

## **RELATIONSHIP BETWEEN SAFETY AWARENESS, PREPAREDNESS AND PSYCHOLOGICAL ADJUSTMENT OF THE SURVIVORS OF ARSON ATTACKS IN HIGH SCHOOLS IN NAIROBI COUNTY**

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## **ABSTRACT**

Arson in high schools is a global phenomenon. In Kenya the history goes back to 1908. To date no solution has been found. In June and July 2016, more than 130 high schools were set on fire and this elicited a national outcry. Fires cause destruction of property, death and psychological trauma to those affected and cost the economy millions of shillings in repairs, relocation to other facilities, replacement of lost items and reconstruction. Over the decades, survivors, who may be subdued by health implications remain unknown. This has put the future of the youths in jeopardy, their communities in perpetual anxiety and the national educational goals, including, objectives of vision 2030 in doubt. It is for these reasons that the study seeks to find the best ways the survivors could make their lives sufferable, set goals, achieve targets and effectively participate in national development. The primary objective of the research was to determine the relationship between safety awareness, preparedness and psychological adjustment of the survivors of arson attacks in high schools in Nairobi County. This research adopted a descriptive survey design to execute it. Snowball sampling technique was applied. The study population will comprise of high schools

including students. The study used self-administered questionnaires for students to collect data. Quantitative data was analyzed by descriptive statistics and inferential statistics then statistical package for social sciences. Hypothesis was analyzed by Pearson product moment, Correlations (r) and step wise regression technique. Qualitative data from open ended questions were read, paying attention to ideas, documents and concepts from respondents. Field notes was edited and written based on content and theme and analyzed accordingly. The study adopted social support theory. The theory states that the support an individual survivor receives from the social networks boosts the individual survivors' resilience and promotes health wellness and psychological adjustment. There is a relationship between social support and individual health. The outcome of the study will have implications on policy and theory. On policy the study helped to identify gaps in the current understanding of arson survivors in schools and will assist education planners, administrators and those responsible for education in formulation of adequate policy framework.

**Key Words:** *safety awareness, preparedness, psychological adjustment, arson attacks*

## **INTRODUCTION**

Arson attacks in high schools occur throughout the world. They are traumatic events and leave survivors with trails of psychological trauma, which impair their mental health wellness and functioning. In order for the survivors to return to normalcy, they will need psychological adjustment (Seaton, 2009). In USA, for example from 2009 to 2011, the country experienced a total of 12,000 arson attacks. (SA Fire Administration, 2016). In similar studies in U.K and Wales from 2007-2009 one in 8 high schools suffered arson attacks (Wade et al, 2007). Investigative criminal profiling of social arson crimes in Australia identified that, arson attacks in high schools had doubled (Kocsis and Cooksey, 2002). In Asia, India was singled out due to

frequent arson attacks experienced in high schools. In Kashmir province, for example, more than 4000 students from 47 high schools survived arson attacks. (Wini, 2016) Meanwhile, in Africa the scourge of arson did not spare the Continent as studies in some of the countries demonstrated. In South Africa, 20 high schools were burnt down on May 6, 2016 in Limpopo province (Kahwa, 2016). The researcher further conducted a survey of arson attacks in schools in Tanzania, Uganda, Kenya and Nigeria and summed up that they represented a cross section of Africa (Kahwa, 2016).

Arson may be defined as a malicious and deliberate criminal act of setting buildings or property on fire with the aim of causing damage, harms loss, revenge, profiteering, death or concealment of another crime. Meanwhile, accidental fire usually arise in relation to some human agency without any intention or by some natural cause (Bouvier Law Dictionary, 1914).

In Kenya, the history of arson attacks in high schools goes back to 1908 at Maseno School. To date, more than 100 years later, still no solution has been found for this menace. The fate of several survivors who were subdued by manifestation of symptomatology remains unknown (National Crime Research Center, 2016). Kenya also experienced worst fires, for example, in April 1998 Bombolulu Girls High School in Kwale County was gutted and 26 girls lost their lives. In 1999 Nyeri High School in Nyeri County was set ablaze by students who had been suspended due to indiscipline, resulting in the loss of four school prefects. On March 26, 2001 fire killed 59 boys of Kyanguli High school in Machakos County. In each of these cases, there were also several survivors who were traumatised (National Crime Research Center, 2016).

Safety awareness in schools is the condition of knowing that every individual in the school is protected from disasters or any other undesirable event, such as, arson attacks. It may also refer to the control of recognised danger in order to allow for acceptance level of risk. Lack of safety awareness in schools can cause crises in stake holders, families, friends, neighbours, Nation, communities and in individuals. In addition, the schools would close. (De-wolf 2004). Safety preparedness is also accepted as Emergency Preparedness. The underlying principle is one of being ready for disaster without assistance, for a period of time, after a critical event. Emergency Preparedness calls for apt identification of early warning signs. Its planning falls into five stages, namely, Pre-event, Rescue, Inventory, Recovery and Post event stages (Guterman, 2005). Principals and their deputies are aware that arson attacks could occur in their schools at any time. However, most of them do not observe safety standard requirements and therefore, are not ready to deal with disasters. Studies confirm that the Ministry of Education did not regularly carry out inspection of schools, leaving schools vulnerable (Kipng'eno and Kyalo, 2009; Shibusse et al, 2014 and Kahwa, 2016). When the schools do not adhere to these best practices, loss of lives may occur and manifestation of symptomatology will appear among the survivors. The best practice of dealing with arson attacks in high schools would be to ensure fire fighting equipment is installed and serviced. Other measures are setting up safety committees, plans for dealing with crises, safety precaution put in place and regular evaluations (Kipng'eno and Kyalo, 2009).

## **STATEMENT OF THE PROBLEM**

High schools in Kenya have continued to experience arson attacks which began at Maseno School in 1908. More than 100 years ago to date, a solution to this scourge is yet to be found. Moreover, nothing is known about several survivors who tried to make their lives sufferable. Arson attacks are traumatic events which leave survivors, most of them youths, to experience manifestation of symptomatology, which is debilitating to an individual survivor. However this, may go away or linger for a long time and It impairs mental health wellness and functioning. Those survivors needed psychological adjustment in order to regain their normal mental health wellbeing and functioning (Seaton, 2009). This study targets the survivors and the uniqueness of the months of June and July, 2016 when arson attacks were sporadic and unprecedented in the history of Kenya. In two months alone, more than 130 high schools were set on fire .The stakeholders were overwhelmed and shaken. The severity and the frequency of the fires attracted national debates, with local communities and other stakeholders searching for causes of the fires and solution to the menace that left thousands of survivors with psychological trauma. This problem has stained the image and integrity of the entire education sector, by and large, the whole country. Arson attacks cost the economy millions of shillings on repairs, relocation of survivors to other facilities, replacement of destroyed items, insurance costs and reconstruction. During the disturbances, no learning in schools takes place and the schools suffer loss of goodwill. However, the psychological consequences on survivors may not be apparent immediately. (Natural Crime Research Center, 2016).

## **GENERAL OBJECTIVE**

The purpose of the study is to determine the relationship between safety awareness, preparedness and psychological adjustment of the survivors of arson attacks in high schools in Nairobi County.

## **THEORETICAL FRAMEWORK**

This study used General systems theory. General systems theory was formulated in 1936; up 1968 by Von – Bertalanffy. The researcher developed the theory after World War II on various components, inputs and outputs of that operation. A unit should have all its integral parts working together harmoniously to have an effective and successful result. The aim is to understand relationships and roles of each part but within the system. This theory is applied, in social networks, mathematics, biology, physics, engineering, psychology, ecology and organisational management. Shibutse et al,(2014) explains how the independent bodies, namely, students, teachers, disaster teams administration and school management needed to work together to put out school fires in secondary schools in Vihiga County. According to Kipng'eno (2009) Security standards and safety programs are necessary in high schools in Kenya as a vital part in security management to help to control or reduce significantly arson attacks. Manifestation of symptomatology is, therefore, reduced considerably, individual resilience is enhanced and Psychological Adjustment will be achieved (Seaton, 2002). If any

one of the parts in the system is in-effective, the whole operation will fail this is its main weakness (Von Bertalanffy, 1968, Shibusse et al, 2014).

## **EMPIRICAL REVIEW**

A study on safety awareness and preparedness in secondary schools in Kenya established that most schools did not have the facilities and that students and teachers were ill-equipped to handle disasters (Kipng'eno,2009) However fear is the foundation of safety if people did not fear for the unknown they would not take precautions (Tertullian 160-200). The philosopher supported the views of Kipng'eno and Kyalo, 2009. Meanwhile, Jensen (2010) views studies of Kipng'eno and Kyalo, 2009 and Tertullian (160-200) on how well one needs to be prepared for possible arson attacks. The researcher termed safety awareness and preparedness as a strategy for resilience which promotes psychological adjustment.

Safety preparedness is also accepted as emergency preparedness. The purposes is to limit the impact of the disaster through knowledge and involvement in order to save life. Studies conducted on citizen national survey in USA established that a large number of population was unprepared for emergencies. The researchers further recommended studies in measuring relationship in personal emergency preparedness and to determine levels of predicting risks (Liu et al, 2013). De Wolf (2004 identified 5 stages in planning to respond to during an emergency, namely, pre-event rescue, inventory, recovery and post event.

## **RESEARCH METHODOLOGY**

### **Research Design**

This research is a case study and applied a descriptive survey design to execute it. The survey design helped the researcher to meet the study objectives by collecting, measuring and analyzing data. The design used the description to organize data into patterns that emerge during analysis. This analysis is the form of the structure of the research and availability of diverse information (Orodho, 2013). The researcher will conduct a survey to establish the relationship between safety awareness, preparedness and psychological adjustment of the survivors of arson attacks in high schools in Kenya and also determine the influence that manifestation of symptomatology management of symptomatology and psychological adjustment will have on the relationships. The researcher will prepare instruments or tools for collecting, analyzing and interpreting observed information. This process will conform to the exact systematic nature of the work (Mugenda and Mugenda, 2003). Since the survey will ensure impartial representation of the population of interests, the researcher will not have any control and will not interfere with the result. The researcher will therefore, post only the results of the study.

### **Target Population**

The population of interest was the form four students who completed their studies towards the end of 2019 in the high schools that experienced arson attacks during the months of June and

July, 2016 within Nairobi County. They are a total of 853 students. They were four schools, 2 public boys boarding, 1 private boys boarding and 01 mixed boys and girls public with girls boarding while boys as day students. They were among over 130 secondary schools which experienced arson attacks in Kenya in June and July, 2016. They are accessible and can easily be reached. They are in close proximity to each other for easy monitoring and they were the only schools in Nairobi that suffered arson attacks. It is generally accepted that what is approved in Nairobi will be adopted by other counties. Nairobi hosts the headquarters, relevant departments which give authorisation to conduct the study and relevant organisations from which secondary data can be collected. Nairobi is also a host to fire engines from herself and armed forces and the only city in the country mostly affected by fires (Huang, et al, 2009; National Crime Research Centre, 2016).

### **Sample Design**

The sample design shows selection of a sample of representative value from the entire population of interest. This aspect will suffice the need for efficiency, representativeness, reliability and flexibility. The criteria was based on the type of school, whether it's boys, girls or mixed schools. The schools were drawn from this category however there was no category from girls school (Gay 1902) With this type of population the recommended sample size range is 10-30% (Mugenda and Mugenda, 2003). The form four students in the four schools completed their studies towards the end of 2019. This is the target population, consequently, their respective sampling venues and their social networks have changed. Their locations, too, remain unknown and they are hard to reach people. Studies refer to them as "hidden populations" or hidden respondents". In this regard, the researcher will enlist teachers as informants from the respective schools who will help by purposively identifying one or two subjects from each school. The subjects will in turn identify respondents sequentially or in a snowballing fashion. Thus snowballing sampling method was employed for the study. Snowball sampling technique was developed in 1958 (Coleman, 1958-1959). However, the model is non-randomized and non-probabilistic. It contravenes many of the assumptions that support conventional, methods of selections. Respondent Driven Sampling technique was developed in 1997 by Heckathorn. The method offers better mathematical model when combined with snowball sampling. This helps to convert chain referral methods with results which can be randomized by keeping track of who referred who in the sample. This creates a model of subjects and respondents, social networks as one component. Resistant respondents are replaced in order to achieve representativeness and reports accurately the number. Subjects recruit respondents as a single source (Heckathorn, 1997). Respondent Driven Sampling also combines with network analyses and creates uniform source. This helps the researcher to achieve high statistical value with samples that are gathered using randomized procedures (Heckathorn, 1997; and Mugenda and Mugenda, 2003). The matrix gives a sample size of 256. One Public Boys Boarding High School (sample size 68) will pretest the research instruments, leaving the sample population for the study to be 188. In order to avoid fractions when distributed among schools, the sample population was 189.

## **Data Collection**

Data both primary and secondary was used in the study. Primary data was collected on self-administered questionnaires. A questionnaire will help the respondents to answer questions on safety awareness and preparedness, manifestation of symptomatology management of symptomatology and psychological adjustment which are the variables of the study. In order to explore more unknown thoughts from respondents, the researcher will employ both structured and unstructured questionnaire. For the success of this operation, the researcher will adopt a field study procedure (Mugenda & Mugenda, 2003). Questionnaires for data collection are preferred in this type of research due to time saving are easily dispensed to respondents spread across a large area and are easy to handle. This helps the respondents to attempt to answer every question (Spasford, 2006; Phellas, 2011).

## **Data Analysis and Presentation**

Analysis of gathered information began with editing the questionnaire for accuracy, cleaning and coding. The information will then be entered on the spread sheet and analysed by using Statistical Package for Social Sciences (SPSS). Quantitative data was analysed by applying descriptive statistics, such as frequencies, percentages and measures of central tendency as a technique for closed ended questions. Meanwhile, qualitative data was cleaned and organized into specific codes according to research questions and directives and grouped into various themes from which conclusions was drawn (Yadutta and Ngao, 2006). The researcher applied inference rules to draw out conclusion. For example, the relationship between safety awareness, preparedness and psychological adjustment as the objective was investigated by applying Pearson Product Moment Correlation ( $r$ ).

## **RESULTS AND DISCUSSION**

### **Safety Awareness and Preparedness**

The study sought to establish the participants' response on statements on safety awareness and safety preparedness. The respondents were asked to rate how they felt about different variables related to safety awareness and preparedness. From the findings in the SPSS analysis, majority of the respondents refuted (93, 57.8%) that they often feel defenceless when it comes to maintaining safety from fire in school. 37.3% indicated that they felt defenceless when it came to maintaining their safety in school.

The study also sought to establish from the respondents whether the school had fire safety learning programmes in place. From the findings, majority of the respondents conquered (117, 72.7%) that the school had safety learning programmes in place while only 26.1% of the respondents indicated that their school did not have fire safety learning programmes in place.

From the analysis of findings it was also established that majority of the respondents conquered (88, 54.7%) that they had fire safety preparedness training exercises in the school. On the same, another 41.6% indicated that they did not have fire safety preparedness training exercises in

their school. 3.7% of the respondents indicated that they did not know whether there was fire safety preparedness training exercises in school.

The study also sought to establish whether the respondents had learnt about fire in the first aid club. From the findings, majority of the respondents (106, 65.8%) indicated that they had not learnt about fire in the first aid club. 28.6% of the respondent indicated that they had learnt about fire in the first aid club. It was evident from the findings that majority of the respondents knew little about fire.

### **Evacuation Routes**

The study sought to establish the respondents' awareness and preparedness on the evacuation routes. From the findings, it was evident (76, 47.2%) that majority of the respondents conquered that in their school, there was a fire emergency exit door in every building. However, 34.2% of the respondents conceded that there was no fire emergency exit door in every building.

From the findings, it was also established that majority of the respondents refuted (76, 47.2%) that all the buildings have windows without grills to ease escape in case of fire. 35.4% of the respondents conquered that all the buildings had windows without grills to ease escape in case of fire. An additional 17.4% of the respondents indicated that they did not know whether all the buildings had windows without grills to ease escape in case of fire.

Also noted from the findings, was that majority of the respondents conquered (111, 68.9%) that there are well lit corridors in the dormitory in case of exit from fires. 18.0% of the respondents indicated that the corridors in their dormitories were not well lit in case of exit from fires.

From the findings, it was also established that majority of the respondents conquered (91, 56.5%) that the emergency exits were well marked to ease escape from fire. Conversely, another 29.2% of the respondents indicated that the emergency exit routes were not well marked to ease escape from fire. 14.3% of the respondents indicated that they did not know whether the corridors were well marked to ease escape from fire.

Also established from the findings was that majority conquered (131, 81.4%) that there is a fire assembly point in the school. Only a mere 10.6% of the respondents indicated that there was no fire assembly point in the school.

### **Safety Preparedness Equipment**

The study also sought to establish from the respondents their perception on availability of safety preparedness equipment in the school. The results from the analysis of findings are illustrated in the subsequent sections. From the analysis of findings, majority of the respondents refuted (81, 50.3%) that every building has lightening arrestor to prevent fire during lightning.



29.8% of the respondents indicated they did not know whether every building had a lightening arrestor to prevent fire during lightning.

From the findings, it was also established that majority of the respondents conquered (139, 86.3%) that the school had fire extinguishers. 7.5% of the respondents conceded that they did not know whether there were fire extinguishers in the school while another 6.2% of the respondents indicated that they did not have fire extinguishers in the school.

From the findings, majority of the respondents agreed (73, 45.3%) that there were smoke detectors in the school to indicate fire. Conversely, another 29.8% of the respondents indicated that there were no smoke detectors in the school to indicate fire. 24.8% of the respondents indicated that they did not know whether the school had smoke detectors to indicate fire.

The study also sought to establish whether there was a fire alarm in the school. From the analysis of findings, majority of the respondents (122, 75.8%) indicated that there was a fire alarm in the school. However, 13.7% of the respondents conceded that there was no fire alarm in the school while another 8.7% of the respondents indicated that they did not know whether the school had a fire alarm.

From the analysis of findings, it was also established that majority of the respondents conquered (95, 59.0%) that fire safety preparedness equipment are frequently repaired and maintained. 24.8% of the respondents indicated that the fire safety preparedness equipment are not frequently repaired and maintained. 16.1% of the respondents indicated that they did not know whether the fire safety equipment are frequently repaired and maintained.

## **INFERENCEAL STATISTICS**

Bi-variate linear correlation analysis the aligning variables was indicated by applying straight-line relationship investigation. The findings are displayed in Table 1.

**Table 1: Bivariate Correlation**

		<b>Psychological Adjustment</b>	<b>Safety Awareness &amp; Preparedness</b>
Psychological Adjustment	Pearson Correlation	1	
	Sig. (2-tailed)		
	N	161	
Safety Awareness & Preparedness	Pearson Correlation	.418	1
	Sig. (2-tailed)	.001	
	N	161	161

Table 1 shows that every independent variable displayed has an effective connection linking both at level of significance 0.01 consequently was incorporated in the investigation. Two variable relationship investigation utilities were presented thus: safety awareness and preparedness  $\times_1=0.418$ .

Safety Awareness & Preparedness  $X_1 = 0.418$

There exists a sound favourable association linking safety awareness and preparedness with psychological adjustment (now closely two variable relation 0.418 quantum). The research desired to establish the relationship between safety awareness, preparedness and psychological adjustment of the survivors of arson attacks in high schools in Nairobi County. The factors under investigation was: The regression model was: Safety Awareness & Preparedness.

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon$$

Where:  $\alpha$  = Constant; Y = Psychological Adjustment;  $X_1$  = Safety Awareness & Preparedness

The research tried to find analysis of variance employed to provide relevant regression model. The findings are presented in Table 2.

**Table 2: Model Validity**

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	1.576	1	1.576	38.801	.000 <sup>b</sup>
	Residual	6.519	159	.041		
	Total	8.095	160			

a. Dependent Variable: Psychological Adjustment

b. Predictors: (Constant), Safety Awareness & Preparedness

The study endeavour to assess relevant model if the model was considered logical or not at all. The F statistics was used to determine the model validity. The study found out that the model was valid  $F_{(3, 160)} = 38.801$ ,  $P < 0.001$ . Therefore, this implies that Safety Awareness & Preparedness is good in explaining variation in psychological adjustment of the survivors of arson attacks in Kenya.

The study sought to determine the model's goodness of fit statistics. The findings are presented in Table 3.

**Table 3: Model's Goodness of Fit Statistics**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.794 <sup>a</sup>	.630	.614	.202

The coefficient of determination as measured by the R-square ( $R^2$ ) (63.0%) shows that all the three predictor variables explain 63.0% of the total variation. This implies that the stochastic disturbance error term ( $\varepsilon$ ) covers 37.0%.

The investigation endeavoured to establish the model virtuousness efficaciousness of how well it fits a set of observations the outcomes one shown in Table 4.

**Table 4: Multiple Regression Variable Coefficients**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	2.772	.702		3.951	.000
Safety Awareness & Preparedness (X <sub>1</sub> )	.225	.106	.136	2.124	.036

a. Dependent Variable: Psychological Adjustment (Y)

X<sub>1</sub> was found to be statistically significant and positively related to Y ( $\beta_1 = 0.225$ ,  $P = .036$ ).

## CONCLUSIONS

The general goal of the study was to determine the relationship between safety awareness, preparedness and psychological adjustment of the survivors of arson attacks in high schools in Kenya and determine how this relationship is influenced by manifestation of symptomatology, management of symptomatology and psychological adjustment. Researchers have established that arson attacks are traumatic events which leave survivors to experience manifestation of symptomatology which is debilitating to an individual survivor. It impairs mental health wellness and functioning. These survivors will need psychological adjustment in order to regain their normally and function effectively in a world of people (Seaton, 2009).

## RECOMMENDATIONS

Managers of education in the country must ensure that all high schools are equipped with safety awareness and preparedness apparatus. Unfortunately many schools do not have important items like firefighting measures. Teachers and students are ill prepared to handle fire in their schools. Where this equipment is available, it is either not serviceable or few people know how it can be employed. In strangeness, however some members in the school are not aware of its existence.

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