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RESEARCH ARTICLE

EFFECT OF HEALTH AND HYGIENE SAFETY GUIDELINES ON STUDENTS' SAFETY IN PUBLIC BOARDING SECONDARY SCHOOLS IN KENYA A CASE STUDY OF HOMA BAY COUNTY

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ABSTRACT

Safety of students in public secondary schools is a matter of concern globally. In Kenya, a number of students in public boarding secondary schools do encounter tragedies ranging from death of students during infernos in schools, students falling sick due to food poisoning or poor hygiene, attack of students by the community and porous school gates which enables strangers to enter in the schools leading to stealing of school property and attack on the students. In 2008, the Government of Kenya launched Safety and Standards manual in both public schools and private schools. Implementations of these standards were expected to make students secure in these schools. However, from 2009 to 2018, there were a number of reported cases of food poisoning, closure of schools due to community threats, loss of lives of students and properties worth millions of shillings in arson cases, diseases caused by poor hygiene and many others which were unreported. The objective of the study was to determine the effect of health and hygiene safety guidelines on students' safety in public boarding secondary schools in Homa Bay County. The study revealed that physical health and hygiene safety guidelines had significant effect on students' safety as they accounted for 53.8% of the variation in students' security. The study also established that health and hygiene safety guidelines had strong and positive effect on students' safety. The study recommended that school principals should strive to fully implement these safety guidelines to enhance students' safety in Homa bay County, Kenya. The study may be useful to policy makers and stakeholders in the Ministry of Education in developing more diversified strategies to enhance students' safety in public boarding secondary schools in Kenya.

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INTRODUCTION

World over, students take the most of their time in school than they do at home (Durka, 2002). Schools are providers of formal education, an important process that each individual has to undergo in life today. Education therefore should be comprehensive, holistic and not just mere dictation of ideas or offering of formulas to be stored in brains and making skills of answering questions at the end of the course (Durka, 2002). In order to do this, schools where children go to learn need to be Child Friendly Schools, in order to enhance the pupils' access and retention in these schools. Schooling is the one experience that most children worldwide have in common and the most common means by which societies prepare their young for the future (UNICEF, 2009). Notwithstanding this view, institutions of learning are reported to be experiencing serious cases of insecurity. Safety of persons in any learning institution is fundamental and cannot be separated from the teaching and learning process. No meaningful teaching and learning can take place in an environment that is unsafe and insecure for both learners and staff (Nyakundi, 2012). Keeping students safe is a school's top priority. The United Nations Educational, Scientific and Cultural Organization (1987) affirms that the wellbeing of children in school is the concern of everyone since they spend a significant proportion of their time at school. It is therefore important to address learner safety in schools.

School safety has been defined differently by a number of scholars and organizations. Chukwu (2008) for instance, defined school safety as "an effective structure and organization free from potential and physical harm, absence of violence and presence of nurturing, caring and protective staff". Chemeli, Mwongeli and Barmao (2015), states that safety can only be guaranteed if some form of preparedness exists in the school system. The main objective of every school should be to offer quality education to learners, something that can only be achieved if the school environment is conducive and safe enough for learning. Prinsloo (2006) on the other hand, defines school safety as one that is free of danger and where there is an absence of possible harm; a place in which non educators, educators and all learners may work, teach and learn without fear of ridicule, intimidation, humiliation or violence. According to Republic of Kenya (2008) and Republic of Kenya (2012) school safety has been defined as measures undertaken by the learners, staff, parents and other stakeholders to either minimize or eliminate risky conditions or threats that may cause accidents, bodily injury as well as emotional and psychological distress. It is the responsibility taken by learners, staff, parents and stakeholders to foster all-round safe living. This definition was also reiterated by UNICEF (2010).

Bastidas (2011) indicates that safety is a worldwide concern; hence there is a need for a Global platform to discuss ways of providing safety in schools and communities. Safety in schools is a factor that has seen a number of countries, develop strategies and policies to promote and ensure student safety in their countries. The United States Department of Education (2004), for instance, indicates that school wide policies are implemented to systematically address needs of students, school personnel, community and physical plants of the school. The therefore requires safety policies in schools to be strictly enforced in view of threats posed by terrorism, drug related violence and natural disaster. Health and hygiene safety provide an environment that nurtures positive health in order to protect, promote and improve health for all (Republic of Kenya, 2012). It is believed that when this safety guideline was implemented, the students in public secondary schools would be secure. Indeed, not many studies have been conducted in line with health and hygiene safety policy. Anand and Prakash (2018) carried out a study on assessment of hygiene and sanitation practices in students of class VI to IX in urban Government Inter- College at Allahabad District, India and found out that only 61.5% of the students wash their hands before meals, merely 16.75% of them were practicing proper dental hygiene, 41.25% of them clean genitals properly, whereas 52.25% of students daily consume food from vendors. Significant difference in sanitation and hygiene practices was found regarding education of father, education of mother and socioeconomic status. This meant that this safety guideline had been implemented to a reasonable level and therefore students were expected to be more secure. However, the study only considered a small section of health and hygiene safety guideline. The current study sought to establish the effect of health and hygiene safety guidelines on students' safety in public boarding secondary schools in Homa Bay County, where a similar study has not been conducted.

SYNTHESIS OF LITERATURE ON EFFECT OF HEALTH AND HYGIENE SAFETY GUIDELINES ON STUDENTS' SAFETY: If National Governments want schools and communities to take up responsibility for improving the school environment and the students' hygiene behavior, effective support is required. Support agencies need to join hands and avoid duplication of efforts. Policies as well as standard designs for technical facilities, are to be developed and implemented; and on the basis of an assessment, plans have to be developed for teacher training, curriculum development, etc (UNICEF, 1998). According to UNICEF (2012) in their Child Friendly Schools Manual on Water, Sanitation and Hygiene in Schools, the following criteria should be considered when choosing a location for school toilets and water supply: Children need to feel secure when visiting Water, Sanitation and Hygiene facilities. They should not be at risk of harassment by people or attacks by animals such as snakes, scorpions or spiders. Access routes must be open and clear and the facilities in audible and visible proximity to the community, in the event that immediate assistance is needed; Toilet facilities and urinals should guarantee privacy, particularly for people over the age of eight. In some cultures, it is important not to be seen entering or leaving the toilet. Access routes may be better situated away from the busy part of the community, while at the same time open and clear for security reasons; It must be possible to reach the facilities during all weather conditions, including after heavy rains or flooding. Sufficient lighting is needed for children who use facilities at night (in boarding schools); Facilities only contribute to health and hygiene improvements if properly used. For younger children, adult supervision of behavior and skills is essential. Some locations will ease supervision. Locating a hand- Water, Sanitation and Hygiene facility near the classroom of younger children, for instance, allows for better monitoring than placing it near the toilet exit; the location of the facilities should allow for security to reduce the risk of vandalism, particularly when communal Water, Sanitation and Hygiene facilities are being installed. An individual or group of supervisors can be assigned this task; Toilets and urinals are frequently located close to other producers of odor and flies, such as garbage dumps, cattle or animal pens. Such placement discourages people from using them. Facilities should be situated elsewhere or solutions designed to minimize nuisance and environmental degradation.

The government of Kenya through the Ministry of Education Science and Technology developed safety standard focusing on Health and Hygiene of the learners in a school setup. According to Republic of Kenya (2008), the school should provide an environment that nurtures positive health in order to protect, promote and improve health for all. By this, it means that if the guidelines are fully implemented, then the students are safe. Motakpali, Indupalli, Sirwar, Jayaalakshmi, Bendigeri and Deepak (2013) conducted a study on Health Hygiene among School children in rural field practice area of Ajims Mangalore in Karnataka, India and established that out of 500 school children examined, 63.4% had good personal hygiene, 9.6% had fair personal hygiene and 27% had poor personal hygiene. Out of the total, 31% of the school children had dental caries, 15% had fully blocked wax in the ears, 21% had coated tongue, and 11% had skin infections. This was an indicator that more stress on personal hygiene practices like oral hygiene to avoid bad breath, trimming of nails, regular cleaning of ears, washing of hands, body and hair was required on regular basis. Anand and Prakash (2018) also carried a similar study on assessment of hygiene and sanitation practices in students of class VI to IX in urban Government Inter- College at Allahabad District, India and found out that only 61.5% of the students washed their hands before meals,

merely 16.75% of them were practicing proper dental hygiene, 41.25% of them clean genitals properly, whereas 52.25% of students daily consume food from vendors. Significant difference in sanitation and hygiene practices was found regarding education of father, education of mother and socioeconomic status. This study concluded that hygiene and sanitation practices among students are not satisfactory and there is scope for improvement. Similarly, in Nigeria, Ilesanmi (2017) carried out a related study on knowledge and practices of personal hygiene among Senior Secondary School students of Ambassadors College, Ile- Ife, Nigeria and established that majority of the respondents (98.2%) had good knowledge of personal hygiene and could accurately identify the components and some of the harmful consequences and not engaging in sufficient personal hygiene practices. Majority of the respondents had good hygienic practices including taking bath (99.6%), brushing teeth (98.2%) washing hands (65.9%). Conclusively, senior secondary School students of Ambassador College Ile-Ife have good personal hygiene practices. This finding was contrary to the findings by Anand and Prakash (2018) and Motakpali *et al*. (2013) who established that hygiene practices among the learners were not satisfactory.

The three studies above by Motakpali *et al*. (2013), Anand and Prakash (2018) and Ilesanmi (2017) majorly focused on personal hygiene of the learners and not the general health and hygiene safety of which personal hygiene is an element. Whereas these studies focused on personal hygiene which majorly requires the sole responsibility of the learners themselves, the current study focused on the efforts put by the administrators with respect to implementation of the health and hygiene safety guidelines in Public Boarding Secondary Schools in Homa Bay County. The current study therefore seeks to establish the effect of health and hygiene safety guidelines on students' safety in Public Boarding Secondary Schools in Homa Bay County, Kenya. A study conducted in Swaziland by Manyatsi and Thwala (2014) on Sanitation and hygiene at rural schools in Swaziland: A case study of Ekhukhanyeni Constituency, established that majority of schools (8) had boreholes as their dominant source of water supply, whereas the other 4 schools sourced their water from springs piped to schools. The toilets' to learner ratio was found to be higher than the recommended ratio of 1:30 for all the schools. However, a lower percentage (34%) indicated that they always washed their hands after using toilets. Olukanni (2013) carried out a research study on assessment of Water, Sanitation and Hygiene program in Public Secondary Schools in South – Western Nigeria using the standard for Water, Sanitation and Hygiene in schools by UNICEF as guiding principles to evaluate the adequacy of the various Water, Sanitation and Hygiene components and established that only 3 (25%) had drinking water points (boreholes) and 40% of the schools do not have separate latrines for boys and girls, and for promoting privacy of older girls. Only 10% of the schools had hand washed points but without soap and there is no plan in the schools for advancing Water, Sanitation and Hygiene program. This study revealed that the present Water, Sanitation and Hygiene practice in many of the schools is not adequate. Whereas the studies by Manyatsi and Thwala (2014) and Olukanni (2013) dealt only with the aspects of source of water and toiletry, the current study seeks to deal with broader aspects of health and hygiene safety standards as spelt out in the Ministry of Education Science and Technology manual (Republic of Kenya, 2008).

The current study will further establish whether the implementation of health and hygiene safety guidelines has effect on students' safety in Public Boarding Secondary Schools which this study did not do.

Research Objective: The research objective was to determine the effect of health and hygiene safety guidelines on students' safety in public boarding secondary schools in Homa Bay County.

CONCEPTUAL FRAMEWORK

The Study was guided by Invitational Theory of Practice (Purkey, 1999) which states that People, Places, Policies, Programs and Processes when adequately addressed make schools more safe and appealing. It expected that when these safety guidelines are implemented, then the students would be secure. Therefore, the conceptual framework postulates that when safety guidelines are implemented, the learners are secure. Safety policy manual spelt out that when safety policies are fully implemented, the students were expected to be secure in their schools (Republic of Kenya, 2008).

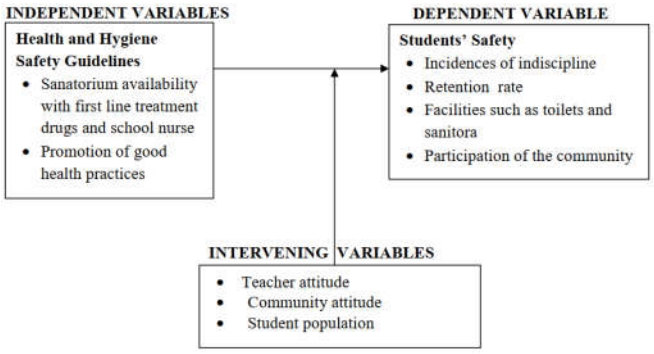

Figure 1. A Conceptual Framework Showing Effect of Health and Hygiene Safety Guidelines on Students' Safety in Public Boarding Secondary Schools

Implementation of health and hygiene safety guidelines (independent variable) is one of the way in which safety of the students (dependent variables) can be achieved. In the process of doing this, some variables such as finances, teachers' attitude and community attitude and student population can influence the implementation. Almost all, if not all, of the aspects to be put in place requires a lot of money and can only be implemented when finances are available. On the other hand, the attitude of teacher and the community needs to be positive for the implementation to be successful. The goodwill of the community is needed in order to have these policies implemented, otherwise the principal's efforts may not be supported. Whether or not the stakeholders are trained on safety policies will tell whether the policies would be fully implemented or not. Ongori (2014) established that one of the factor that hindered the implementation of safety policy was lack of training of school stakeholders. According to Lucheli and Masese (2009), the then Kenya Secondary School Heads Association, Cleopas Tirop reported that funding paralysed efforts by schools to install firefighting equipment. "Most schools have tried to meet the safety requirements, but fire extinguishers are still a challenge." Lucheli and Masese (2009), also indicated that the then Kapsabet Boys Principal said that "After the government stopped funding, schools started single sourcing, but stringent budgets frustrated their efforts". The

students' security therefore would be based on whether or not these safety policies are implemented in public boarding secondary schools. Student population will actually be useful in determining the extent of implementation as observed by Ng'ang'a (2013) whose study findings suggest that the increasing student population was a challenge to achieving successful implementation of safety standards because there was congestion among the students. The findings were also in agreement with Muthuiya (2013) and Chabari (2010) who in their studies had found that free secondary education had allowed more students to pursue secondary education which in turn increased school population ultimately stressing the schools' resources and facilities compromising both the quality of education as well as the safety of the students.

RESEARCH METHODOLOGY

Descriptive and correlational research designs were adopted. Study population consisted of 34 Principals, 8 Sub County Quality Assurance and Standards Officers and 4,800 students. Saturated sampling was used to sample 31 Principals and 8 Sub County Quality Assurance and Standards Officers s where as purposive sampling was used to sample 369 students. Researcher's observation schedule/document analysis guide, students' focus group discussions and interviews were used as research instruments. Face and content validity of the instruments were determined by experts in education administration and their pieces of advice were incorporated. Reliability of the instruments was determined by administering a test once in 3 schools and computing Cronbach's Alpha, giving a coefficient of 0.935 which was reliable. Quantitative data was analyzed by use of descriptive statistics in form of frequency counts, means and percentages, whereas inferential statistics was used to carry out regression analysis with change statistics to determine whether safety policy had statistically significant effect on students' security or not and also to show whether there is a relationship or not between different safety guidelines and students' security.

RESULTS

Demographic Data of Respondents: The respondents involved in the study were: principals, students and the Sub County Quality Assurance and Standards Officers in Homa Bay County. Gender, school population, school type and availability of safety policy manual were sought from the principal. The findings were as shown in Tables 1, 2, 3 and 4.

Table 1. Distribution of Principals by Gender as indicated by Principals (n = 31)

	Frequency	%
Male	13	41.9
Female	18	58.1
Totals	31	100

From Table 1, the number of female principals was found to be slightly higher, 18 (58.1%), than the number of male principals, 13 (41.9%) in public boarding secondary schools in Homa Bay County. This distribution means that there was no gender parity in distribution among the principals in public boarding secondary schools in Homa Bay County, and therefore. From Table 2, it can be noted that most of the public boarding secondary schools, 10 (32.3%) had higher population of 1100 and above, while 8 schools representing 25.8% had a population below 500. In the middle were schools with a population of between 501- 700 (4, 12.9%), 701- 900 (8, 25.8%) and only one school with a population between 901-1100 (3.2%).

Table 2. Distribution in School Population as indicated by Principals (n = 31)

Population range	Frequency	%
Below 500	8	25.8
501-700	4	12.9
701-900	8	25.8
901-1100	1	3.2
1100 and Above	10	32.3
Total	31	100

From Table 3, it can be noted that most of the public boarding secondary schools in Homa Bay County were girls boarding schools 18(58.1%) with only 13(41.9%) being boys boarding schools.

Table 3. Distribution of School Type as indicated by Principals (n = 31)

School type	Frequency	%
Boys Boarding	13	41.9
Girls Boarding	18	58.1
Mixed Boarding	0	0
Total	31	100

Table 4. Availability of Safety and Standards Manual as indicated by Principals (n = 31)

Availability	Frequency (f)	%
Yes	28	90.3
No	3	9.7
Total	31	100

It is also clear that amongst the public secondary schools under study, there were no mixed boarding secondary schools. Indeed this was in order because there are some aspects of safety which are unique to gender. From Table 4, it can be noted that most of the public boarding secondary schools, 28 (90.3%), had the safety and standards manual while 3 (9.7%) had no safety and standards manual. These findings are contrary to the findings by Chemeli, Mwongeli and Barmao (2015), who found out in their study that only 33.8% of the principals had safety policy manual in their schools. This means that the 28 public boarding secondary schools had better opportunity to implement safety policies since they had a guideline on implementation as per the manual. However, the 3 schools which had no safety manuals would not easily implement the policies since they had no guideline.

Research Objective: The research objective was to determine the effect of health and hygiene safety guidelines on students' safety in public boarding secondary schools in Homa Bay County. To achieve this objective, observations were made in public boarding secondary schools to establish the status of implementation of health and hygiene safety guidelines and the security status of the learners, and the null hypothesis that: Health and hygiene safety guidelines have no effect on students' security in public boarding secondary schools in Homa Bay County, was used. First, the level of implementation of health and hygiene safety guidelines and the students' security status were computed. The results were as shown in Tables 5 and Table 6.

Table 5. Status of Implementation of Health and Hygiene Safety Guidelines as rated by Principals (n = 31)

Aspects of Health and Hygiene Safety Guidelines	Ratings					Total Scores	MR
	1	2	3	4	5		
Medical Data;	0	9	14	6	2	94	3.03
Check up of infectious diseases	0	3	20	8	0	98	3.16
Trained teachers on Health Education;	1	16	12	2	0	77	2.48
Sanatorium	0	2	10	13	6	116	3.74
Sanitation and Hygiene;	0	0	11	19	1	114	3.68
First Aid Kits and facilitation of emergency care;	18	0	7	4	2	65	2.10
Sanitation facilities (Latrines/Toilets)- Hand washing	0	12	7	9	3	96	3.10
Cleaning of eating utensils	0	0	10	17	4	118	3.81
Cleaning the Toilets	1	16	12	2	0	77	2.48
Overall Mean Rating	20	58	103	80	18	855	3.06

KEY: MR: Mean Rating
Interpretation of Mean Ratings
1.00- 1.44 = Not Accomplished,
1.45 – 2.44 = Less Accomplished,
2.45 – 3.44 = Moderately Accomplished,
3.45 – 4.44 = Partly Accomplished,
4.45 – 5.00 = Fully Accomplished

Table 6. Status of Students' Safety in relation to Health and Hygiene Safety Guidelines as indicated by Principals (n =31)

Aspects of Students' Safety	Ratings					Total Score	M R
	1	2	3	4	5		
Recorded number of students with typhoid due to use of unwholesome water;	0	2	13	16	0	107	3.45
Recorded number of students suffering from malaria due to bushy areas with stagnant water;	0	1	17	5	8	113	3.65
Recorded number of cases of sudden illness of learners due to lack of prior knowledge about the students' health condition;	0	7	15	7	2	97	3.14
Recorded discrimination and stigmatization cases of students infected by HIV and AIDs due to lack of special intervention for support for the infected students;	0	2	2	14	13	131	4.23
Recorded data on spread of contagious diseases due to failure to isolate, quarantine or vaccinate those not yet infected for example COVID -19, Chicken pox and so on.	1	3	4	3	20	131	4.23
Overall Mean Rating	1	15	39	45	43	543	3.50

KEY: MR: Mean Rating
Interpretation of Mean Ratings
1.00- 1.44 = Recorded once per Week (Not Secure)
1.45 - 2.44 = Recorded once per Month (Less Secure)
2.45 - 3.44 = Recorded once per Term (Fairly Secure)
3.45-4.44 = Recorded once per Year (More Secure)
4.45 - 5.00 = Nil Occurrence (Very Secure)

Table 7. Model Summary on effect of Health and Hygiene Safety Guidelines on Students' Safety

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.744[a]	.554	.538	.23362	.554	35.983	1	29	.000

a. Predictors: (Constant), Health and Hygiene Safety Guidelines

Table 8. ANOVA on the Effect of Health and Hygiene Safety Guidelines on Students' Safety

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1.964	1	1.964	35.983	.000[a]
	Residual	1.583	29	.055		
	Total	3.547	30			

a. Predictors: (Constant), Health and Hygiene Safety Guidelines
b. Dependent Variable: Students' Safety

Table 9. Linear Regression on Health and Hygiene Safety Guidelines on Students' Safety

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.963	.439		2.195	.036
	Health Hygiene	.855	.143	.744	5.999	.000

a. Dependent Variable: Students' safety

The regression equation is $Y=\beta 0 + \beta 1X$
Where:
Y is dependent variable (students' safety),
X is independent variable (health and hygiene safety guidelines),
$\beta 1$ is the slope of the regression line and
$\beta 0$ is constant (y- intercept) value when $\boldsymbol{x}$ is zero.

From Table 5, it can be noticed that the status of implementation of health and hygiene safety guidelines with respect to cleaning of eating utensils (3.81), sanatorium (sick bay) (3.74) and sanitation and hygiene (3.68) were rated as partly accomplished meaning that the level of accomplishment was above average. The implementation of checkup of infectious diseases (3.16), sanitation facilities (toilets/latrines) - hand washing using (3.10), medical data (3.03), and cleaning of toilets (2.48) were rated at moderately accomplished as they were at an average status of implementation. The researcher's observation revealed that cleaning of eating utensils rated at 3.81, was partly accomplished. The rating of sanatorium at 3.74 was a revelation that many of the schools had inadequate sanatoria but had first line treatment drugs with a nurse. On medical data, the rating at 3.03 indicated that it was moderately accomplished. Cleaning of toilets, trained teachers on health education and, First Aid Kit and facilitation of emergency health care were rated as less accomplished at 2.48, 2.48 and 2.10 respectively meaning that the level of accomplishment was below average. On First Aid Kit and facilitation of emergency health care (2.10), it was established that the kits were available proportionate to the number of students in a few schools. However, many schools had buses and no vans except for a few which had both. For emergency cases, it was revealed that teachers' personal cars would be used but this was not a guarantee. With increased number of students in these schools, emergency cases are inevitable and are prone to exist. Having a standby van in the school to deal with such emergency cases is in order. At the same time, First Aid Kits equally needs to be as many as possible and also fully fitted with first line drugs.

From Table 6, it can be noticed that students were overally more secure as signified by the overall mean rating of 3.50. With respect to spread of contagious diseases due to failure to isolate, quarantine and vaccinate those not yet infected was highly rated at 4.23, meaning that students were more secure. Students in public boarding secondary schools in Homa Bay County were also found to be more secure with respect to discrimination and stigmatization cases of students infected by HIV and AIDs due to lack of special intervention for support for the infected students rated at 4.23, students suffering from malaria due to bushy areas with stagnant water (3.65) and students with typhoid due to use of unwholesome water (3.45). However, with respect to illness due to lack of poor knowledge about the students' health condition, students were found to be fairly secure as this was rated at 3.14, meaning average. The findings on the aspect of discrimination and stigmatization cases of students infected by HIV and AIDs, due to lack of special intervention for support for the infected students (4.23), revealed that the students were more secure. Whereas in about 13 schools, such cases had not been reported, the rest of the schools had cases of stigmatization by infected students. The aspect of spread of contagious diseases due to failure to isolate, quarantine and vaccinate those not yet infected was highly rated at 4.23 which meant that the students were more secure. In some twenty (20) schools where there were good students' health arrangement; the students were found to be very secure as they had clinical officers or were closely attached to a health facility thus would detect contagious diseases in time and further isolate the student(s), thus curbing the challenge of spreading the disease. However, there were other schools where this aspect had been noticed meaning that the students were not very secure. The study therefore concluded that the students in public boarding secondary schools in Homa Bay County were more secure with respect to this aspect.

The rating of students suffering from malaria due to bushy areas with stagnant water at 3.65, meant that the students were more secure. In a number of schools, the surrounding was found to be very bushy with indications that there were areas where there were stagnant waters during and just after rainy seasons. This provided a good breeding opportunity for mosquito which caused malaria amongst the students. Moreover, the finding that most of the students had torn mosquito nets meant that the students were exposed to mosquitoes. In some eight (8) schools however, the students looked safe with respect to bush and stagnant waters. Overall the students were found to be more secure with respect to students suffering from malaria due to bushy areas with stagnant water. Cases of students with typhoid due to use of unwholesome water was rated at 3.45. This means that the students were more secure. In sixteen (16) schools, there were no records showing students who had typhoid due to unwholesome water. Sudden illness due to lack of poor knowledge about the students' health condition, was lowly rated at 3.14, meaning that the students were fairly secure. This low rating can be attributed to the fact that many students come to school but fail to reveal their medical background as earlier revealed by the status of implementation of medical data, 3.30 meaning moderately accomplished. As a result, such cases occur without any kind of preparedness. Out of the 31 schools visited, only 2 schools had not experienced such unfortunate happening. In the rest of the twenty nine (29) schools, at least it had been witnessed. However, students were still found to be fairly secure in public boarding secondary schools in Homa Bay County with respect to this aspect.

In order to test the validity of the claim that: health and hygiene safety guidelines have no effect on students' security in public boarding secondary schools in Homa Bay County, simple regression analysis was run at 0.05 level of significance. To do this, mean ratings on the status of implementation of health and hygiene safety guidelines and the mean ratings on the status of students' safety were used to run the linear regression analysis. The results were as obtained in Table 7. From Table 7, it can be observed that health and hygiene safety guidelines have a strong and positive effect on students' safety of 0.744 and are significant, $p < 0.05$. The null hypothesis that health and hygiene safety guidelines have no effect on students' security in public boarding secondary schools in Homa Bay County was thus rejected. It was also observed that health and hygiene safety guidelines accounts for 53.8% of the variation in students' security as signified by adjusted R^2 of 0.538. Hence other factors contribute 46.2% in the changes in students' security. This means that contribution of health and hygiene safety guidelines on students' security was above average and the students were bound to be more secure. This percentage of 53.8 means that the students in public boarding secondary schools were secure with respect to health and hygiene safety guidelines with a few inadequacies as was observed from the field. Based on the observation, most of the health and hygiene safety guidelines have not been fully implemented as reflected in the overall mean rating of 3.06, meaning moderately accomplished. Above finding from the field indicated that the students are not fully secure and account for the fact that health and hygiene safety guidelines accounts for 53.8% of the variation in students' security as signified by adjusted R^2 of 0.538. To confirm whether health and hygiene safety guidelines could be used to predict students' security or not, ANOVA was computed and the results were as shown in Table 8.

From Table 8, it was revealed that health and hygiene safety guidelines was a significant predictor of students' security, (F (1, 29) = 35.983, p<= 0.05). This means that implementation of health and hygiene safety guidelines can be relied on in enhancing students' security in public boarding secondary schools in Homa Bay County. To establish the actual effect, linear regression analysis was computed. The results were as shown in Table 9. From Table 9, it can be observed that one unit increase in implementation of health and hygiene safety guidelines (X) leads to an increase in students' security by 0.855 units as signified by the coefficient 0.855. This means that when implementation of health and hygiene safety guidelines is increased by one unit, then the students' security would be increased by another 0.855 units.

DISCUSSION

During the data collection, it was established that most schools have adopted the use of plates secured by the school administration through the boarding section. In most of the schools, the plates were cleaned by school workers using hot water and kept in some cupboard up to the next meal. However, there were also other schools where the students would clean their plates on their own. Whereas it was a good idea to have plates Water, Sanitation and Hygiene by the kitchen staff, the students would not give appropriate care to the plates as they are aware they may not use the same utensil in the next meal. It was further established that a number of schools had some kind of an agreement with a nearby health centre to provide the school with a trained nurse. Very few schools had adequate sanatoria with first line treatment drugs and a nurse. This kind of arrangement was found to be good. However, each school should strive to employ their own medic to ensure that sick students' needs are addressed with the urgency they deserve. Check up of infectious diseases among the students was found to be more regular in schools where there was a permanent medical expert than in the schools where there were no nurses. However, the checkup was not satisfactory in many other schools as there were no evidence of such a practice. This means that in many public boarding secondary schools in Homa Bay County, check up was not done at all. Sanitation and hygiene was highly rated at 3.68 meaning that it was partly accomplished. It was revealed in the study that most of the schools (19) had plans to fumigate dormitories monthly. However, in some 11 schools, fumigation was done termly during school holidays.

Under Sanitation and hygiene it was revealed in the study that most of the schools had plans to fumigate dormitories monthly. However, in some schools, fumigation was done termly during school holidays. This finding was actually supported by a students' statement in a focus group discussion with students that: "Bedbugs are a very big threat in this institution. Whereas the administration has really tried to fumigate our dormitories during long school holidays and even half terms, traces of the bedbugs are still witnessed. We are forced once in a while to air our bedding to reduce the effect of the bedbugs**."** Actually, it is a fact that killing bedbugs is not an easy task. And if not well checked, the bedbugs can easily spread. This means that it requires frequent fumigation of the bedding and probably using different insecticides to do away with bedbugs. Public boarding secondary schools in Homa Bay County were however found to have implemented this aspect partly, meaning above average.

The findings on sanitation facilities (toilets/latrines) - hand Water, Sanitation and Hygiene was found to be moderately accomplished and was found to be better than the findings of Olukanni (2013) who established that only one (10%) of the schools had hand Water, Sanitation and Hygiene points but without soap and there was no plan in the schools for advancing Water, Sanitation And Hygiene programs. Gacheiya and Mutua (2009) also established from a study that 87% of the informants confirmed that they do not Water, Sanitation and Hygiene their hands. They even do not bother as one respondent clearly did put it. On the other hand, from observation, 92% of the schools had no hand Water, Sanitation and Hygiene facilities. Of the 8% that had the Water, Sanitation and Hygiene facilities, the facilities were a distance away from the sanitation facility. On what is used to wash hands, 98% Water, Sanitation and Hygiene their hands using plain water while only 2% uses soap. The researcher equally observed that most of the public boarding secondary schools in Homa Bay County had clean hand Water, Sanitation and Hygiene water next to the toilets/latrines but many of the schools lacked soap for use by students. According to Manyatsi and Thwala (2014) it was observed in their study that only 34% of the learners reported that they always wash their hands after using toilets and about 60% of the learners reported that they were taught aspects of sanitation and hygiene in their respective schools. Water, Sanitation and Hygiene hands with soap is a very vital personal hygiene practice which keeps off infections amongst the students. It is a practice that is currently encouraged to prevent the spread of Corona Virus disease (COVID -19) which is a very big challenge in the entire World. Thus since 2019 December schools have been closed, lockdowns, curfews. On medical data indicated that it was moderately accomplished. In many schools, the data was captured in the students' admission data file in the students' details form. However, it was noticed that many students did not fill it probably because they thought this would deny them an opportunity to join the school. One of the principals in an interview asserted that; "Maintaining medical data of students has been a very big problem in this school. Some students and parents would not tell the truth about the medical background until it presents itself. We have also had a challenge with students under care who do not report their cases due to stigmatization that their fellow students would know. However, I have tried to strengthen the department of guidance and counseling which has actually improved the ability of the students to report their medical cases."

Indeed, maintaining medical data was a challenge in many schools and this can be attributed to the revelation of the above respondent who attributed this to the fact that many students and parents would not want to reveal their medical status as they feared they would be denied admission. Moreover, some students who were under care were unable to declare their status due to stigmatization. As a result, the students were therefore insecure with respect to medical data as its implementation had not been achieved. Preliminary analysis by Amsterdam (2013) revealed concern about the state of sanitation facilities, littering and vandalism, lack of safe and inviting spaces in which to play and socialize and lack of sport equipment and facilities among students. The findings of study conducted by Mwangi (2014), revealed that sanitation standards as defined in the school manual have not been wholly complied within any school.

The study also concluded that not all schools provided the cleaners with protective equipment or clothing and this is an indication that there are more people at risk of water borne diseases. The findings of a study conducted by Nyakinda (2010), agree with the findings that training teachers on health education was less accomplished since the study established that teaching of HIV/AIDS was very minimal. This is because many of the teachers had not been trained on teaching HIV/AIDS education and HIV/AIDS education materials were largely unavailable to most teachers. When teachers are trained on health issues, students will feel safe as the teachers will be able to handle them with a lot of ease, especially the students under care. Overall, the level of implementation of health and hygiene safety guidelines had overall mean rating of 3.06 meaning that health and hygiene safety guidelines was moderately accomplished in public boarding secondary schools in Homa Bay County. This finding was corroborated by Deepak and Prakash (2018) who concluded that hygiene and sanitation practices among students are not satisfactory and there is scope for improvement. It is worth noting that many of these schools had established strong guidance and counseling departments to assist such kind of students. The students were therefore found to be more secure. Stigmatization is actually a real challenge to the students who may have been infected. Some of them would even opt to take their drugs late in the night when many of the students are a sleep. It is therefore important that the school administration uses the best was possible to ensure that students who are infected are not stigmatized assuring them of their security in the school.

Cases of students with typhoid due to use of unwholesome water was rated at 3.45. This means that the students were more secure. In sixteen schools, there were no records showing students who had typhoid due to unwholesome water. However, in some fifteen schools, cases of typhoid had been reported and those were due to unwholesome water. In one of the schools where students had had these cases, a student during in a focus group discussion observed that: "We have a bore hole which is seasonal and dries up at the onset of dry spell. At such a time we are forced to go to the nearby river which is not very safe as it is the same river where the community waters their cattle, do laundry and even bathing takes place. In such cases, we are bound to contract water related diseases since that water is not treated in any way." Basically, such students who cannot get water throughout and end up using water from the river which is never treated, are prone to many water related diseases and therefore the students were not secure. The students were however found to be more secure in public boarding secondary schools in Homa Bay County. Overall, students in public secondary schools in Homa Bay County were found to be more secure with respect to health and hygiene with an overall mean rating of 3.50. These findings were actually in agreement with that of Amsterdam (2013) whose study revealed concern about the state of sanitation facilities, littering and vandalism, lack of safe and inviting spaces in which to play and socialize and lack of sports equipment and facilities among students. One of the aspects which was not fully implemented was First Aid Kits and facilitation of emergency care, where it was established that many schools had no standard kits and equally had no van for any emergency care, meaning that the students were not secure in case of an emergency in such schools. In the school sanitation, the most important this is supposed to be First Aid Kit, which would contain some drugs which could be used awaiting proper medication.

On the other hand, availability of a school van would ensure that emergency sickness cases are promptly dealt with. Another area that was observed to be a challenge was on cleaning of the toilets where in most schools, the toilets were cleaned by students daily with detergents but without protective gloves. The use of detergents without gloves poses a lot of insecurity to the students who touch chemicals directly which may irritate the skin or cause harm internally if the hand comes in contact with the mouth before the hand is washed well. The students also run the risk of directly infecting themselves with nasty pathogens. During a focus group discussion with students from one school, one students said that; "We don't feel safe with respect to the way our latrines are cleaned. We don't have any protective clothes and gloves and we always do it very early in the morning when we do not see well due to lack of lights in the latrines. As a result, the cleaning is not well done." Indeed, as witnessed in some schools, some toilets had no lighting at all and when routine was checked by the observer, it was noted that manual work is done in that school as from 6.00am to 6.20am daily, meaning that at times, it is still dark and the students actually face such challenges in cleaning the toilets. It is important therefore that the toilets needs to be fitted with proper lighting and that if the students are engaged in cleaning the toilets, then they should use protective clothing and gloves to improve their safety in schools. In many other schools, only a quarter or half of the staff had some training on health education and therefore a big number of teachers lacked the knowhow? Such teachers are those who had opportunity to serve in the guidance and counseling offices in such schools and therefore had opportunity to go for some health related workshops. This showed that the students were still insecure with respect to teacher training on heath education.

Most of the schools were also found to have inadequate but clean sanatoria with first line treatment drugs without a nurse. This means that whenever there would be many sick students, requiring bed rest, they would be at risk since they would not get enough places to use. At the same time, lack of nurses in school posed a lot of insecurity to the learners. Some of them would be having conditions which require urgent attention while others would fain sickness to go out of school. However, contrary to the finding, in one of the schools, a student said; "Our sanatorium is quite small with no medical expert. The school matron is the one who gives us painkillers and recommends for treatment in the closest health facility. Moreover, we do not have sufficient resting place after taking our drugs. This makes us not feel safe about our sanatorium." The students in this school actually noticed that there was a problem with their safety due to substandard sanatorium. This means that many of these schools were not able to attend to any emergencies among the students. Lack of a medical practitioner, drugs and even insufficient spaces for the sick students who required bed rest meant that these schools had not adequately implemented the health and hygiene safety guidelines. On sanitation facilities- hand wash, it was established that there was adequate water in a good number of schools but without soap for hand Water, Sanitation and Hygiene. This would mean that students were exposed to greater risk in contracting germs like Salmonella, E.coli and norovirus (just to name a few) which can get onto students' hands after using the toilet and eventually causing illness to students. Hand Water, Sanitation and Hygiene has even become more useful to the extent that it is counted among the best ways to fight Corona Virus. Moreover, observation made on medical data concerning the health of students showed that

most of the schools did not have full details but had records for those students whose parents had reported illness cases. In some other schools, data was recorded and kept only for those whose health conditions had been established by school medic. This means that the students were not secure since their health history was not known. An asthmatic student for example, would be allowed to put on required clothing even if it is not part of the school uniform. At the same time, it would be easy to monitor his/her health progress. It's because of this that the study established that the frequency of students falling sick due to lack of prior knowledge about their health conditions was high on a termly basis. Check up of infectious diseases was found to be done monthly in most of the schools amongst the students. This was also found to be a long period that is enough to allow for the spread of infectious diseases. Moreover, the fact that most of the schools had no private and permanent medics, it was difficult to have this arrangement as frequently as possible, meaning that the students were insecure as such infectious diseases would spread to a larger number of students before it is stopped. The large number of students in these schools resulting in congestion, where many items are shared, could easily enhance the spread of infectious diseases among the students. The study also revealed that typhoid among the students due to use of unwholesome water was common amongst the students in many schools, as a termly incident. This indeed confirmed that there was a challenge in water treatment in many of these schools. It was also noticed that students suffering from malaria due to bushy areas with stagnant water also had a high frequency of a termly occurrence meaning that the students were not secure in these schools. Except for a few schools, majority of the schools had bush around the compound, and this would facilitate breeding sites for malaria causing mosquitoes.

The study findings were also in agreement with those of Nyakundi (2012), on a study on implementation of safety standards and guidelines in public secondary schools in Marani District, Kisii County, which established that the Ministry of Education safety standards and guidelines had not been fully implemented majorly due to inadequate funds and inadequate supervision. The same findings were also articulated by Mithiani (2016) on a study factors influencing schools compliance to safety and standards guidelines in public secondary schools in Kitui Central Sub – County. The findings was also corroborated by another study on an assessment of sanitation in primary school in Embakasi District, Nairobi by Mwangi (2014), which established that sanitation standards as defined in the school manual have not been wholly complied with in any school. Moreover, the majority of the schools had moderate level of sanitation as there was scarcity of water and soap in some schools at the hand Water, Sanitation and Hygiene facilities. However, one of the Sub County Quality Assurance and Standards Officer in an interview noted that; "Health and hygiene practices are generally good in our schools. It is for this reason that we have not had many cases of students admitted of diseases caused by poor health and hygiene practices. However, it's worth noting that the government should make an effort to at least employ a medical expert in each school to arrest any facilities arising from emergency cases." Whereas the Sub County Quality Assurance and Standards Officer indicated that health and hygiene safety practices were good in the Sub County, it should also be noted that they rarely visit the schools in their regions due to high number of institutions in their places of jurisdiction. However, overall, health and hygiene safety guidelines accounted for up to 53.8% of the variation on students' safety. The findings of this study that health and hygiene safety guidelines accounts for 53.8% of the variation in the students' security is in agreement with that of Deepak and Prakash (2018), who concluded in their study that hygiene and sanitation practices among the students were not satisfactory and that there is scope for improvement. This finding was also corroborated by that of Olukanni (2013) who established that Water, Sanitation and Hygiene practices in many schools was not adequate. Gachieya and Mutua's (2009) findings, were also in agreement with these findings as they concluded in their study that there was need to upgrade the sanitation situation in schools and that school toilets were often dirty and unfriendly; lacking essential items such as soap, anal cleaning materials and sometimes water. However, the findings were found to be contrary to that of Ilesanmi (2017) who established that majority of the students (98.2%) had good knowledge of personal hygiene, could accurately identify the components and some of the harmful consequences of not engaging in sufficient personal hygiene practices. The result also showed that majority of the respondents had good hygiene practices including taking bath, brushing teeth and wash hands. Whereas the above studies focused on the level of implementation of some elements of health and hygiene safety guidelines, the current study established that health and hygiene safety guidelines accounts for 53.8% of the variation in the students' security. The effect is significant and this means health and hygiene safety guidelines can be relied on to affect the students' security. The study thus concluded that health and hygiene safety guidelines had statistically significant effect on students' security in public boarding secondary schools in Homa Bay County, Kenya.

CONCLUSION

Health and hygiene safety guidelines had strong and positive effect on students' safety. Thus:

- Maintenance of clean utensils had the highest effetc in ensuring studnet safety from being infected by diseases.
- Use of sanatorium facility had the second highest effect on students safety in schools.
- Maintenance of high sanitation standards and hygiene had a high effect on students safety in schools.
- Check up on infectious diseases and medical data had also a high effect on students safety in schools.

RECOMMENDATIONS

With regard to the findings that health and hygiene safety guidelines had strong positive effect on students' security, this study recommended that principals should strive to fully implement the health and hygiene safety guidelines to enhance students' security in public boarding secondary schools in Kenya.

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