

Safety Awareness and Training as Determinants of Effective Safety Standards Implementation in Public Secondary Schools in Kipkelion Sub-County, Kericho County, Kenya

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Abstract

Unsafe learning environments negatively influence students' performance and overall school functioning. Despite the existence of school safety standards in Kenya, cases of unsafe learning conditions continue to rise, signaling gaps in policy implementation. This study investigated the administrative factors determining effective safety standards implementation in public secondary schools in Kipkelion Sub-County, Kericho County. Guided by Systems Theory advanced by L. V. Bertalanffy (1968), the study examined the extent to which safety awareness for teachers, training for members of staff and students influence safety standards implementation. A descriptive research design was adopted. The target population comprised 40 principals, 412 teachers, 12,058 learners, and 1 Quality Assurance and Standards Officer. Using stratified and simple random sampling, the study sampled 12 principals, 124 teachers, 1,206 learners, and 1 Quality Assurance and Standards Officer. Data collection instruments included questionnaires, focus group discussions, interview schedules, and observation checklists. Reliability was established through a pilot study and test-retest technique, while validity was ensured through expert review. Quantitative data were analyzed using descriptive and inferential statistics, whereas qualitative data were thematically analyzed and presented in narrative form. The findings revealed moderate but uneven implementation of safety standards in secondary schools. Safety awareness showed a statistically significant but modest influence on safety implementation ($R^2 = 0.13$), indicating that awareness alone is insufficient without complementary structural support. Teacher training emerged as the strongest predictor of safety implementation ($\beta = .586, p < .001$), while student training showed no significant predictive effect. The study concludes that effective safety implementation requires a holistic and integrated approach, combining safety awareness, and strong teacher-centered capacity building. The study recommends strengthening school safety committees, awareness, institutionalizing regular teacher professional development on safety, and improving safety signage. Significantly the study will assist in enhancing the safety policy and safety standards in secondary schools.

Keywords: Safety, Awareness, Training, Standards, Kipkelion and Public Schools

Introduction

A safe school environment is fundamental to quality education, as effective instruction cannot occur in insecure settings (Lussier & Fitzpatrick, 2016). School safety entails creating emotionally, cognitively, and physically secure environments for teachers and learners to enable curriculum implementation (UNESCO, 2011). This includes structurally sound infrastructure, safety drills, and reporting mechanisms for abuse. Research confirms that when learners feel secure, they concentrate better, and teachers become more effective (Ozmen, Dur & Akgulc, 2010).

The importance of institutional safety in education has been widely documented (Reyes et al., 2012; Glariana & Solar, 2015; Maxwell et al., 2017). International conventions have reinforced this agenda. The Hyogo Framework for Action (2005–2015) emphasized resilience in schools, while the 2009 Geneva UN conference urged national evaluations of institutional infrastructure. The Global Platform for Disaster Reduction (2013) called for global safe school initiatives. However, progress was hindered by inadequate infrastructure, limited funding, low awareness, and insufficient training (UNESCO/UNICEF, 2013).

In response, the UN launched the “thematic platform on knowledge and education,” offering guidelines for holistic school safety. The framework defined safe schools as a combination of resilient infrastructure, disaster management, resilience education, and risk reduction (UN, 2013). UNICEF further supported this through a safety manual for Sub-Saharan Africa, equipping teachers with skills to establish safe environments (UNICEF, 2017). The UN Sustainable Development Goal 4 also underscores safe learning environments (UNESCO, 2015).

Globally, nations have prioritized school safety due to recurring disasters such as collapsed buildings, gun attacks, floods, and fires (Benbenishty & Astor, 2005). In the USA, manuals by the International Association of Chiefs of Police (2009) outlined measures such as personnel training, access controls, lockdown procedures, and rapid response (Marquet, 2013). In Asia, the ASEAN Safe School Initiative (ASSI) launched in 2012 promoted disaster management, safe facilities, and resilience learning. South Africa introduced initiatives like Tiisa Thuto, Crisp, and Cass, which fostered partnerships among schools, communities, and government to address safety needs (Mgadla, 2006). Uganda’s Safe School Contract reinforced parental and community participation in safety activities (Lulua, 2008).

Kenya has also pursued school safety initiatives. In 2003, the Ministry of Education partnered with Church World Service to pilot “School Safe Zones.” This led to the development of the *Safety and Standards Manual* (2008), which addressed diverse safety concerns including infrastructure, health, hygiene, drug abuse, special needs, transportation, and community interactions (MOE, 2008). Despite these efforts, tragedies persist. Fires and arson have caused deaths, injuries, and property loss, such as the 68 student deaths reported in 2001 (Odalo, 2001) and the destruction of Wandubi Mixed Secondary School in 2011 due to faulty wiring (*The Standard*, 2011) and the 2026 Utumishi Girls Academy in Gilgil fire tragedy which killed 16 female students and left over 75 learners hospitalized with serious injuries (*The Standard*, 2026).

Recent developments highlight ongoing challenges. In 2024, the Ministry of Education shut down 348 boarding facilities nationwide for non-compliance with safety regulations after inspections revealed significant breaches (Kipsang, 2024). Kipkelion Sub-County has similarly faced safety risks, including

fires, theft, and injuries among teachers and learners (SDE-Kipkelion, 2024). These realities underscore the need for empirical research on determinants of safety awareness and training in effective implementation of safety standards.

This study therefore seeks to assess how safety awareness and training influence the implementation of safety standards in public secondary schools in Kipkelion Sub-County, Kericho County, Kenya. By situating Kenya's experience within global and regional frameworks, the study aims to fill contextual gaps and provide evidence-based insights for strengthening institutional safety in schools.

Statement of the Problem

Notwithstanding the issuance and existence of the School Safety Manual and other supportive policies, safety issues in schools are on an upward trend. In an official circular dated November 27, 2024, Education Principal Secretary directed the immediate shutdown of 348 boarding schools' facilities nationwide due to non-compliance with safety regulations. He disclosed that the schools had committed significant breaches of essential safety requirements. Quality Assurance Assessment reports obtained from Kipkelion Sub-County Education Office (2023) indicates issues of safety concern in several secondary schools like; absence of emergency doors in dormitories and classes, porous perimeter fence, non-existent repairs of physical infrastructure facilities, inadequate fire extinguishers, lack of safety awareness, existence of grilled windows, and overcrowded classrooms and dormitories. It is against this information that the study was conducted to establish of determinants of safety awareness and training on effective implementation of safety standards in public secondary schools in Kipkelion Sub-County, Kericho County.

Study Objectives

The specific objectives of the research were to:

- To establish the extent to which safety awareness for teachers determine effective safety standards implementation in public secondary schools in Kipkelion Sub-County.
- To establish how safety training for members of staff determines effective safety standards implementation in public secondary schools in Kipkelion Sub-County.

Theoretical Framework

This study is anchored in Systems Theory, advanced by Ludwig von Bertalanffy (1968), which provides a holistic lens for understanding how interconnected elements function toward shared objectives. A system is defined as a set of components unified by interdependence and regular interaction, whether natural, physical, or conceptual (Tien & Berg, 2003). Each element contributes inputs, processes, and outputs, with relationships among components shaping overall performance (Golinelli, 2009).

Systems Theory emphasizes four components: (i) items or variables within the system, (ii) features or properties that define objectives, (iii) internal associations among objects, and (iv) the system's existence within a broader environment. Collectively, these components illustrate how parts influence one another to form a larger, distinct whole.

Schools exemplify systems, comprising sub-systems such as Boards of Management, administrators, teachers, student councils, and support staff. Learners are viewed as raw materials processed through

In the context of this study, achieving school safety depends on coordinated action across all stakeholders. Principals play a central role in fostering environments conducive to teaching and learning by integrating safety measures into daily operations. Without steady leadership and collaboration, gains in safety cannot be realized. Systems Theory thus frames schools as dynamic, interconnected entities where safety is not an isolated concern but a systemic requirement. By applying this framework, the study underscores that institutional safety must be implemented comprehensively, with each stakeholder contributing to the resilience and effectiveness of the school system.

Conceptual framework serves as a guide for the researcher, helping to organize and interpret data and understand the relationships between different variables (Creswell,2014). Figure 1.1 provides a conceptual framework utilized for the current study.

Dependent Variables

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graph LR; A["Awareness for teachers:

- Safety Standards and Guidelines Manual
- Public Health Act
- Public works and building guidelines

"] --> D["Implementation of Safety Standards:

- Reduced Risks
- Safe schools
- Enhanced infrastructure safety
- Adherence to safety standards
- Enhanced academic achievement
- Increased retention and completion rates
- Clean and conducive teaching and learning environment
- Motivated personnel

"]; B["Safety training for members of staff:

- Fire drills
- First Aid kits
- Lockdown
- Evacuation procedures
- Incorporation of Safety standards in teaching

"] --> D; C["Intervening Variables:

- Stakeholders 'commitment
- Availability of Financial & Physical Resources

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- Reduced Risks
- Safe schools
- Enhanced infrastructure safety
- Adherence to safety standards
- Enhanced academic achievement
- Increased retention and completion rates
- Clean and conducive teaching and learning environment
- Motivated personnel

Figure 1.1: Conceptual Framework

This study conceptualizes administrative factors: awareness and training as independent variables, and the implementation of safety standards as the dependent variable. Strong administrative leadership is critical in fostering safe school environments and embedding safety education within school programs. Awareness involves sensitizing teachers and students to legally mandated safety documents such as the *Safety Standards and Guidelines Manual*, *Public Works and Building Guidelines*, *Public Health Act*, and *Education Act*. Training encompasses practical safety measures including fire drills, first aid, lockdown and evacuation procedures, and integrating safety standards into teaching practices.

Effective implementation of safety standards, the dependent variable, is expected to yield outcomes such as reduced risks, improved infrastructure safety, adherence to regulations, enhanced academic achievement, higher retention and completion rates, and a clean, conducive learning environment with motivated personnel.

Intervening variables include stakeholder commitment and resource availability. Successful implementation depends on cooperation among teachers, students, parents, and Boards of Management, alongside adequate financial and physical resources. Challenges such as limited funding, lack of equipment, and poorly maintained facilities can undermine administrative efforts. To mitigate these, schools should strengthen stakeholder engagement through sensitization programs, collaborative decision-making, and improved resource mobilization, including government support, corporate sponsorships, and community contributions. Addressing these factors enhances the effectiveness of safety standard implementation in Kipkelion Sub-County schools.

Literature Review

Safety Awareness and Implementation of Safety Standards in Schools

Being aware of safety measures in schools is deemed to be an important feature of quality education provision. Schools that do not implement safety standards may not only encounter legal costs but social costs as well (Omolo & Simatwa, 2010). The presence of safety guides, manuals, and training resources in schools is usually accredited to awareness and implementation of safety standards. Song (2014) noted that different countries encounter distinctive institutional safety problems and have therefore developed responsive guidelines suited to their own unique challenges.

Rober, Kemp, Rathbun and Morgan (2014) conducted a survey on indicators of school crime and safety on behalf of National Center for Education Statistics (NCES) in United States. According to their findings, there were close to 1,364,990 serious school disasters. From the year 1966 – 2018 there were 11 school mass shooting occurrences that resulted to 172 injuries and 167 deaths in United States. Song (2014) indicates that creating of safety awareness by most schools in USA has been speeded up by increased incidents of social and natural crisis. Likewise, enhanced safety awareness has resulted to institutions implementing safety standards where 77.0% of schools in USA were found to have instituted safety measures (Robert et al., 2014). The current study sort to collect empirical evidence to establish if this is the situation in Kenya hence filling the geographical gap.

UNICEF (2009) report indicates that China has encountered regular and catastrophic earthquakes of high magnitude that have resulted to high deaths which include learners. Inadequate safety preparedness has resulted to high fatalities of people and therefore the Chinese government was expected to look on measures

of addressing such challenges both at home and in school. Natural disasters like earthquakes and floods have not only caused distress among adults but many school-going children as well in China (UNICEF, 2009). Song (2014) disputed that despite emergency drills being undertaken by organisations involved in disaster preparedness, most of the people were unaware of safety standards showing that institutional safety is an issue of concern even in developed countries.

In South Africa Masitsa (2011) found out that the culture of violence was deep-rooted in schools which has been evolving in different dimensions over the years hence making most schools insecure and unsafe. As a result, the government developed school safety guidelines as part of awareness operation to address culture of violence. Prinsloo (2005) observed that despite existence of safety policies for schools in South Africa, these safety policies were not put into practice in schools. It was found out that incidents of racial attacks were increasing despite the policy criminalising such behaviours in private and public-school settings in South Africa. All these are attributed to minimal awareness on existing policy documents.

Makau (2016) observed that learners' death rates in schools were mainly as a result of school management failure to perform wide scale awareness among learners and teachers concerning safety standard when an incident occurs. Students have to be made aware on safety standards required when they utilise workshops, laboratories or other places that requires one to take safety precautions. It is on this basis that this study sort to establish the administrative factors influencing effective implementation of safety standards in public secondary Schools in Kipkelion Sub-County, Kericho County.

Safety Awareness and Implementation of Safety Standards in Schools

Administrative awareness is a critical determinant of safe school environments. It involves sensitizing teachers, students, and stakeholders to legally mandated safety documents such as the *Safety Standards and Guidelines Manual*, *Public Works and Building Guidelines*, *Public Health Act*, and *Education Act*. Reyes et al. (2012) and Maxwell et al. (2017) emphasize that awareness campaigns enhance compliance and reduce risks by ensuring stakeholders understand their roles in maintaining safe environments. Awareness also promotes accountability, compelling administrators and Boards of Management (BOM) to align practices with national safety policies.

Globally, awareness has been reinforced through international conventions. The Hyogo Framework for Action (2005–2015) emphasized resilience in schools, while the Global Platform for Disaster Reduction (2013) called for disaster-resistant infrastructure and comprehensive safety programs (UNESCO/UNICEF, 2013). In the USA, manuals such as the *International Association of Chiefs of Police Guide* (2009) outlined measures including personnel training, access controls, lockdown procedures, and rapid response systems (Marquet, 2013). In Asia, the ASEAN Safe School Initiative (ASSI) promoted disaster management and resilience learning. In Africa, initiatives like Tiisa Thuto in South Africa and Uganda's Safe School Contract reinforced community participation (Mgadla, 2006; Lulua, 2008).

Kenya has pursued awareness initiatives through partnerships and policy frameworks. The Ministry of Education's collaboration with Church World Service in 2003 led to the *Safety and Standards Manual* (2008), which addressed diverse safety concerns including infrastructure, health, hygiene, drug abuse, special needs, transportation, and community interactions (MOE, 2008). Despite these efforts, tragedies persist, such as the 68 student deaths in 2001 (Odalo, 2001) and the destruction of Wandubi Mixed

Secondary School in 2011 due to faulty wiring (*The Standard*, 2011). In 2024, the Ministry shut down 348 boarding facilities nationwide for non-compliance with safety regulations (Kipsang, 2024). Kipkelion Sub-County has similarly faced safety risks, including fires, theft, and injuries among teachers and learners (SDE-Kipkelion, 2024). These realities underscore the need for empirical research on determinants of safety awareness in effective implementation of safety standards.

Awareness alone, however, is insufficient without stakeholder commitment and resource availability. Cooperation among teachers, students, parents, and BOMs enhances ownership and sustainability of safety initiatives (Glariana & Solar, 2015). Yet limited funding, lack of equipment, and poorly maintained facilities often undermine administrative efforts. UNESCO (2015) emphasizes that adequate financial support and infrastructure are prerequisites for safe learning environments. Addressing these challenges requires sensitization programs, collaborative decision-making, and resource mobilization through government support, corporate sponsorships, and community contributions.

Safety Training for Members of Staff and Implementation of Safety Standards in Schools

Training complements awareness by equipping staff and learners with practical skills to respond to emergencies. Fire drills, first aid, lockdown procedures, and evacuation plans are critical components of safety preparedness (UNICEF, 2017). Training ensures that safety standards are not only known but practiced, fostering confidence among teachers and students. Ozmen, Dur & Akgulc (2010) argue that when learners feel secure, they concentrate better, while teachers perform more effectively. Globally, training has been prioritized in manuals such as the *International Association of Chiefs of Police Guide* (2009), which outlines procedures for detecting and responding to violence in schools (Marquet, 2013). In Asia, ASSI integrates resilience learning into training programs, while South Africa's Crisp and Cass initiatives mobilize local resources to strengthen safety committees (Mgadla, 2006). These examples highlight that training is indispensable for translating awareness into effective safety practices.

Effective implementation of safety standards, the dependent variable in this study, yields outcomes such as reduced risks, improved infrastructure safety, adherence to regulations, enhanced academic achievement, higher retention and completion rates, and a conducive learning environment. UNESCO (2011) defines safe schools as environments that are emotionally, cognitively, and physically secure. Implementation requires coordinated administrative leadership, stakeholder cooperation, and resource mobilization. In Kenya, despite the existence of the *Safety and Standards Manual* (MOE, 2008), tragedies such as fires and arson continue to cause deaths, injuries, and property loss. Recent developments, including the 2024 closure of boarding facilities for non-compliance, highlight ongoing challenges (Kipsang, 2024).

Training also addresses intervening variables such as stakeholder commitment and resource availability. Studies show that stakeholder engagement enhances ownership and sustainability of safety initiatives (Reyes et al., 2012). However, limited funding, lack of equipment, and poorly maintained facilities often undermine administrative efforts. International experiences demonstrate that partnerships between schools, communities, and governments are effective in sustaining safety programs. Uganda's Safe School Contract reinforced parental and community participation (Lulua, 2008), while South Africa's initiatives mobilized local resources to strengthen safety committees (Mgadla, 2006). In Kenya, similar approaches could enhance safety standard implementation, particularly in resource-constrained contexts like Kipkelion Sub-County.

Methodology

Research Design

Given the survey and observational-based nature of this investigation, a descriptive research design was utilized.

Research Locale

The study was undertaken in Kipkelion Sub-County. The majority of public schools are located in Kipkelion Sub County, according to the Kipkelion Sub-County Schools Census Report (MOE, 2023), these schools are characterized by low teacher-to-student ratio and a large student population in addition to low safety adoption measures.

Target Population

Kipkelion Sub County has 40 secondary schools divided into 4 zones namely; Kokwet, Chilchila, Kamasian, and Kipkelion. The target population was 12,511 respondents comprising 40 principals, 412 facilitators, 12,058 learners and 1 Sub-County Quality Assurance and Standards Officer within the Sub-County. The institutional heads were of interest since they are supposed to spearhead safety standards implementation in schools. Facilitators being the ones assisting the administrators in implementing safety standards in schools they were of interest. Learners as recipients of safety practices and concerns in school were of interest too.

Sample and Sampling Techniques

This study employed stratified random sampling to ensure adequate representation of the three school categories in Kipkelion Sub-County: boys' schools, girls' schools, and mixed schools. Schools were first grouped into these strata, after which 30 percent were randomly selected, yielding twelve schools two boys' schools, two girls' schools, and eight mixed schools. All principals from the sampled schools were automatically included due to their direct responsibility for overseeing safety standards.

Teachers were sampled proportionately from each stratum using simple random sampling, with 30 percent of the teaching population selected. Learners did not participate in the questionnaire survey but were engaged through Focus Group Discussions (FGDs). Each of the twelve schools provided one FGD of about ten purposively selected learners, ensuring diversity in age, class level, and school experiences. The choice of ten participants aligns with qualitative research recommendations that groups of six to twelve yield optimal interaction and diversity (Krueger & Casey, 2015). This approach resulted in 120 learners participating in FGDs, proportionately distributed across school types. The Sub-County Quality Assurance and Standards Officer (DQASO) was also included as the sole officer responsible for oversight and enforcement of safety standards in the region.

Sample Size

The sample size was derived from the selected schools and respondent categories. Following Gay et al. (2011), who recommend 10 to 30 percent of a population for educational research, twelve schools representing 30 percent of the forty schools in Kipkelion Sub-County were included. From these schools, twelve principals were automatically enrolled. For teachers, 124 participants (30 percent of the total teacher

population, N = 412) were selected using stratified random sampling across boys', girls', and mixed schools. To address potential non-response, absenteeism, transfers, and incomplete questionnaires common challenges in school-based surveys a 10 percent allowance was added, resulting in an additional 12 teachers. This adjustment increased the teacher sample to 136, ensuring an adequate response rate in line with Mugenda & Mugenda (2003) and Creswell (2014).

Learners' participation comprised 120 students drawn exclusively for FGDs, with ten learners from each of the twelve sampled schools. This number was considered manageable for moderators and effective for capturing diverse perspectives (Creswell & Poth, 2018). Together, the sample included 12 principals, 136 teachers, 120 learners, and one DQASO, providing both quantitative and qualitative insights into safety awareness, training, and implementation of safety standards. Table 1.1 presents the detailed sampling frame, including the 10% non-response adjustment applied to the teacher sample.

Table 1: Sampling Frame and Sample size

School Type	Category	Population	Sample (30%)	+10% Non-Response	Final Sample	Sampling Technique
Boys	Principals	7	2	–	2	Simple Random
	Teachers	84	25	+2	27	Simple Random
	Learners (FGDs)	1,079	20	–	20	FGD: 10 per school
Girls	Principals	9	3	–	3	Simple Random
	Teachers	108	32	+2	34	Simple Random
	Learners (FGDs)	1,202	20	–	20	FGD: 10 per school
Mixed	Principals	24	7	–	7	Simple Random
	Teachers	220	66	+7	73	Simple Random
	Learners (FGDs)	9,777	80	–	80	FGD: 10 per school
Sub-County	DQASO	1	–	–	1	Purposive Sampling
Grand Total	Principals	40	12	–	12	
	Teachers	412	124	+12	136	
	Learners (FGDs)	12,058	120	–	120	
	DQASO	1	–	–	1	

Source: MoE Kipkelion Sub-County (2024)

Research Instruments

The research utilized questionnaires, interview schedules, researcher's questions guide for focused group discussions and observation checklists to collect data. Questionnaires were distributed to collect attitudes, feelings, and views beyond the investigator on administrative factors influencing the effective implementation of safety standards in public secondary schools. There was one set of questionnaires for the facilitators. Interview schedule obtained data from Head of Institutions and Quality Assurance and Standards Officer, Focused Group Discussion obtained data from learners and finally an observation

checklist was utilized to collect information on observable physical aspects of safety in the respective selected institutions as per the study objectives. By so doing the researcher was able to see what has been done and collaborate with data gathered through other instruments (Orodho 2005).

Data Processing, Analysis and Findings

Before analysis, all collected data underwent thorough cleaning and coding to ensure accuracy. Questionnaires were checked for completeness, missing values were identified, and inconsistencies corrected. The cleaned data were then coded and entered into SPSS version 26, chosen for its reliability in handling diverse datasets and advanced statistical procedures (Rahman & Muktadi, 2021).

Quantitative analysis involved both descriptive and inferential statistics. Descriptive statistics included frequencies, percentages, means, and standard deviations summarized respondents' views on safety awareness, training, and implementation of safety standards. Results were presented in tables, charts, and graphs for clarity. Inferential statistics examined relationships among variables. Pearson's Product-Moment Correlation Coefficient (r) assessed the strength and direction of linear relationships between the dependent variable, *Safety Standards Implementation (SI)*, and independent variables including *Safety Awareness (SA)*, *Teacher Training (TR)*, *Student Training Regularity (STR)*, *Infrastructure Adequacy (INF)*, and *Financial Resource Allocation (FIN)*.

To determine predictive influence, simple regression models tested the effect of SA, INF, and FIN on SI:

$$SI = \beta_0 + \beta_1(SA) + \varepsilon; SI = \beta_0 + \beta_1(INF) + \varepsilon; SI = \beta_0 + \beta_1(FIN) + \varepsilon$$

Additionally, multiple regression analysis assessed the combined impact of TR and STR on SI:

$$SI = \beta_0 + \beta_1(TR) + \beta_2(STR) + \varepsilon$$

Qualitative data from interviews, open-ended responses, and focus group discussions were analysed thematically. Coding, categorization, and identification of recurring patterns allowed triangulation with quantitative findings, thereby strengthening interpretive validity and ensuring a comprehensive understanding of safety awareness, training, and implementation in schools.

Descriptive Statistics

Safety Awareness for Teachers

This section presents descriptive statistics on key indicators of teacher and student safety awareness, focusing on their engagement in sensitization activities, exposure to safety briefings, participation in safety programs, and involvement of the wider community in school safety initiatives. The results are further triangulated with findings from student focus group discussions (FGDs), principals' interviews, and the Sub-County Quality Assurance and Standards Officer (DQASO). Together, these sources provide a comprehensive picture of the extent to which teachers and students in Kipkelion Sub-County are informed, prepared, and motivated to uphold safe learning conditions as presented in table 1.2.

Table 2: Safety Awareness indicators for school stakeholders

Statement	1	2	3	4	Mean	Std. Dev
Students in my school are regularly sensitized on safety practices.	18	27	73	18	2.67	0.870
Teachers receive regular safety awareness briefings from school administrators.	19	32	61	24	2.66	0.929
Community members are involved in school safety awareness initiatives.	39	35	49	13	2.26	0.983
The principal invites experts for safety sensitization.	31	38	42	25	2.47	1.105
The principal often invites disaster management experts for school sensitization.	25	25	47	39	3.37	1.514
Safety issues are frequently discussed during school assemblies.	31	30	37	38	3.15	1.586
Safety awareness programs motivate both staff and students to observe safety rules.	21	10	54	51	3.76	1.421

Safety Awareness and Implementation of Safety Standards in Schools

Teachers reported that students are regularly sensitized on safety practices (Mean = 2.67, SD = 0.87), a perception echoed in FGDs where 72.7% of learners felt safe in classrooms, dormitories, and school compounds. However, 27.3% expressed concerns, indicating inconsistencies in sensitization depth. This mirrors Oduor and Simatwa's (2021) observation that safety briefings in Kenyan schools are often irregular and reactive. Assemblies emerged as the most robust communication channel, with teachers assigning a mean score of 3.15 (SD = 1.59) and 81.8% of students confirming frequent safety messages. Yet, experiential learning remains weak only 9.1% of students attended motivational talks or demonstrations, reinforcing UNESCO's (2023) finding that African schools emphasize theoretical communication over practical drills.

Teachers rated administrative briefings moderately (Mean = 2.66), corroborated by the DQASO, who observed that '*sensitization occurs mainly during termly visits.*' Principals admitted safety talks are irregular, often dependent on external facilitators, aligning with Njeru's (2019) assertion that safety communication remains ad hoc. Invitations to safety experts were uneven, with general safety rated low (Mean = 2.47) but disaster management higher (Mean = 3.37), reflecting Mwangi's (2008) observation that schools prioritize fire risks due to past tragedies. While 72.7% of students confirmed the presence of basic equipment, few recalled direct engagement with experts. Community involvement was weakest (Mean = 2.26), consistent with Karanja and Mugo (2020), who noted poor school–community collaboration.

Safety Training for Members of Staff and Implementation of Safety Standards in Schools

Despite gaps, teachers strongly agreed that safety programs motivate compliance (Mean = 3.76), consistent with OECD (2022), which shows sensitization improves safety behaviour. Students also acknowledged frequent teacher discussions on safety, reinforcing its positive influence. Triangulated evidence indicates Kipkelion schools have foundational awareness mechanisms, particularly assemblies and occasional expert visits. However, implementation remains fragmented, largely theoretical, and insufficiently practical. Addressing irregular sensitization, enhancing experiential training, strengthening community involvement,

and institutionalizing routine safety programmes are essential for building a sustainable safety culture aligned with national and global standards.

Safety Training for Members of Staff and Students

An examination of teachers' and students' safety training was conducted to assess the extent to which schools implement the Ministry of Education's Safety Standards Guidelines and promote a culture of preparedness within the learning environment. Table 1.3 presents a detailed summary of respondents' perceptions across teacher-related and student-related training indicators.

Table 3: Teachers' and Students' Safety Training and Awareness

Statement	SD	D	A	SA	Mean	Std. Dev
Teacher-Related						
Teachers are trained on risk management and emergency response procedures.	40	32	28	36	2.91	1.640
Teachers are periodically trained on fire drills and evacuation procedures.	36	35	36	29	2.90	1.526
I actively participate in safety-related activities organized within the school.	35	35	41	25	2.63	1.558
Teachers are periodically trained on disaster management.	37	36	27	36	2.90	1.620
Teachers periodically receive demonstrations on management of risk.	37	40	25	34	2.85	1.600
Student-Related						
Students are trained on risk management and emergency response procedures.	29	35	41	31	3.07	1.528
Students actively participate in safety-related activities organized within the school.	33	33	35	35	3.04	1.586
Students are periodically trained on fire drills and evacuation procedures.	21	31	40	44	3.40	1.512
Students are periodically trained on disaster management.	38	25	37	36	3.06	1.627
Students periodically receive demonstrations on management of risk.	25	34	29	48	3.30	1.593

The results in Table 1.4 reveal that while many schools have initiated safety training programs, implementation of the Ministry of Education's Safety Standards Guidelines remains uneven and inadequately institutionalized. Teacher-focused training indicators show moderate engagement, whereas student-focused indicators appear stronger, suggesting schools prioritize learner preparedness over teacher capacity-building.

Training on risk management and emergency response for teachers recorded a mean of 2.91 (SD = 1.640), confirming that only some teachers receive structured training. This aligns with Wachira and Nyamweya (2022), who found that only one-third of Kenyan secondary schools conduct regular emergency training due to weak professional development frameworks. Fire drills and evacuation training scored similarly (Mean = 2.90, SD = 1.526), with principals noting that only senior teachers or safety officers attend external workshops, while others rely on informal information-sharing. These findings support Njeru (2019) and UNESCO (2023), who argue that African schools underinvest in teacher safety training due to limited budgets and competing priorities.

Other teacher indicators, such as disaster management training (Mean = 2.90) and risk management demonstrations (Mean = 2.85), highlight limited exposure to practical experiences. Teachers' participation in safety activities was lower still (Mean = 2.63), reflecting motivational barriers and insufficient administrative support.

In contrast, student-related training appears stronger. Risk management and emergency response averaged 3.07, participation in safety activities 3.04, and fire drills 3.40. Demonstrations scored 3.30, suggesting schools make visible efforts to involve learners. However, FGDs revealed contradictions: 72.7% of students reported never participating in a fire or evacuation drill, indicating drills may be symbolic or infrequent. This discrepancy echoes Karisa & Kikechi (2021), who found many schools report drills on paper but fail to implement them effectively.

Overall, findings illustrate a persistent imbalance: students receive more exposure to safety activities, while teachers are central to planning and supervision they receive limited training. Reliance on a few trained teachers to cascade knowledge dilutes accuracy and consistency, reflecting national trends where teacher-centered training is deprioritized despite its critical role in school preparedness (Karanja & Mugo, 2020).

Safety Standards Implementation in Public Secondary Schools in Kipkelion Sub-County

This section presents and analyzes the level of safety standards implementation in public secondary schools in Kipkelion Sub-County, drawing on data collected from teachers regarding structural safety, emergency readiness, safety training, availability of safety equipment, and financial support for safety initiatives as presented in table 1.4.

Table 4: Safety Standards Implementation

Safety Standards Implementation Indicator (DV)	SD	D	A	SA	Mean	Std. Dev
A functional safety committee exists in my school.	52	34	17	33	2.60	1.653
I am familiar with the Ministry of Education's Safety Standards Manual.	28	22	49	37	3.33	1.530
Fire extinguishers are regularly inspected and maintained (operational use).	33	31	35	37	3.09	1.598
Clear assignment of emergency roles (fire marshals, first-aid officers, evacuation leaders).	40	28	34	34	2.96	1.628
Safety signage is adequately displayed in key areas.	50	30	32	24	2.22	1.789
Composite mean					2.84	

The results on the implementation of safety standards, measured by five indicators in Table 1.4, reveal a moderate but uneven level of compliance across governance, emergency readiness, and safety communication in Kipkelion Sub-County schools. The composite mean score of 2.84 reflects a moderately low level of implementation, suggesting that while key safety elements exist, they are not sufficiently institutionalized or consistently applied. This aligns with findings that although teachers and administrators are familiar with the Ministry of Education's *Safety Standards Manual*, weaknesses remain in governance structures, routine emergency preparedness, and visual communication. Low scores for safety signage, weak safety committees, and incomplete assignment of emergency roles highlight the lack of systematic safety management practices.

Governance emerged as particularly weak. Functional safety committees recorded a mean of 2.60 (SD = 1.653), with many schools either lacking committees or having inactive ones. The DQASO confirmed that committees are “*not in all schools*,” while principals admitted some exist only on paper. This governance gap constrains schools’ ability to coordinate safety activities, enforce standards, and monitor preparedness, echoing Oduor and Simatwa’s (2021) observation that schools often understand safety requirements but lack mechanisms to enforce them.

Familiarity with the *Safety Standards Manual* was relatively high (Mean = 3.33), yet this awareness has not translated into institutionalized practice. Emergency readiness indicators showed mixed results: fire extinguisher maintenance scored 3.09, while assignment of emergency roles averaged 2.96. Principals noted that roles are often informally understood rather than formally documented, consistent with Wachira and Nyamweya (2022) and Nyabuti (2018), who highlighted poor planning and irregular maintenance as systemic challenges.

Safety communication was the weakest dimension. Adequate signage scored only 2.22, with FGDs revealing that many students could not identify assembly points or evacuation routes. The SQASO noted schools focus more on structural compliance than communicative aspects, a pattern UNESCO (2023) identifies globally as a neglected but critical safety indicator.

Overall, evidence shows that safety standards in Kipkelion Sub-County are partially implemented but not fully operationalized. Strengthening governance, institutionalizing emergency roles, and prioritizing safety communication are essential for building a comprehensive and sustainable safety culture.

Inferential Statistics Results

Correlation Analysis

Correlation analysis was conducted to examine the strength and direction of the linear relationships between the dependent variable, Safety Standards Implementation (SI) and the key independent variables, namely Safety Awareness (SA), Teacher Training (TR), and Student Training (STR). This analysis provides an initial understanding of how each predictor is associated with Safety Implementation (SI). Pearson’s correlation coefficients were computed to determine whether the relationships were positive or negative, weak, moderate, or strong, and whether they were statistically significant at the 0.01 level. The results of this analysis offer important preliminary insights into the interconnectedness of school safety factors and help identify which variables show the highest potential for predicting effective safety standards implementation. The correlation results are summarized in Table 1.5.

Table 5: Correlations Summary

		SA	TR	STR	SI
SA	Pearson Correlation	1	.646**	.650**	.361**
	Sig. (2-tailed)		.000	.000	.000
	N	136	136	136	136
TR	Pearson Correlation	.646**	1	.558**	.562**
	Sig. (2-tailed)	.000		.000	.000
	N	136	136	136	136
STR	Pearson Correlation	.650**	.558**	1	.285**
	Sig. (2-tailed)	.000	.000		.001
	N	136	136	136	136
INF	Pearson Correlation	.511**	.584**	.482**	.401**
	Sig. (2-tailed)	.000	.000	.000	.000
	N	136	136	136	136
FIN	Pearson Correlation	.642**	.562**	.522**	.354**
	Sig. (2-tailed)	.000	.000	.000	.000
	N	136	136	136	136
SI	Pearson Correlation	.361**	.562**	.285**	1
	Sig. (2-tailed)	.000	.000	.001	
	N	136	136	136	136

The results reveal strong and coherent internal relationships among the independent variables, suggesting that school safety dimensions tend to reinforce one another. Safety Awareness (SA) shows particularly strong positive correlations with TR ($r = .646$, $p < .001$), and STR ($r = .650$, $p < .001$). These findings imply that in schools where teachers display higher awareness of safety issues, there is also a higher likelihood of active training initiatives, and regular drills. In essence, safety awareness appears to be a central enabling factor that enhances operational safety practices.

Teacher Training (TR) also demonstrates robust correlations with SA ($r = .646$), INF ($r = .584$), and FIN ($r = .562$), indicating that enhanced teacher capacity building tends to occur in environments where there is adequate infrastructure and financial support for safety activities. This aligns with prior research suggesting that training is often prioritized in well-resourced schools that actively invest in safety improvements (UNESCO, 2023). The association between TR and STR ($r = .558$) underscores the complementary nature of general teacher training and safety-specific refresher courses.

Safety Training Regularity (STR) shows moderate to strong correlations with SA ($r = .650$), TR ($r = .558$), INF ($r = .482$), and FIN ($r = .522$). These relationships suggest that schools that organize safety drills and refresher sessions more frequently are likely to have higher safety awareness, and better-trained staff. STR appears to function as a practical, operational bridge between policy-level training initiatives and the actual implementation of safety protocols.

Influence of Safety Awareness for Teachers on the Effective Safety Standards Implementation in Public Secondary Schools in Kipkelion Sub-County

This section presents the results of a simple linear regression analysis conducted to examine the extent to which Safety Awareness (SA) predicts Safety Standards Implementation (SI) in public secondary schools. The regression analysis evaluates model fit, statistical significance, and the predictive contribution of SA to SI. The results are summarized in Table 1.6 below.

Table 6: Regression Results for Safety Awareness (SA) Predicting Safety Standards Implementation (SI)

Model Summary	R	R Square	Adjusted R Square		Std. Error of the Estimate	
Model 1	.361	.130	.124		6.66661	
ANOVA	Sum of Squares		df	Mean Square	F	Sig.
Regression	893.817		1	893.817	20.111	.000
Residual	5955.448		134	44.444		
Total	6849.265		135			
Coefficients	Unstandardized B		Std. Error	Standardized Beta	t	Sig.
(Constant)	9.534		1.331	—	7.161	.000
SA	.361		.081	.361	4.485	.000

Dependent Variable: Safety Standards Implementation (SI)

The regression analysis examined the extent to which Safety Awareness (SA) predicts Safety Standards Implementation (SI) in public secondary schools. As shown in the Model Summary, the model produced a correlation coefficient of $R = .361$, indicating a weak to moderate positive relationship between SA and SI. The R Square value of .130 shows that 13.0% of the variance in safety standards implementation is explained by safety awareness alone, while the remaining 87% is influenced by other factors such as training, infrastructure, financial support, school leadership, safety culture, and broader institutional practices. The Adjusted R Square (.124) further confirms that the explanatory power remains stable when adjusted for sample size, indicating an acceptable level of model reliability.

The ANOVA results confirm that the overall regression model is statistically significant, with $F(1, 134) = 20.111$, $p < .001$. This means that Safety Awareness significantly improves the prediction of Safety Standards Implementation compared to a model with no predictors. The Regression Sum of Squares (893.817) compared to the Residual Sum of Squares (5955.448) indicates that although SA contributes meaningfully to predicting SI, the majority of the variance still lies outside this single predictor model. This suggests that safety awareness alone is insufficient to drive comprehensive safety implementation, highlighting the importance of other factors such as teacher training, student preparedness, resource availability, and administrative commitment.

The regression Coefficients table provides further insight into the nature of the relationship. The unstandardized coefficient for SA ($B = .361$) indicates that for every one-unit increase in safety awareness, safety standards implementation increases by .361 units, holding all else constant. The standardized beta coefficient ($\beta = .361$) confirms that SA exerts a modest positive influence on SI. The corresponding t-value of 4.485 and $p < .001$ indicate that this effect is statistically significant. The constant ($B = 9.534$) suggests that when SA is zero, schools still exhibit a baseline level of safety implementation—likely attributable to mandatory compliance requirements, infrastructure, or general administrative practices.

These findings are consistent with several scholarly conclusions in the field. Wachira and Nyamweya (2022) reported that safety awareness among teachers and students improves general preparedness, especially in emergency response and hazard reporting. Similarly, UNESCO (2023) highlights that awareness of safety rules and procedures forms the foundation of a preventive safety culture within schools, though awareness alone does not guarantee comprehensive implementation of safety standards without structural and administrative support. Nyakundi, Ongwacho, & Monga're, (2014) also emphasize that safety awareness enhances vigilance and attentiveness among staff and students, enabling early detection and mitigation of potential hazards.

However, the relatively low R Square in this model (13%) aligns with findings by Njeru (2019) and OECD (2022), who argue that awareness must be complemented by practical skills, regular training, adequate resources, and firm administrative oversight in order to translate into tangible improvements in safety compliance. Awareness alone, while beneficial, does not guarantee action unless supported by teacher competence, proper infrastructure, and consistent reinforcement of safety practices. This is reflected in the modest predictive power of SA model.

In summary, the results indicate that Safety Awareness (SA) is a statistically significant but modest predictor of Safety Standards Implementation (SI). These findings reinforce the importance of integrating awareness programs with broader school-wide safety interventions.

Influence of Safety Training for Members of Staff and Students on Effective Safety Standards Implementation in Public Secondary Schools in Kipkelion Sub-County

This section presents the results of the multiple regression analysis conducted to determine the predictive influence of teacher training (TR) and student training regularity (STR) on the effectiveness of safety standards implementation (SI) in public secondary schools. The analysis evaluates the overall model fit, examines the significance of the predictors, and quantifies the extent to which the independent variables explain variations in SI. The combined presentation of the Model Summary, ANOVA, and Regression Coefficients provides a comprehensive understanding of how teacher- and student-focused safety initiatives contribute to safety compliance within the school environment. The results are summarized in Table 1.7 below.

Table 7: Regression Analysis for the influence of safety training for members on safety standards implementation

Model Summary	R	R Square	Adjusted R Square		Std. Error of the Estimate
Model 1	.563	.317	.307		5.93037
ANOVA	Sum of Squares	df	Mean Square	F	Sig.
Regression	2171.756	2	1085.878	30.876	.000
Residual	4677.508	133	35.169		
Total	6849.265	135			
Coefficients	Unstandardized B	Std. Error	Standardized Beta	t	Sig.
(Constant)	6.817	1.314	—	5.188	.000
TR	.586	.086	.586	6.781	.000
STR	-.042	.086	-.042	-.491	.624

Dependent Variable: Safety Standards Implementation (SI)

The regression analysis examined the combined influence of teacher training (TR) and student training regularity (STR) on the effectiveness of safety standards implementation (SI) in public secondary schools. The overall model demonstrated a moderate positive relationship, with an R value of .563, and explained 31.7% of the variation in SI ($R^2 = .317$). This indicates that while TR and STR contribute meaningfully to safety implementation, a substantial proportion of the variance is influenced by other contextual factors such as school leadership, safety culture, financial capacity, and infrastructural adequacy. The statistical significance of the model, supported by $F(2, 133) = 30.876, p < .001$, confirms that the combination of teacher and student training has a real, measurable effect on school safety outcomes.

A closer examination of the regression coefficients reveals a striking contrast between the predictive power of teacher training and that of student training. Teacher training (TR) emerged as a strong and statistically significant predictor of SI ($\beta = .586, t = 6.781, p < .001$). This suggests that improvements in teacher capacity through structured workshops, emergency management courses, and ongoing professional development substantially enhance the degree to which safety standards are implemented. The positive regression coefficient ($B = .586$) indicates that each unit increase in teacher training is associated with a meaningful improvement in safety implementation. This underscores the central role of teachers in interpreting safety policies, coordinating emergency procedures, and ensuring that safety measures are consistently practiced within the school environment.

In contrast, student training regularity (STR) showed a weak and statistically non-significant effect on SI ($\beta = -.042, t = -.491, p = .624$). Although student drills and safety orientations are commonly regarded as essential components of school safety, the findings suggest that these activities, when conducted in isolation or without adequate teacher guidance, do not significantly influence overall safety implementation. This may reflect the reality that many student training programs are irregular, superficial, or reactive, often conducted merely to satisfy compliance requirements rather than embedded within a structured safety framework.

The finding that teacher training is far more influential than student training is strongly supported by existing scholarships. For example, Oduor and Simatwa (2021) found that Kenyan schools with well-trained teachers demonstrated significantly better implementation of safety guidelines, noting that teacher preparedness in areas such as emergency procedures and risk assessment was more predictive of safety outcomes than the frequency of student drills. Similarly, Chepkinyang, Mburu & Ichani (2025) reported that teacher-focused capacity-building programs in Nakuru County led to substantial improvements in disaster preparedness and emergency response, while student training alone had limited impact unless guided by competent educators.

Global studies echo these patterns. UNESCO (2023) emphasizes that sustainable school safety systems rely on well-trained educators capable of contextualizing safety protocols and leading coordinated preparedness efforts. In contexts where teacher leadership is weak, UNESCO observes that drills tend to become symbolic rather than substantive an observation consistent with your finding that STR does not significantly predict SI. The findings highlight the need for school safety strategies that prioritize teacher-centered capacity building, integrating student drills as part of a comprehensive, teacher-guided safety framework rather than treating them as standalone activities.

Conclusions

The study leads to several key conclusions aligned with the research objectives. First, safety awareness in public secondary schools in Kipkelion Sub-County is moderately developed and clearly contributes to safety standards implementation, but its effect is limited when it is not supported by systematic programs and complementary interventions. The regression results show that safety awareness significantly predicts safety implementation, yet the proportion of variance explained is modest. This indicates that awareness is necessary but insufficient on its own; it must be embedded in a broader framework that includes training, leadership, and resource provision.

Second, safety training for staff and students is an important determinant of safety implementation, with teacher training emerging as particularly critical. The evidence shows that teacher training has the strongest association with safety standards implementation and is a powerful predictor in the regression model, whereas student training regularity alone does not significantly predict implementation once teacher training is considered. This leads to the conclusion that effective safety culture in schools is driven primarily by teacher competency, leadership, and active engagement. Student-focused training and drills are valuable but appear to be impactful mainly when guided and anchored by well-trained teachers.

Recommendations

Several recommendations arise from the study's findings and conclusions. With respect to safety awareness, it is recommended that schools institutionalize structured safety awareness programs for both staff and students. Safety discussions should be planned and included in school calendars, with regular use of assemblies, class sessions, and staff meetings to communicate safety messages. Principals should deliberately broaden their engagement with external experts beyond disaster specialists to include health professionals, security officers, counselors, and child protection practitioners, thereby promoting a more holistic understanding of safety. Schools should also develop clear strategies for involving community members in safety awareness, such as through sensitization forums, parent meetings, and collaboration with local administrative and emergency services.

Regarding safety training for staff and students, the study recommends that teacher-centered safety training be prioritized and made more systematic. The Ministry of Education, Teachers Service Commission, and Kenya Education Management Institute should design targeted in-service training modules on school safety management, risk assessment, and emergency response, and ensure that these are regularly implemented. At school level, teacher training should be documented, monitored, and linked to clear roles within school safety committees. At the same time, student drills and demonstrations should be conducted regularly and evaluated for effectiveness, with teachers providing structured guidance and feedback. Schools may consider designating safety champions or focal teachers to coordinate training, keep records, and act as liaisons with external safety agencies.

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