Effects of Self-Efficacy on Facilitating Prevention Intention of Fire Outbreaks in Public Markets in Tanzania: A Case of Dar es Salaam Region

Billy J. Mwakatage[1], Gwahula Raphael[2] and France Shayo[1]
[1]Department of Marketing, Entrepreneurship and Management,
The Open University of Tanzania
[2]Department of Accounting and Finance, The Open University of Tanzania
Corresponding Email: mwakatagejbilly@gmail.com

Abstract
This research investigated the effects of self-efficacy on facilitating prevention intention of fire outbreaks in public markets in Tanzania. The study utilized quantitative research approaches, surveying 384 participants comprising traders in public markets and the management of these markets in the Dar es Salaam Region. A simple random sampling method was employed to select respondents from 10 markets and data analysis was conducted using a structural equation model. A positive path coefficient (γ = 0.685) using standardized estimate results indicates that Self-Efficacy has positive and significant relationship with Prevention Intention of Fire Outbreaks in Public Markets. Findings justified by critical ratio of 2.619 and p value of 0.009. These results indicated that self-efficacy positively contributes to the intention to prevent fire outbreaks in public markets. The study suggests that all measurement variables associated with self-efficacy be considered when facilitating the intention to prevent fire outbreaks in Tanzania.

Keywords: *Self-Efficacy, Prevention Intention of Fire Outbreaks, Public* Markets

INTRODUCTION

Prevention intention, as defined by Boehmer *et al.* (2015), denotes a personal commitment involving safety engagement and coping efficacy. Prevention intention refers to the actions individuals take to implement preventive measures, aiming to mitigate the potential adverse impacts arising from hazards related to market fires. Market fire incidents have become a widespread concern in both developed and developing nations which need to be prevented (Hatmoko and Larassati, 2021; Oneugubu *et al.*, 2021). Notable 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 Kolibo public market fire in the Philippines in 2019 (Rappler, 2019), as well as the Camden Lock market fire in England in 2017, Sunrise Oriental market fire in the USA in 2017, La Merced market fire in Mexico in 2019, and Gariahat market fire in India in

2019 (Hatmoko and Larassati, 2021). This trend indicates a rising occurrence of fire outbreaks (Bushesha and Ndibalema, 2017; William, 2022).

For instance, Nigeria witnessed 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 and Larassati, 2021). Similarly, Burundi experienced 13 market fire outbreaks from 2006 to 2021 (The Christian Science Monitor, 2013; IWACU English News, 2017; Anglican Church of Burundi, 2019; Burundi Times, 2020; Emmanuel, 2021). Uganda endured nine market fire cases from 2010 to 2022 (VOA, 2011; The Monitor, 2021; URN, 2022; The Independent, 2022; Wadembere and Apaco 2020; Faria *et al.*, 2021; Kimuli *et al.*, 2022), and Kenya faced 12 market fire incidents from 2015 to 2022 (Citizen Digital, 2022; BBC News, 2018; Hilary *et al.*, 2020; NTV, 2016; Daily Nation, 2023; Lule *et al.*, 2020). In Tanzania alone, there were 28 market fire incidents from 2010 to 2022 (URT, 2022; Mwidege and Rogath, 2014; Hilary *et al.*, 2020; The Citizen, 2020). The frequency of fire outbreaks in Tanzania is on the rise (William, 2022; Bushesha and Ndibalema, 2017; Kihila, 2017; Jongo *et al.*, 2018). Despite the significant losses incurred by traders due to these fires, no studies have investigated the effects of self-efficacy on the prevention intention of fire outbreaks in Tanzanian public markets. Therefore, this study explored the effect of self-efficacy on facilitating the prevention intention of fire outbreaks in public markets.

LITERATURE REVIEW

Theoretical Review: Protection Motivation Theory (PMT)

The Protection Motivation Theory (PMT) was introduced by Rogers in 1975 and has been extensively employed to predict mitigation behaviors (Rogers, 1975; Sommestad et al., 2015). PMT posits that engaging in protective behavior is contingent on an individual's motivation for self-defense (Ezati et al., 2021). PMT comprises two appraisals of behavior change: Threat appraisal, which involves an individual's belief in the severity of the threat (perceived severity) and their estimation of the likelihood of being affected by the problem (perceived vulnerability); and coping appraisal, which includes Response Efficacy (RE), an individual's expectations that the recommended behavior will effectively reduce the danger and Self-Efficacy (SE), one's belief in their capacity to carry out the recommended action. The founder expected PMT to be applied diversely and this expectation has been proven correct, as it is currently used across various disciplines for safety prevention (Rogers, 1975; Westcott et al., 2017). Furthermore, it is argued that PMT studies have tripled since 2014, demonstrating its usefulness and development in the research arena (Mou et al., 2022). PMT has been

extensively applied in studies on natural hazards such as drought (Kenshavas and Karami, 2016), earthquakes (Mulilis and Lippa, 1990), safety driving campaigns (Glendon and Walker, 2013), flooding (Gothmann and Reusswing, 2006; Paussin et al., 2014; Oakley et al., 2020), wildfires (Hall and Slothower, 2009; Martin et al., 2007a; Martin et al., 2007b; McFarlane et al., 2011; Dupey and Smith, 2019), bush fires (Westcott et al., 2017), and fire mitigation behavior (Liu and Jiao, 2017). However, in the present context, self-efficacy is borrowed to investigate its impact on enhancing the prevention intention of fire outbreaks in public markets since under it one's belief in carrying out action towards prevention of fire.

EMPIRICAL LITERATURE REVIEW

Self Efficacy and Prevention Intention of Fire

Self-efficacy (SE) is one's ability to perform the necessary prevention action (Martin *et al.*, 2007). Karamaker *et al.* (2021) found that SE is effective towards taking prevention measures to residential fires. Majority of the respondents showed to have ability and confidence to use installed equipment in case of fire to extinguish fire (Karamaker *et al.*, 2021; McCaffrey *et al.*, 2020). Surprisingly the study found that elderly see not being vulnerable to fire risk but yet possess high SE on ceasing fire (Karamaker *at al.*, 2021). However, there were contradictory results among few of the respondents showing low SE for not being able to use available fire equipment to extinguish fire (Karamaker *et al.*, 2021). The study was done in Netherlands and was qualitatively analysed by transcribing interviews and importing to ATLAS. Moreover, Marceron and Rohrbeck (2019) discovered that Self-Efficacy (SE) and perceived threat mutually influence individuals to adopt preventive measures. However, the moderating effects of SE were found to have the least impact on the relationship between perceived threat and preventive measures for those with low SE (Marceron and Rohrbeck, 2019). Threat and SE were identified as crucial factors motivating individuals to engage in risk prevention behavior (Glauberman, 2018; Marceron and Rohrbeck, 2019). It was also suggested that when disaster awareness is sufficiently raised, it leads to an adequate sense of SE (Marceron and Rohrbeck, 2019). This study, conducted in the USA, employed a general linear model using the Statistical Analysis System (SAS) but was not focused on the domain of market fires. Conversely, Jansen *et al.* (2020) observed that lower SE had no effect on prevention behavior. In situations where the severity was high, SE was negatively influenced (Jansen *et al.*, 2020). In such cases, people lacked the confidence to respond effectively to grease fires. However, severity and SE were found not to be significantly related to prevention behavior, although other studies demonstrated a positive relationship between the same constructs (Jansen *et al.*, 2020; McLennan *et*

al., 2015). This study, conducted in the Netherlands, employed Structural Equation Modeling (SEM) and Confirmatory Factor Analysis (CFA). Fitria *et al.* (2020) discovered a significant correlation between self-efficacy and optimism with anxiety among market fire victims. This study, conducted in Indonesia, utilized independent T-square, Chi-square, and logistic regression prediction models. Therefore, this study puts forth the hypothesis that: ***Alternative Ha:*** *There is a positive relationship between perceived self-efficacy and prevention intention on outbreaks of fire in public markets.* ***Null Ho****: There is no positive relationship between perceived self-efficacy and prevention intention on outbreaks of fire in public markets.*

METHODOLOGY

This research was carried out in the Dar es Salaam region, focusing on traders in public markets as the target population. The selection of this Region was motivated by the elevated occurrence of fire incidents in public markets, with Dar es Salaam having witnessed 16 such incidents. The study embraced the positivist research philosophy, and a deductive research approach was adopted due to the quantitative nature of the investigation. Following Saunders *et al.* (2012) suggestion that a survey strategy is pivotal in deductive approaches, this study employed a survey methodology. The determination of the sample size was based on Cochran's formula (1977), advocating for a large sample size to minimize sampling errors in social research, where a 5% margin of error is considered acceptable (Taherdoost, 2020). Hence, the sample size for this study was 384. The author utilized a probability sampling technique, incorporating multistage and random sampling methods, to secure a representative sample suitable for generalising 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, with a total population of 64,753 traders. Multistage cluster sampling was applied to obtain a representative sample for the study, covering Ilala, Kinondoni, Temeke, Ubungo, and Kigamboni. Primary data for this study were collected through the self-administered questionnaire method, a cost-effective approach. Structural Equation Modelling (SEM) was employed for data analysis. SEM, taking a confirmatory approach that specifies inter-variable relationships, is uniquely capable of handling such relationships, unlike other multivariate techniques. The author ensured the observance of all ethical considerations from the initial stage to the conclusion of the study.

RESULT AND DISCUSSION

Confirmatory Analysis Results

The measurement model employed to assess self-efficacy incorporated the observed variables SE4, SE2, SE3, and SE6 for confirmatory factor analysis.

The analysis was conducted using IBM Amos 20 with maximum likelihood estimation, yielding the following results for model fit indices: CMIN/df = 0.131, GFI= 1.00, AGIF = 0.998, CFI = 1.00, and RMSEA= 0.000. According to Byrne (2013), a good model fit should have CMIN/df less than or equal to 3, CFI greater than 0.90, indicating a well-fitting model, RMSEA less than 0.05, indicating acceptable fit, and GFI should be at least 0.9, indicating acceptable fit. Similarly, the measurement model for prevention intention involved observed variables PI4, PI3, PI2, and PI1. Confirmatory factor analysis, also conducted using IBM Amos 20 with maximum likelihood estimation, produced the following results: CMIN/df = 2.430, GFI= 0.993, AGIF = 0.967, CFI = 0.965, and RMSEA= 0.065. These findings demonstrate a well-fitted model based on the established criteria for model fitness, as outlined in Table 4.

Table 1: Summary of Measurement Model on CFA

Items	Initial Stage of CFA Indicating Unsatisfactory Measurement Model Fit					Remarks
	CMID/Df	GFI	AGFI	CFI	RMSEA	
SE	0.131	1.00	0.998	1.00	0.00	Accepted in 1st run
PI	2.430	0.993	0.967	0.965	0.065	Accepted in 1st run

Source: Researcher (2023)

Significant Relationship between Self-Efficacy on Prevention Intention

The fourth hypothesis suggested in this study was based on significant relationship between perceived self-efficacy and prevention intention on outbreaks of fire in public markets. To come up with findings, the developed hypothesis was tested. 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 2.

Table 2: 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: Researcher (2023)

Among the four self-efficacy measurements outlined in Table 5, SE6 demonstrated a substantial influence by yielding a high mean value of 5.2682, accompanied by a median of 5.00. SE2 produced a mean value of 5.1979 with a median of 5.00, SE3 had a mean value of 5.1562 and a median of 5.00, and finally, SE4 had a mean value of 5.1536 with a median of 5.00. The higher mean values suggest a more pronounced impact on the prevention intention concerning fire outbreaks in public markets. Additional analysis was conducted using Structural Equation Modelling (SEM) to explore the relationship between self-efficacy and prevention intention regarding fire outbreaks in public markets, as illustrated in Table 3.

Table 3: Regression Weights and Standardized 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: Researcher, (2023)

The path leading from SE to PI in Table 6 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 standardized estimate results in Table 3 above indicates that Self-Efficacy has positive and significant relationship with Prevention Intention of Fire Outbreaks in Public Markets. The result is similar with (Acharya *et al.,* 2013). who argued that a standardized path coefficient (γ) should be at least 0.2 in order 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 positive path coefficient ($\gamma = 0.685$). Apart from standardized coefficient, further analysis was done using critical ratio and p-value to determining the significant relationship with Prevention Intention of Fire Outbreaks in Public Markets. In this study 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 yield a critical ration greater than 1.96 and p value less than 0.05 is considered significant. This means that ***Alternative Ha****:* which state that *there is a positive relationship between perceived self-efficacy and prevention intention on outbreaks of fire in public markets was rejected while* ***Null Ho*** *which states that there is no positive relationship between perceived self-efficacy and prevention intention on outbreaks of fire in public markets accepted.*

Attributes of self-efficacy under resources play a vital role in enhancing fire management, as resources contribute to boosting the prevention intention of fire outbreaks in public markets (Larsen *et al.*, 2021). Furthermore, fire hydrants, connected to a reliable source of fire protection water supply, are equipped with water spray nozzles for targeted water distribution over the surface or area requiring protection. In simpler terms, fire hydrants function as above-ground pumps connected to pipelines for safety in urban or residential areas. Firefighters can attach their hoses to these hydrants to access water for extinguishing fires, strategically located to aid the fire department. They play a crucial role in firefighting, providing a steady flow of water during operations. Governments and entities worldwide are actively educating the public on the significance of fire hydrants and safeguarding this valuable equipment. Therefore, the presence of fire hydrants in marketplaces is essential to enhance the prevention intention of fire outbreaks in public markets. The findings are related with arguments made by Yu *et al.*, (2022) who contended that SE were identified as crucial factors motivating individuals to engage in risk prevention behavior.

Additionally, the study revealed that fire safety equipment plays a crucial role in protecting individuals during fire incidents. While having these individual pieces of equipment installed is a positive step, maintaining the safety of the building is an ongoing responsibility that should not be neglected. Servicing and maintaining fire safety equipment are essential for ensuring their efficacy.

Findings are similar to Jansen, *et al.* (2020) study who analyzed the effects of experiencing a fire on psychological determinants of behavior knowledge self-efficacy and locus of control based mainly on arguments from Protection Motivation Theory and the Health Belief Model. Crucial in our setup is that we also relate these determinants to actual prevention behavior. Results show that IVE has the hypothesized effects on vulnerability self-efficacy and an unexpected negative effect on knowledge. Only knowledge and vulnerability showed subsequent indirect effects on actual prevention behavior. The results contradict the implicit assumption that an induced change in these psychological determinants is necessarily fire prevention.

The findings relate with Makara-Studzińska, *et al.*, (2019) who analyzed 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 sociodemographic 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 analyzed. 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).

Thus, personal self-efficacy, reflecting one's belief in the ability to effect change in the prevention intention of fire outbreaks in public markets, emerges as a key factor. Organizations with a strong sense of personal self-efficacy tend to adopt preventive measures more rapidly in the face of fire outbreaks in public markets. From this finding also it relates with protection motivation theory which has been extensively applied in studies on natural hazards such as drought and assumption show that self-efficacy is important on prevention of fire (Egbelakin *et al.,* 2015). Therefore, a critical point to note is that, in marketplaces, personal self-efficacy plays a significant role in shaping the prevention intention for fire outbreaks in public markets.

CONCLUSION

The results revealed a positive path coefficient ($\gamma = 0.685$), indicating a significant and positive correlation between Self-Efficacy and Prevention Intention of Fire Outbreaks in Public Markets. This finding aligns with Hoe's (2008) assertion that a standardized path coefficient (γ) should be at least 0.2 to be deemed meaningful and significant in the model. Further scrutiny involved the use of critical ratio and p-value to ascertain the significance of the relationship with Prevention Intention of Fire Outbreaks in Public Markets. In this study, the findings showed a critical ratio of 2.619, surpassing the threshold of 1.96, and a significance level of the p-value was 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 considered significant. Consequently, the study concludes that there is a positive relationship between perceived self-efficacy and the prevention intention regarding outbreaks of fire in public markets in Tanzania.

RECOMMENDATIONS FOR FUTURE RESEARCH

The research established a positive correlation between perceived self-efficacy and the intention to prevent fire outbreaks in public markets. Consequently, perceived self-efficacy should be strategically employed to enhance the prevention intention of fire outbreaks in public markets.

However, as this study was limited to the Dar es Salaam Region in Tanzania, it remains uncertain whether the findings and validated model can be generalised to other regions. Including additional regions in future studies is essential to obtain a comprehensive understanding of the situation.

REFERENCES

Acharya, A. S., Prakash, A., Saxena, P., & Nigam, A. (2013). Sampling: Why and how of it. *Indian Journal of Medical Specialties*, *4*(2), 330-333

Anglican Church of Burundi (2019). Fire destroys Matana market. http://www.anglicanburundi.org/news/2019/01/18/fire-destroys-matana-market/. Accessed on 16th December 2023.

BBC News (2018). Kenya fire: Several dead in Nairobi market. https://www.bbc.com/news/world-africa-44640504. Accessed on 12th January 2023.

Burundi Times. (2020). Fire razes Kamenge market. https://www.burunditimes.com/fire-razes-kamenge-market-as-traders-count-losses/. Accessed on 16th December 2023

Bushesha, M. S., &Ndibalema, A. (2017). Towards sustainable disaster management: An assessment of levels of community awareness on fire outbreaks and safety among public universities in Tanzania. *Huria Journal, Vol. 24, No 1, (2017).*

Daily Nation (2023). Huge fire seeps through Mutindwa market. https://nation.africa/kenya/counties/nairobi/huge-fire-sweeps-through-mutindwa-market--4269468. Accessed on 16th December 2023

Dupuis, M. J. (2019). Going Back for that One Last Thing in the House on Fire: How Fear, Attentiveness, Sadness, Joviality, and Other Lower Order Dimensions of Affect Influence Our Security and Privacy Behavior. In *2019 IEEE SmartWorld, Ubiquitous Intelligence & Computing, Advanced & Trusted Computing, Scalable Computing & Communications, Cloud & Big Data Computing, Internet of People and Smart City Innovation (SmartWorld/SCALCOM/UIC/ATC/CBDCom/ IOP/SCI)* (pp. 1825-1833). IEEE.

Egbelakin, T., Wilkinson, S., & Ingham, J. (2015). Integrated framework for enhancing earthquake risk mitigation decisions. *International journal of construction supply chain management*, *5*(2), 34-51

Emmanuel, M., & Donatien, N. (2021). Impact of the fire on the bearing capacity of the ordinary concrete used in reinforced concrete structures in Burundi. History and architecture. *Вестник МГСУ*, *16*(12), 1567-1572.

Ezati Rad, R., Mohseni, S., Kamalzadeh Takhti, H., Hassani Azad, M., Shahabi, N., Aghamolaei, T., & Norozian, F. (2021). Application of the

protection motivation theory for predicting COVID-19 preventive behaviors in Hormozgan, Iran: a cross-sectional study. *BMC Public Health*, *21*(1), 1-11.

Faria, C., Katushabe, J., Kyotowadde, C., & Whitesell, D. (2021). "You Rise Up… They Burn You Again": Market fires and the urban intimacies of disaster colonialism. *Transactions of the Institute of British Geographers*, *46*(1), 87-101.

Fitria, D., Mustikasari, M., & Panjaitan, R. U. (2020). The psychological capital and anxiety felt by post-market fire disaster victims. *JurnalNers*, *15*(1), 1-6.

Glendon, A. I., & Walker, B. L. (2013). Can anti-speeding messages based on protection motivation theory influence reported speeding intentions? *Accident Analysis & Prevention*, *57*, 67-79.

Glauberman, G. H. (2018). *Factors influencing fire safety and evacuation preparedness among residential high-rise building occupants* (Doctoral dissertation, University of Hawai'i at Manoa)

Hall, T. E., &Slothower, M. (2009). Cognitive factors affecting homeowners' reactions to defensible space in Oregon Coast Range: *Society and Natural Resources, 22(2) 95-110.*

Hox, J. J. & Bechger, T. M. (2014). An introduction to structural equation modeling. *Family Science Review 11(2), 354-373*

IWACU English News (2017). The fire devastated eight kiosks at Buterere market. https://www.iwacu-burundi.org/englishnews/tag/fire-devastated/

Jansen, P. C., Snijders, C. C., & Willemsen, M. C. (2020). Playing with fire. Understanding how experiencing a fire in an immersive virtual environment affects prevention behavior. *PloS one*, *15*(3), e0229197.3.

Jongo, J.S., Tesha, D.N.G.A.K., Luvara, V.G.M., Teyanga, J.J., and Makule, E.T., (2018); "Fire Safety Preparedness in Building Construction Sites in Dar-es-Salaam, Tanzania", in the International Journal of Engineering Trends and Technology (IJETT), 66, (03), 154-169.

Kihila, J.M. (2017); Fire Disaster Preparedness and Situational Analysis in Higher Learning Institutions of Tanzania, In the *Journal Disaster Risk Studies*, 09, (01), 311.

Kimuli, S. N. L., Sendawula, K., & Nagujja, S. (2022). Sustainable entrepreneurship practices in women-owned micro enterprises using evidence from Owino market, Kampala, Uganda. *African Journal of Economic and Management Studies*, *13*(3), 508-523.

Larsen, L. N. D., Howe, P. D., Brunson, M., Yocom, L., McAvoy, D., Hellen Berry, E., & Smith, J. W. (2021). Risk perceptions and mitigation behaviors of residential following a near miss wildfire. *Landscape and Urban Planning, 207 (2021) 104005.*

Liu, T., & Jiao, H. (2017). Insights into the effects of cognitive factors and risk attitudes on fire risk mitigation behavior. *Comput Econ.* Doi.10.1007/s10614-017-9727-z

Lule, E., Mikeka, C., Ngenzi, A., & Mukanyiligira, D. (2020). Design of an IoT-based fuzzy approximation prediction model for early fire detection to aid public safety and control in the local urban markets. *Symmetry*, *12*(9), 1391.

Makara-Studzińska, M., Golonka, K., & Izydorczyk, B. (2019). Self-efficacy as a moderator between stress and professional burnout in firefighters. *International journal of environmental research and public health*, *16*(2), 183.

Marceron, J. E., & Rohrbeck, C. A. (2019). Disability and disasters: the role of self-efficacy in emergency preparedness. *Psychology, Health & Medicine*, *24*(1), 83-93.

Martin, I. M., Bender, H. W., &Raish, C. (2007b). What motivate individuals to protect themselves from risks: The case of wild land fires. *Risk Analysis, 27(4), 887-900*

Martin, I., Bender, H. W., &Raish, C. (2007a). Making the decision to mitigate risk. In W. E. Martin, C. Raish& B. Kent (Eds), Wildfire risk: *Human Perceptions and Management Implications (pp.117-141). PFF Press.*

Martin, W. E., Martin, I. M., & Kent, B. (2009). The role of risk perceptions in the risk mitigation process: the case of wildfire in high-risk communities. *Journal of Environmental Management*, *91*(2), 489-498.

McCaffrey, S., McGee, T. K., Coughlan, M., &Tedim, F. (2020). Understanding wildfire mitigation and preparedness in the context of extreme wildfires and disasters: Social science contributions to understanding human response to wildfire. In *Extreme wildfire events and disasters* (pp. 155-174). Elsevier.

McFarlane, B. L., McGee, T. K., & Faulkner, H. (2011). Complexity of homeowner wildfire risk mitigation: An integration of hazard theories. *International Journal of Wildland Fire, 20(8), 921-93.*

McLennan, J., Paton, D., &Beatson, R. (2015). Psychological differences between south-eastern Australian householders' who intend to leave if threatened by a wildfire and those who intend to stay and defend. *International Journal of disaster risk reduction*, *11*, 35-46.

Mulilis, J. P., & Lippa, R. (1990). Behavioral change in earthquake preparedness due to negative threat appeals: A test of protection motivation theory. *Journal of applied social psychology*, *20*(8), 619-638

Mwidege, A. M. and Rogath, H. (2014). Social-economic effects of market fires outbreaks: Evidence of Mbeya City Tanzania. *International Journal of Research in Social Sciences, 4, (3), 2249-2496.*

New Straits Times (2020). Massive fire guts eight stalls at iconic Pasar Sentul.https://www.nst.com.my/news/nation/2020/01/552432/massive-fire-guts-eight-stalls-iconic-pasar-sentul-nsttv. Accessed on December 6th 2022

NTV (2016). Breaking: Wote market in Makueni County on fire. Cause still unknown. https://twitter.com/ntvkenya/status/777520352759021572. Accessed on 12th January 2023.

Oakley, M., Himmelweit, S. M., Leinster, P. &Casado, M. R. (2020). Protection motivation theory: A proposed theoretical extension and moving beyond rationality. The case of flooding. *Water 2020, 12, 1848; Doi:103390/w12071848.*

Paussin, J. K., Botzen, W. J. W. &Aerts, J. C. J. H. (2014). Factors of influence on floods damage mitigation behavior by households. *Environmental Science & Policy, 40, 69-77. http://doi.org/10.1016/j.envsci.2014.01.013.*

PressReader (2020). 8 stalls at Sentul market razed. Retrieved from https://www.pressreader.com. Accessed on 11th January 2023.

Rappler. (2019). Fire hits Kalibo pubic market. *https://www.rappler.com* accessed on 16th December, 2022

Rogers, I. W. (1975). A protection motivation theory of fear appeals and attitude change: *J Psycol. 1975, 91, 93-114 (Cross Ref).*

Saunders, M., Lewis, P. & Thornhill, A. (2012). *Research methods for business students.* (6th edition). England: Harlow Pearson Educational Limit

Taherdoost, H. (2020). Different Types of Data Analysis; Data Analysis Methods and Techniques in Research Projects. *International Journal of Academic Research in Management (IJARM), 9*(1), 1-9.

The Christian Science Monitor (2013). After a devastating market fire, Burundi's economy hobbles forward. https://www.csmonitor.com/World/Africa/AfricaMonitor/2013/0204/After-a-devastating-market-fire-Burundi-s-economy-hobbles-forward. Accessed 0n 16th 2023

The Citizen (2020). 5,000 trades in limbo after fire raze market. https://www.thecitizen.co.tz/tanzania/news/national/5-000-traders-in-limbo-after-fire-razes-market-2706774. Accessed on 23rd September, 2021.

The Independent (2022). Traders loses millions as fire guts Elegu market. https://www.independent.co.ug/traders-loses-millions-as-fire-guts-elegu-market/. Accessed on 11th January 2023.

URN (2022). Fire guts clothing stores in Jinja's Napier market. https://ugandaradionetwork.net/story/fire-guts-clothing-stores-in-jinjas-napier-market. Accessed on 11th January 2023.

URT (2022). Fire report incidence. Fire report incidence. Fire and Resue Force Tanzania.

VOA (2011). Fire ravages Uganda's largest market. https://www.voanews.com/a/fire-ravages-ugandas-largest-market-126478868/143100.html. Accessed on 11th January 2023.

Wadembere, I., & Apaco, J. (2020). Urban Spatial Risk Assessment of Fire from Fueling Stations on Buildings Case Study: Lubaga Division, Kampala City, Uganda. *Journal of Building Construction and Planning Research*, *8*(01), 57.

Westcott, R., Ronan, K., Bambrick, H., & Taylor, M. (2017). Expanding protection motivation theory: Investigating an application to animal owners and emergency responders in bush fires emergencies. *BMC Psychology 5(1)*, 13. https://doi.org/10.1186/s40359-017.0182-3.

William, M. L. (2022). Assessment of markets fire emergency preparedness in Tanzania: A case study of 6 markets in Ilala City Council-Dar Es salaam. African Journal of Business and Management (AJBUMA), 7(2), 68-92.

Yu, J., Sim, T., & Qi, W. (2022). Informal social support and disaster preparedness: mediating roles of perceived collective efficacy and self-efficacy. *International Journal of Disaster Risk Reduction*, *68*, 102-114.