To gauge

these variables, a seven-point Likert Scale was employed. The selection of this scale was influenced by the endorsement from prior researchers who conducted studies on fire mitigation behaviour using the Protection Motivation Theory (Martin et al., 2007; Jansen et al., 2020; Martin et al., 2009). Additionally, the choice of a seven-point Lirket scale was made to provide a wider range of options, thus enhancing the likelihood of the participants providing responses that reflect their reality (Josh et al., 2015).

Table 3.2: Measurement items of variables

Variable	Number of Items	Codes	Measurement	Sources
Vulnerability (VR)	4	VUL1-VUL4	Seven-point scale 1= strongly disagree, 2= disagree, 3= somewhat disagree, 4= neutral, 5= somewhat agree, 6= agree, 7= strongly agree.	Liu and Jiao (2017); Martin et al. (2007); McFarlane et al. (2011); Brenkert-Smith et al. (2013)
Severity (SV)	5	SEV1 - SEV5	Seven-point scale 1= strongly disagree, 2= disagree, 3= somewhat disagree, 4= neutral, 5= somewhat agree, 6= agree, 7= strongly agree.	Liu and Jiao (2017)); Jansen et al. (2020); Brenkert-Smith et al. (2013)
Response efficacy (RE)	7	RE 1- RE7	Seven-point scale 1= strongly disagree, 2= disagree, 3= somewhat disagree, 4= neutral, 5= somewhat agree, 6= agree, 7= strongly agree.	Lwin et al. (2012); Liu and Jiao (2017); Jansen et al. (2020); Lee (2011)
Self-efficacy (SE)	7	SE1 - SE10	Seven-point scale 1= strongly disagree, 2= disagree, 3= somewhat disagree, 4= neutral, 5= somewhat agree, 6= agree, 7= strongly agree.	Jansen et al. (2020), Liu and Jiao (2017), Martin et al. (2007,2009); Lee (2011)
Attitude (AT)	4	AT1 – PI3	Seven-point scale 1= strongly disagree, 2= disagree, 3= somewhat disagree, 4= neutral, 5= somewhat agree, 6= agree, 7= strongly agree.	Liu and Jiao (2017);
Prevention Intention (PI)	4	PI1 - PI4	Seven-point scale 1= strongly disagree, 2= disagree, 3= somewhat disagree, 4= neutral, 5= somewhat agree, 6= agree, 7= strongly agree.	Liu and Jiao (2017); Kobayashi et al. (2010); Martin et al. (2007, 2009); McFarlane et al. (2011)

Source: The Researcher's Literature Review (2024)

3.10 Questionnaires

The researcher, in this study, adopted research questionnaires previously used by (McFarlane et al., 2011; Martin et al., 2009; Kobayashi et al., 2010), although making slight modifications to align with the current study. Structured questionnaires were administered to the selected sample of respondents. The questionnaires were divided into parts, where the first section gathered general information from the respondents, and the second part consisted of various statements presented in a seven-point Likert scale. The distribution of the questionnaires to the selected respondents was based on the established criteria. The respondents were provided with a brief introduction about the research's purpose that it was for them to give relevant data through answering the asked questions. Also, researcher made a very close follow up and clarification which enhance effectiveness on filling the questionnaire. To enhance comprehension, some of the questions were translated from the English language into the Kiswahili language by the linguistic professionals to accommodate the respondents who were not proficient in English. Leaders in public market used to identify people who were not conversant with English. This approach ensured that language did not pause an obstacle thereby contributing to a high response rate.

3.11 Data Analysis

Before undertaking the actual data analysis, a thorough inspection of the collected data was conducted to ensure their quality. The author checked for incomplete or missing data, as well as errors resulting from data entry. To enhance the interpretability of scores on the questionnaires corresponding to high levels of the

features being assessed, the accuracy of data entrance was checked through verification against the original data on the questionnaire to check if the items were entered correctly. This process of ensuring the accuracy of data has connection with Tabachnick and Fidell (1996) who pointed out that to ensure the accuracy of data, data editing and proofreading is required.

After being sure with the accuracy of the questionnaire, then data were entered into the IBM Statistical Package for Social Scientists (IBM SPSS) for analysis. Structural Equation Modelling (SEM) was employed for analysis using the IBM AMOS software. SEM was chosen due to its comprehensive statistical approach in examining relationships among observed and latent variables through multiple measures (Hair et al., 2010). SEM took a confirmatory approach by specifying inter-variable relationships, a task not handled by other multivariate techniques (Hair et al., 2017; Kline, 2023).

Since the study employed SEM, the following assumptions were considered: multicollinearity, where explanatory variables are highly correlated, normality in the distribution form (skewness and kurtosis with an acceptable level of 3 or -3), linearity reflecting the association between independent and dependent variables, and homoscedasticity ensuring uniformity across all levels of predictors (Kline, 2010; Ullman and Bentler, 2012). Observation on these assumptions relates with Kumar, (2015) who insisted that in using SEM, it is important to observe the following assumptions: presence of linear relationship, incidence of cause effects relationship

between variables and data being free from outliers as well as measurement and sampling errors which were observed in this study.

3.11.1 Measurement Model

In this study, Confirmatory Factor Analysis (CFA) was employed to examine the measurement models, relying on the theoretical relationship between observed and latent variables.

According to Hair et al. (2010), CFA enables the assessment of how well each scale item measures the unobservable variables thus ensuring the validity and reliability of all constructs. Various goodness-of-fit indices were utilised to evaluate how well the data aligned with the proposed model. These indices encompass the Goodness of Fit Index (GFI), Adjusted Goodness of Fit Index (AGFI), Root Mean Square Error of Approximation (RMSEA), Chi-square to degree of freedom ratio (χ^2/df), Comparative Fit Index (CFI), and P-value. Hooper *et al.* (2008) contend that there is no singular rule for evaluating model fit, thus recommending the reporting of different indices as they capture distinct aspects of the model's fit.

3.11.2 Structural Model

The examination of the structural model follows the assessment of measurement models, where the expected results should demonstrate that the model indices align appropriately with the data. Therefore, the goodness-of-fit indices used in evaluating the measurement models were also employed in the assessment of structural models. The same steps employed in evaluating measurement models were utilised to test the

structural models. According to Hair et al. (2010), a two-step procedure is employed to test the structural model.

The first step involves testing structural models without the use of moderating variables, assessing the direct effect of the independent variable on the dependent variable. This step encompasses the analysis of hypotheses one to four. The second step includes the introduction of moderating variables into the structural models. This procedure encompasses the analysis of hypotheses five to eight, derived from objective five.

3.11.3 Testing for Moderating Variable

The researcher employed the Ordinary Least Squares (OLS) regression assumption, ensuring that the conditions for moderation models were satisfied before testing the moderator variable. The moderator variable, namely attitude, was assessed based on an individual's positive or negative stance towards the prevention intention of fire outbreaks. In this context, individuals with a negative attitude towards the prevention intention of fire outbreaks were categorised as those lacking the intention to prevent such incidents. Conversely, those with a positive attitude, were considered to have the intention to prevent fire outbreaks. The categorisation of attitudes was accomplished through variable transformation.

To examine the moderation effect, interaction Confirmatory Factor Analysis (CFA) was utilised. The test outcomes, specifically the chi-square difference test, indicated that the two models significantly differed at $p < 0.01$, depending on the negative and

positive attitude groups. The moderation model test is conducted to evaluate whether the prediction of the dependent variable (Y) from the independent variable (X) varies across different levels of a third variable, which, in this instance, was the moderator variable (Z).

3.12 Validation of the Research Instruments

Prior to commencing the main study, the researcher conducted an informal exploratory visit to the area for the purpose of familiarisation. This was followed by a pilot study involving ten traders, thus enabling the researcher to make necessary adjustments to the research instruments to enhance their effectiveness in the subsequent main research.

3.13 Reliability and Validity

Reliable and valid data were obtained through reliable and valid measurement instruments (Hair et al., 2010; Hair et al., 2016). The assessment of validity and reliability involved the use of KMO and Cronbach Alpha, as elaborated in the subsequent subsections. In addition, construct validity was calculated by developing a series of measurable behaviour or attributes that corresponded to variables. To ensure construct validity, confirmatory factor analysis was carried to drop the items that are performing poor in the model. For convergent validity, average variance extracted (AVE) was used whereby AVE achieved the minimum recommended value of 0.5 as argued by Fornell and Larcker (1981).

Furthermore, discriminative validity was assessed for testing the construct validity by comparing the AVE of each individual construct with the shared variances between this individual construct and all of the other constructs. As argued by Bove et al. (2009), without conducting discriminant validity, researchers cannot be certain whether the results confirm the hypothesised model. In testing hypothesis, an establishment of discriminant validity is important in research to draw the conclusions regarding the relationship of variables.

Therefore, discriminant validity was tested and the results indicated the presence of higher AVE than shared variance for an individual construct which suggests discriminate validity was achieved as recommended by Fornell and Larcker (1981). In addition, the inter construct correlations of the diagonal of the matrix which shows the comparison of all of the correlations and square roots of the AVEs on the diagonal, indicated adequate discriminate validity. Table 3.3 shows that all variables scored AVE value greater than 0.4 as argued by Fornell and Larcker (1981).

Table 3.3: Composite reliability, convergent and discriminant validity

	CR	**AVE**	**MaxR(H)**	**VR**	**SV**	**SE**	**RE**	**PI**	**AT**
VR	0762	0.529	0.831	**0.744**					
SV	0.740	0.522	0.752	0.569	**0.711**				
SE	0.741	0.525	0.760	0.772	0.445	**0.731**			
RE	0.683	0.513	0.688	0.518	0.431	0.421	**0.641**		
PI	0.690	0.514	0.691	0.660	0.570	0.612	0.372	**0.724**	
AT	0.691	0.516	0.692	0.662	0.571	0.612	0.371	**0.720**	**0.569**

Source: Researcher (2024)

3.14 Ethical Considerations

The author diligently adhered to ethical considerations throughout every stage of the study. These ethical considerations included ensuring voluntary participation of the respondents, maintaining high levels of anonymity, and upholding confidentiality, as recommended by Saunders et al. (2019). Moreover, the researcher strictly abstained from engaging in data fabrications and falsifications throughout the entire duration of the study. Proper citation of both published and non-published documents was meticulously observed, with due acknowledgment given to other researchers' work to prevent plagiarism. Additionally, measures were taken to ensure that plagiarism remained below the acceptable threshold of 30 percent.

Furthermore, before collecting data, the researcher sought and obtained a clearance letter from the director of postgraduate studies at the Open University of Tanznaia. Subsequently, this clearance letter was submitted to government offices where data collection took place. Finally, official permission letters were requested from the respective municipalities to facilitate access to traders in the public markets.

CHAPTER FOUR

FINDINGS OF THE STUDY

4.1 Introduction

In this chapter, presentation of the findings of the study is done. The presentation of the findings starts by showing the data analysis on the characteristics of the sample which form a fundamental description of the sample under study. Secondly, it presents the analysis from a survey by performing confirmatory factor analysis and thereafter by testing the hypothesis developed under study. Before data analysis, data screening process was done to ensure that data were unbiased for measuring phenomena in a systematic way.

4.1.1 Response Rate

The survey was administered to 384 respondents, with 57.6% being males and 42.4% females. A 100% response rate was achieved which was attributed to a meticulous follow-up procedure for the questionnaires. This close follow-up ensured the collection of all distributed questionnaires. Subsequently, after gathering the questionnaires from the respondents, the data screening process was promptly conducted, as outlined in section 4.2.

4.2 Data Screening Process

4.2.1 Data Editing

Data editing constituted the examination of raw data collected through survey questionnaires to identify errors and make corrections where possible. The editing

process comprised both fields editing and central editing. Field editing entailed a meticulous review of completed questionnaires immediately after obtaining them from the respondents. On the other hand, central editing was carried out after collecting all the questionnaires. During this stage, the researcher carefully reviewed all questionnaires and addressed corrections for data entry errors placed in incorrect locations.

4.2.2 Missing Values

In this study, measures were taken to control missing values right from the initial stages, before data collection. A research protocol was established, involving communication with leaders at the regional, councils, and market levels. This protocol aimed to create a sense of ease among traders when filling in the questionnaires. Additionally, a statistical procedure was carried out using IBM SPSS to assess the presence of missing values. The researcher employed a missing value data analysis for all exogenous, endogenous, and demographic items. Exogenous and endogenous items were categorised as quantitative variables whereas demographic variables were categorised as categorical. Following the analysis, it was revealed that no any variable had missing value of 5% or more. This indicates that the data collection process prioritised the validity and reliability of the data, as confirmed by this statistical analysis thus affirming the unbiased measurement of the intended phenomena values. Examples of missing values for exogenous variables are presented in Table 4.1. This entails that the final findings were obtained from pure data which had no missing value, and thus the data were valid and reliable for generalised decision making in the area of the study.

Table 4.1: Example of how missing values were analysed

	N	Mean	Std. Deviation	Missing	
				Count	Percent
VR1	384	5.9115	1.10185	0	.0
VR2	384	5.8307	1.10777	0	.0
VR3	384	6.02865	.983791	0	.0
VR4	384	5.9609	1.16343	0	.0
SV1	384	5.7396	.93098	0	.0
SV2	384	5.8099	.88963	0	.0
SV3	384	5.9219	.89917	0	.0
SV4	384	5.5755	.81726	0	.0
SE5	384	5.2552	.60241	0	.0
SE6	384	5.2682	.63281	0	.0
SE4	384	5.1536	.72612	0	.0
AT2	384	5.6172	.93486	0	.0
AT3	384	5.4271	.66615	0	.0

Source:The Researcher, (2024)

4.2.3 Eliminating Outliers

Regarding eliminating the problems of outliers under multivariate analysis, the first exploratory factor analysis was conducted aiming at producing unidimensional of the theoretical constructs within the required range. Hair et al. (2010) recommended using exploratory factor analysis for enhancing a scale of unidimensional where among the factors of extraction, are high loading and low loading. According to Hooper and Coughlan (2008) the value of loading, which is used for retaining items for controlling outliers is 0.4 for low loading and 0.9 for high loading. In the context of this study, to be sure of the issues of outliers during exploratory factor analysis, all values which loaded under 0.4 were removed and those which were above 0.9 were also removed as expressed in sections 4.4.3 to 4.4.5. Since the process of eliminating outliers was done, that means, the analysed data were free from error. The potential

impact of removing outliers on the study's results is that the findings obtained did not have errors which was important for drawing conclusions of the study objectives.

4.2.4 Normality of Data

This study examined two aspects to assess the normality distribution of data, namely Skewness and Kurtosis. The findings indicated that there was a normal distribution of data. Skewness, as described by Tabachnick and Fidell (1996), portrays how the data are unevenly distributed, with the majority of scores concentrated on one side of the distribution and a few outliers in one tail. Skewness is often influenced by outliers, and it is recommended that if the skewness and kurtosis values fall within the range of -3.3 to 3.3, the data are considered to have a normal distribution (Farooq, 2016). In the context of this study, skewness and kurtosis were measured, and the results indicated a normal distribution, as the values obtained were within the required range. For example, the values of skewness were found to be 0.125, and kurtosis was 0.248, both within the acceptable range of -3.3 to 3.3 (Farooq, 2016).

According to Kothari and Garg (2014), skewness gives insights into the shape of the data distribution. A dataset is considered to have a skewed distribution when the mean, median, and mode are not the same, and the coefficient of skewness is required to be between -3 and 3. Based on the assessment of skewness and kurtosis, this study concludes that the data exhibit a normal distribution, as indicated in Table 4.2. Similarly, both Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA) were conducted, and goodness-of-fit indices such as GFI, AGFI,

RMSEA, and CFI were considered, as presented in the confirmatory factor analysis in sections 4.4.3 to 4.4.5.

Table 4.2: Normality of data using skewness and Kurtosis

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
Item	**Statistic**	**Statistic**	**Statistic**	**Statistic**	**Statistic**	**Statistic**	**Std. Error**	**Statistic**	**Std. Error**
VR1	384	2.00	7.00	5.9115	1.10185	-1.189	.125	1.538	.248
VR2	384	2.00	7.00	5.8307	1.10777	-.982	.125	1.174	.248
VR3	384	1.000	7.000	6.02865	.983791	-1.000	.125	1.503	.248
VR4	384	1.00	7.00	5.9609	1.16343	-1.564	.125	3.415	.248
SV1	384	2.00	7.00	5.7396	.93098	-.377	.125	.339	.248
SV2	384	3.00	7.00	5.8099	.88963	-.088	.125	-.869	.248
SV3	384	2.00	7.00	5.9219	.89917	-.431	.125	-.056	.248
SV4	384	3.00	7.00	5.5755	.81726	.376	.125	-.523	.248
SE5	384	3.00	7.00	5.2552	.60241	1.407	.125	2.543	.248
SE6	384	2.00	7.00	5.2682	.63281	1.079	.125	3.344	.248
SE4	384	3.00	7.00	5.1536	.72612	.250	.125	1.019	.248
RE4	384	3.000	7.000	5.09896	.751395	-.127	.125	.865	.248
RE5	384	2.00	7.00	5.2760	.71671	-.335	.125	2.582	.248
RE6	384	2.00	7.00	5.3099	.74771	-.348	.125	2.482	.248
SE1	384	2.00	7.00	5.3932	.85445	.361	.125	.835	.248
SE2	384	2.00	7.00	5.1979	.72075	.146	.125	3.523	.248
SE3	384	2.00	7.00	5.1562	.70918	.340	.125	3.149	.248
RE3	384	1.00	7.00	5.1927	.86676	-.915	.125	3.313	.248
RE1	384	2.00	7.00	5.1875	.71991	-.550	.125	1.837	.248
RE2	384	2.00	7.00	5.1823	.80345	-.402	.125	1.739	.248
AT1	384	4.00	7.00	5.2656	.63597	.442	.125	.421	.248
PI1	384	3.00	7.00	5.4896	.77149	.584	.125	.017	.248
PI2	384	1.00	7.00	5.4245	.74366	.204	.125	3.093	.248
PI3	384	1.00	7.00	5.3958	.87589	-.675	.125	4.789	.248
PI4	384	3.00	7.00	5.4401	.72014	.970	.125	.298	.248
PI5	384	3.00	7.00	5.3255	.82442	.373	.125	.235	.248
SE7	384	3.00	7.00	5.5964	.69769	.232	.125	-.102	.248
AT2	384	3.00	7.00	5.6172	.93486	-.016	.125	-.410	.248
AT3	384	4.00	7.00	5.4271	.66615	.536	.125	.022	.248

Source:The Researcher (2024)

4.2.5 Measure of Variability and Homoscedasticity

In this study, the variability of different values in the sample was assessed using the standard error of the mean. The standard error plays a crucial role in determining the reliability and precision of the estimates, serving as a measure of sample variability. A smaller standard error indicates greater uniformity in sampling distributions and, consequently, higher reliability in the estimates. This study observed a small standard error, thus affirming the uniformity of the sampling distribution.

Homoscedasticity, as outlined by Tabachnick and Fidell (2001), applies to multiple linear regression and canonical correlation. To ensure homoscedasticity, it is essential that the variability in scores for one continuous variable is roughly consistent across all values of another continuous variable. Additionally, if homodascedacity assumptions are violated, researchers may opt to eliminate outlier cases (0sborne, 2012). Therefore, considering the normal distribution of data and the variability of scores for continous variables in this, it is concluded that homoscedasticity has been adequately addressed as indicated in Table 4.2.

4.2.6 Multicollinearity

Hox and Bechger (2012) emphasised that when using structural equation modelling, multicollinearity is unlikely to occur as unobserved variables represent distinct latent constructs. Similarly, Schumacker and Lomax (2004) and Kline (2015) argued that the use of structural equation modelling in analysis satisfies the assumption of error-free data based on latent variables corresponding to observed variables. In structural

equation modelling, latent variables are derived from item scores, with the former serving as the unit of analysis.

According to Schumacker and Lomax (2004), analyses based on latent-scale scores produce statistics as if multiple-item scale scores had been measured without error. Structural equation modelling is conducted using a large sample technique, and researchers may choose to exclude certain items to enhance the reliability of an observed score. In this study, Confirmatory Factor Analysis (CFA) using structural equation modelling was employed to address concerns regarding multicollinearity. Items with double or cross-loading were removed as detailed in section 4.4.3.

4.3 Demographics Sample Distribution

Demographic characteristics of the respondents play a crucial role in research as they give a comprehensive overview of the percentage distribution of the participants. The distribution of demographic characteristics aids in assessing the proportionality and representation of each unique trait within the respondent group, potentially influencing the research outcomes. Therefore, in this study, the survey took into account respondent characteristics such as gender, education and age. Gender was considered a significant demographic variable due to its importance at the regional commissioner's offices in Tanzania, where the government advocates for gender balance and equality in both public and private institutions. This emphasis on gender equality is not confined to Tanzania alone but extends to a global level thus underscoring the importance of gender as a pertinent demographic characteristic for the survey.

Likewise, the age of the respondents was deemed an essential demographic characteristic for gaining insight into their perceptions of the studied phenomena or specific issues. The inclusion of older age groups suggests that respondents were more mature and possessed greater experience on the subject matter, implying that the information provided was likely to be relevant. Moreover, the presence of older age groups indicates a succession of individuals to the youth who initially undertake the job. In summary, demographic characteristics were recognised as important for gathering meaningful information in this study.

4.3.1 Respondents` Distribution by Gender, Age and Education

Out of the 384 respondents involved in the study, 57.6% were males, while 42.4% were females, as detailed in Table 4.3. This indicates that both male and female respondents were included in the research. Despite a higher number of male participants, the findings demonstrate a proportional representation of gender during the data collection process. Therefore, concerning factors influencing prevention intention towards fire outbreaks, these findings shed light on the perceptions of each gender group within public markets in Tanzania.

The gender distribution in the study, with 57.6% of respondents being male and 42.4% female has several implications. The higher number of male participants, while still including a significant proportion of female respondents, allows for a broad view of how different genders perceive and approach fire prevention. This representation ensures that the study captures diverse viewpoints and experiences, which can be crucial for developing comprehensive prevention strategies. Given the

higher number of male respondents, the findings reflect male perspectives more prominently. It is important to consider whether this gender imbalance could influence the overall results and recommendations. For instance, if fire prevention practices or concerns differ by gender, this discrepancy could affect the development of targeted interventions. The data provides an opportunity to explore how perceptions and intentions related to fire prevention may vary between genders. For example, if males and females have different levels of awareness or attitudes toward fire safety, these differences should be identified and addressed in prevention programs. Understanding the gender dynamics in perceptions of fire prevention can help in designing more effective policies and programs.

Regarding age distribution, out of the 384 respondents, 34.6% fell within the 18-30 age group, 30.5% were in the 31-40 age bracket, 26.8% were aged between 41-50, and 8.1% were 51 years and above. The majority of the respondents, constituting 65%, belonged to the age range of 18-40, thus indicating a predominantly young and active population. This group is characterised by hardworking and energetic individuals who can provide assistance and take prompt action during fire incidents at the market. They are considered a group capable of swiftly responding to fire outbreaks. In terms of education, among the 384 respondents, 33.3% had primary education, 47.7% had secondary education and 19.0% possessed college or higher education qualifications. The majority of contacted respondents had attained secondary and primary education levels, thus reflecting the employment patterns at the market, where individuals with higher education qualifications often seek

employment in other institutions, including the government sector. The breakdown of education levels is presented in Table 4.3.

Table 4.3: Respondents` distribution by gender

Category	Frequency	Percent
Gender		
Female	163	42.4
Male	221	57.6
Age		
18-30 Years old	133	34.6
31-40 years old	117	30.5
41-50 years old	103	26.8
Above 50 years old	31	8.1
Education		
STD VI	128	33.3
Secondary	183	47.7
Collage and above	73	19.0
Total	**384**	**100.0**

Source: The Researcher (2024)

4.3.2 Age, Education and Gender Cross Tabulation

Cross-tabulations offer a detailed breakdown of the distribution of the respondents' age by gender. The results indicate that among the 384 respondents surveyed, 60.2% were males, and 39.8% were females in the 18-30 age group. Additionally, in the 31-40 age category, with a total of 117 respondents, male respondents comprised 49.6%, while female respondents constituted 50.4%. Conversely, among the 103 respondents aged between 41-50, the gender breakdown was 61.2% males and 38.8% females. Furthermore, the findings revealed that in the age group of 51 and above, consisting of 31 respondents, 64.5% were males, and 35.5% were females. Overall, the results indicate that, across all age groups, male respondents outnumbered female

respondents, except in the 31-40 age group, where females were more numerous than males,.These findings are as illustrated in Table 4.4.

Table 4.4: Age * Gender Cross Tabulation

Age and Education Category of the Respondents			Gender		
			Male	**Female**	**Total**
Age	18-30 Years old	Count	80	53	133
		% within Age	60.2%	39.8%	100.0%
	31-40 years old	Count	58	59	117
		% within Age	49.6%	50.4%	100.0%
	41-50 years old	Count	63	40	103
		% within Age	61.2%	38.8%	100.0%
	Above 50 years old	Count	20	11	31
		% within Age	64.5%	35.5%	100.0%
Total		Count	221	163	384
		% within Age	57.6%	42.4%	100.0%
Education					
Education	STD VI	Count	81	47	128
		% within Education	63.3%	36.7%	100.0%
	secondary	Count	104	79	183
		% within Education	56.8%	43.2%	100.0%
	College	Count	36	37	73
		% within Education	49.3%	50.7%	100.0%
Total		Count	221	163	384
		% within Education	57.6%	42.4%	100.0%

Source: The Researcher (2024)

Among the 384 respondents, 128 had completed standard seven education, with a gender composition of 63.3% made of males and 36.7% of females. In the group with secondary school level education, consisting of 183 respondents, 56.8% were males, and 43.2% were females. The third group comprised respondents with college education totalling 73, among which 49.3% were males, and 50.7% were females. Table 4.4 gives the summary of the data analysis, presenting the education levels

based on gender composition. The near equal distribution of college education between males and females (49.3% males vs. 50.7% females) indicates gender parity in this educational level among the respondents. This balance suggests that educational attainment does not significantly differ between genders in this study sample, which can lead to more equitable perspectives in analyzing responses related to fire prevention or other topics.

4.4 Data analysis on Specific Objectives

4.4.1 Validity

Validity refers to the extent to which data collection methods accurately measure what they were intended to measure (Saunders et al., 2019). To ensure validity, the author assessed the following types of validity: construct validity was verified by conducting factor analysis using principal component analysis (PCA) with the varimax rotation method (Koh and Nam, 2005). Content validity was assessed by experts who reviewed the survey questionnaires, given the quantitative nature of this study (Taherdoost, 2020). Face validity was checked using a dichotomous scale, employing categorical options of "Yes" and "No" to indicate favourable and unfavourable components, respectively (Taherdoost, 2020). The validation process also included exploratory factor analysis and confirmatory analysis, as detailed in Sections 4.4.3 to 4.4.5.

4.4.2 Reliability

Saunders et al. (2019) define reliability as the extent to which data collection techniques or analyses produce consistent and intended findings. According to

Tabachnick and Fidel (2013) and Hair et al. (2016), Cronbach's Alpha coefficients of 0.7 and above, are considered acceptable for testing reliability. In this study, Cronbach's Alpha analysis was employed to assess the reliability of variables under the study and the results indicated highly reliable variables. The Cronbach's Alpha coefficient ranged from 0.670 to 0.814, as presented in Table 4.5. As per Wu, Yu, and Weng (2012), Chonbach's Alpha coefficients ranging from $0.70 < \alpha \leq 0.90$ are considered highly reliable, thus confirming the robust reliability of this study.

Table 4.5: Reliability of variables

Variables	No attributes	Cronbach's Alpha
Vulnerability (VR)	4	0.756
Severity (SV)	4	0.670
Response efficacy (RE)	6	0.814
Self-efficacy (SE)	7	0.775
Prevention Intention (PI)	5	0.712
Attitude (AT)	3	0.747

Source:The Researcher (2024)

4.4.3 Model Formulation and Validation

Thompson (2004) emphasised the significance of model formulation during both exploratory and confirmatory analyses to ensure the alignment of factors with actual data. As the items were derived from theoretical and empirical results in various contexts, there was uncertainty regarding whether the adopted factors aligned with their measurements. In consideration of this, the researcher employed both exploratory factor analysis and confirmatory factor analysis to ascertain that the constructs were in line with their indicator variables, as detailed in the subsequent subsection.

4.4.4 Exploratory Factor Analysis

In this study, exploratory factor analysis was employed to condense the number of variables into a concise set and to uncover underlying dimensions between the measured variables and latent constructs. This process facilitated the development and refinement of the theory. Following the recommendation of Thompson (2004), four factors were utilised in exploratory factor analysis to eliminate variables that did not align with the model. The exploratory factor analysis involved principal axis factor analysis with varimax rotation. The initial step in this analysis was to run the exploratory factor analysis to understand the model's nature thus revealing the characteristics of all the indicators, as presented in Table 4.6.

Table 4.6: First round of EFA rotated component matrix

	Component					
	1	**2**	**3**	**4**	**5**	**6**
VR2	.788					
VR3	.742					
VR1	.690					
VR4	.654					
SE5	.640		.569			
SV2		.735				
SV3		.703				
SV1		.682				
SV4		.554				
PI3			.636			
PI4			.623			
PI2			.589			
PI1			.572			
SE7						
RE6				.591		
RE5				.517		
RE3				.498		
RE2				.480		
RE1				.465		
PI5						
SE2					.604	
SE6					.571	
SE3					.517	
SE1					.497	
SE4						
AT2						.603
AT1						.600
AT3						.526
RE4				.440		.446

Extraction Method: Principal Component Analysis
Rotation Method: Varimax with Kaiser Normalization
a. Rotation converged in 7 iterations.

Source: The Researcher (2024)

Hoyle (1995) emphasised the significance of exploratory factor analysis in aligning all variables with the designated factors under study. After running the first round of the exploratory factor analysis, the results indicated that the model did not conform to the specified constructs, as shown in Table 4.8 above. This suggests that some items exhibited poor fit, cross-loading, or empty loading. Cattel (1966) recommended a step by step removal of items with poor fit , cross laoding or empty loading to refine the model.

Following the conditions of exploratory factor analysis, six items were removed during this stage, as detailed in Table 4.7. To retain the necessary items for each construct, Yong and Pearce (2013) affirmed specific criteria: items loading onto their designated factors were retained, while those loading onto more than one factor were discarded. Furthermore, items with Kaiser-Meyer-Olkin (KMO) p-values greater than 0.5 were retained, and those below 0.5 were eliminated. Additionally, items with loadings ranging from 0.4 to 0.8 were retained, while those with loadings below 0.4 or above 0.8 were dropped. Finally, items with empty loading were removed. The researcher applied these criteria to enhance the model, and the eliminated items are presented in Table 4.7. Thus, EFA was important on validity and reliability due to the fact that cross loading items, empty items as well as all items which loaded above 0.8 and below 0.4 were removed since they were assumed to violate the final results. Based on that, the results were clear and free from error which justifies the availability of the required conclusion and recommendation for each objective which enhances action taking.

Table 4.7: Dropped items on EFA rotated component matrix

Variable	Item dropped	
SE:	SE1: Ability of Using Fire Equipment	Insufficient factor loading
	SE5: Training on Traders	Cross Loading
	SE7: Escaping Ability	Cross Loading
RE	RE1: Influence Mitigation	Insufficient factor Loading
	RE4: Regular Inspection	Cross Loading
PI	PI5: Servicing fire Equipment	Insufficient factor Loading

Source: The Researcher (2024)

After eliminating six items, the model demonstrated a good fit, and those well-fitted items were retained. These appropriately fitted items were subsequently subjected to confimatory factor analysis wherein items were organised onto the specified factors. Each item was assigned loading value specific to particular values with loading ranging from 0.431 to 0. 788 as detailed in Table 4.8. This signifies that confirmatory factor analysis further confirmed the validity of the items.

According to Hoyle (1995), items that fit well in exploratory factor analysis were crucial for aligning with their respective constructs and were then carried forward to subsequent stage which is confimartory factor analysis. Additionally, Schumacher and Lomax (2010) assert that confimatory factor analysis involved incorporating the well-fitted items from exploratory factor analysis. These factors representing constructs were utilised for validation and reliability assesments. Therefore, the model resulting from confirmatory factor analysis involved incorporating the well-fitted items from exploratory factor analysis. These factors, representing constructs were utilised for validation and reliability assessments. Therefore, the model resulting from exploratory factor analysis served as a foundation for conformatory factor analysis.

Table 4.8: The EFA rotated component matrix

	Component					
	1	**2**	**3**	**4**	**5**	**6**
VR2	.788					
VR3	.740					
VR1	.702					
VR4	.691					
SV3		.719				
SV2		.694				
SV1		.675				
SV4		.590				
PI4			.655			
PI3			.649			
PI2			.623			
PI1			.582			
RE5				.639		
RE6				.618		
RE2				.531		
RE3				.431		
SE4					.620	
SE2					.561	
SE3					.530	
SE6					.495	
AT2						.665
AT1						.615
AT3						.597

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalisation.

a. Rotation converged in 6 iterations.

Source: The Researcher (2024)

The following are fitted items which interred on confirmatory factor analysis. These items are represented as per construct as described in Table 4.9.

Table 4.9: Definitions of constructs and their measurements

Key Note	
VR: Vulnerability	VR1: Building Mitigation Behaviour VR2: Adoption of Risk Mitigation Measures VR3: Threat of Fire VR4: Awareness on Fire
SV: Severity	SV1: Knowledge on Fire Threat SV2: Harm from Perceived Threat SV3: Expose to Risk of Fire SV4: Absence of Firefighting Equipment
RE: Responsive Efficacy	RE2: Behaviour of Fire Fighting RE3: Accessibility of Fire Emergency Number RE5: Doing Fire Inspection RE6: Visiting Market Regularly
SE: Self Efficacy	SE2: Confidence SE3: Resources SE4: Fire hydrant SE6: Accessibility
PI: Prevention intention	PI1: Training Fire Fighting Skills PI2: Keeping Material on Safe way PI3: Practices Fire Drills PI4: Conduct Fire Safety Inspection
AT: Attitude	AT1: Fire Fighting Knowledge AT2: Importance of Fire Safety Gears AT3: Availability of Markets Fire Gears

Source: The Researcher (2024)

Having established the study framework from the exploratory factor analysis, this framework was the base for running confirmatory factor analysis.

4.4.5 Confirmatory Factor Analysis

Confirmatory factor analysis was conducted with 23 items derived from exploratory factor analysis, where each item loaded onto specific factors. Six factors were identified in the confirmatory factor analysis process. As emphasised by Schumacker and Lomax (2010), confirmatory factor analysis is vital as it illustrates how the measured variables converge to represent a construct, thus serving as a means for

validation and reliability checks. In the context of this study, running confirmatory factor analysis was essential as it was employed to refine the model and ultimately validate the stated hypotheses.

In this study, criteria such as Standardised Regression Weights and Modification Indexes were used to assess model fit during the confirmatory stage. High covariance between measurement errors, along with high regression weights between these error constructs and cross-loading items, were considered in evaluating the model fit. Bentler (2017) argued that three types of indices are employed to investigate model fit in confirmatory factor analysis. These include absolute fit indices, adjusted for parsimony indices, and relative/incremental fit indices.

Absolute fit indices, such as Goodness of Fit Index (GFI) and Chi-square statistics, were utilised to assess the plausibility of the model fit concerning the implied and actual data variance-covariance matrix. The study also incorporated adjusted for parsimony indices, specifically the Root Mean Square Error of Approximation (RMSEA) and Adjusted Goodness Fit Index (AGFI) as suggested by Byrne (2013). Finally, relative fit indices such as Comparative Fit Index (CFI) and Normed Fit Index (NFI), were used to compare the improvement of fit between the proposed model and the baseline model as outlined in Table 4.10.

Table 4.10: Model fit assessment indexes

Indices	Recommended value References	
Absolute Fit Indices		
Goodness of Fit Index GFI	GFI > .0.95 Is Good Fit 0.85 < GFI < 0.95 Acceptable fit	Schumacker & Lomax, 2004
Adjusted Goodness of Fit Index AGFI	AGFI Closer to 1 Good Fit AGF > 0.80 Acceptable Fit RMSEA <0.05 Is Good Fit	Byrne, 2013 Hooper, et al, 2008 Byrne, 2013
Root Mean Square Error Approximation	0.05 < RMSEA <0.1 Acceptable Fit	Gaskin, 2014 Schumacker and Lomax, 2004
Comparative Fit Index CFI	CFI > 0.95 Is Good Fit 0.9 < CFI < 0.95 Acceptable fit	Byrne, 2013 Schumacker and Lomax, 2004
$\chi 2$ statistic ($\chi 2$/ df ratio of 3	CMID/DF < 3.00 good fit 4.00-3.00 Acceptable fit	Byrne, 2013

Source: The Researcher (2024)

Following the examination of model fit indices, including goodness of fit indices such as GFI, the Chi-square statistics CMID/DF, root mean square error of approximation (RMSEA), adjusted goodness fit index (AGFI), and comparative fit index (CFI), the subsequent step involved assessing the model fit for each variable based on the predefined objectives derived from the exploratory factor analysis. The main constructs scrutinised in the study comprised vulnerability, severity, response efficacy, self-efficacy, prevention intention, and attitudes. Conducting CFA was important because it ensured validity and reliability since the models obtained were within acceptable threshold level. Hence, the final result obtained were free from error and thus led to better conclusion and recommendations.

4.4.5.1 Measurement Model for Vulnerability (VR)

The vulnerability measurement model was initially specified with the following observed variables namely: VR2, VR3, VR1, and VR4 for running confirmatory factor analysis. In running confirmatory factor analysis, IBM Amos 20 with maximum likelihood estimate was employed. After running the vulnerability measurement model, the model fit index indicated the following results: CMIN/df = 4.150, GFI= 0.989, AGIF = 0.944, CFI =0.982 and RMSEA= 0.091. These findings showed a poor fit of the model based on model fitness criteria as shown in Table 4.10.

Schumacker and Lomax (2004) and Hooper et al. (2008) recommended that a model fits well when it achieves a CMIN/DF of 3 or less thus indicating an acceptable fit, CFI >0.90 indicates good fit, RMSEA <0.08 indicates an acceptable fit, and GFI of at least 0.9 indicates acceptable fit. Based on these arguments, one item namely VR2 was removed to enhance model fit during the confirmatory stage.

After deletion of VR2, the confirmatory factor analysis was run again and the findings for model fit indices were found as follows: CMIN/df ratio=2.66, P. 0.070, GFI = 0.998, AGFA = 0.987, CFI= 0.999 and RMSEA=0.025 as shown in Figure 4.1. Based on these results of model fit indices, vulnerability model with 3 items was fitted. The item that remained were VR1, VR3 and VR4 which were moved to the convariance level.

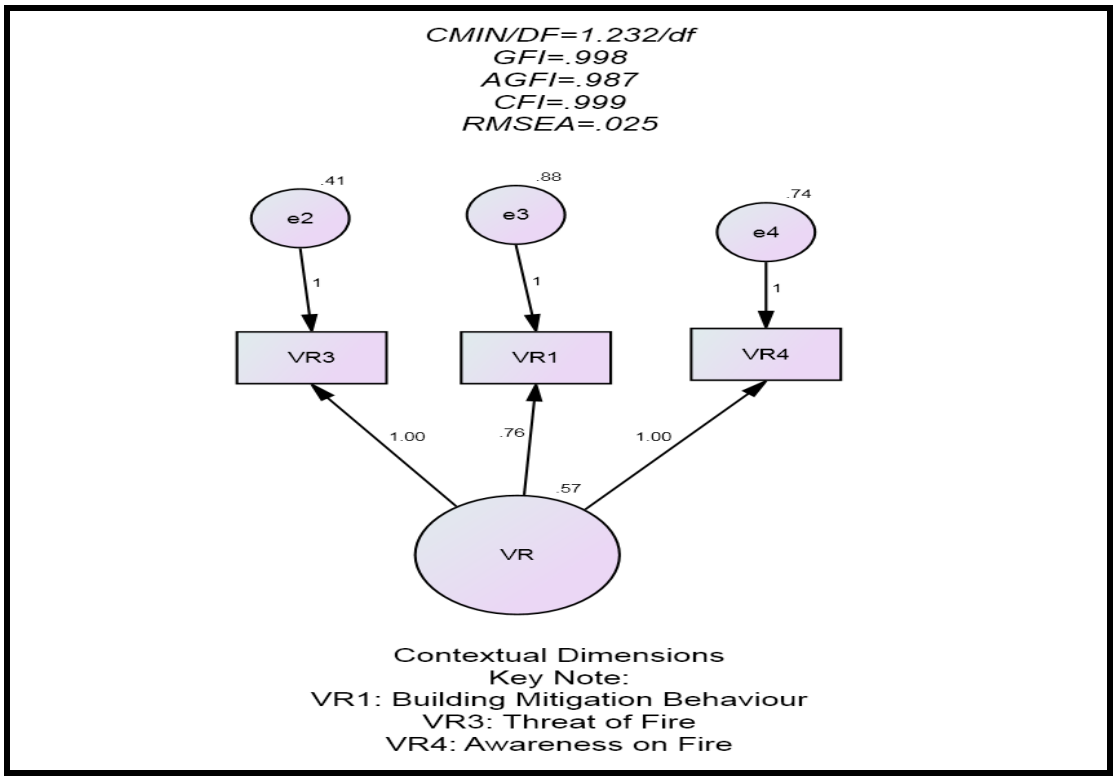

Figure 4.1: Vulnerability measurement model

Source:The Researcher (2024)

4.4.5.2 Measurement Model for Severity (SV)

In the initial run of the confirmatory factor analysis for severity, IBM SPSS Amos 20 was utilised. The severity measurement model, derived from exploratory factor analysis, comprised four variables: SV3, SV2, SV1, and SV4. The results from the first run indicated a CMIN/DF of 2.493, GFI of 0.994, AGFI of 0.969, CFI of 0.986, and RMSEA of 0.062, which demonstrated an acceptable fit, as illustrated in Table 4.10. Consequently, the researcher did not proceed with additional runs, as the model was found to be adequately fitted and ready for covariance assessments. Alahmad (2016) contended that model fit indices with results such as GFI = 1.00, RMR = 0.004, AGFI = 0.996, RMSEA = 0.00, and CFI = 1.00 indicate a well-fitted model

and are suitable for baseline model assessments by covariance. Hence, no further evaluations were conducted, and the fitted items are displayed in Figure 4.2.

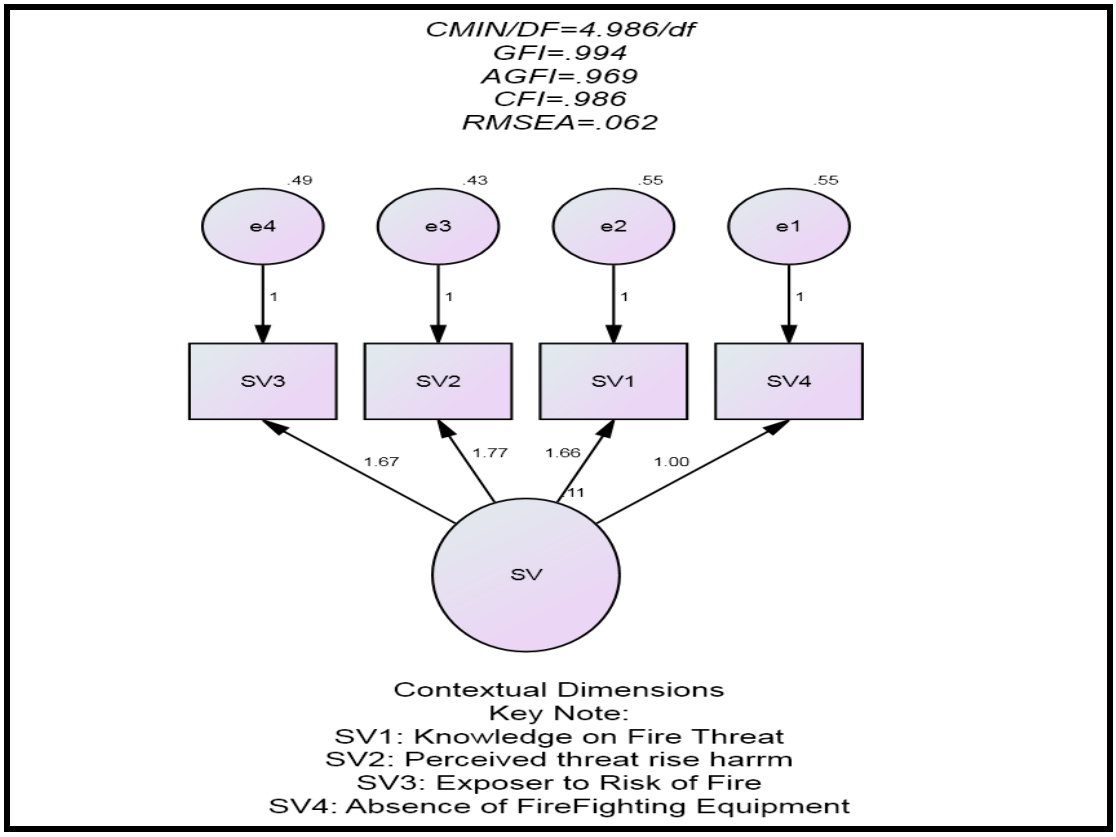

Figure 4.2: Model for Severity

Source: The Researcher (2024)

4.4.5.3 Measurement Model for Response Efficacy (RE)

Response efficacy was assessed based on the accepted items from exploratory factor analysis, specifically RE5, RE6, RE2, and RE3. Following the initial model specification, a maximum likelihood estimate was executed using IBM AMOS 20, thus resulting in the following model fit indices: CMIN/DF = 0.355, GFI = 0.999, AGFI = 0.995, CFI = 1.00, and RMSEA is 0.00. These findings indicate an adequate

model fit, as recommended by Byrne (2013) and Schumacher and Lomax (2004), as presented in Table 4.10. All four variables, namely RE5, RE6, RE2, and RE3, were accepted in confirmatory factor analysis after the initial run, as depicted in Figure 4.3. Since, the model was fit under RE5, RE6, RE2, and RE3, the issues of validity and reliability were ensured which enhanced the trustworthiness and accuracy of the measurement model as well as the final results of the study.

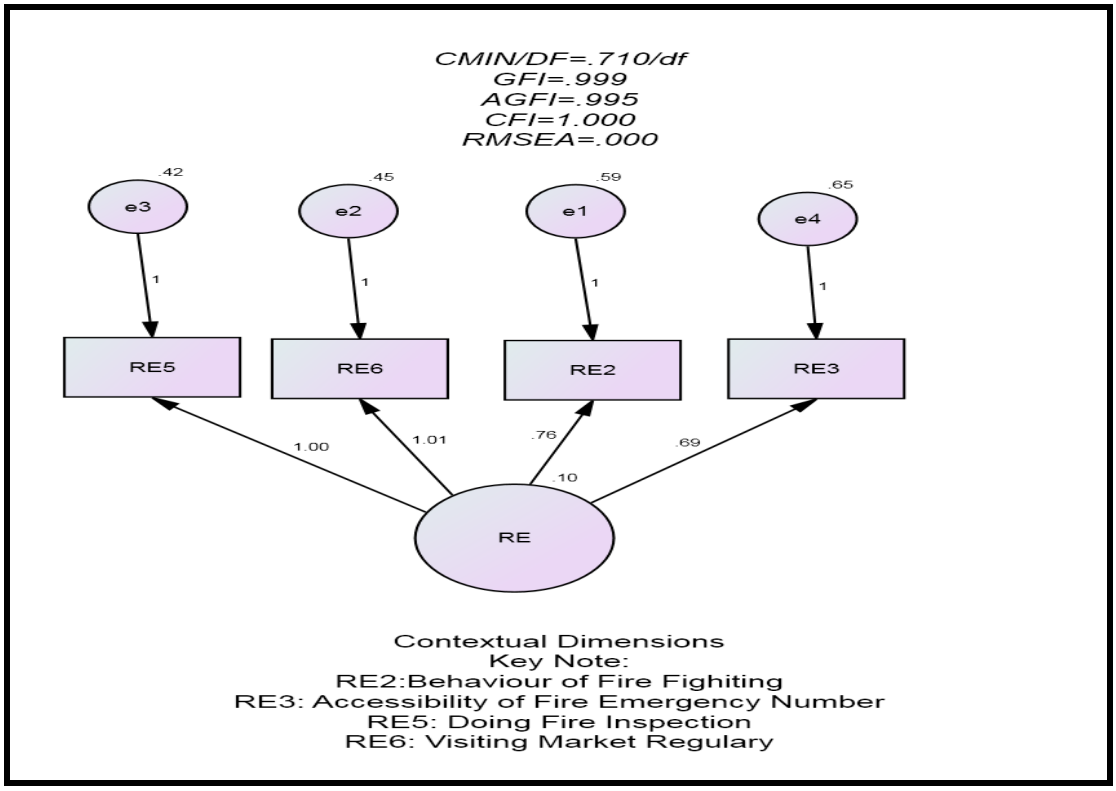

Figure 4.3: RE Measurement Model

Source:The Researcher (2024)

4.4.5.4 Measurement Model for the Self Efficacy (SE)

The measurement model for assessing self-efficacy included the following observed variables: SE4, SE2, SE3, and SE6 for confirmatory factor analysis. Confirmatory factor analysis was conducted using IBM Amos 20 with maximum likelihood estimation, and the model fit indices yielded the following results: CMIN/df = 0.131,

GFI = 1.00, AGFI = 0.998, CFI = 1.00, and RMSEA = 0.000. These findings indicate a well-fitted model based on the model fitness criteria outlined in Table 4.10. Since the model was fitted well, reliability and validity were ensured through the threshold level of fit indices. This process was important in obtaining accuracy final results based on this variable with effects on fire outbreak in public markets.

As per Byrne's (2013) recommendations, a good model fit should have CMIN/df of 3 or less, CFI greater than 0.90, hence indicating a well-fitting model, RMSEA less than 0.05, indicating acceptable fit, and GFI should be at least 0.9, indicating acceptable fit. Based on these criteria, no further iterations of the model were deemed necessary and the agreed model was accepted as the baseline model, as illustrated in Figure 4.4.

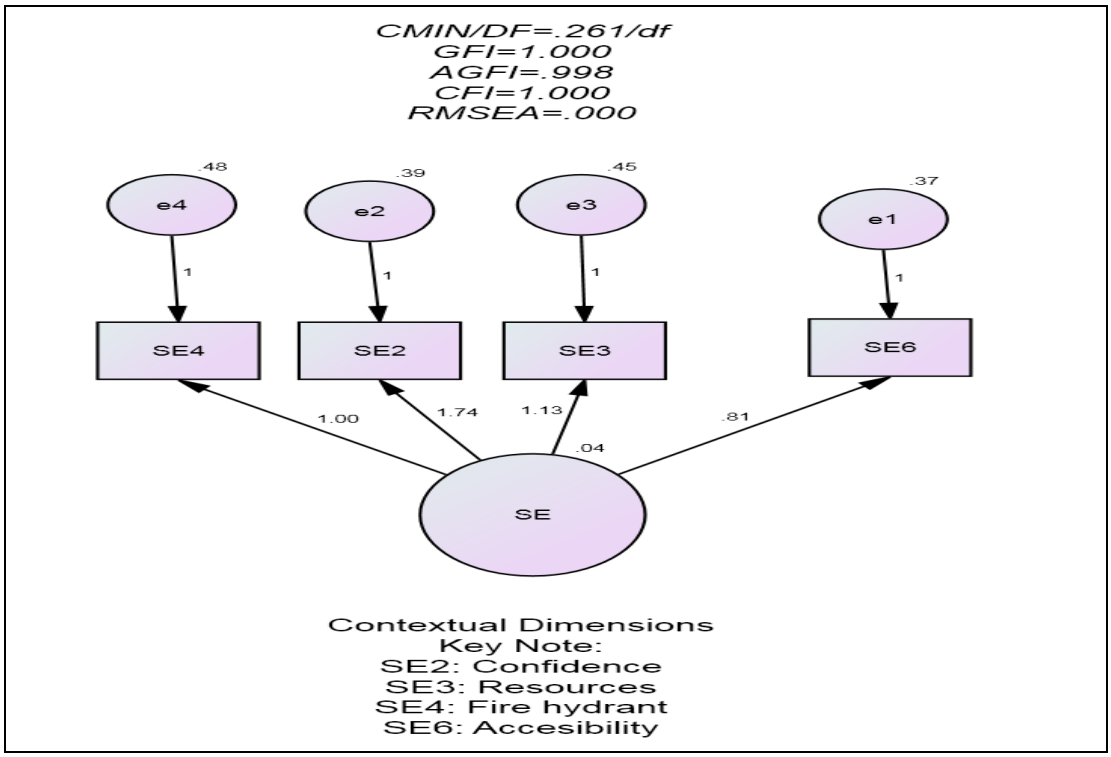

Figure 4.4: The SE mesurement model

Source: The Researcher (2024)

4.4.5.5 Measurement Model for the Prevention Intention (PI)

In the confirmatory factor analysis, the measurement model for assessing prevention intention included the following observed variables: PI4, PI3, PI2, and PI1. The confirmatory factor analysis was conducted once using IBM Amos 20 with maximum likelihood estimation. The findings, after running the confirmatory analysis, revealed the following results: CMIN/df = 2.430, GFI = 0.993, AGFI = 0.967, CFI = 0.965, and RMSEA = 0.065, as depicted in Figure 4.5. Based on this result, there was no need for further improvements of the model. These findings show that the model was fitted and is related to the discriminant validity which was tested by AVE and results indicate the presence of higher AVE than shared variance for an individual construct which suggests that discriminant validity achieved as recommended by Fornell and Larcker (1981) as shown in Table 3.3. Based on these findings, the final results were valid and reliable.

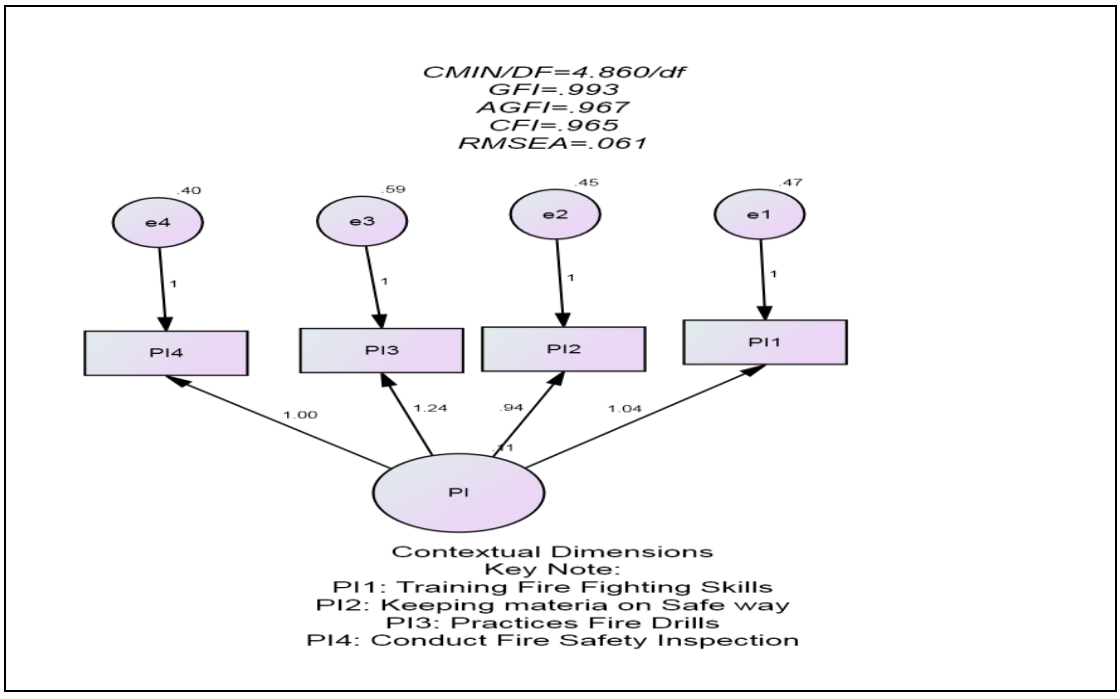

Figure 4.5: The SE measurement model

Source: The Researcher (2024)

4.4.5.6 Measurement Model for Altitude (AT)

Initially, IBM Amos 20 was employed to conduct confirmatory factor analysis and confirm the measurement model for attitude based on the observed variables AT2, AT1, and AT3. The results obtained after running the confirmatory factor analysis were as follows: CMIN/df = 2.001, GFI = 0.997, AGFI = 0.979, CFI = 0.957, and RMSEA = 0.051. These findings suggest that the attitude model fits well, meeting the criteria for model fitness. Also, AVE as well as Cronbach's alpha analysis were conducted and which proved the availability of model fitness under this variable as expressed in Table 3.3.

These findings are related to Hoe (2008), who argued that a well-fitting model should have a CFI greater than 0.90, thus indicating good fit, and RMSEA less than 0.08, indicates acceptable fit, and a commonly used $\chi 2$ statistic ($\chi 2$/df ratio of 3 or less), as described in Table 4.12. Based on these results, no further iterations of the model were conducted, as depicted in Figure 4.6.

The findings also relate to Schumacker and Lomax (2004) and Hooper et al. (2008) who recommended that a model fits well when it achieves a CMIN/DF of 3 or less thus indicating an acceptable fit, CFI >0.90 indicates good fit, RMSEA <0.08 indicates an acceptable fit, and GFI of at least 0.9, indicates acceptable fit. In line with these arguments, reliability and validity were ensured and the final results were accuracy.

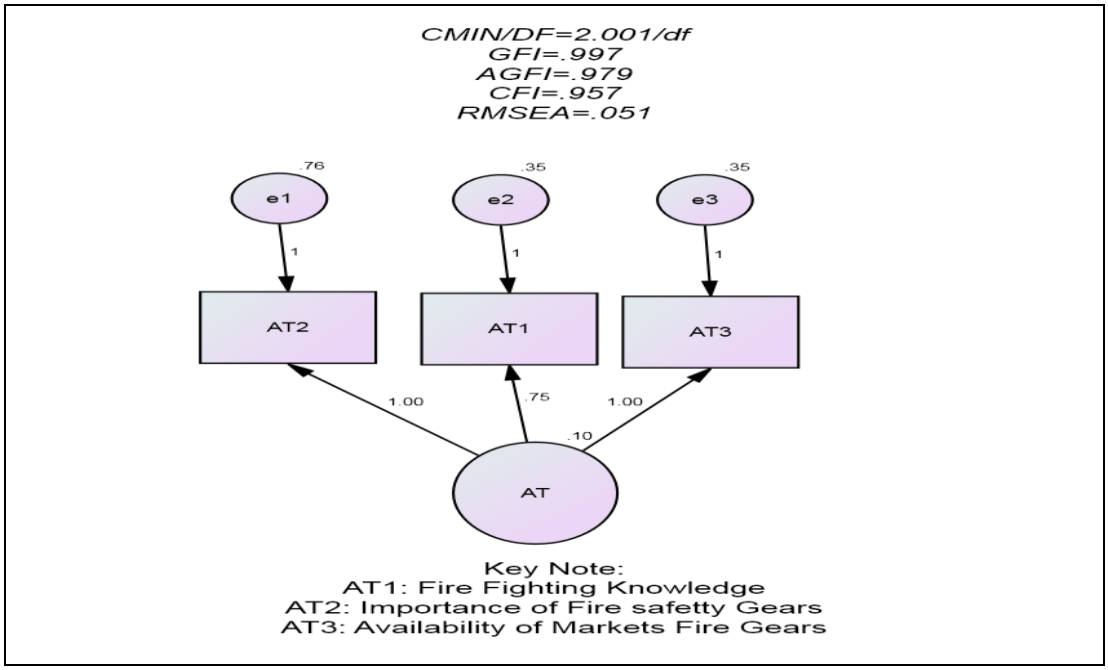

Figure 4.6: Attitude Measurement Model

Source: The Researcher (2024)

In the evaluation of the measurement model for each construct, certain items were excluded to ensure the inclusion of items that exhibited a good fit. Table 4.11 gives the summary of the model fit during the initial and final run of CFA. Initially, the model was deemed unsatisfactory, but after rerunning it and eliminating specific items, the measurement model ultimately achieved a good fit. At this stage, the elimination was conducted at the item level, and the removed items not only weakened the model but also indicated a weak statistical power.

4.4.5.7 Summary of the Measurement Model on CFA

The confirmatory stage presented a summary of the measurement model for all variables under study. The results obtained after running the confirmatory factor analysis indicated that some variables were well-fitted during the initial run, while

others achieved a good fit after the second run. The minimum criteria for model fitness, as suggested by Hoe (2008), include a CFI greater than 0.90, indicating good fit, RMSEA less than 0.08, indicating acceptable fit, and a commonly used $\chi 2$ statistic ($\chi 2$/ df ratio of 3 or less). The accepted results based on these criteria are detailed in Table 4.11.

Table 4.11: Summary of the measurement model on CFA

Items	Initial Stage of CFA Indicating Unsatisfactory Measurement Model Fit					Final Stage of CFA Indicating Good Measurement Model Fit					Remarks
	CMID/Df	GFI	AGFI	CFI	RMSEA	CMID/Df	GFI	AGFI	CFI	RMSEA	
VR	4.150	0.989	0.944	0.912	0.091	2.66	0.998	0.987	0.999	0.025	Accepted in the 2nd run
SV	2.493	0.994	0.696	0.986	0.062	4.56	1.00	0.996	1.00	0.00	Accepted in the 1st run
RE	0.355	0.999	0.995	1.00	0.00	-	-	-	-	-	Accepted in the 1st run
SE	0.131	1.00	0.998	1.00	0.00	-	-	-	-	-	Accepted in the 1st run
PI	2.430	0.993	0.967	0.965	0.065	-	-	-	-	-	Accepted in the 1st run
AT	2.00	0.997	0.979	0.957	0.051	-	-	-	-	-	Accepted in the 1st run

Source: The Researcher (2024)

4.5 Measurement Baseline Model of Variables Under Study

In order to reach a baseline measurement model that fits both components, the six individual measurement models which were developed earlier, were combined and confirmatory factor analysis was run with a maximum likelihood estimate in IBM AMOS 20 to determine its fitness. The item employed for the baseline measurement model was as follows:

RE had four variables namely (RE5, RE6, RE2, RE3);

SE had four variable which are (SE4, SE2, SE3, SE6);

AT had three variable which are (AT2, AT1, AT3);

VR had three variables namely (VR3, VR1, VR4);

SV had four variable which are (SV3, SV2, SV1, SV4);

PI had four variables namely (PI4, PI3, PI2, and PI1).

These variables were analysed together, and the initial run demonstrated a good model fit. For instance, the results indicated GFI= 0.942, AGFI = 0.924, CFI= 0.898, RMSEA=0.031, and a CMIN/df value of 1.420. Hoe (2008) argued that meeting minimum requirements, such as CFI >0.80 indicates good fit, RMSEA <0.08 indicates acceptable fit, and a commonly used $\chi 2$ statistic ($\chi 2$/ df ratio of 3 or less), was essential. Therefore, in this study, the model was accepted as it met these criteria and was deemed well-fitted.

With these results, there was no need for further analysis. The confirmatory factor analysis, using the maximum likelihood estimate in IBM AMOS 20, yielded the required outcomes, as illustrated in Figure 4.7.

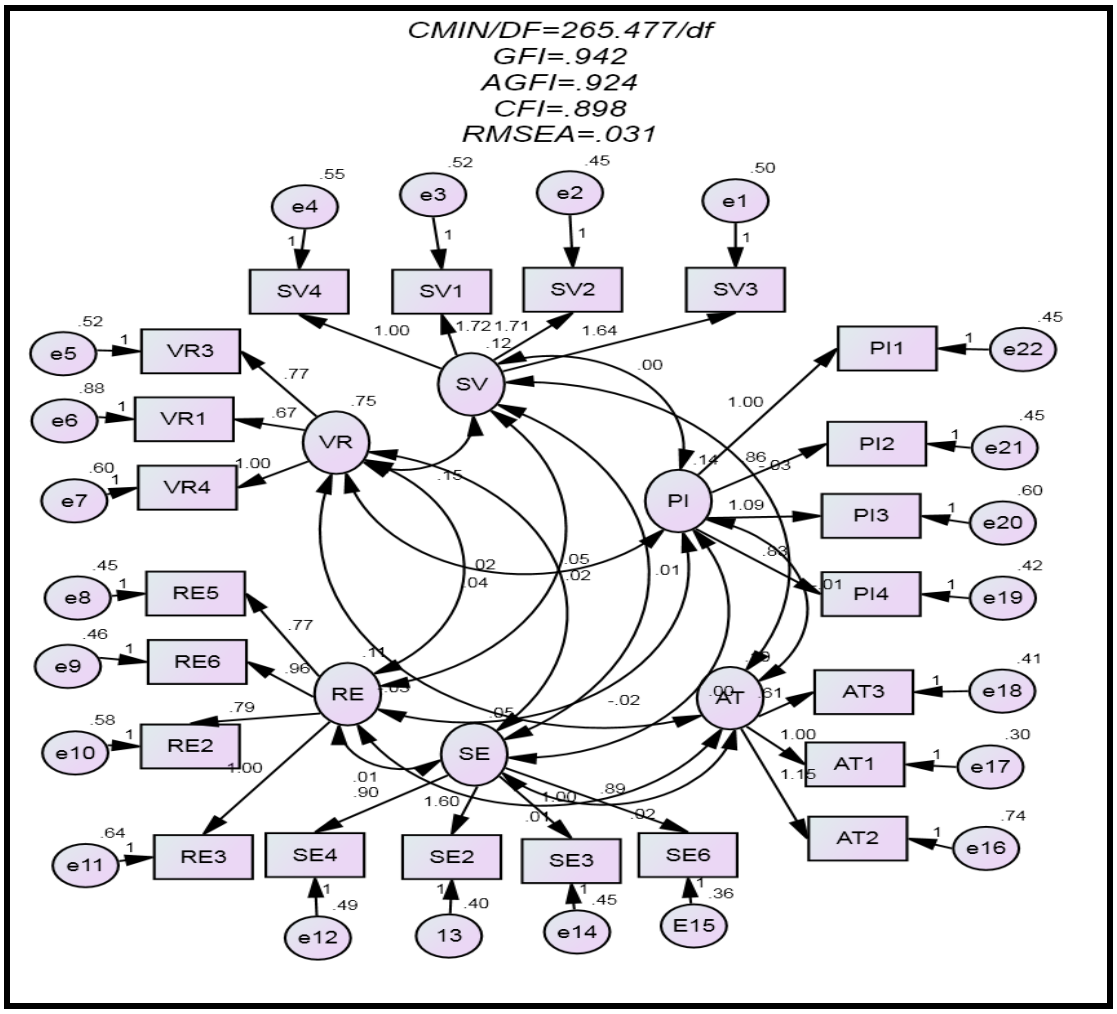

Figure 4.7: Measurement Baseline Model for Six Vulnerability; Severity, Response Efficacy; Self Efficacy; Attitude and Prevention Intention

Source: Researcher (2024)

VR1: Building Mitigation Behaviour; VR3: Threat of Fire; VR4: Awareness on Fire; SV1: Knowledge on Fire Threat; SV2: Harm from Perceived Threat; SV3: Expose to Risk of Fire; SV4: Absence of Firefighting Equipment; RE2:Behaviour of Fire Fighting; RE3: Accessibility of; Fire Emergency Number; RE5: Doing Fire Inspection; RE6: Visiting Market Regularly; SE2: Confidence; SE3: Resources; SE4: Fire hydrant; SE6: Accessibility; PI1: Training Fire Fighting Skills; PI2: Keeping Material on Safe way; PI3: Practices Fire Drills; PI4: Conduct Fire Safety Inspection; AT1: Fire Fighting Knowledge; AT2: Importance of Fire Safety Gears; AT3: Availability of Markets Fire Gears.

Source: The Researcher (2024)

4.5.1 Basic Structural Model of Variables

The fundamental structural model of the study, which postulated the connections between factors influencing prevention intention toward fire outbreaks in public markets, incorporating attitude as a moderating variable, underwent assessment. Specifically, the study examined the impacts of perceived vulnerability on bolstering prevention intention regarding fire outbreaks in public markets, the effects of perceived severity on facilitating prevention intention of fire outbreaks in public markets, the impacts of response efficacy on enhancing prevention intention, and the influences of self-efficacy on facilitating prevention intention.

Moreover, the study explored the moderating effects of attitude on the relationship between prevention intention and fire outbreaks in public markets. The results of the analysis conducted using AMOS version 20 are depicted in Figure 4.8, and the outcomes for the goodness-of-fit indices, based on four criteria (CMIN/DF, CFI, AGFI, and RMSEA), are presented and elucidated below. Before establishing the relationships, the results of the following were assessed and found to be within an acceptable range: CMIN/DF = 1.430, GFI = 0.937, AGFI = 0.919, CFI = 0.879, and RMSEA = 0.034. These values met the criteria for testing the relationships among variables.

According to Byrne (2013), and RMSEA value of 0 indicates a perfect fit, < 0.05 indicates a close fit, 0.05 to 0.08 indicates a fair fit, 0.08 to 0.1 suggests a mediocre fit, and > 0.1 represents a poor fit. In comparison to the current study findings, the RMSEA value of 0.034 produced in the analysis indicates a good fit and warrants

proceeding to the next stage of testing the relationships among variables. Having established a model fit that indicates a good fit, the path coefficients and hypothesis testing were evaluated, as explained in the next section.

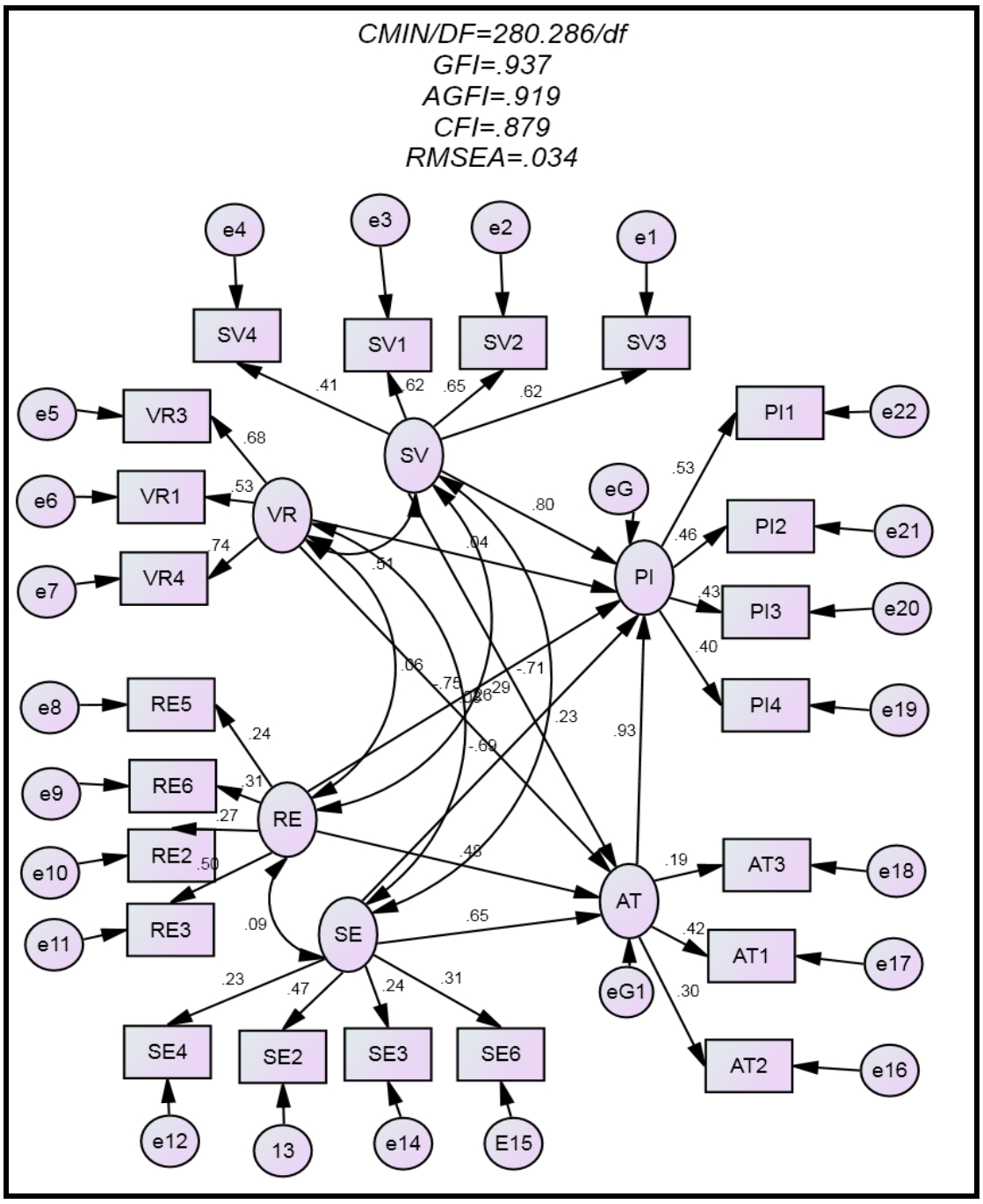

Figure 4.8: Basic Structural Model for Six Vulnerability; Severity; Response Efficacy; Self Efficacy; Attitude and Prevention Intention

Source: The Researcher (2024)

4.5.2 Model Regression Weight and SRW

Upon establishing the baseline model, a regression weight and standardised regression weight analysis were conducted, as presented in Table 4.14. This step was crucial to determine the relationships among variables based on the threshold level of standardised regression coefficients. Hoe (2008) recommended that a standardised path coefficient (γ) confirming a significant relationship between variables should be at least 0.2. Additionally, Hoe (2008) argued that critical values confirming the significance of the relationship between variables should be above 1.96 (CR >1.96) with a significance level of $p < 0.05$. Attaining these values indicated a positive and strong significant relationship within the model's variables. Therefore, these findings, representing a robust framework, were utilised for further analysis of the relationships between variables. As demonstrated in Table 4.12, the regression weight and standardised regression weight were scrutinised based on the threshold levels suggested by Hoe (2008).

Having established the model fit for all hypotheses regarding the relationships between observed and unobserved variables, as shown in Table 4.12, the subsequent step involved path testing of relationships to examine the developed hypotheses of the study between dependent and independent variables, as illustrated in the conceptual framework. The next stage elaborates on the path relationships among all variables under the study.

Table 4.12: Regression weights and standardised regression weight

Path			Estimate	S.E.	C.R.	P	SRW
AT	<---	SV	.570	.176	3.234	.001	.706
AT	<---	VR	.010	.053	.198	.843	.034
AT	<---	SE	1.000				.647
AT	<---	RE	.297	.141	2.114	.035	.480
PI	<---	SV	1.000				.805
PI	<---	VR	.018	.094	.188	.851	.037
PI	<---	RE	.710	.262	2.707	.007	.746
PI	<---	SE	1.631	.623	2.619	.009	.685
PI	<---	AT	1.434	.541	2.653	.008	.931
PI1	<---	PI	1.000				.531
PI2	<---	PI	.829	.188	4.414	***	.459
PI3	<---	PI	.920	.212	4.343	***	.432
PI4	<---	PI	.702	.166	4.219	***	.401
SV4	<---	SV	1.000				.407
SV1	<---	SV	1.752	.284	6.162	***	.623
SV2	<---	SV	1.734	.279	6.219	***	.646
SV3	<---	SV	1.690	.274	6.160	***	.623
VR1	<---	VR	.670	.085	7.848	***	.527
VR3	<---	VR	.775	.089	8.724	***	.683
RE3	<---	RE	1.000				.499
RE2	<---	RE	.497	.190	2.618	.009	.268
RE6	<---	RE	.539	.192	2.809	.005	.312
RE5	<---	RE	.390	.160	2.429	.015	.235
SE3	<---	SE	1.000				.245
SE2	<---	SE	1.968	.666	2.954	.003	.473
SE4	<---	SE	.968	.409	2.368	.018	.231
AT1	<---	AT	1.000				.420
AT3	<---	AT	.480	.216	2.223	.026	.193
AT2	<---	AT	1.050	.348	3.018	.003	.300
SE6	<---	SE	1.119	.403	2.778	.005	.306
VR4	<---	VR	1.000				.745

Source: The Researcher, (2024)

4.5.3 Basic Model Path Coefficients and Hypothesis Testing

The structural model served as the framework for scrutinising the hypothesised relationships. The analysis involved evaluating various coefficients and scores against the hypothesised relationships. In this research, the hypotheses were assessed considering the direction, strength, and level of significance of the path coefficients.

The study utilised standardised path coefficients, critical values (CR), and p-values to test and evaluate the strength and significance of the hypotheses. For comparative purposes, hypotheses were tested at each run, and the assessment was aligned with the specified hypotheses.

4.5.3.1 Relationship between Perceived Vulnerability and PI of Fire

There is a positive relationship between perceived vulnerability and prevention intention on outbreaks of fire in public markets. Based on this fact, in order to confirm the influence of perceived vulnerability on prevention intention on outbreaks of fire in public markets, the following hypothesis was developed as stated below:

> ***Null Ho1****: There is no positive relationship between perceived vulnerability and prevention intention on outbreaks of fire in public markets.*
>
> ***Alternative Ha1****: There is a positive relationship between perceived vulnerability and prevention intention on outbreaks of fire in public markets.*

For testing the stated hypothesis, descriptive statistical analysis was run first to profile the impacts of each measurement of *perceived vulnerability on prevention intention on outbreaks of fire in public markets.* The measurements of *perceived vulnerability in this study were VR1, VR3 and VR4* as illustrated in Table 4.13.

Table 4.13: Characteristics of perceived vulnerability measurements

Variable	Building Mitigation Behaviour (VR1)	Threat of Fire (VR3)	Awareness on Fire (VR4)
N	384	384	384
Mean	5.9115	6.02865	5.9609
Median	6.0000	6.00000	6.0000
Mode	6.00	7.000	7.00
Std. Deviation	1.10185	.983791	1.16343

Source: The Researcher (2024)

Among the three indicators of *perceived vulnerability* presented in Table 4.13 above, the threat of fire exhibited a significant influence on *prevention intention on outbreaks of fire in public markets*. This implies that the perceived threat of fire yielded a high mean value of 6.02865, with a median of 6.00 (the middle value of the scale) and a mode of 7. The subsequent influential measurement variables were awareness of fire and building mitigation, ranked second and third, respectively. Further analysis utilising Structural Equation Modelling (SEM) was conducted to ascertain the positive impact of the perceived vulnerability on the intention to prevent fire outbreaks in public markets, as depicted in Table 4.14.

Table 4.14: Basic Model Un-standardized and SRW

Path			Estimate	S.E.	C.R.	P	SRW	Remarks
PI	<---	VR	.018	.094	.188	.851	.037	Not accepted
VR1	<---	VR	.670	.085	7.848	***	.527	Accepted
VR3	<---	VR	.775	.089	8.724	***	.683	Accepted
VR4	<---	VR	1.000				.745	Accepted

Source: The Researcher (2024)

The pathway illustrated in Table 4.14, representing the link from perceived vulnerability to the prevention intention on outbreaks of fire in public markets, is employed to investigate the relationship between these variables. The presence of a positive standardised path coefficient ($\gamma = 0.037$), as revealed by the standardised estimate results in Table 4.14, suggests that perceived vulnerability positively influences the prevention intention regarding fire outbreaks in public markets. Hoe (2008) contended that for a standardised path coefficient (γ) to be deemed significant and meaningful for discussion, it should be at least 0.2. The findings in the current

study, however, indicate a weak relationship between perceived vulnerability and the prevention intention of fire outbreaks in public markets.

Apart from the standardised coefficient, further analysis was done using critical ratio and p-value to determine the influence of perceived vulnerability on prevention intention on outbreaks of fire in public markets. The findings from this study revealed a critical value (C.R = 0.188 which is <1.96) and a higher significance level of p=0.851. Hox and Bechger (2014) argued that a relationship, which has yielded a critical ratio greater than 1.96 and a p-value less than 0.05 is considered significant.

4.5.3.2 Relationship between Perceived Severity and PI of Fire

To confirm the relationship between perceived severity and prevention intention on outbreaks of fire in public markets the study also hypothesized the following*:*

> ***Null Ho2:*** *There is no positive relationship between perceived severity and prevention intention on outbreaks of fire in public markets.*
>
> ***Alternative Ha2:*** *There is a positive relationship between perceived severity and prevention intention on outbreaks of fire in public markets.*

While testing the stated hypothesis above, initially, descriptive statistics analysis was run to outline the impacts of each measurement of perceived severity and prevention intention. The perceived severity measurements, which were involved in the current study are SV1: Knowledge on Fire Threat; SV2: Harm from Perceived Threat; SV3: Exposure to Risk of Fire; SV4: Absence of Firefighting Equipment as illustrated in Table 4.15.

Table 4.15: Characteristics of perceived severity Measurements

Variables	SV1	SV2	SV3	SV4
N	384	384	384	384
Mean	5.7396	5.8099	5.9219	5.5755
Median	6.0000	6.0000	6.0000	5.0000
Mode	5.00	5.00	6.00	5.00
Std. Deviation	.93098	.88963	.89917	.81726

Source: The Researcher, (2024)

The analysis results are presented in Table 4.15. In examining the four indicators of perceived severity and prevention intention, SV3 emerges as having the most significant influence on the prevention intention of fire outbreaks in public markets. It exhibits a mean value of 5.9219 and a median of 6.00, thus indicating a high level of influence. SV2 follows closely with a mean value of 5.8099 and a median of 6.00. Additionally, SV1 registers a mean value of 5.7396, while SV4 yields a mean value of 5.5755. This suggest that higher mean and median values correspond to a greater impact on the perfoamance of prevention intention for fire outbreaks in public markets.

Subsequent analysis using structural equation modelling was conducted to ascertain the significant relationship between perceived severity and the prevention intention of fire outbreaks in public markets as illustrated in Table 4.16.

Table 4.16: Regression Weights and SRW

Path			Estimate	S.E.	C.R.	P	SRW	Remarks
PI	<---	SV	1.000				.805	Supported
SV4	<---	SV	1.000				.407	Supported
SV1	<---	SV	1.752	.284	6.162	***	.623	Supported
SV2	<---	SV	1.734	.279	6.219	***	.646	Supported
SV3	<---	SV	1.690	.274	6.160	***	.623	Supported

Source: The Researcher (2024)

This hypothesis was examined using the path leading from SV to PI which forms a relationship between perceived severity and prevention intention on outbreaks of fire in public markets as illustrated in Table 4.16. The results of the standardised path coefficients ($\gamma = 0.805$) in Table 4.16 have yielded strong standardised regression weights which indicate a positive and significance relationship between perceived severity and prevention intention on outbreaks of fire in public markets. According to Hoe (2008), it is postulated that a standardised path coefficient (γ) should be at least 0.2 to be considered significant and meaningful for discussion. Therefore, a standardised paths coefficient of 0.805 is above 0.2 and shows a very strong relationship.

Further analysis of the significant influence of the relationship between perceived severity measurement variables and perceived severity using critical ratio values in Table 4.18 above indicated that the analysis had yielded a critical ratio of above 1.96. For instance, SV1 = 6.162; SV2 =,6.219 and SV3 = 6.160; which support the strongest relationship of variables. According to Hox and Bechger (2014), a relationship which has yielded a critical ratio greater than 1.96 is considered positive and significant.

4.5.3.3 Effects of Response Efficacy on Enhancing PI of Fire

The third hypothesis postulated in this study was based on a positive and strong significant relationship between perceived response efficacy and prevention intention on outbreaks of fire in public markets as stated below:

> ***Null Ho3****: There is no positive relationship between perceived response efficacy and prevention intention on outbreaks of fire in public markets.*

Alternative Ha3*: There is a positive relationship between perceived response efficacy and prevention intention on outbreaks of fire in public markets.*

To test this hypothesis, descriptive statistical analysis was run first to profile the influence of each attribute of perceived response efficacy on prevention intention on the outbreaks of fire in public markets. These attributes of perceived response efficacy which influence the prevention intention on outbreaks of fire in public markets were: RE2: Behaviour of Fire Fighting; RE3: Accessibility of; Fire Emergency Number; RE5: Doing Fire Inspection; RE6: Visiting Market Regularly as illustrated in Table 4.17.

Table 4.17: Effects of response efficacy on enhancing PI of fire

Variable	RE2	RE3	RE5	RE6
N	384	384	384	384
Mean	5.1823	5.1927	5.2760	5.3099
Std. Error of Mean	.04100	.04423	.03657	.03816
Median	5.0000	5.0000	5.0000	5.0000
Mode	5.00	5.00	5.00	5.00
Std. Deviation	.80345	.86676	.71671	.74771

Source:The Researcher (2024)

Table 4.17 shows the results of the analysis. Among the four variables of perceived response efficacy, RE6 had a high effect on prevention intention on the outbreaks of fire in public markets. This RE6 yields a high mean value of 5.30993 with a median 5.00 followed by RE5 which yields a mean value of 5.2760 with a median of 5.00. RE3 had a mean value of 5.1927 and median of 5 and the least is RE2 with a mean value of 5.1823; again, with median 5.00. The greater mean indicates a higher stimulus on prevention intention on outbreaks of fire in public markets. Further

analysis was conducted using a structural equation model to determine the significant relationship between perceived response efficacy and prevention intention on outbreaks of fire in public markets. Through SEM, standardised regression weight was conducted to determine the relationship of variables as shown in Table 4.18.

Table 4.18: Basic Model Un-standardized and SRW

Path			Estimate	S.E.	C.R.	P	SRW	Remarks
PI	<---	RE	.710	.262	2.707	.007	.746	Accepted
RE3	<---	RE	1.000				.499	Accepted
RE2	<---	RE	.497	.190	2.618	.009	.268	Accepted
RE6	<---	RE	.539	.192	2.809	.005	.312	Accepted
RE5	<---	RE	.390	.160	2.429	.015	.235	Accepted

Source:The Researcher, (2024)

The path leading from RE to PI in Table 4.18 was used to examine the relationship between perceived response efficacy and prevention intention on outbreaks of fire in public markets. A positive standardised path coefficient ($\gamma = 0.746$ from a path RE to PI in Table 4.18 above indicates a positive and significant relationship. As argued by Hoe (2008), a standardised path should be at least 0.20 to be considered meaningful for discussion. Comparing these results with the hypotheses, the standardised path coefficient of 0.746 seems to indicate that there is a positive and significant relationship between perceived response efficacy and prevention intention on outbreaks of fire in public markets.

Further analysis on the significant influence of a significant relationship between perceived response efficacy and prevention intention on outbreaks of fire in public markets was done using critical ratio and significance level p-value. The results in

Table 4.18 yielded a critical ratio of 2.707 and a p-value of 0.007. As Hox and Bechger (2014) recommended, a relationship which has yielded a critical ratio greater than 1.96 and a p-value less than 0.05, is considered significant. Compared to the current study hypothesis, a critical ratio of 2.707 and a p-value of 0.007 in Table 4.18, indicates a positive and significant relationship between perceived response efficacy and prevention intention on outbreaks of fire in public markets.

The experimental group showed greater improvement in self-efficacy and performance than the other groups. Hence:

> the ***Null hypothesis (Ho3)*** which *states that: there is no positive relationship between perceived response efficacy and prevention intention on outbreaks of fire in public markets, was rejected while,*
>
> ***Alternative Ha3****: There is a positive relationship between perceived response efficacy and prevention intention on outbreaks of fire in public markets, was accepted.*

4.5.3.4 Effects of Self-Efficacy on Prevention Intention of Fire

The fourth hypothesis suggested in this study was based on a significant relationship between perceived self-efficacy and prevention intention on outbreaks of fire in public markets. To come up with findings, the developed hypothesis is described as follows:

> ***Null Ho4:*** *There is no positive relationship between perceived self-efficacy and prevention intention on outbreaks of fire in public markets.*
>
> ***Alternative Ha4****: There is a positive relationship between perceived self-efficacy and prevention intention on outbreaks of fire in public markets.*

For testing the stated hypothesis, descriptive statistical analysis was run first to profile the influence of the four attributes of self-efficacy and prevention intention on outbreaks of fire in public markets. The self-efficacy attributes are SE2: Confidence;

SE3: Resources; SE4: Fire hydrant; SE6: Accessibility; as illustrated in Table 4.19 below.

Table 4.19: Self-efficacy on facilitating prevention intention of fire

Variable	SE2	SE3	SE4	SE6
N	384	384	384	384
Mean	5.1979	5.1562	5.1536	5.2682
Std. Error of Mean	.03678	.03619	.03705	.03229
Median	5.0000	5.0000	5.0000	5.0000
Mode	5.00	5.00	5.00	5.00
Std. Deviation	.72075	.70918	.72612	.63281

Source: The Researcher (2024)

Table 4.19 shows the results of the analysis. Among the four measurements of self-efficacy in Table 4.25, SE6 had a high stimulus by yielding the high mean value of 5.2682 with a median 5.00; SE2 yielded a mean value of 5.1979 and a median 5.00, SE3 yielded a mean value of 5.1562 and median 5.00 and the last was SE4 with the mean value of 5.1536 and median of 5.00. The higher mean value found indicates the higher consequence of prevention intention on outbreaks of fire in public markets. Further analysis was done using SEM to determine the relationship between self-efficacy and prevention intention on outbreaks of fire in public markets as shown in Table 4.20.

Table 4.20: Regression weights and standardised regression weight

Path			Estimate	S.E.	C.R.	P	SRW	Remarks
PI	<---	SE	1.631	.623	2.619	.009	.685	Supported
SE3	<---	SE	1.000				.245	Supported
SE2	<---	SE	1.968	.666	2.954	.003	.473	Supported
SE4	<---	SE	.968	.409	2.368	.018	.231	Supported
SE6	<---	SE	1.119	.403	2.778	.005	.306	Supported

Source:The Researcher, (2024)

The path leading from SE to PI in Table 4.20 is used to examine the relationship between Self-Efficacy on Facilitating Prevention Intention of Fire Outbreaks in Public Markets. A positive path coefficient ($\gamma = 0.685$) using standardised estimate results in Table 4.20 above indicates that Self-Efficacy has a positive and significant relationship with the Prevention Intention of Fire Outbreaks in Public Markets. This result is similar to Hoe (2008) who argued that a standardised path coefficient (γ) should be at least 0.2 to be considered significant and meaningful in the model. The results in the current study confirm a strong positive relationship between Self-Efficacy on Facilitating Prevention Intention of Fire Outbreaks in Public Markets because of having a positive path coefficient ($\gamma = 0.685$).

Apart from the standardised coefficient, further analysis was done using critical ratio and p-value to determine the significant relationship with Prevention Intention of Fire Outbreaks in Public Markets. In this study, the findings yielded a critical ratio of 2.619 which is greater than 1.96 and a significance level of p value of 0.009. According to Hox and Bechger (2014), a relationship which has yielded a critical ratio greater than 1.96 and p-value less than 0.05 is considered significant.

4.5.4 Moderating Role of Attitude on the Relationship of Variables

4.5.4.1 Relationship between Attitude and Prevention Intention on Fire

Before examining the moderating role of attitudes, the study analysed the direct relationship between attitude with Prevention Intention of Fire Outbreaks in Public Markets. For testing the relationship, descriptive statistical analysis was run first to profile the influence of the three attributes of attitudes on predicting the Prevention

Intention of Fire Outbreaks in Public Markets. The attitudes attributes were as follows: *AT1: Fire Fighting Knowledge; AT2: Importance of Fire Safety Gears; AT3: Availability of Markets Fire Gears* as illustrated in Table 4.21.

Table 4.21: Direct relationship between Attitude and Prevention Intention

Variable	AT1	AT2	AT3
N	384	384	384
Mean	5.2656	5.6172	5.4271
Median	5.0000	5.0000	5.0000
Mode	5.00	5.00	5.00
Std. Deviation	.63597	.93486	.66615
Variance	.404	.874	.444

Source: The Researcher, (2024)

Table 4.21 shows the results of the analysis. Among the three measurements of attitudes in Table 4.21, AT2 had a high impact on the moderation role with a mean value of 5.6172 and median of 5.00, followed by AT3 which had a mean value of 5.4271 and median of 5.00 and the last was AT1 with the mean value of 5.2656 and median of 5. The higher the mean value found, indicates the higher the impact on moderation role. Further analysis was done using SEM to determine the moderation role of attitudes as illustrated in Table 4.22.

Table 4.22: Regression weights and standardised regression weight

Path			Estimate	S.E.	C.R.	P	SRW	Remarks
PI	<---	AT	1.434	.541	2.653	.008	.931	Supported
AT1	<---	AT	1.000				.420	Supported
AT3	<---	AT	.480	.216	2.223	.026	.193	Not Supported
AT2	<---	AT	1.050	.348	3.018	.003	.300	Supported

Source: The Researcher, (2023)

The path leading from AT to PI in Table 4.22 was used to examine the moderation role of attitudes. The findings show positive path coefficient (γ = 0.931). Using standardised estimate results in Table 4.22 above, indicates that attitude moderates the relationship of variables in this study. This concurs with Hoe (2008) who argued that a standardised path coefficient (γ) should be at least 0.2 to be considered significant and meaningful in the model. Apart from the standardised coefficient, further analysis was done using critical ratio and p-value to determine the moderating role of attitudes. In this study, the findings yielded a critical ratio of 2.653 which is greater than 1.96 and a significance level of p value of 0.008. These results concur with Hox and Bechger (2014) who argued that a relationship which has yielded a critical ratio greater than 1.96 and p-value less than 0.05, is considered significant. After knowing the role of attitudes, the moderation of each variable in this study was done.

These findings are similar to Musigapong and Phanprasit, (2013) who steered the study conducted by the Ministry of Education which found that there were outbreaks of fire in 22 primary and secondary schools and institutions of higher learning in the year 1999 resulting in losses of RM 534,400. This study was carried out to identify fire safety conditions in residential colleges at a local Malaysian university. An audit approach as well as the use of a questionnaire was adopted to collect primary data for the study. The audit results show that the overall fire safety condition was at 76 per cent compliance level. The survey results showed that only predisposing factors such as knowledge, attitude and belief have a positive relationship with fire safety behaviour and lifestyle (p<0.5). The survey identified six important elements for fire

safety and in ranking order, they were : belief in the importance of fire safety, perception of the need for immediate response to fire incidence, knowledge of fire safety, attitude of occupants, social influence, and feedback on fire safety issues.

These findings are related to Salmawati. (2022). This study aimed to determine the effect of knowledge, attitudes, and actions on fire disaster management at the Palu Health Centre. The type of research used was observational with a cross-sectional study design. The population of this study was all workers at the Palu City Health Centre , totalling 81 people. The sample was taken based on a total sampling of 81 people and collecting data using questionnaires and observation sheets. Data analysis was performed using univariate, bivariate, and multivariate analysis using chi-square and likelihood tests to determine the relationship between variables and logistic regression tests to determine the most influencing variables. The results showed that there was no relationship between knowledge (p=0.774) and attitude (p=546) with fire prevention preparedness at the Palu City Health Centre , and there was a relationship between action (p=0.028) and fire prevention preparedness at the Palu City Health Centre . The most influential variable was the action variable (p=0.021). We suggest that the Palu City Health Centre increase knowledge related to fire safety, emergencies (fire) preparedness, and actions in overcoming fires for its employees.

Again, these findings are similar to Hesseln. (2018) who provided a review of wildland fire prevention, which pertains to any actions used to reduce the likelihood and damage from unwanted wildfires. Research suggests that there have been

significant advances in developing models and approaches to estimating the likelihood of wildfire occurrences. Similarly, research in the social sciences is advancing attitudes and knowledge regarding human behaviour and factors that will lead to enhanced wildfire prevention efforts.

4.5.4.2 Moderating Role of Attitudes on Perceived Vulnerability and PI of Fire

This study wanted to know the Moderating effects of attitude on the relationship between individual vulnerability towards fire outbreaks on public markets. Based on this need, to confirm the moderating role of attitude on the relationship between individual vulnerability towards fire outbreaks on public markets, the following hypothesis was developed as stated below:

> ***Null Ho5****: Attitude does not positively moderate the relationship between individual vulnerability towards fire outbreaks on public markets and prevention intention of fire outbreaks in public markets.*
>
> ***Alternative Ha5****: Attitude positively moderates the relationship between individual vulnerability towards fire outbreaks on public markets and prevention intention of fire outbreaks in public markets.*

Analysis was done using SEM to determine the moderating effects of attitude on the relationship between individual vulnerability towards fire outbreaks on public markets. Initially, variable was standardised and new variables were formed which are ZVR, ZAT and ZPI. Also, ZVR_ZAT variables were created during the process of examining the moderating effects of attitudes. Thereafter, SEM was used to find out the moderating effects of variables. In this study, what exactly is an interaction/ moderation effect is when attitudes and perceived vulnerability increase or decrease the prevention intention of a fire outbreak.

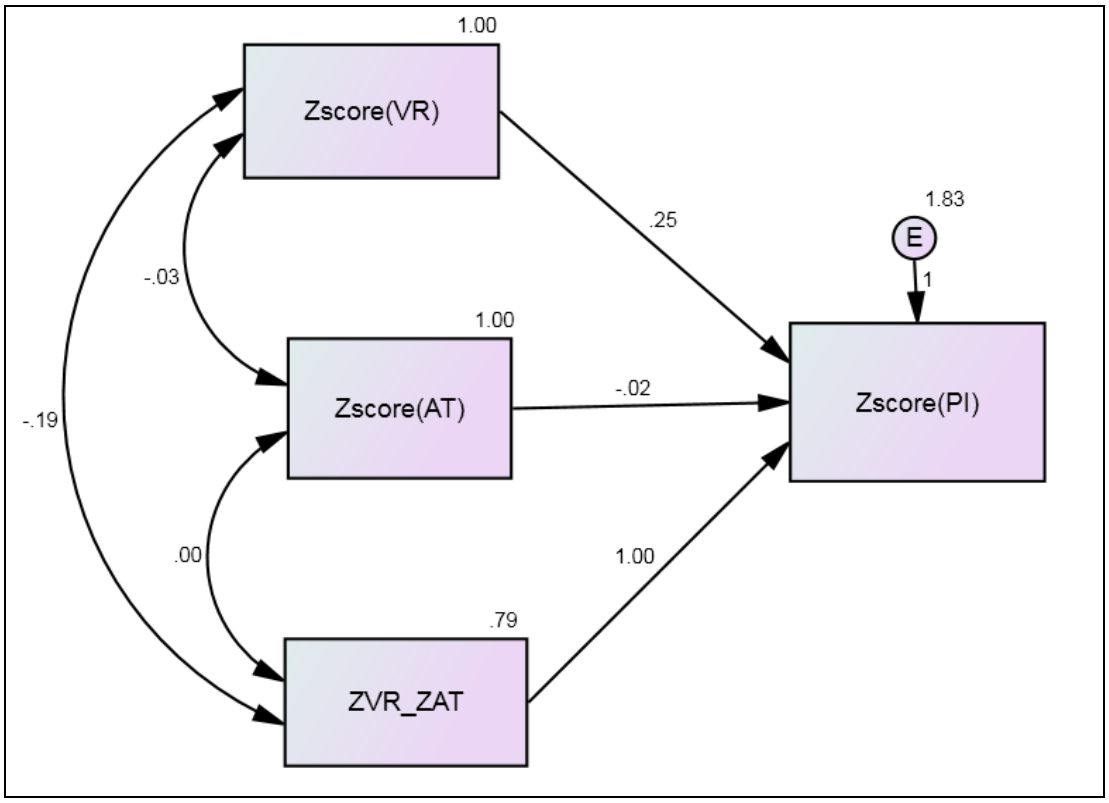

Figure 4.9: Moderation Effects of AT on the Relationship between VR and PI
Source: The Researcher (2024)

The path leading from Zscore (VR) to Zscore (PI) shows a significant relationship between the two variables. Also, Zscore of (AT) to Zscore of (PI) had insignificant results while Zscore (VR)_Zscore (AT) had a significant relationship with Zscore (PI). This result shows that the attitudes moderate the relationship between vulnerability and prevention intention of fire outbreak. This is because the standardised regression weight was found to be above 0.2 as shown in Figure 4.9 and Table 4.23.

Hoe (2008) argued that a standardised path coefficient (γ) should be at least 0.2 to be considered significant and meaningful for discussion. Likewise, Hox and Bechger

(2014) argued that a relationship which has yielded a critical ratio greater than 1.96 and a p-value less than 0.05, is considered significant.

Table 4.23: Regression Weights and standardised regression weight

Path	Estimate	S.E.	C.R.	P	SRW
ZPI <--- ZVR	.247	.069	3.566	***	.153
ZPI <--- ZAT	-.015	.069	-.223	.823	-.010
ZPI <--- ZVR_ZAT	1.000				.552

Source: The Researcher, (2024)

The path leading from attitudes to prevention intention on outbreaks of fire in public markets in Table 4.23 had SRW = 0.552 which is above 0.2. The result indicates that attitudes have positive and significant effects on prevention intention on outbreaks of fire in public markets.

Likewise, the interaction between AT and VR has positive and significant impacts on the prevention intention of outbreaks of fire in public markets. That means that attitudes strengthen the relationship between perceived vulnerability and prevention intention of fire outbreaks. Increases in attitudes strengthen the positive relationship between perceived vulnerability and prevention intention of fire outbreaks in public markets in Tanzania as expressed in Figure 4.10. The study confirms that attitudes moderate the relationship between VR and PI.

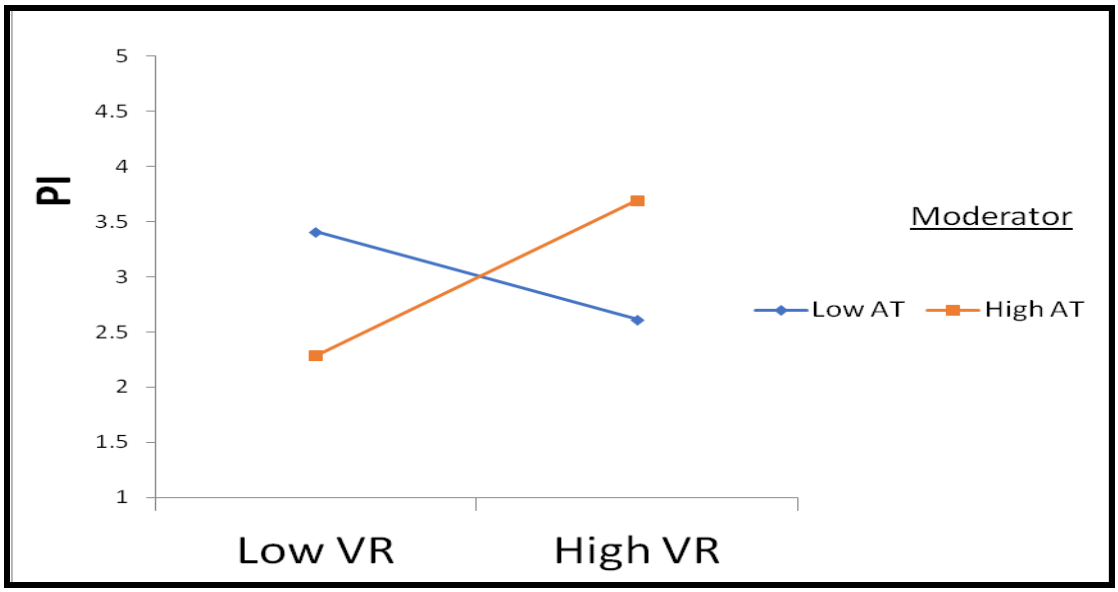

Figure 4.10: AT strengthens the positive relationship between VR and PI

Source:The Researcher, (2024)

Due to these findings,

> ***Null Ho5****: which states that Attitude does not positively moderate the relationship between individual vulnerability towards fire outbreaks on public markets and prevention intention of fire outbreaks in public markets, was rejected while,*
>
> ***Alternative Ha5****: Attitude positively moderates the relationship between individual vulnerability towards fire outbreaks on public markets and prevention intention of fire outbreaks in public markets, was accepted.*

4.5.4.3 Moderation Role of Attitudes on Perceived Severity and PI of Fire

To confirm the moderating effects of attitude on the relationship between individual severity towards prevention intention of fire outbreaks in public markets, the study hypothesised the following:

> ***Null Ho6:*** *Attitude does not positively moderate the relationship between individual severity towards fire outbreaks on public markets and prevention intention of fire outbreaks in public markets*

Alternative Ha6: *Attitude positively moderates the relationship between individual severity towards fire outbreaks on public markets and prevention intention of fire outbreaks in public markets.*

Analysis was done using SEM to determine the moderating effects of attitude on the relationship between perceived severity towards fire outbreaks on public markets. Initially, the variable was standardised and new variables were formed which are ZSV, ZAT and ZPI. Also, ZSV_ZAT variables were created during the process of examining the moderating effects of attitudes between individual severity towards prevention intention of fire outbreaks in public markets. Thereafter, SEM was used to find out the moderating effects of variables attitudes as expressed in Figure 4.11.

The path leading from Zscore (SV) to Zscore (PI) shows the insignificant relationship between the two variables. Also, the relationship between Zscore (AT) to Zscore of (PI) had insignificant results as well as Zscore (SV)_Zscore (AT) to Zscore (PI) was also insignificant as expressed in Figure 4.11 and Table 4.24.

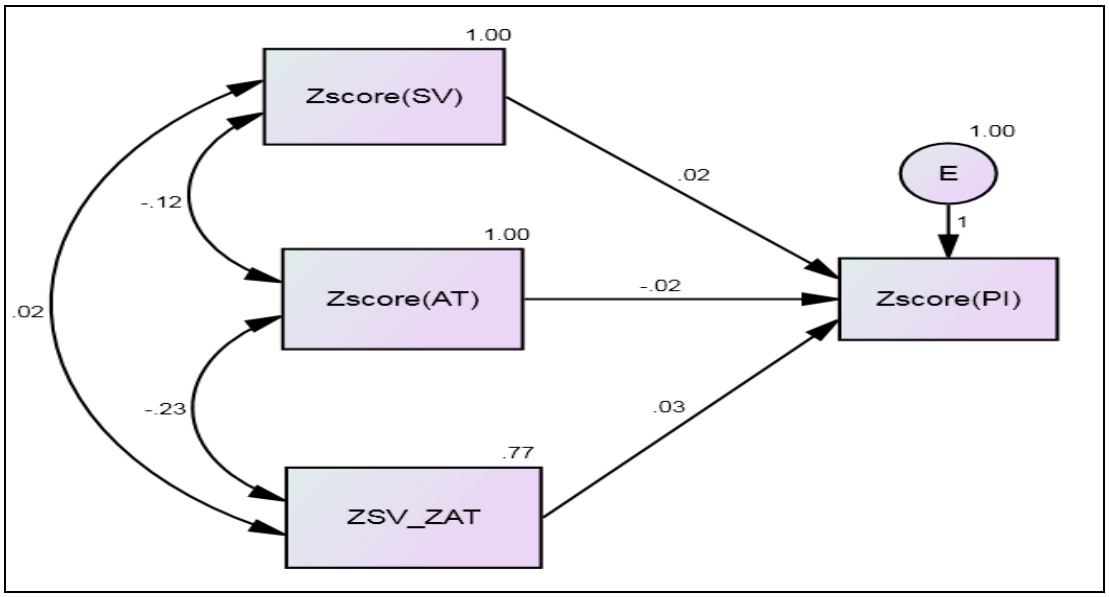

Figure 4.11: AT strengthens the positive relationship between SV and PI

Source: The Researcher, (2024)

These result shows that the attitudes do not moderate the relationship between SV and prevention intention of fire outbreak. This is because, the standardised regression weight was found to be below 0.2 while the p-value was above 0.05 as shown in Table 4.24. That means, Zscore (SV)_Zscore (AT) had no positive influence on Zscore (PI) which indicates that the interaction between attitudes and severity had an insignificant contribution on the prevention intention of fire outbreaks in the public market.

Hoe (2008) argued that a standardised path coefficient (γ) should be at least 0.2 to be considered significant and meaningful for discussion. Likewise, Hox and Bechger (2014) argued that a relationship, which has yielded a critical ratio greater than 1.96 and a p-value less than 0.05, is considered significant.

Table 4.24: Regression weights and standardised regression weight

Path	Estimate	S.E.	C.R.	P	SRW
ZPI <--- ZSV	.018	.051	.359	.720	.018
ZPI <--- ZAT	-.019	.053	-.363	.716	-.019
ZPI <--- ZSV_ZAT	.026	.060	.435	.664	.023

Source: The Researcher, (2024)

However, the interaction between AT and SV had insignificant impacts towards PI. That means, attitudes do not strengthen the relationship between perceived SV and prevention intention of fire outbreak. Thus, increases in attitudes have no positive impact on SV towards prevention intention of fire outbreaks in the public markets in Tanzania as expressed in Figure 4.12. In that regard, the study concludes that attitudes do not moderate the relationship between SV and PI.

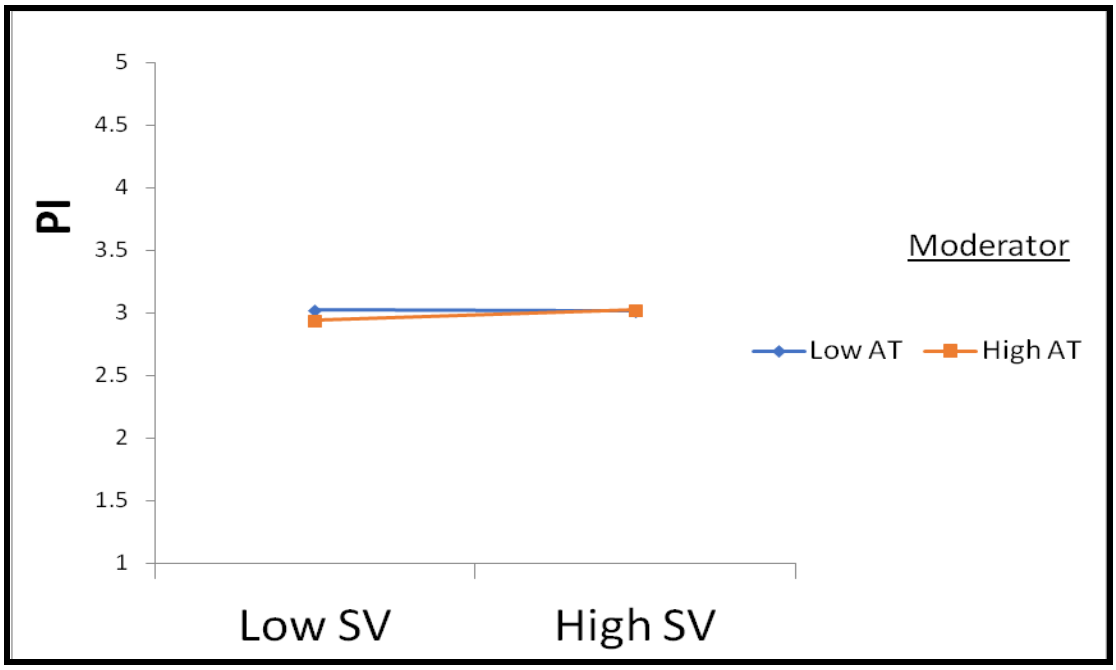

Figure 4.12: AT do not strengthen the positive relationship between SV and PI

Source: The Researcher, (2024)

Based on the findings in the current study on the relationship between perceived severity and prevention intention on outbreaks of fire in public markets, the study confirmed that:

> ***Null Ho6:*** *Attitude positively does not moderate the relationship between individual severity towards fire outbreaks on public markets and prevention intention of fire outbreaks in public markets was accepted whereas,*
>
> ***Alternative Ha6:*** *Attitude positively moderates the relationship between individual severity towards fire outbreaks on public markets and prevention intention of fire outbreaks in public markets was rejected.*

4.5.4.4 Moderation Role of Attitudes on Response Efficacy and PI of Fire

To confirm the moderating effects of attitude on the relationship between Response Efficacy towards prevention intention of fire outbreaks in public markets, the study hypothesised the following:

Null Ho7*: Attitude does not positively moderate the relationship between individual response efficacy towards fire outbreaks on public markets and prevention intention of fire outbreaks in public markets.*

Alternative Ha7*: Attitude positively moderates the relationship between individual response efficacy towards fire outbreaks on public markets and prevention intention of fire outbreaks in public markets.*

To test this hypothesis, analysis was conducted using a structural equation model to determine the significant relationship between perceived response efficacy and prevention intention on outbreaks of fire in public markets. Through SEM, standardised regression weight was conducted to determine the relationship of variables as shown in Figure 4.13.

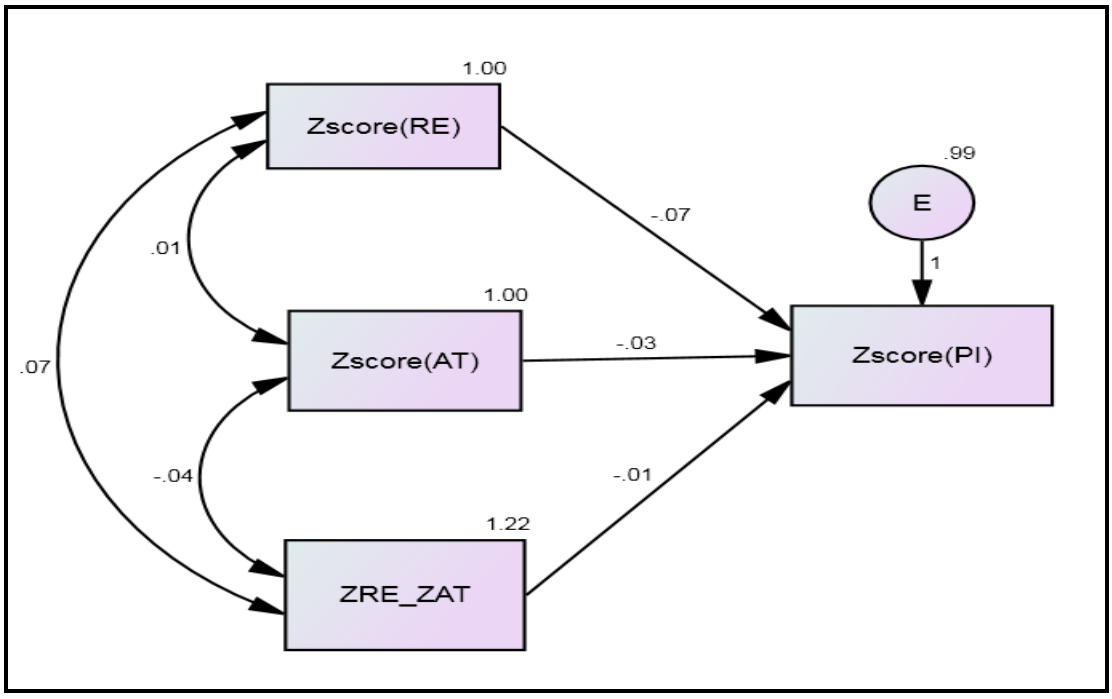

Figure 4.13: AT do not strengthen the positive relationship between RE and PI

Source: the Researcher, (2024)

The path leading from Zscore (RE) to Zscore (PI) shows an insignificant relationship between the two variables. Also, the relationship between Zscore (AT) to Zscore of

(PI) had insignificant results as well as Zscore (RE)_Zscore (AT) to Zscore (PI) was also insignificant as expressed in Figure 4.13 and Table 4.25. The result shows the p values above 0.05 and SRW below 0.2. On this regard, Hoe (2008) argued that a standardised path coefficient (γ) should be at least 0.2 to be considered significant and meaningful for discussion.

These findings indicate that attitudes do not serve as moderators in the relationship between RE (Responsive Efficacy) and the prevention intention of fire outbreaks in public markets. This finding is drawn from the observation that the interaction term Zscore (SV)_Zscore (AT), representing the interaction between Response Efficacy and Attitudes, did not have a positive impact on Zscore (PI) (Prevention Intention). These results suggest that the interaction between attitudes and Response Efficacy has an insignificant contribution to the prevention intention of fire outbreaks in public markets in Tanzania, as outlined in Table 4.25.

Hoe (2008) argued that a standardised path coefficient (γ) should be at least 0.2 to be considered significant and meaningful for discussion. Likewise, Hox and Bechger (2014) argued that a relationship, which has yielded a critical ratio greater than 1.96 and a p-value less than 0.05 is considered significant. All these criteria were not on board to show the significant level.

Table 4.25: Regression weights and standardised regression weight

Path			Estimate	S.E.	C.R.	P	SRW
ZPI	<---	ZRE	-.070	.051	-1.364	.173	-.070
ZPI	<---	ZAT	-.027	.051	-.533	.594	-.027
ZPI	<---	ZRE_ZAT	-.011	.046	-.233	.816	-.012

Source: The Researcher, (2024)

Based on Figure 4.14, the interaction between AT and RE is insignificant towards PI. That means, attitudes do not strengthen the relationship between RE and prevention intention of fire outbreak.

Since increases in attitudes have no positive impacts on RE towards prevention intention of fire outbreak in public market in Tanzania as expressed in Figure 4.14. The study concludes that attitudes do not moderate the relationship between RE and PI.

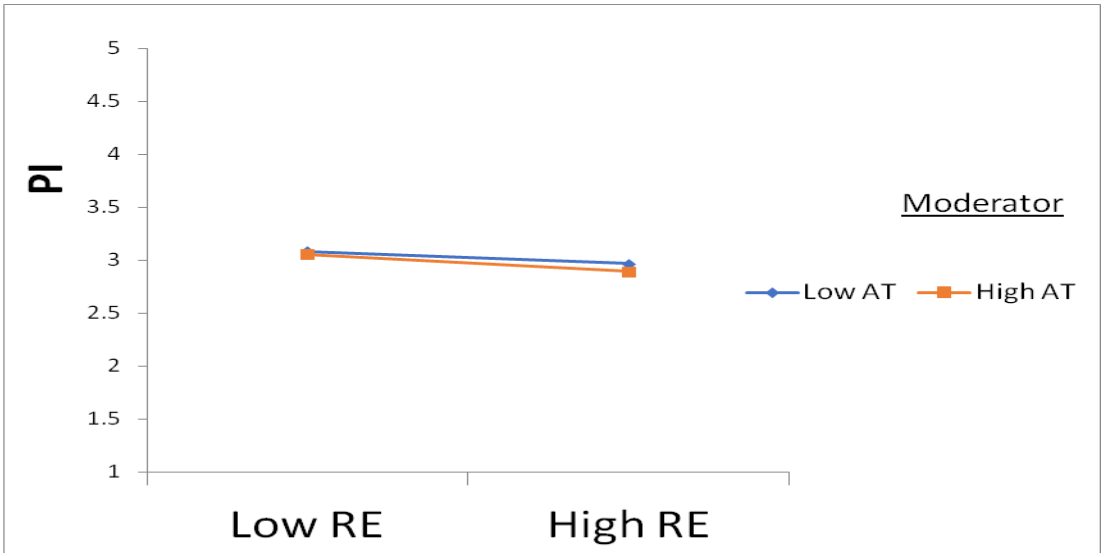

Figure 4.14: AT strengthens the negative relationship between RE and PI

Source:The Researcher, (2024)

Based on the findings in the current study on the relationship between individual response efficacy and prevention intention on the outbreaks of fire in public markets the study confirmed that:

> ***Alternative Ha7****: Attitude positively moderates the relationship between individual response efficacy towards fire outbreaks on public markets and prevention intention of fire outbreaks in public markets was rejected whereas*

Null Ho7*: Attitude does not positively moderate the relationship between individual response efficacy towards fire outbreaks on public markets and prevention intention of fire outbreaks in public markets, was accepted.*

4.5.4.5 Moderation Role of Attitude on Self-Efficacy and PI on Facilitating Fire

To confirm the moderation effects of attitude on the relationship between individual self-efficacy towards prevention intention of fire outbreaks in public markets, the study hypothesised the following:

Null Ho8: *Attitude positively does not moderate the relationship between individual self-efficacy towards fire outbreaks on public markets and prevention intention of fire outbreaks in public markets.*

Alternative Ha8*: Attitude positively moderates the relationship between individual self-efficacy towards fire outbreaks on public markets and prevention intention of the fire outbreaks in public markets.*

For testing the stated hypothesis, analysis was done using SEM in order to determine the moderating effects of attitude on the relationship between individual self-efficacy towards prevention intention of fire outbreaks in public markets. In that context, the study hypothesised the following as illustrated in Figure 4.15:

The path leading from Zscore (SE) to Zscore (PI) shows insignificant relationship between the two variables. Also, relationship between Zscore (AT) to Zscore of (PI) had insignificant result as well as Zscore (SE)_Zscore (AT) to Zscore (PI) were also insignificant as expressed in Figure 4.15 and Table 4.26. The result shows the p values above 0.05 and SRW below 0.2. Hoe (2008) argued that a standardised path coefficient (γ) should be at least 0.2 in order to be considered significant and meaningful for discussion

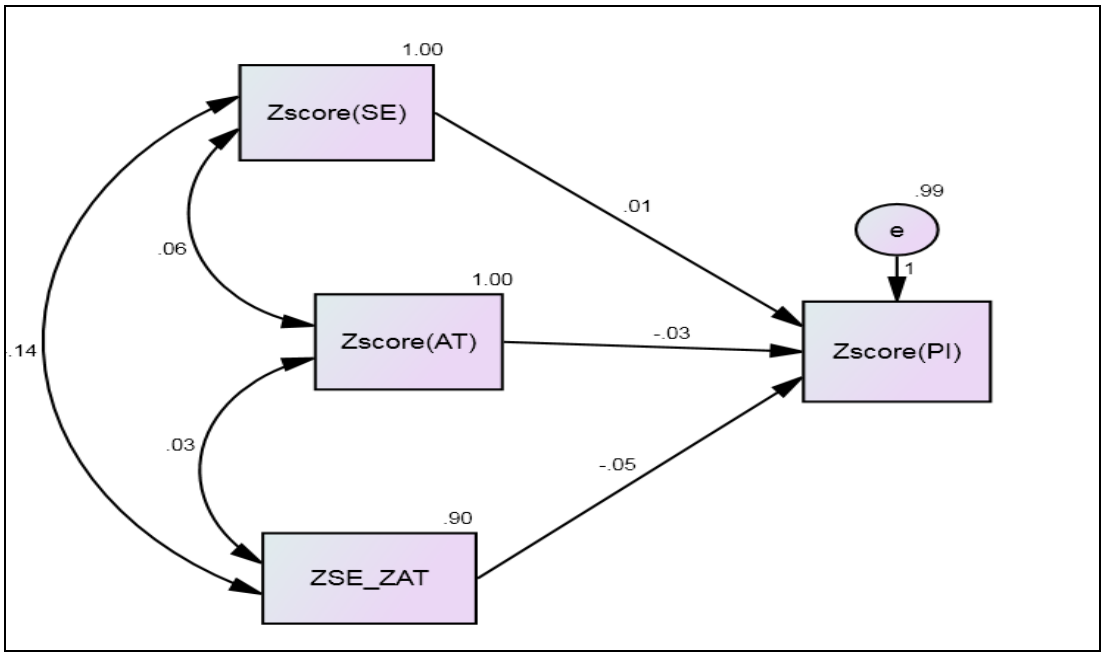

Figure 4.15: AT do not strengthen the positive Relationship between SE and PI

Source: The Researcher, (2024)

These results show that the attitudes do not moderates the relationship between SE and prevention intention of fire outbreaks in public markets. This is because, the interaction between SE and AT which is Zscore (SV)_Zscore (AT), had no positive influence on Zscore (PI). The results indicate that the interaction between attitudes and SE had insignificant contribution on prevention intention of fire outbreaks in public markets in Tanzania as described in Table 4.26.

Table 4.26: Regression weights and standardised regression weight

Path			Estimate	S.E.	C.R.	P	SRW
ZPI	<---	ZSE	.014	.052	.270	.787	.014
ZPI	<---	ZAT	-.027	.051	-.523	.601	-.027
ZPI	<---	ZSE_ZAT	-.052	.054	-.960	.337	-.050

Source:The Researcher, (2024)

Based on figure 4.16, the interaction between AT and SE is insignificant towards PI. That means, attitudes do not strengthen the relationship between SE and prevention intention of fire outbreaks. This is because,increases in attitude have no positive impacts on SE towards prevention intention of fire outbreaks in public markets in Tanzania as expressed in Figure 4.16. The study concludes that attitudes do not moderate the relationship between RE and PI.

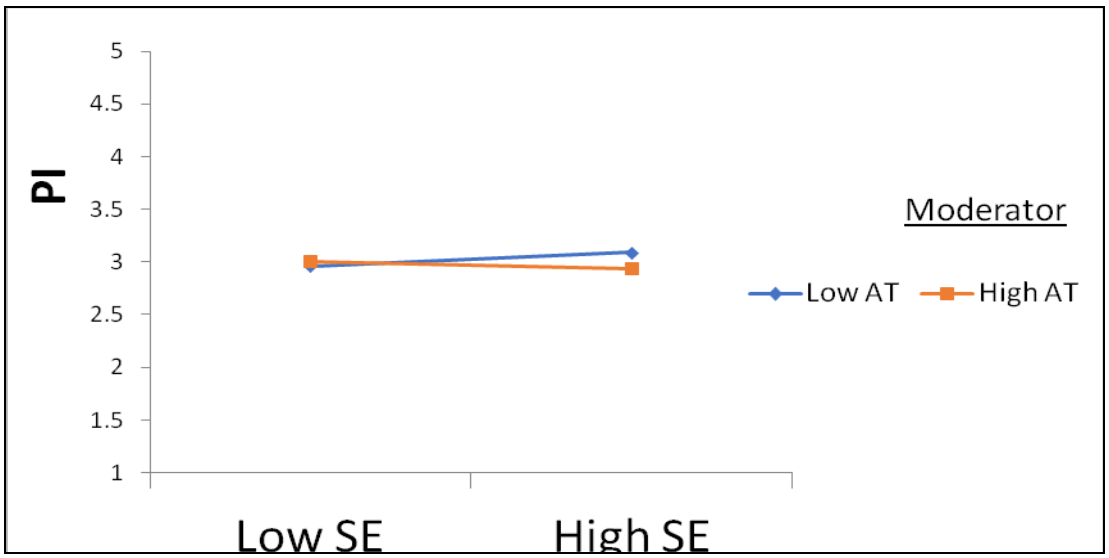

Figure 4.16: AT Dampens relationship between SE and PI

Source: The Researcher (2024)

Based on the findings in the current study on the relationship between individual self-efficacy and prevention intention on outbreaks of fire in public markets, the study confirmed that:

> ***Alternative Ha8****: Attitude positively moderates the relationship between individual self-efficacy towards fire outbreaks on public markets and prevention intention of fire outbreaks in public markets was rejected whreas*
>
> ***Null Ho8:*** *Attitude does not positively moderate the relationship between individual self-efficacy towards fire outbreaks on public markets and prevention intention of fire outbreaks in public markets, was accepted.*

4.6 Chapter Summary

In this chapter, the presentation of the study's findings is systematically outlined to provide a comprehensive understanding of the research results. The chapter begins with a detailed description of the sample characteristics, which lays the groundwork for the analysis. This foundational overview includes demographic details and educational background, offering essential context for interpreting the study's results. Understanding these characteristics is crucial for evaluating how representative the sample is of the larger population and for assessing the generalizability of the findings.

Following the sample description, the chapter moves into a thorough analysis of survey data. This involves conducting both exploratory and confirmatory factor analyses to identify and validate the underlying constructs related to the study's variables. Exploratory factor analysis helps in uncovering the structure of the data by determining the number of factors and their relationships, while confirmatory factor analysis tests the hypothesized factor structure to ensure that it fits the data well. These analyses are pivotal for ensuring that the measurement instruments used in the study accurately reflect the theoretical constructs they are intended to measure.

The chapter also details the hypothesis testing process, which is crucial for addressing the research questions posed at the outset of the study. Hypothesis testing involves applying statistical methods to determine whether the observed data support or refute the hypotheses. This process provides empirical evidence on the relationships between the variables studied, such as the impact of digital platforms on

procurement performance. The results from these tests are used to draw conclusions about the validity of the proposed hypotheses and to understand their implications for the field.

Before diving into the data analysis, a rigorous data screening process was conducted to ensure the data's quality and reliability. This process involved checking for errors, missing values, and outliers to prevent any biases that could affect the results. By systematically addressing these issues, the study ensured that the data were suitable for accurate and unbiased measurement of the phenomena under investigation. This thorough preparation is essential for achieving reliable and valid conclusions from the data analysis.

CHAPTER FIVE

DISCUSSION OF THE FINDINGS

5.1 Introduction

This chapter discusses the main findings of the study. The main objective of this chapter is to recapitulate the information generated in the results, compare and contrast the current findings with what has been found out in previous related studies. This helps to reflect the findings based on the study objectives, hypotheses, conceptual and theoretical framework of the study as expressed in the following subsections.

5.2 Relationship between Perceived Vulnerability and PI of Fire

The research explored the connection between Perceived Vulnerability and the Intention to Prevent Fire Outbreaks in Public Markets. The investigation aimed to determine if Perceived Vulnerability has a positive impact on the Intention to Prevent Fire Outbreaks in Public Markets. Both exploratory and confirmatory factor analyses were employed to identify items strongly associated with perceived vulnerability. The selected items, namely building mitigation behaviour, the threat of fire, and awareness of fire incidents, were then employed to gauge the influence of perceived vulnerability on the intention to prevent fire outbreaks in public markets.

In the light of this context, the pathway from perceived vulnerability to the intention to prevent fire outbreaks in the public markets reveals a positive standardised path coefficient ($\gamma = 0.037$). The standardised estimate indicates that perceived

vulnerability had a positive but statistically insignificant effect on the intention to prevent fire outbreaks in public markets. Hoe (2008) asserted that a standardised path coefficient (γ) should be at least 0.2 to be considered significant and meaningful for discussion. The results in the current study affirm a weak relationship between perceived vulnerability and the intention to prevent fire outbreaks in public markets. Additionally, the findings yield a value (C.R = 0.188, which is <1.96) and a higher significance level of p = 0.851. Hox and Bechger (2014) contended that a relationship with a critical ratio greater than 1.96 and a p-value less than 0.05 is considered significant.

This implies that currently, perceived vulnerability has a positive but insignificant effect on the intention to prevent fire outbreaks in public markets. This suggests that perceived vulnerability is not motivating people to engage in the intention to prevent fire outbreaks in public markets. This may be attributed to the inadequate establishment of building mitigation behaviour in people's minds, thus resulting in low explanatory power. Furthermore, individuals may have limited experience on the threat of fire, treating it as a routine occurrence without taking appropriate action. Additionally, there was insufficient awareness of fire incidents, including recognising signs of fire and knowing how to respond to suppress fire outbreaks.

These results suggest that the components contributing to perceived vulnerability namely building mitigation behaviour, the threat of fire, and awareness of fire incidence have limited explanatory power or are influenced by other factors, making it challenging for them to effectively contribute to positive outcomes in the intention

to prevent fire outbreaks in public markets. The findings of this study align with empirical research conducted in various contexts.

The findings align with the study conducted by Bushesha and Ndibalema (2017), which assessed the impact of vulnerability on awareness of fire outbreaks and safety among public universities in Tanzania, specifically focusing on The Open University of Tanzania and the University of Dar es Salaam. The study aimed to explore individuals' awareness and knowledge of the causes of fire incidents, identify those who had witnessed fire incidents, assess knowledge of essential facilities for firefighting and safety, evaluate individuals' ability to combat fire incidents using local firefighting gears, examine the ability to use modern firefighting gears and safety facilities, and measure attempts made by the universities to raise community awareness about firefighting appliances and safety measures. Employing a phenomenological qualitative research design, the study utilised questionnaires, in-depth interviews, focus group discussions (FGD), and observation approaches to collect data from 76 respondents through purposive and random sampling. Both quantitative and qualitative data were analysed, with numerical data analysed using simple descriptive statistics with SPSS software and qualitative data analysed through content analysis. The study's findings indicated low vulnerability under community awareness of fire outbreaks and safety. Perceived vulnerability had no positive and significant effects on fire incidence, attributed to inadequate training for facility users, a lack of enlightenment for creating community awareness and cautions on fire incidents, and poor management of fire outbreaks.

Furthermore, the findings align with the results of Kihila (2017), who discovered that about 51% of the respondents lacked the ability to operate installed firefighting facilities, approximately 80.7% had never received training on firefighting and prevention, and 95.6% had never participated in any fire drills. Additionally, 81.5% were unaware of fire responder contacts. This indicates that a significant portion of the population was not prepared for fire incidents, thus making it challenging to contain fires once they occurred in public spaces.

The current study's findings differ from those of Kusonwattana et al. (2022), who utilised 366 valid responses through convenience sampling. Their study employed structural equation modelling and an artificial neural network hybrid to analyse factors within the extended and integrated protection motivation theory and the theory of planned behaviour. The factors assessed included geographic perspective, fire perspective, government response, perceived severity, response cost, perceived vulnerability, perceived behavioural control, subjective norm, and attitude. This study, considered the first comprehensive analysis of behavioural intention to prepare for the mitigation of man-made fire disasters in the Chonburi Province region of Thailand, revealed that vulnerability significantly influenced the intention of fire prevention indirectly (β: 0.020; $p = 0.014$). This indicates that individuals perceived themselves as vulnerable to fire, and their location, family, and friends were also identified as vulnerable.

In contrast, the study contradicts Kurata et al. (2021), who assessed factors influencing the perceived effectiveness of Typhoon Vamco (Ulysses) flood disaster

response among Filipinos in Luzon, Philippines. Perceived vulnerability was considered to have a low-significance effect on people's behaviour. However, Kusumastuti et al. (2022) demonstrated that despite the low significance, people still proactively take action to reduce the negative impact of a disaster. Additionally, Weichselgartner and Pigeon (2015) showed that knowledge and experience of a disaster would lead to low perceived vulnerability but result in gaining more information to understand disaster risks and mitigation.

These findings affirm that perceived vulnerability does not positively influence prevention intention during fire outbreaks in public markets in Tanzania. This lack of influence can be attributed to the fact that most people have not experienced or been exposed to market fires, which might otherwise prompt them to actively engage in fire suppression. According to Kachenje et al. (2010), many public buildings, including public markets, exhibit limited fire management capacity, particularly low public vulnerability, awareness, and the availability of means and facilities for firefighting. Therefore, creating perceived vulnerability requires special attention in developing countries like Tanzania to ensure that perceived vulnerability plays a greater role in fostering prevention intention during fire outbreaks in public markets.

On the contrary, this study's findings suggest that being vulnerable to fire incidents is less meaningfully associated with prevention intention during outbreaks of fire in public markets. However, all attributes of vulnerability, such as building mitigation behaviour, the threat of fire, and awareness of fire incidence in the marketplace, exhibit a positive and significant relationship with prevention intention during

outbreaks of fire. The study recommends that perceived vulnerability would be more meaningful when considered in conjunction with other factors not included in the current study. Therefore, the key takeaway from this study is that perceived vulnerability was found to be insignificant in influencing prevention intention during fire outbreaks in public markets. There may be additional dimensions not measured in this study that occur in real life, thus hindering the effectiveness of perceived vulnerability in promoting prevention intention during outbreaks of fire in public markets. These dimensions could increase the effect of perceived vulnerability on prevention intention during fire outbreaks in public markets.

5.3 Relationship between Perceived Severity and PI of Fire

The research investigated the correlation between perceived severity and prevention intention during outbreaks of fire in public markets. This inquiry aimed to determine whether perceived severity had a positive impact on prevention intention in the context of market fires. Exploratory and confirmatory factor analyses were employed to establish the model fit, focusing on items associated with perceived severity. The selected items, including knowledge of fire threats, harm from perceived threats, exposure to the risk of fire, and the absence of firefighting equipment, were utilised to gauge the influence of perceived severity on prevention intention during fire outbreaks in public markets.

The results of the standardised path coefficients ($\gamma = 0.805$) revealed robust standardised regression weights, thus indicating a significant positive relationship between perceived severity and prevention intention during fire outbreaks in public

markets. This implies that individuals perceiving severity in market fires harbour negative perceptions regarding the consequences associated with their involvement in market-related businesses. These negative consequences prompt individuals to be prepared to take measures for prevention during fire outbreaks in public markets.

Hoe (2008) postulated that a standardised path coefficient (γ) should be at least 0.2 to be considered significant and worthy of discussion. Therefore, the standardised path coefficient of 0.805 surpasses the 0.2 threshold, thus signifying a very strong relationship. These findings are substantiated by the effects of variables such as having knowledge of fire threats, harm from perceived threats, exposure to the risk of fire, and the absence of firefighting equipment, which were used to measure perceived severity's impact on prevention intention during fire outbreaks in public markets. These variables exhibited values above the critical ratio of 1.96. In this context, the estimated effects refer to the impact of fire burning on the market surface and areas, hence causing complete destruction of materials such as market chambers and raw materials. This destruction leads to significant changes in properties and economic conditions for market business people. The severity of fires in the marketplace has adverse effects on the ecosystem of business people and the community that relies on the market for services.

These results align with Ong et al. (2021) in the Philippines, demonstrating that an understanding of natural disasters contributes to heightened perceived severity and vulnerability. This, in turn, indirectly influences the intention to be prepared. In

practical terms, the experience of fire-related severity prompts individuals to prepare for and suppress fire incidents.

Similarly, the findings are consistent with Gumasing et al. (2022), who illustrated how perceived severity and self-efficacy indirectly impact the effectiveness of responses to disasters, including fire incidents. These studies utilised structural equation modelling (SEM) to elucidate the causal relationships among factors influencing behaviour in terms of preparation and mitigation. The studies underscored how knowledge and experience contribute to individuals' intentions. The key emphasis lies in considering the integration and extension of the protection motivation theory (PMT) and theory of planned behaviour (TPB) for a comprehensive measurement of people's intentions and responses in the context of natural disasters like fires.

The results also correlate with Kurata et al. (2023), who identified the factors significantly influencing Filipinos' perceived effectiveness in fire prevention preparedness in urban areas. This was achieved by integrating the Protection Motivation Theory and the extended Theory of Planned Behaviour. The study, conducted with 503 respondents participating in a self-administered online survey questionnaire distributed among Filipinos in the National Capital Region, Philippines, employed the structural equation modelling (SEM) approach. The findings revealed that perceived severity (PS) had an impact on perceived behavioural control (PBC) and attitude toward the prevention behaviour of fire in the Philippines.

These results align with Lin and Bautista (2016), who discovered that severity is influenced by response efficacy in behavioural intention towards preventive measures against haze. The argument posits that during haze, perceived severity elicits stronger affective attitudes of fear and anxiety in individuals compared to response efficacy (Lin and Bautista, 2016). In the context of fires, increased perceived severity is deemed more crucial as individuals tend to underestimate it, thus leading to a lack of active response to preventive measures and thereby diminishing the chances of survival (Lin and Bautista, 2016).

In contrast, the findings diverge from Fridolf (2010), who investigated the effects of past fires and suggested that occupants faced with a fire encounter difficulty in defining its severity, particularly in the early stages. An experiment was conducted to assess people's ability to estimate fire growth and their perceived ability to extinguish a fire using a portable fire extinguisher. A total of 535 participants, comprising 304 men and 231 women, completed a questionnaire divided into three parts. The first part involved estimating the time between different stages of a fire. The second part focused on estimations of the participants' ability to extinguish a fire with a portable fire extinguisher. The third part included general questions about age, gender, and academic background. The results indicate that, in general, people struggle to accurately define the severity of a fire. Estimations of fire growth did not align well with actual fire growth, and a significant portion of the participants believed they could not extinguish a manageable fire using a portable fire extinguisher. Consequently, it is argued that perceived risk does not always correspond to real risk in situations where the fire is visually accessible.

This implies that perceived severity plays a crucial role in the prevention intention regarding fire outbreaks in public markets. Individuals in public markets, having experienced severity, are likely to take proactive measures for the prevention of fire outbreaks. This awareness stems from an understanding of the losses incurred due to fires in public markets. Fire-related challenges impede the economic progress of market businesses, hence resulting in consequences such as tree mortality, loss of biodiversity, damage to equipment, depletion of raw materials, and even income loss within the marketplace. Consequently, instances of fire serve as a collective memory for both businesspeople and the community, thus influencing their commitment to prevention measures against fire outbreaks in public markets.

In summary, this discussion leads to the confirms that severity has a positive influence on the prevention intention related to fire outbreaks in public markets. A heightened awareness of factors such as knowledge of fire threats, harm from perceived threats, exposure to the risk of fire, and the absence of firefighting equipment serves as a strong motivator for prevention intentions in public markets. All business individuals in the market should recognise that the effectiveness of their prevention intentions is significantly influenced by the severity associated with fire-related factors.

5.4 Relationship between Response Efficacy and PI of Fire

The primary motivation behind this study was to examine how response efficacy effects the facilitation of prevention intentions during fire outbreaks in public markets. To address this inquiry, a thorough review of the literature was conducted,

connecting to previous study metrics that explored the relationship between the effects of response efficacy and the enhancement of prevention intentions during fire outbreaks in public markets. To test this hypothesis, four attributes of perceived response efficacy, which influence prevention intentions during fire outbreaks in public markets, were incorporated into the model fit. These attributes are Behaviour of Fire Fighting (RE2), Accessibility of Fire Emergency Number (RE3), Conducting Fire Inspection (RE5), and Visiting the Market Regularly (RE6).

The structural equation modelling (SEM) results revealed a positive standardised path coefficient ($\gamma = 0.746$) in the path from perceived response efficacy to prevention intentions, hence indicating a significant relationship. Further analysis of this significant relationship was conducted using critical ratios and significance level (p-value). The results showed a critical ratio of 2.707 and a p-value of 0.007. As recommended by Hox and Bechger (2014), a relationship with a critical ratio greater than 1.96 and a p-value less than 0.05, is considered significant.

The strong support from both theoretical frameworks and empirical findings underscores the importance of perceived response efficacy in influencing prevention intentions during fire outbreaks in public markets. This implies that awareness of firefighting behaviour, accessibility to emergency fire numbers; conducting fire inspections, and regular market visits, as explored in this study, significantly contribute to prevention intentions during fire outbreaks in public markets.

Hence, it is imperative for leaders within the market, council, and regional authority to recognise that a heightened prevention intention during fire outbreaks in public

markets is a consequence of engaging in firefighting behaviour, having access to emergency fire numbers, conducting regular fire inspections, and making frequent visits to the market. This implies that consistent visits by market leaders, empowered with relevant authority, to inspect fire equipment, will inherently foster a prevention intention during fire outbreaks in public markets.

These findings are similar to Scheithauer (2012) who analysed the impact of selected factors self-efficacy and stress, on occupational burnout. It was hypothesised that firefighters with more years of service and a bigger number of interventions would be characterised by higher perceived stress and burnout and that self-efficacy would have an impact on reducing the level of perceived stress and burnout. Material and Methods: The participants were firefighters (N = 576) from 12 Polish voivodeships, aged 20–58 years, with different seniority: up to 3, 4–8, 9–15 or >15 years of service. The generalised sense of self-efficacy was found to impact both on reducing the sense of stress (β = –0.418) and on all 4 aspects of professional burnout: psychophysical exhaustion (β = –0.181), relationship deterioration (β = –0.16), the sense of professional inefficacy (β = –0.275) and disillusion (β = –0.143). Conclusions: self-efficacy has an impact both on reducing the sense of stress and on all aspects of burnout.

These findings are similar to Kolko, (2001) who argued that response efficacy cognitive-behavioural treatment (CBT) and fire safety education (FSE) for children had a positive relationship. Assessments were made with 38 children who were randomly assigned to CBT or FSE and with another 16 children who received a brief

intervention (home visit from a firefighter or HVF) that paralleled routine services. Measures in four domains related to the child's fire history were obtained from children and their parents at pre-treatment, post-assessment, and 1-year follow-up. There were several improvements at post-treatment for all conditions on measures of fire involvement, interest, and risk. However, CBT and FSE were more efficacious than HVF on certain measures, including the frequency of fire setting and proportion of children playing with matches, the severity of individualised problems with fire, and involvement in fire-related acts and other deviant fire activities. These and other group differences, along with certain time effects, were evident at 1-year follow-up. The findings from this initial comparison study are discussed in the context of needed clinical and research directions for work with fire setters and their families.

Marceron and Rohrbeck, (2019) did a study to test an integrated theory-based model for individuals with physical disabilities in which perceived self-efficacy for emergency preparedness moderates the relationship between perceived threat and emergency preparedness behaviours. A nationwide convenience cross-sectional sample of 294 adults self-identifying as having a physical disability completed an online survey. The general linear model was used to assess the effects on preparedness of perceived threat, perceived self-efficacy, and their interaction. In addition to the hypothesised moderating effect of self-efficacy, it was found that a minimal (if any) relationship exists between perceived threat and preparedness among those who reported low levels of self-efficacy.The results suggest that self-efficacy and perceived threat operate jointly to motivate individuals with physical disabilities to take precautionary steps to reduce the consequential adverse health

effects of natural and human-made disasters. These findings have important implications for the design of effective interventions for individuals with disabilities.

Park and Choi, (2022) developed a simulation programme using standardised patients for the training of mental health practitioners in psychological first aid and evaluated its effect on learners' response efficacy and self-efficacy. The simulation used in this programme was of a fire disaster. Thirty participants were randomly assigned to an experimental group, a comparison group, and a control group. The experimental group participated in simulation training after attending a two-hour psychological first-aid lecture. The participant's response efficacy and self-efficacy increased performance competency.

These findings are related with the perspective of Coules and Eskell (2000) who assert that the most effective safeguard against the loss of assets and lives resulting from fires involves adopting a proactive fire safety and prevention plan, complemented by robust risk management practices. A recommended approach to address the fire threat is to enhance fire safety knowledge among all building occupants. The Kenyan government, specifically through the fire prevention unit of the former Ministry of Public Works (now a state department within the broader Ministry of Land, Housing and Urban Development), has committed significant resources to cultivate firefighting behavior, facilitate access to emergency fire numbers, conduct regular fire inspections, and promote frequent market visits. This commitment is manifested through the implementation of fire safety training

programmes for occupants of government buildings, focusing on topics such as fire prevention, initial fire response, and workplace evacuation.

These results support Nyakure et al. (2017), who presented findings from a study on the effectiveness of fire safety training in influencing occupants' responses to fire incidents in selected public buildings in Nairobi County, Kenya. The study surveyed thirty (30) chosen public buildings in Nairobi County, with a response rate of 78% (N=139). Data analysis, conducted with the assistance of the Statistical Package for Social Sciences (SPSS), revealed that fire safety training significantly contributes to enhancing occupants' knowledge and response to fires. The survey results indicated improved accessibility to fire emergency numbers, active fire inspection practices, and regular visits to the market. The study recommends that policymakers, implementers, and relevant stakeholders take intentional measures to enhance nationwide fire safety training programmes for all building occupants, thus ensuring timely access to fire emergency numbers and conducting fire inspections.

These findings align with the argument presented by Lewis and Dailey (2000), who contended that individuals exposed to fire safety training are more likely to exhibit accurate response efficacy during a fire incident. Such individuals are expected to make rational and appropriate decisions during emergencies, including warning others and evacuating a burning building.

Despite having positive result, the study did not take all public markets in Tanzania. Few markets which were public were selected to represent others. Probably, taking

all markets in Tanzania could affect the final results as it is the case now. Thus, other scholars may consider the remaining public markets by examining the reality of the relationship of variables under study as their focal point in their studies.

In summary, the positive effects of response efficacy on prevention intention during fire outbreaks in public markets are evident. Therefore, careful consideration of attributes related to response efficacy, such as firefighting behaviour, accessibility to fire emergency numbers, and regular fire inspections, can yield the anticipated benefits for prevention intention during fire outbreaks in marketplaces. Thus, it is crucial for leaders in the market and local government authorities to comprehend these attributes and their contributions to the positive effects on prevention intention during fire outbreaks in public markets.

5.5 Relationship between Effects of Self-Efficacy and PI of Fire

The motivation behind this study was to explore the effect of self-efficacy in facilitating the prevention intention of fire outbreaks in public markets. The fourth hypothesis posited a significant relationship between perceived self-efficacy and the prevention intention of fire outbreaks in public markets. To test this hypothesis, initial descriptive statistical analysis was conducted to characterise the influence of four self-efficacy attributes on the prevention intention of fire outbreaks in public markets. The self-efficacy attributes considered were confidence, resources, fire hydrant availability, and accessibility of fire equipment.

The findings revealed a positive path coefficient ($\gamma = 0.685$), as indicated by the standardised estimate results in Table 4.26, hence demonstrating a significant and positive relationship between self-efficacy and the prevention intention of fire outbreaks in public markets. This outcome aligns with Hoe's (2008) argument that a standardised path coefficient (γ) should be at least 0.2 for significance and meaningfulness within the model. The current study affirms a robust positive relationship between self-efficacy and the facilitation of prevention intention for fire outbreaks in public markets, supported by a positive path coefficient ($\gamma = 0.685$). Further analysis, employing critical ratio and p-value, confirmed the significance of the relationship with a critical ratio of 2.619 (greater than 1.96) and a p-value of 0.009. According to Hox and Bechger (2014), a relationship with a critical ratio exceeding 1.96 and a p-value below 0.05 is deemed significant.

The self-efficacy attributes under resources are crucial for enhancing fire management, as resources play a pivotal role in boosting the prevention intention of fire outbreaks in public markets. Additionally, fire hydrants, connected to a reliable water supply, serve as vital components for firefighting. However, they should be strategically located for easy access during operations. The study emphasises the importance of fire hydrants in the market, contributing significantly to fire prevention intention.

Moreover, the research highlighted the role of fire safety equipment in safeguarding individuals during fire incidents. Despite the fact that having well-fitted equipment is essential, regular servicing and maintenance are critical for ensuring their

effectiveness. These findings are consistent with Armitage and Conner (2001), who found support for the efficacy of theoretical constructs in predicting intention and behaviour. Person self-efficacy, representing the belief in the ability to effect change, emerged as a significant factor influencing prevention intention during fire outbreaks in public markets.

These findings on this particular aspect, are similar to Jansen, et al. (2020) who analysed the effects of experiencing a fire on psychological determinants of behaviour knowledge self-efficacy and locus of control based mainly on arguments from Protection Motivation Theory and the Health Belief Model. What is crucial in our setup is that we also relate these determinants to actual prevention behaviour. Results show that IVE has the hypothesised effects on vulnerability self-efficacy and an unexpected negative effect on knowledge. It should be noted that only knowledge and vulnerability showed subsequent indirect effects on actual prevention behaviour. These results contradict the implicit assumption that an induced change in these psychological determinants is necessarily fire prevention.

These findings relate with Makara-Studzińska, et al., (2019) who analysed the importance of individual resources in firefighting, one of the highest risk professions. Firefighters from 12 different Polish provinces (N = 580; men; M (mean age) = 35.26 year, SD = 6.74) self-efficacy, and a broad range of socio-demographic variables. The Perceived Stress Scale (PSS), the Link Burnout Questionnaire (LBQ), and the General Self-Efficacy Scale (GSES) were used in the study. To explore the relationships between work-related stress, burnout, and self-efficacy, separate

regression models for each burnout dimension were analysed. The results revealed that self-efficacy is a significant moderator that changes the direction and strength of the relationships between perceived stress and psychophysical exhaustion, sense of professional inefficacy, and disillusion. However, self-efficacy did not moderate the relationship between stress and lack of engagement in relationships (relationship deterioration).

The results indicate that self-efficacy in firefighters is a crucial personal resource that buffers the impact of perceived stress on most burnout symptoms. It may be concluded that in high-risk professions, special attention should be paid to developing self-efficacy as an important part of burnout prevention programmes, pro-health activities, and psychoeducation.

These findings are related also with Eendebak, (2019) who based on the Protection Motivation Theory and other literature where several factors analysed were found to be possibly related to self-reliant behaviour regarding residential fire. Via a survey, adults aged 65 years and older were asked about their opinions and their actual behaviour regarding fire prevention and preparation. Results indicate that the perception of their own abilities predicted whether older adults take preventive measures and prepare for residential fire. Other results indicated that perceived knowledge, perceived response-efficacy and perceived self-efficacy were positively related to self-reliant behaviour, which means that with a high perception of knowledge, response efficacy and self-efficacy, highly self-reliant behaviour can be expected. There are several reasons why older adults might not prepare for fire, for

example protective response costs, which are negatively related to self-reliant behaviour. Thus, more research is needed to use these results for effective risk communication toward older adults. Future research could also focus on the influence of other factors, such as previous experiences with residential fire or the influence of family and friends.

Despite the fact that self-efficacy is important on fire prevention, there are other factors which affect the intention of fire prevention. These factors may include the economic activities of the people around the public market. Some of them concentrate on their duties, some are in noisy areas some are not found at all within the market areas. Also, resources for fire prevention are crucial. On the contrary, lack of important material affects significantly the process of fire prevention. Likewise, cultural behaviour also has impacts on fire prevention.

In summary, organisations with a high degree of person self-efficacy are likely to adopt prevention measures more promptly during fire outbreaks in public markets. Therefore, the key takeaway is that person self-efficacy holds importance for the prevention intention during fire outbreaks in public markets in Tanzania. Thus, the study generalises the findings in all public markets in the context of Tanzania.

5.6 Moderation Role of Attitude on the Relationship of Variables

5.6.1 Moderation Role of Attitude on Perceived Vulnerability and PI of Fire

This study aimed to investigate the moderating effects of attitude on the relationship between individual vulnerability to fire outbreaks in public markets. The findings

indicate that attitudes play a positive moderating role in the relationship between perceived vulnerability (VR) and prevention intention (PI), as suggested in the hypothesis. This is evidenced by the positive and significant impact of the interaction between attitudes (AT) and perceived vulnerability (VR) on prevention intention in public markets. In essence, attitudes strenghthen the connection between perceived vulnerability and the intention to prevent fire outbreaks.

The results show that an increase in individuals' attitude-related behaviours strengthens the positive relationship between perceived vulnerability and the prevention intention of fire outbreaks in public markets in Tanzania. Consequently, the study concludes that attitudes indeed moderate the relationship between VR and PI.

A safety-oriented attitude contributes to preparedness for unexpected fire incidents. Individuals with safety attitudes are aware of the locations of fire extinguishers, evacuation exit sign, the first-aid kits. In the market place, safety attitudes refer to how all people respond, whether positively or negatively, towards safety goals, ideas, plans, procedures, prevention, or situations. Safety attitudes related to fire significantly influence people's actions and responses to fire outbreaks in public markets

Therefore, attitudes, in this study, have been found to moderate the relationship between independent and dependent variables. These findings align with the study conducted by Musigapong and Phanprasit (2013) on disaster prevention and mitigation in Thailand. Their cross-sectional study evaluated the knowledge,

attitudes, and practices (KAP) of the students in thirty-two elementary schools toward fire prevention. The results showed no gender differences in the levels of knowledge, attitudes, and practices (p=0.072, 0.149, and 0.235, respectively). While attitudes were an important link between the variables under study, the study observed that only one path had a positive and significant result. As a result, the study concludes that attitudes do positively moderate the relationship between VR and PI as suggested in the hypothesis.

5.6.2 Moderation Role of Attitudes on Perceived Severity and PI of Fire

To ascertain the moderating impact of attitude on the connection between individual severity and the prevention intention of fire outbreaks in public markets, the study utilised structural equation modelling. The findings reveal that attitudes do not exert a moderating influence on the relationship between the two variables, as the relationship between Zscore (SV)_Zscore (AT) and Zscore (PI) was deemed insignificant. This suggests that the interaction of severity (SV) and attitude (AT) concerning the prevention intention of fire outbreaks was not meaningful. Consequently, these results indicate that attitudes do not moderate the relationship between severity and the prevention intention of fire outbreaks. Attitudes are often shaped by experiences or upbringing, thus wielding a significant influence on behaviour and impacting how individuals respond to various situations, such as a fire. Attitudes encompass cognitive, affective, and behavioural components, hence reflecting thoughts, feelings, and actions. Therefore, based on these findings, it can be inferred that business people may have limited experience and emotional responses regarding fire prevention. Consequently, attitudes do not play a

moderating role in the relationship between individual severity and the prevention intention of fire outbreaks in public markets.

The findings in this study are not similar to those of Amasi (2021) who conducted a descriptive survey method to the sample of 389 standard seven pupils to determine the level of awareness, knowledge and attitudes towards the impacts of fire outbreak among pupils in Morogoro municipality and Mvomero district. Both quantitative and qualitative data were collected by means of questionnaires, interviews and observation schedule and analysed by using Statistical Package for Social Sciences (SPSS). The results showed that, majority of the respondents' attitudes 287 (73.8%) were crucial for fire accident that had happened in the school premises and 290 (74.6 %) were aware that fire outbreak could cause damage to home, school or market properties. The study concludes that although majority of the respondents 316 (81.2%) understood the effect of wildfire on environment, the community around was the source of environmental destruction as they were using fire for animal hunting and cultivation. The study suggests that, public education on fire prevention is very important and must be included in the school curriculum to reduce fire risks.

The findings in this study are also not related with those of Scheithauer (2012) who conducted an intervention aimed at the prevention of fire and related injuries. To give an answer to the methods used by interventions, fifteen studies were retrieved that described an intervention programme, its programme parts and evaluated results. They were analysed according to their theoretical fundamentals and methods of

persuasion to give a broad picture of the fusion of practice and theory. Theories such as the Protection Motivation Theory and the Extended Parallel Processing Model provided the specific way of looking at and analysing the interventions. Results: The findings revealed that attitudes were crucial to enhancing fire prevention. They were also crucial to several concepts of the Protection Motivation Theory which was found to be implicit in all interventions. Again, severity was most often covered by telling the causes, consequences and impacts of fire. Response costs were mostly decreased by giving-away free safety devices such as fire extinguishers, smoke alarms and safety kits.

On this particular regard, the findings are not similar to the VIT theory. Skurka (2021) applying VIT, found that attitudes significantly contribute to predicting the intention to engage in prevention preparedness. VIT has also been utilised in developing guides for disaster preparedness, such as earthquakes and tornadoes (Adame and Miller, 2016), and as an effective tool for designing prevention strategies by linking attitudes with relevant behaviours (Adame, 2020). In this study, the findings reveal that attitudes do not exert a moderating influence on the relationship between the two variables.

5.6.3 Moderation Role of Attitudes on Response Efficacy and PI of Fire

To examine this hypothesis, a structural equation model was employed to analyse and establish the significant relationship between perceived response efficacy and the prevention intention regarding fire outbreaks in public markets. Standardised regression weights were calculated through SEM to assess the association between

the variables. The outcome reveals that attitudes do not exert positive and significant effects on the prevention intention concerning fire outbreaks in public markets. This study concludes that attitudes do not enhance the effectiveness of response efficacy, thus hindering mutual responsiveness for support during fire incidents. This implies that individuals lack familiarity with the knowledge required for appropriate training frequency and the enhancement of staff awareness regarding fire prevention and emergency response essential keys to learning effectiveness. Due to this lack of familiarity, attitudes towards fire prevention were not developed. Based on the findings of this study, it is affirmed that attitudes do not moderate the relationship between individual response efficacy and the prevention intention of fire outbreaks in public markets.

The findings in this study do not relate with Liu and Jiao, (2017) on the study of field survey among three ancient Chinese complexes. Results indicate that attitudes are important variables in terms of risk mitigation behaviour. In particular, response efficacy and risk attitudes significantly contribute to the models that explain fire risk mitigation behaviour. These findings suggest that the effectiveness of risk mitigation measures should be focused on risk communication and risk attitudes should be emphasised in estimating fire insurance demand .

These findings are not similar to those of Li, *et al.* (2022) who studied effectiveness of different fire prevention and emergency response trainings at nursing homes, and the relationship and predictivity of awareness to self-efficacy. Sampling was done using a two-team pre- and post-test design to collect results from 41

individuals in the experiment group and 40 individuals in the control group. The results indicate that fire prevention and emergency response awareness had a significant and positive correlation with self-efficacy ($r = 0.601, p < 0.001$), and awareness was a significant predictor variable of self-efficacy ($\beta = 0.601, p < 0.001$). This study finds that the key to improving learning effectiveness includes adding a fire science concept chapter when creating fire safety training material in order to strengthen basic awareness; fire safety training should comprehensively introduce all related duties and responsibilities for staff fire defense formation, thereby enabling mutual responsive support for the needs of the site. Moreover, becoming familiarised with the knowledge building attitudes towards fire prevention requires the appropriate frequency of training and enhancement of the staff's awareness of fire prevention.

5.6.4 Moderation Role of Attitudes on Self-Efficacy and PI of Fire

To test the given hypothesis, a structural equation model (SEM) was utilised to examine the moderating effects of attitude on the relationship between individual self-efficacy and the prevention intention of fire outbreaks in public markets. The findings suggest that attitudes exhibit insignificant moderation effects on self-efficacy concerning the prevention intention of fire outbreaks in public markets. In other words, attitudes do not play a moderating role in the relationship between these two variables. The interaction between self-efficacy and attitude does not significantly contribute to the prevention intention of fire outbreaks in public markets in Tanzania. This is due to the fact that most people have no culture and attitudes

towards fire prevention. The growth of business people is not aligned with the attitudes of fire prevention, which makes it difficult to have significant relationship.

These findings are not related to those of Syamsumarli (2013) who argued that attitude was the process of organising motivation, emotion, perception, and long-term cognition and deals with aspects of the surrounding environment. Thus, it can be stated that attitude, when combined with self-efficacy, increases learning outcomes over an extended period regarding the prevention of fire incidents. Attitude is seen as a consistent response, encompassing both positive and negative reactions to an object, as a result of a cognitive process. Simply put, attitude refers to how we think, feel, and act toward certain objects in the environment such as a store, advertising a particular product or even services.

The findings also differ from those of Aditiansyah (2014) who insisted that respondents' attitudes related to preparedness in the face of a fire extinguisher were quite positive, with 53% or more than half of the respondents understanding and being ready to take action in case of an emergency response to a fire. However, if the level of preparedness is not matched by the availability of fire emergency response facilities, implementation can be challenging, as the effectiveness of fire emergency response must be balanced between the readiness of residents and the facilities available for fire prevention.

5.7 A Review of the Study Hypotheses

Table 5.1: Direct effects

Variables	Hypothesis	Result	Remarks
Perceived vulnerability and prevention intention on outbreaks of fire	H1: There is a positive relationship between perceived vulnerability and prevention intention on outbreaks of fire in public markets.	Not Positive	Hypothesis not accepted
Perceived severity and prevention intention on outbreaks of fire	H2: There is a positive relationship between perceived severity and prevention intention on outbreaks of fire in public markets.	Positive	Accepted
Perceived response efficacy and prevention intention on outbreaks of fire	H3: There is a positive relationship between perceived response efficacy and prevention intention on outbreaks of fire in public markets.	Positive	Accepted
Perceived self-efficacy and prevention intention on outbreaks of fire	H4: There is a positive relationship between perceived self-efficacy and prevention intention on outbreaks of fire in public markets.	Positive	Accepted

Source : The Researcher, (2024)

Table 5.2: Moderation effects

Variables	Hypothesis	Result	Remarks
Attitude, vulnerability and prevention intention on outbreaks of fire	H5: Attitude positively moderates the relationship between individual vulnerability towards prevention intention of fire outbreaks in public markets.	Significant	Hypothesis accepted
Attitude, perceived severity and prevention intention on outbreaks of fire	H6: Attitude positively moderates the relationship between individual severity towards prevention intention of fire outbreaks in public markets	Insignificant	Not Accepted
Attitude, perceived response efficacy and prevention intention on outbreaks of fire	H7: Attitude positively moderates the relationship between individual response efficacy towards prevention intention of fire outbreaks in public markets.	Insignificant	Not Accepted
Attitude, perceived self-efficacy and prevention intention on outbreaks of fire	H8: Attitude positively moderates the relationship between individual self-efficacy towards prevention intention of fire outbreaks in public markets.	Insignificant	Not Accepted

Source: The Researcher, (2024)

5.7.1 Hypothetical Model

The hypothetical model was established as expressed in Figure 5.1. In relation to this, the findings indicate that self-efficacy, severity and response efficacy directly affects positively and significantly on prevention intention of fire outbreaks in public markets while vulnerability does not. Attitude positively moderates relationship between vulnerability and prevention intention of fire outbreaks despite the fact that it does not moderate the relationship between self-efficacy, severity and response efficacy towards prevention intention of fire outbreaks in public markets.

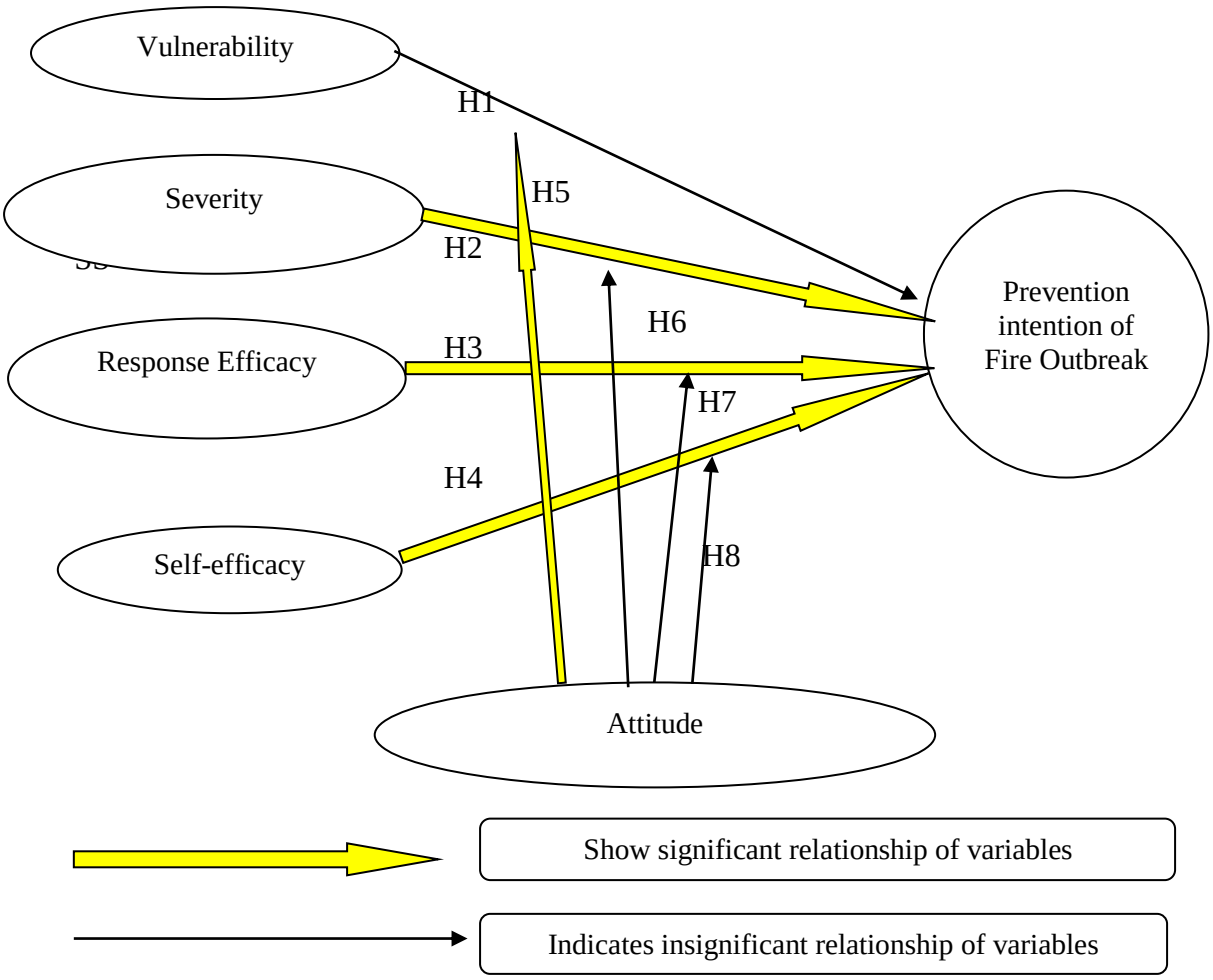

Figure 5.1: Hypothetical model

CHAPTER SIX

CONCLUSIONS, IMPLICATIONS AND LIMITATIONS

6.1 Overview

This chapter serves as the final section of the thesis , encompassing key conclusions, implications of the main findings, limitations of the study, and recommendations for both immediate action and future research. The implications section delves into the theoretical and practical ramifications of the study's results, while also presenting the study's contributions to policy considerations. The limitations of the research are acknowledged, and potential avenues for future research are outlined. The primary focus of this study was to asses the factors influencing prevention intention regarding fire outbreaks in public markets, with a particular emphasis on attitude as a moderating variable. The study's objectives, as outlined in section 1.3, were systematically investigated.

6.2 Major Findings and Conclusions of the study

This part addresses the main findings and conclusion of the study which is organised based on the specific research objectives of this study as described below:

6.2.1 Effects of Perceived Vulnerability on Prevention Intention of Fire

To address the first specific objective, which was to assess the effects of perceived vulnerability on enhancing prevention intention of fire outbreaks in public markets, the study hypothesised that:

> ***Null Ho1****: There is no positive relationship between perceived vulnerability and prevention intention on outbreaks of fire in public markets.*

> ***Alternative Ha1****: There is a positive relationship between perceived vulnerability and prevention intention on outbreaks of fire in public markets.*

Standardized estimate and critical ratio in structural equation modelling was used to evaluate the significant relationship between perceived vulnerability and prevention intention on outbreaks of fire in public markets. The findings revealed positive standardised path coefficient ($\gamma = 0.037$) using standardised estimate which indicates that perceived vulnerability had insignificant effects on prevention intention on outbreaks of fire in public markets. As argued by Hoe (2008) standardised path coefficient (γ) should be at least 0.2 in order to be considered significant and meaningful.

The findings also revealed a critical value of (C.R = 0.188 and of p=0.851) which shows insignificant result. According to Bechger (2014), a relationship, which has yielded a critical ratio greater than 1.96 and p-value less than 0.05 is considered significant. Therefore, the findings did not meet the given criteria. Due to these results, the researcher concludes that there is no positive relationship between perceived vulnerability and prevention intention on outbreaks of fire in public markets.

6.2.2 Effects of Perceived Severity on Prevention Intention of Fire

The study further investigated the second objective which was to examine the effects of perceived severity and prevention intention on outbreaks of fire in public markets. To confirm the relationship between the study also hypothesized the following:

> ***Null Ho2:*** *There is no positive relationship between perceived severity and prevention intention on outbreaks of fire in public markets.*

> ***Alternative Ha2:*** *There is a positive relationship between perceived severity and prevention intention on outbreaks of fire in public markets.*

These result shows there is positive relationship between SV and prevention intention of fire outbreaks. This is because the standardised regression weight was found being above 0.2 while the p value was less than 0.05. Based on these results on the relationship between perceived severity and prevention intention on outbreaks of fire in public markets, the study concludes that here is a positive relationship between perceived severity and prevention intention on the outbreaks of fire in public markets was accepted.

6.2.3 Effects of Response Efficacy on Prevention Intention of Fire

The third objective was to examine the significant relationship between perceived response efficacy and prevention intention on outbreaks of fire in public markets. To come up with the findings, the study hypothesised that:

> ***Null Ho3:*** *There is no positive relationship between perceived response efficacy and prevention intention on outbreaks of fire in public markets.*

> ***Alternative Ha3****: There is a positive relationship between perceived response efficacy and prevention intention on outbreaks of fire in public markets.*

Standardised estimate and critical ratio in structural equation modelling was used to evaluate the significant relationship. The findings show positive standardised path coefficient of ($\gamma = 0.746$) which indicates positive and significant relationship of variables. Hoe (2008) pointed that a standardised path should be at least 0.20 in order to be considered meaningful for discussion.

Further analysis on the significant influence of significant relationship between perceived response efficacy and prevention intention on the outbreaks of fire in public markets was done using critical ratio and significance level p value. The results have yielded a critical ratio of 2.707 and p-value of 0.007. As Hox and Bechger (2014) recommended that a relationship which has yielded a critical ratio greater than 1.96 and p-value less than 0.05 is considered significant. Comparing to the current study hypothesis, a critical ratio of 2.707 and p-value of 0.007 indicate positive and significant relationship between perceived response efficacy and prevention intention on outbreaks of fire in public markets. Hence, that there is a positive relationship between perceived response efficacy and prevention intention on outbreaks of fire in public markets, was accepted.

6.2.4 Effects of Perceived Self-Efficacy on Prevention Intention of Fire

The fourth objective was to examine the relationship between perceived self-efficacy and prevention intention on the outbreaks of fire in public markets. To measure the relationship, it was hypothesized that;

> ***Null H04:*** *There is a positive relationship between perceived self-efficacy and prevention intention on outbreaks of fire in public markets.*
> ***Alternative Ha4****: There is a positive relationship between perceived self-efficacy and prevention intention on outbreaks of fire in public markets.*

Standardized estimate and critical ratio in structural equation modelling was used to evaluate the significant relationship. The findings indicate a positive path coefficient ($\gamma = 0.685$) which shows that self-efficacy has positive and significant relationship with Prevention Intention of Fire Outbreaks in Public Markets. The result is similar

with Hoe (2008) who argued that a standardised path coefficient (γ) should be at least 0.2 in order to be considered significant and meaningful in the model. Further analysis was done using critical ratio and p-value to determine the significant relationship with Prevention Intention of Fire Outbreaks in Public Markets.

In this study, the findings yielded a critical ratio of 2.619 which is greater than 1.96 and significance level of p value of 0.009. According to Hox and Bechger (2014) the relationship which has yielded a critical ratio greater than 1.96 and p value less than 0.05, is considered significant. Based on the findings, This study conclude that, there is a positive relationship between perceived self-efficacy and prevention intention on outbreaks of fire in public markets.

6.2.5 Moderation Role of Attitude on the Relationship of Variables

The fifth objective was to examine moderating effects of attitude on the relationship between individual vulnerability, perceived severity, perceived responses and perceived self-efficacy towards fire outbreaks on public markets. The findings have shown the following based on the main construct of the study, as shown in the following sub section.

6.2.5.1 Moderation Role of Attitude on Perceived Vulnerability and PI of Fire

This study hypothesised that **Null Ho5**: Attitude does not positively moderate the relationship between individual vulnerability towards prevention intention of fire outbreaks in public markets; **Alternative Ha5**: Attitude positively moderates the

relationship between individual vulnerability towards prevention intention of fire outbreaks in public markets.

Moderation analysis was done and the interaction between AT and VR has shown positive and significant impacts towards the prevention intention on the outbreaks of fire in public markets. That means that attitudes strengthen the relationship between perceived vulnerability and prevention intention of fire outbreaks. Since increases in attitudes strengthen the positive relationship between perceived vulnerability and prevention intention of fire outbreaks in public markets in Tanzania; the study concludes that attitude positively moderates the relationship between individual vulnerability towards fire outbreaks in public markets and prevention intention of fire outbreaks in public markets.

6.2.5.2 Moderation Role of Attitude on Perceived Severity and PI of Fire

This study hypothesised that **Null Ho6**: Attitude does not positively moderate the relationship between perceived severity towards prevention intention of fire outbreaks in public markets;

Alternative Ha6: Attitude positively moderates the relationship between perceived severity towards prevention intention of fire outbreaks in public markets. Standardised estimate and critical ratio in structural equation modelling was used to evaluate the significant relationship.

These results show that the attitudes do not moderate the relationship between SV and prevention intention of fire outbreaks. This is because the standardised

regression weight was found to be below 0.2 while the p value was above 0.05 as shown in Table 4.23. This means that Zscore (SV)_Zscore (AT) had no positive influence on Zscore (PI) which indicates that the interaction between attitudes and severity had insignificant contribution to the prevention intention of fire outbreaks in public markets.

Due to these findings, this study concludes that attitude does not positively moderate the relationship between perceived severity towards fire outbreaks in pubic markets and prevention intention of fire outbreaks in public markets.

6.2.5.3 Moderation Role of Attitude on Response Efficacy and PI of Fire

This study hypothesised that **Null Ho7**: Attitude does not positively moderate the relationship between perceived response efficacy towards prevention intention of fire outbreaks in public markets; **Alternative Ha7**: Attitude positively moderates the relationship between perceived response efficacy towards prevention intention of fire outbreaks in public markets. Standardized estimate and critical ratio in structural equation modelling was used to evaluate the significant relationship.

The findings show that attitudes do not moderate the relationship between perceived response efficacies towards prevention intention of fire outbreaks in public markets. The path leading from Zscore (RE) to Zscore (PI) show insignificant relationship between the two variables. Also the relationship between Zscore (AT) to Zscore of (PI) had insignificant results as well as Zscore (RE)_Zscore (AT) to Zscore (PI) were also insignificant. Due to these findings, this study concludes that attitude does not

positively moderate the relationship between perceived response efficacy towards fire outbreaks on public markets and prevention intention of fire outbreaks in public markets.

6.2.5.4 Moderation Role of Attitude on Self Efficacy and PI of Fire

This study hypothesized that **Null Ho8**: Attitude positively does not moderate the relationship between perceived self-efficacy towards prevention intention of fire outbreaks in public markets; **Alternative Ha8**: Attitude positively moderates the relationship between perceived self-efficacy towards prevention intention of fire outbreaks in public markets. The result indicates that attitudes have insignificant moderation effects on SE towards prevention intention on outbreaks of fire in public markets. This means that attitudes do not moderate the relationship between the two variables. The interaction between SE and AT has no significant contribution to prevention intention of fire outbreaks in public markets in Tanzania.

Due to these findings, the study concludes that **a**ttitude does not positively moderate the relationship between perceived self-efficacy towards fire outbreaks on public markets and prevention intention of fire outbreaks in public markets.

6.3 Study Implications

This segment discusses the theoretical, methodological, managerial, and policy implications derived from the study's findings, discussions, and conclusions. Theoretical implications underscore the study's contributions to literature, specifically addressing the factors influencing prevention intention toward fire

outbreaks in public markets, with attitude serving as a moderating variable. Methodological implications focus on the study's advancements in the methodology employed in prior research on the factors affecting prevention intention toward fire outbreaks, considering attitude as a moderating variable. A managerial implication pertains to the practical application of these identified factors in preventing fire outbreaks in public markets. Policy implications encompass recommendations for addressing policy issues related to factors influencing prevention intention toward fire outbreaks.

The study's results, obtained through exploratory and confirmatory factor analyses, introduce a new model outlining factors affecting prevention intention toward fire outbreaks. Additionally, the study provides evidence of these factors. Theoretically, the facilitation of prevention intention for market fires can be enhanced and implemented by incorporating variables from Protection Motivation Theory (PMT) with the additional moderating variable of attitude, aligning with the main premise of the Vested Interaction Theory (VIT). This integration is expected to augment PMT's effectiveness in enhancing prevention intention in public markets. Consequently, government officials and other stakeholders can utilise factors from PMT and attitude to prevent market fires in the country, thus mitigating substantial losses in terms of finance, injuries, environmental properties, and business collapse.

This study holds significance on multiple fronts. Firstly, it gives valuable insights to traders and market users on adopting precautions and mitigation measures to prevent fire outbreaks in public markets. The research aims to instill a habitual emphasis on

prioritising safety over focusing solely on sales benefits. Moreover, it encourages the implementation of fire drills, allowing individuals to familiarise themselves with installed fire equipment and practice evacuation procedures during fire outbreaks. Consequently, the expectation is that these measures will enhance safety performance in public markets, thus minimizing losses in terms of both lives and properties.

Secondly, the study's findings are anticipated to raise awareness among researchers and other stakeholders regarding effective mitigation measures against fire hazards in public markets in Tanzania. This increased awareness may instill confidence and trust among traders and stakeholders, as the assurance of fire safety measures becomes integral to safeguarding lives and properties. Additionally, it may stimulate interest among individuals to insure their properties, thus providing a means of recovery in the event of damage due to fire incidents.

Thirdly, the study is poised to contribute valuable knowledge to market users, including traders and other stakeholders. The results of this study can serve as a foundation for policymakers to establish checks and balances concerning fire disasters in public markets. By leveraging these findings, policymakers can formulate effective policies that address and mitigate the risks associated with fire outbreaks in public marketplaces.

The existing literature predominantly focuses on studies conducted in developed countries such as the United States of America, Europe, and Australia, with a

primary emphasis put on wildfires and bushfires rather than fire incidents in public markets. This study aims to attract researchers from less developed countries, including Tanzania, to extend and broaden research on mitigating fire outbreaks in public markets. Despite some studies being conducted in Ghana, Nigeria, and Zambia, these were not linked to prevention intention and did not employ the Protection Motivation Theory (PMT) along with the additional variable of attitude to enhance predictive power for instilling fire prevention intention in public markets.

Within this context, Tanzania has witnessed significant losses of life and property due to fires in public markets. Therefore, this study contributes to a comprehensive understanding of the factors influencing prevention intention towards fire outbreaks in public markets by incorporating attitude as a moderating factor. Additionally, the study gives profound insights into the literature on factors affecting prevention intention in Tanzanian public markets. Notably, prior studies in Tanzania overlooked the moderating effect of attitude on the relationship between factors influencing prevention intention and fire outbreaks in public markets. The inclusion of attitude in this study provides a wealth of knowledge, thus offering a broad understanding and serving as a valuable reference for scholars in the field of public market fires.

Building upon the results of this study, policymakers can formulate effective policies to address fire prevention in public markets. The proposed policy would emphasise the adherence of all market traders and stakeholders to fire safety practices as a crucial means of mitigating fire incidents in Tanzania's public markets.

6.4 Study Recommendations

6.4.1 Recommendations for Action

i. The findings indicated that perceived vulnerability did not directly affect the intention to prevent fire outbreaks in public markets, thus managements in public markets should take into consideration that being vulnerable to fire incidence is not a justification of taking action to fire prevention. Therefore, managements of public markets should consider other factors which lead to fire prevention in public markets.

ii. The findings revealed that perceived severity directly influences the intention to prevent fire outbreaks in public markets, thus managements in public markets should take into consideration that severity is a good factor towards taking action to fire prevention. Therefore, managements of public markets should believe on perceived severity in enhancing lead to fire prevention in public markets.

iii. The findings indicated that response efficacy directly affects the intention to prevent fire outbreaks in public markets, thus managements in public markets should take into account the use of response efficacy to fire prevention in public markets.

iv. The findings indicated that self-efficacy directly affecst the intention to prevent fire outbreaks in public markets, thus managements in public markets should take into consideration using self-efficacy experience towards fire prevention in public markets.

v. The study also revealed that attitude positively moderated the relationship between vulnerability and the intention to prevent fire outbreaks in public

markets. Thus, attitudes have to build to traders so as to enhance performance of fire prevention in public markets.

6.4.2 Recommendations for Future Research

i. This study was conducted in a specific region in Tanzania and it remains uncertain whether the findings and the validated model can be generalised to other regions. To enhance the applicability and robustness of the results, it is suggested that future studies should encompass multiple regions. This would help confirm and provide additional evidence to elucidate the adoption phenomenon in developing countries, hence allowing for comparisons of unique characteristics found in each investigated region.

ii. Additionally, while this study focused on public markets, similar research could be conducted in private markets, such as shopping malls. If such studies are conducted, there more likely to come up with facts related factors influencing intention of preventing fire outbreaks in private markets thus providing an integrative knowledge on preventing fire outbreaks in public markets.

iii. The study employed attitudes as a moderator thus revealing significant results in the case of vulnerability but showing no moderation effects for response efficacy (RE), severity (SV) and self-efficacy (SE). Hence, factors influencing the moderating effects of attitudes could be explored by other scholars in subsequent research. Future investigations might delve into why RE, SV, and SE are insignificantly related to prevention intention regarding fire outbreaks in public markets under the moderating effects of attitude.

Furthermore, based on these findings, it was found that vulnerability showed a positive but insignificant relationship towards fire prevention intention in public markets. Apart from that, this study was quantitatively analysed thus giving a room for other study to be conducted qualitatively and address the issue as to why vulnerability is not significant towards influencing prediction of fire outbreaks in public markets.

iv. Despite its contributions to the understanding of preventing fire outbreaks in public markets in Tanzania, this study faced limitations due to the scarcity of empirical literature on the subject. The scope of the study was confined to fire outbreaks in public markets, solely considering factors derived from the Protection Motivation Theory (PMT) and Vested Interest Theory (VIT). Other studies may explore different theories and additional factors influencing prevention intention for fire outbreaks in public markets.

v. Furthermore, this study was limited to specified variables. In that context, future scholars could examine variables such as education level, economic status, and political influence as potential moderators to ascertain their impact on the relationship with prevention intention toward fire outbreaks in public markets. Thus, this study serves as a foundation for future research in the field of fire outbreaks in public markets.

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APPENDICES

Appendix 1: Questionnaire

Dear respondents,

My name is Billy Mwakatage, a PhD student from the Open University of Tanzania. I am conducting a research study on factors affecting the habitual behaviour on mitigating fire outbreaks in public markets. Please be aware that, the information you will provide will under any circumstances observe confidentiality and strictly be used for academic purposes only. I also assure you that there is no part of the report of this research that will disclose your identity.

Basic profile of the respondents (Please tick the appropriate cell)

1. Age of the respondents: 18 - 30 years ( ), 31- 40 years ( ), 40 - 50 years ( ) above 50 years ( ).
2. Sex: Male ( ), Female ( ).
3. Marital status: Single ( ), Married ( ), Divorced ( ), Widow ( ), Separated ( ).
4. Please indicate your level of education: Primary ( ), Secondary ( ) college education and above ( ).
5. Please indicate number of years you have traded in this market: 1 - 5 years ( ), 6 – 10 years ( ), 11 - 15 years, 15 years and above ( ).

Please indicate the degree to which you agree or disagree with the following statements by ticking ( ) what is appropriate using the following parameters: ***1= strongly disagree, 2= disagree, 3= somewhat disagree, 4= neutral, 5= somewhat agree, 6= agree, 7= strongly agree.***

S/N	Statements	Responses						
	Threat (severity and vulnerability)	**1**	**2**	**3**	**4**	**5**	**6**	**7**
1	Threat build up a mitigating behaviour in case of fire outbreaks							
2	I adopt risk mitigation measures behaviour because of threat I perceive							
3	I am aware that threat of fire outbreak can be mitigated through conducting fire drills							
5	Information raises awareness about fire threat and mitigation measures to take in case of fire outbreak							
6	Knowledge about fire threat yield to habitual behaviour on							

	mitigating fire on public markets							
7	Perceived threat rise to physical, psychological and economic harm to traders in the public markets							
8	I perceive greater threat when I am exposed to risk of fire outbreaks							
9	Absence of firefighting equipment at your place increases threat at your market place							
	Coping appraisal (RE and SE)	**1**	**2**	**3**	**4**	**5**	**6**	**7**
10	Risk mitigation behaviour is strongly influenced by my ability of using firefighting equipment in my area of trade							
11	I personally believe that, I have the ability to exhibit the recommended behaviour on fire fighting in the market where I trade							
12	I have the ability to use the available firefighting equipment to fight out fire							
13	I am confident enough to fight out fire in the place of my trade by using firefighting skills I acquired through training							
14	I have the ability to use financial resources, time and efforts to fight fire outbreaks in my area of trade							
15	I have the ability to access fire emergency number in case of fire outbreak							
16	Fire safety inspection is done regularly to check the functionality of the installed firefighting equipment							
17	Our markets has fire hydrants and enough water in case of fire occurrences							
18	Every trader in the market has received training on how to fight fire in case occurs							
19	Our market is well accessible to fire engines in case of fire							
20	All hazardous materials are well kept sothat they do not amount to fire occurrences							
21	Our market is regularly visited by experts from electrical company to check illegal connection of electricity							
22	I have the ability to escape from the market when fire breaks out							
	Prevention Intention	**1**	**2**	**3**	**4**	**5**	**6**	**7**
23	I will train of firefighting skills							
24	I will keep all flammable material in a very safe way							
25	I will always practise fire drills as a habit							
26	I will regularly conduct fire safety inspection in my trade area.							
27	I will make sure all installed fire safety equipment are serviced and functioning							

Thank you very much for your time and participation

Appendix 11: Requisition Form for Research Clearance Letter

THE OPEN UNIVERSITY OF TANZANIA
DIRECTORATE OF POSTGRADUATE STUDIES

OUT/DPGS/S2
REQUISITION FORM FOR RESEARCH CLEARANCE LETTER

Date: 10th March 2023

1. Name of Student: Billy Jimmy Mwakatage
2. Gender: Male
3. Registration No. PG202101269 Year of Entry 2022
4. Faculty of Business Management
5. Programme: PhD
6. Research Title*: Factors affecting prevention intention towards fire outbreaks in public markets in Tanzania: The moderating effect of Attitude*
7. Tentative dates for data collection: From April 2023 to 30th June 2023
8. Student Email mwakatagejbilly@gmail.com
9. Student Phone Number 0715532343/ 0735252520
10. Research Locations/Site Dar Es Salaam

SIN	**Region**	**District Council Municipality**	**Name of Organization**	**Contact Person and Postal Address**	**Place**
1	Dar es Salaam	Ilala	Dar City Council, Ilala Municipality	Dar City Director, Ilala MD	Ilala
2		Kinondoni	Kinondoni Municipality	Kinondoni MD	Kinondoni
3		Temeke	Temeke Municipality	Temeke MD	Temeke
4		Ubungo	Ubungo Municipality	Ubungo MD	Ubungo
5		Kigamboni	Kigamboni Municipality	Kigamboni MD	Kigamboni

11. **Date of submission 10th March Signature…….**
12. Comments **by Supervisor**

The proposal is ready for data collection.

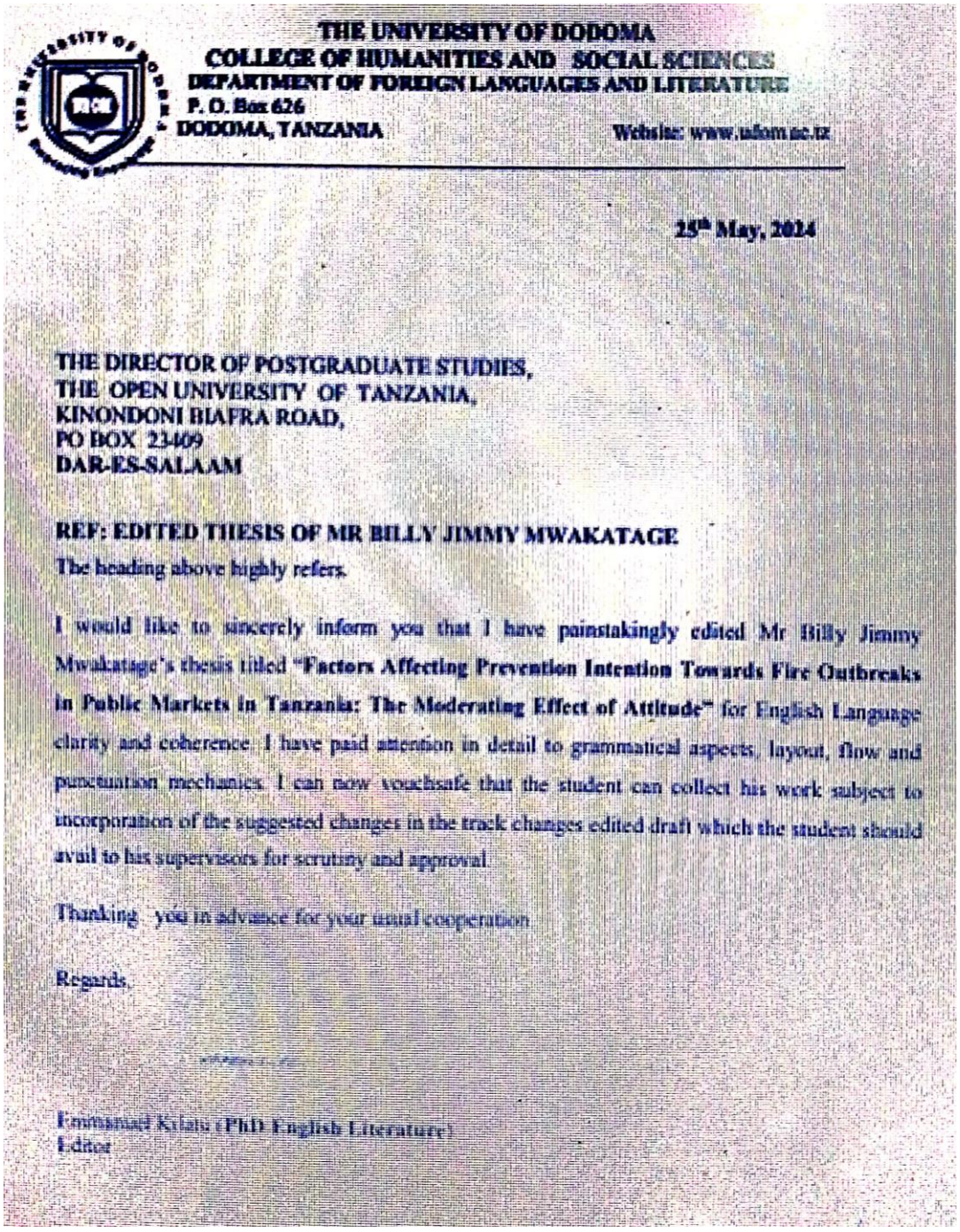
Name of Supervisor ***Dr France Shayo*** Signature  Date***10/03/2023***

Appendix 11I: Research Schedule/activities

The table here under describes the research activities and approximation of time for each activity during the process of carrying out this study.

Activities	**May 2022-aug 2023**	**Aug 2023-jan 2024**	**Jan 2024-May 2024**	**May 2024-June 2024**	**June 2024-Aug 2024**	**Aug-2024-Oct 2024**	**Oct 2024-Nov 2024**
Literature review							
Proposal writing							
Data collection							
Data analysis							
Report writing							
Report draft submission and feedback from supervisors							
Error corrections							
Final report submission and presentation							

Appendix IV: Ethical Documents



THE UNIVERSITY OF DODOMA
COLLEGE OF HUMANITIES AND SOCIAL SCIENCES
DEPARTMENT OF FOREIGN LANGUAGES AND LITERATURE
P. O. Box 626
DODOMA, TANZANIA
Website: www.udom.ac.tz

25th May, 2024

THE DIRECTOR OF POSTGRADUATE STUDIES,
THE OPEN UNIVERSITY OF TANZANIA,
KINONDONI BIAFRA ROAD,
PO BOX 23409
DAR-ES-SALAAM

REF: EDITED THESIS OF MR BILLY JIMMY MWAKATAGE

The heading above highly refers.

I would like to sincerely inform you that I have painstakingly edited Mr Billy Jimmy Mwakatage's thesis titled **"Factors Affecting Prevention Intention Towards Fire Outbreaks in Public Markets in Tanzania: The Moderating Effect of Attitude"** for English Language clarity and coherence. I have paid attention in detail to grammatical aspects, layout, flow and punctuation mechanics. I can now vouchsafe that the student can collect his work subject to incorporation of the suggested changes in the track changes edited draft which the student should avail to his supervisors for scrutiny and approval.

Thanking you in advance for your usual cooperation

Regards,

Emmanuel Kulalu (PhD English Literature)
Editor

THE UNITED REPUBLIC OF TANZANIA

MINISTRY OF EDUCATION, SCIENCE AND TECHNOLOGY

THE OPEN UNIVERSITY OF TANZANIA

Ref. No OUT/ PG202101269 **3rd April, 2023**

Regional Administrative Secretary,
Dar es salaam Region,
P.O Box 5429,
DAR ES SALAAM.

Dear Regional Administrative Secretary,

RE: RESEARCH CLEARANCE FOR MR BILLY JIMMY MWAKATAGE, REG NO: PG202101269

2. The Open University of Tanzania was established by an Act of Parliament No. 17 of 1992, which became operational on the 1st March 1993 by public notice No.55 in the official Gazette. The Act was however replaced by the Open University of Tanzania Charter of 2005, which became operational on 1st January 2007.In line with the Charter, the Open University of Tanzania mission is to generate and apply knowledge through research.

3. To facilitate and to simplify research process therefore, the act empowers the Vice Chancellor of the Open University of Tanzania to issue research clearance, on behalf of the Government of Tanzania and Tanzania Commission for Science and Technology, to both its staff and students who are doing research in Tanzania. With this brief background, the purpose of this letter is to introduce to you **Mr. Billy Jimmy Mwakatage, Reg. No: PG202101269)** pursuing **PhD.** We here by grant this clearance to

conduct a research titled "**Factors Affecting Prevention Intention towards Fire Outbreaks in Public Markets in Tanzania: The moderating effect of attitude**". He will collect his data at Dar es salaam City Council, Ilala Municipality, Kinondoni Municipality, Temeke Municipality, Ubungo Municipality, and Kigamboni Municipality, in Dar es salaam region from 4th April to 4th October 2023.

4. In case you need any further information, kindly do not hesitate to contact the Deputy Vice Chancellor (Academic) of the Open University of Tanzania, P.O.Box 23409, Dar es Salaam. Tel: 022-2-2668820.We lastly thank you in advance for your assumed cooperation and facilitation of this research academic activity.

Yours sincerely,

THE OPEN UNIVERSITY OF TANZANIA

Prof. Magreth S.Bushesha

For: VICE CHANCELLOR

THE UNITED REPUBLIC OF TANZANIA

MINISTRY OF EDUCATION, SCIENCE AND TECHNOLOGY

THE OPEN UNIVERSITY OF TANZANIA

Ref. No OUT/ PG202101269 **3rd April, 2023**

Regional Administrative Secretary,
Dar es salaam Region,
P.O Box 5429,
DAR ES SALAAM.

Dear Regional Administrative Secretary,

RE: RESEARCH CLEARANCE FOR MR BILLY JIMMY MWAKATAGE, REG NO: PG202101269

2. The Open University of Tanzania was established by an Act of Parliament No. 17 of 1992, which became operational on the 1st March 1993 by public notice No.55 in the official Gazette. The Act was however replaced by the Open University of Tanzania Charter of 2005, which became operational on 1st January 2007.In line with the Charter, the Open University of Tanzania mission is to generate and apply knowledge through research.

3. To facilitate and to simplify research process therefore, the act empowers the Vice Chancellor of the Open University of Tanzania to issue research clearance, on behalf of the Government of Tanzania and Tanzania Commission for Science and Technology, to both its staff and students who are doing research in Tanzania. With this brief background, the purpose of this letter is to introduce to you **Mr. Billy Jimmy Mwakatage, Reg. No: PG202101269)** pursuing **PhD.** We here by grant this clearance to

conduct a research titled "**Factors Affecting Prevention Intention towards Fire Outbreaks in Public Markets in Tanzania: The moderating effect of attitude**". He will collect his data at Dar es salaam City Council, Ilala Municipality, Kinondoni Municipality, Temeke Municipality, Ubungo Municipality, and Kigamboni Municipality, in Dar es salaam region from 4th April to 4th October 2023.

4. In case you need any further information, kindly do not hesitate to contact the Deputy Vice Chancellor (Academic) of the Open University of Tanzania, P.O.Box 23409, Dar es Salaam. Tel: 022-2-2668820.We lastly thank you in advance for your assumed cooperation and facilitation of this research academic activity.

Yours sincerely,

THE OPEN UNIVERSITY OF TANZANIA

Prof. Magreth S.Bushesha

For: VICE CHANCELLOR

Kinondoni Biafra, Kawawa Road; P.O 23409; Dar es Salaam; Tel: +255 22 2668 445;
E-Mail:vc@out.ac.tz|| Website:www.out.ac.tz

JAMHURI YA MUUNGANO TANZANIA

OFISI YA RAIS
TAWALA ZA MIKOA NA SERIKALI ZA MITAA
HALMASHAURI YA JIJI LA DAR ES SALAAM

Kumb. Na.IMC/AF.3/18/77 **Tarehe 13/04/2023**

Mkuu wa Idara ya Viwanda,
Biashara na Uwekezaji,
HALMASHAURI YA JIJI DAR ES SALAAM.

YAH: KUMPOKEA NDUGU BILLY JIMMY MWAKATAGE

Tafadhali rejea kichwa cha habari hapo juu,

2. Tumepokea barua yako yenye Kumb: Na. EA.260/02B/79 kuhusu kibali cha kufanya utafiti.

3. Kwa barua hii kibali kimetolewa na Mwajiri kwa ajili ya kufanya utafiti katika Halmashauri ya Jiji la Dar es Salaam kuanzia 04 Aprili, 2022 hadi 04 Oktoba, 2023.

4. Tafadhali mpokee na mpatie ushirikiano wakati wa utafiti huo.

5. Nakutakiwa kazi njema.

Kny: MKURUGENZI WA JIJI
HALMASHAURI YA JIJI LA DAR ES SALAAM

E. Segesela
Kny: MKURUGENZI WA JIJI

Nakala: Mkurugenzi wa Jiji - Aione kwenye Jalada

" Billy Jimmy Mwakatage

TEMEKE MUNICIPAL COUNCIL

[All letters should be addressed to the Municipal Director]

Tell: +255 22-2851054
Fax: +255 22-2850640
E- mail: temekemanispaa@tmc.go.tz
website: www.tmc.go.tz

Ofisi ya Mkurugenzi
92 Barabara ya
Mandela/Taifa
S.L.P: 46343,
15833 - DAR ES SALAAM

Ref. No. TMC/MD/ MITRIO

Date: 19/4/2023

TEMEKE MUNICIPAL COUNCIL

RE: RESEARCH PERMIT: BW: BILLY JIMMY MWAKITAGE

Please refer to the heading above

This is to inform you that, permission is granted to the above mentioned student/researcher from OPEN UNIVERSITY to conduct researcher on Factors affecting preventive intention towards fire outbreaks in public markets in Tanzania: the moderating effect of attitude.

The study will be conducted from 04 April to 04 October 2023.

Please give with necessary assistance.

For: **MUNICIPAL DIRECTOR**
TEMEKE

Kny: MKURUGENZI WA MANISPAA
MANISPAA YA TEMEKE

JAMHURI YA MUUNGANO WA TANZANIA
OFISI YA RAIS
TAWALA ZA MIKOA NA SERIKALI ZA MITAA

MKOA WA DAR ES SALAAM
Anwani ya Simu:
Simu:2203156/2203158/286371
Barua pepe ras@dsm.go.tz

OFISI YA MKUU WA MKOA,
3 Barabara ya Rashidi Kawawa
S.L.P 5429,
12880 DAR ES SALAAM.

Unapojibu Tafadhali taja:

Kumb. Na. EA.260/307/02B/79

05 Aprili, 2023

Mkurugenzi wa Jiji,
Halmashauri ya Jiji la Dar es Salaam,
Dar es Salaam.

Wakurugenzi wa Manispaa,
Halmashauri ya Manispaa Kinondoni,
Kigamboni, Temeke na Ubungo,
Dar es Salaam.

Yah: **KUMTAMBULISHA BW. BILLY JIMMY MWAKATAGE KUFANYA UTAFITI**

Tafadhali husika na somo tajwa hapo juu.

2. Ofisi ya Mkuu wa Mkoa wa Dar es Salaam imepokea barua **Kumb. Na. OUT/PG202101269 ya tarehe 03 Aprili, 2023** kutoka Chuo Kikuu Huria ikimtambulisha na kumuombea kibali cha utafiti Bw. Billy Jimmy Mwakatage katika Halmashauri yako.

3. Mwanafunzi huyu anafanya utafiti kuhusu ***''Factors Affecting Prevention Intention Towards Fire Outbreaks in Public Markets in Tanzania: The moderating effect of attitude''***

4. Kwa barua hii, kibali kimetolewa kuanzia 04 Aprili, 2023 hadi 04 Oktoba, 2023.

Asante kwa ushirikiano wako.

Emmanuel S. Musona
Kny: **KATIBU TAWALA MKOA**
DAR ES SALAAM

Nakala: Makamu Mkuu wa Chuo,
Chuo Kikuu Huria,
S.L.P 5429,
Dar es Salaam.

Bw. Billy Jimmy Mwakatage

JAMHURI YA MUUNGANO WA TANZANIA
OFISI YA RAIS
TAWALA ZA MIKOA NA SERIKALI ZA MITAA
HALMASHAURI YA MANISPAA KIGAMBONI
[Barua zote zipelekwe kwa Mkurugenzi wa Manispaa Kigamboni]

Simu: +255 22-2928468.
Fax: +255 22-2928469
Barua pepe: info@kigamboni.go.tz
Tovuti: www.kigamboni.go.tz

S.L.P. 36009,
KIGAMBONI,
DAR ES SALAAM,
TANZANIA.

Unapojibutafadhalitaja:

Kumb. Na.AC.24/283/01/C/164

Tarehe: 20 Aprili, 2023

Mkuu wa Divisheni ya Viwanda, Biashara na Uwekezaji
Manispaa ya Kigamboni,
S. L. P. 36009
DAR ES SALAAM.

YAH: KIBALI CHA KUMTAMBULISHA MTAFITI KUFANYA UTAFITI (RESEARCH) MANISPAA YA KIGAMBONI

Tafadhali husika na mada tajwa hapo na rejea barua yenye Kumb. Na. AE.260/307/02B/79 ya tarehe 05 Aprili, 2023.

2. Mtafiti kutoka **Chuo Kikuu Huria ndugu Billy Jimmy Mwakatage** amekubaliwa kufanya Utafiti kuhusu "**Factors Affecting Prevention Intention Towards Fire Outbreaks in Public Marekets in Tanzania** " Manispaa ya Kigamboni.

3. Kibali cha kufanya utafiti huo utaanza tarehe 04 Aprili, 2023 hadi 04 Oktoba,2023.

4. Hivyo, Halmashauri haitawajibika na malipo ya aina yoyote kwa kipindi chote cha Utafiti kwa mhusika.

5. Ninashukuru kwa ushirikiano wako.

T. S. Nzowa
Kny: MKURUGENZI WA MANISPAA

KNY; MKURUGENZI MANISPAA YA KIGAMBONI

Nakala:
Waheshimiwa Madiwani Wote - wapatieni ushirikiano
HALMASHAURI YA MANISPAA YA KIGAMBONI

JAMHURI YA MUUNGANO WA TANZANIA

OFISI YA RAIS,
TAWALA ZA MIKOA NA SERIKALI ZA MITAA

HALMASHAURI YA MANISPAA YA KINONDONI

Unapojibu tafadhali taja:

Kumb. Na. HB.345/49 **Tarehe:** 13 Apriii, 2023

Mkuu wa Divisheni ya Viwanda
Biashara na Uwekezaji,
Manispaa ya Kinondoni.
S.L.P 31902,
DAR ES SALAAM.

YAH: KIBALI CHA KUFANYA UTAFITI NA KUMTAMBULISHA BILLY JIMMY MWAKATAGAE

Kichwa cha habari hapo juu cha husika.

2. Ofisi ya Mkurugenzi wa Manispaa ya Kinondoni imepokea barua toka Ofisi ya Katibu Tawala Mkoa yenye **Kumb.Na. EA.260/397/02B/79** ya tarehe **05 Aprili, 2023** ikimtambulisha mtajwa hapo juu toka **Chuo Kikuu Huria.**

3. kwa barua hii, *Kibali kimetolewa cha kufanya utafiti kuanzia* **04 Aprili, 2023** hadi tarehe **04 Oktoba, 2023** kwa ajili ya kufanya utafiti kuhusu ***"Factors Affecing Prevention Intention Towards Fire Outbreaks in Public Markets in Tanzania: The moderating effect of attidute.***

4. Tafadhali mpokee na kumpa ushirikiano.

for: MUNICIPAL DIRECTOR
KINONDONI MUNICIPAL COUNCIL
DAR-ES-SALAAM

.....
Maria Masimbusi
Kny: MKURUGENZI WA MANISPAA

Nakala:
Mkurugenzi wa Manispaa - aione kwenye jalada
KINONDONI.

Billy Jimmy Mwakatage - -kwa taarifa

JAMHURI YA MUUNGANO WA TANZANIA

OFISI YA RAIS,
TAWALA ZA MIKOA NA SERIKALI ZA MITAA

HALMASHAURI YA MANISPAA YA UBUNGO

Unapojibu tafadhali taja:

Kumb: Na. AB.94/216/02/121 **Tarehe: 11 May, 2023**

Mtendaji wa Kata,
Kata ya Mabibo,
Kata ya Manzese,
Kata ya Mbezi,
Kata ya Sinza,
Kata ya Ubungo,
Halmashauri ya Manispaa ya Ubungo,
S.L.P. 55068,
DAR ES SALAAM.

Yah: **KUFANYA UTAFITI**

Tafadhali husika na somo tajwa hapo juu.

2. Mkurugenzi wa Halmashauri ya Manispaa ya Ubungo anapenda kumtambulisha kwako **Bw. Billy Jimmy Mwakatage** kutoka "Chuo Kikuu Huria" kwa ajili ya kufanya utafiti kuhusu **"Factors Affecting Prevention Intention Towards Fire Outbreaks in Public Markets in Tanzania: The moderating effect of attitude".** Utafiti huo unatakiwa kuanza tarehe 04 Aprili, 2023 hadi tarehe 04 Oktoba, 2023.

3. Naomba umpokee na kumpatia ushirikiano.

B A .Mwamende
Kny: **MKURUGENZI WA MANISPAA**

Kny: MKURUGENZI WA MANISPAA
HALMASHAURI YA MANISPAA YA UBUNGO
DAR ES SALAAM

Nakala: Mkurugenzi wa Manispaa,
Halmashauri ya Manispaa ya Ubungo,
DAR ES SALAAM. - Aione kwenye jalada.

Bw. Billy Jimmy Mwakatage

PUBLICATIONS