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# JOURNAL OF APPLIED SOCIAL SCIENCE, HUMAN DEVELOPMENT AND TECHNOLOGY (JASST)

**Refereed Academic Journal**  
Publication of the School of Postgraduate Studies



**JOURNAL**  
OF APPLIED SOCIAL SCIENCE,  
HUMAN DEVELOPMENT,  
AND TECHNOLOGY  
**(JASST)**

# EDITOR'S NOTES

## Editorial Chairperson's Note

Dear Reader:

It is with great pleasure that I introduce to you the maiden and official peer-refereed journal of the School of Postgraduate Studies, Adventist University of Africa volume 1, number 1, 2020. This is a multidisciplinary journal called *Journal of Applied Social Science, Human Development, and Technology* (JASST) which is released bi-annually both in a print format and e-journal. The old cliché says “*If you don't publish, you perish*” and the Adventist University of Africa is a postgraduate school that must show leadership in academic writing. The interdisciplinary nature of this journal will make it exciting for our readers and it also provides a great opportunity to view articles from different disciplines.

The objective of JASST is to publish up-to-date, high-quality, and original research papers alongside relevant and insightful reviews. As such, the journal aspires to be vibrant, engaging, and accessible, and at the same time integrative and challenging. Each article has gone through the double-blind peer-review process and conforms to the format of a traditional research paper which also demonstrates a sound theoretical and methodological underpinning and contributes to knowledge in their respective field.

Any paper that you wish to submit, either individually or collaboratively, is very much appreciated and will make a substantial contribution to the early development and success of the journal. Best wishes and thank you in advance for your contribution to the *Journal of Applied Social Science, Human Development, and Technology*.

As always, we welcome constructive feedback and hope that our work inspires you to engage with the issues. If you have any questions, comments, or concerns, please do not hesitate to contact us.

Daniel Ganu, DrPH  
Editorial Chairperson

## Chief Editor's Note

Dear Reader:

It is with pride and anticipation that we introduce the inaugural issue of the *Journal of Applied Social Science, Human Development, and Technology* (JASST). I say *pride* because the Adventist University of Africa launched JASST as a showcase for cutting edge research that will impact the world of knowledge and practice. I refer to *anticipation* so you will know that we are looking forward to partnering with you as a contributor and reader to meet our objective of bringing important scholarships to professionals around the world.

This first issue represents the diversity and wide-ranging topics that will be featured to meet the interests and foci of our readership. We know how busy the lives of academics, professionals, clinicians, and researchers can be. We get that your reading needs to sharpen your skills, broaden your outlook, and keep you abreast of knowledge trends. We trust that you will consistently be rewarded as you pick up JASST for your professional reading.

Along with my editorial colleagues, I welcome you!

Susan M Baker, DSc, PT  
Chief Editor

### **Managing Editor's Note**

Dear Esteemed Reader:

I wish to take this early opportunity to welcome you all to this first issue of the *Journal of Applied Social Science, Human Development, and Technology* (JASST) publication. I believe this will be value-addition to numerous articles you have read from several publishers.

I assure you that the approach and set-up of this journal, which is inter-disciplinary, will redirect your focus as you read through each of the thematic areas according to your choice of preference.

This is a major step in our effort to keep pace with changing dynamics in the research and development arena.

It also gives the editorial board the impetus to keep moving and doing much more not only in improving the skills of authors but also putting Adventist University of Africa (AUA) on the literary map.

Finally, I wish to express my sincere gratitude to those scholars and practitioners who found time to pen-off their invaluable articles in this august publication, without whom this first issue would not have found its way to the press. Welcome.

Musa Nyakora, PhD  
Managing Editor

## **JASST EDITORIAL BOARD MEMBERS**

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Adventist University of Africa  
ganud@aua.ac.ke

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nyakoram@aua.ac.ke

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### **CONTACT INFORMATION**

Dean, School of Postgraduate Studies and Editorial Chairperson  
Adventist University of Africa  
Private Bag, 00503, Mbagathi, Nairobi-Kenya  
Email: [spsdean@aia.ac.ke](mailto:spsdean@aia.ac.ke)  
Tel: +254 736 656843

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# The Experience of Childbirth in a Weak West African Health Care System during the Ebola Outbreak in Liberia

Erhuvwukorotu S. Kollie

[kolliee@auwa.edu.lr](mailto:kolliee@auwa.edu.lr)

Adventist University of West Africa, Monrovia, Liberia

**Abstract:** In the bid to transform Africa into a developed world, sustainable development goals provide the compass to measure the achievement of the transformation. The third item of the sustainable development goals highlights the need to strengthen the capacity of countries to be able to control early, reduce the risk, and manage natural and global health risks. The 2014-2015 Ebola outbreak in Liberia revealed the weakness of the West African country's health care system in controlling and managing the outbreak. The need to strive to meet up with the third sustainable development goal was showcased by this event. The understanding of the depth of the situation and how it affected vulnerable groups of people portray the areas that needed to be improved. This study aimed to describe the experiences of women who delivered babies during the 2014-2015 Ebola outbreak in Liberia. A qualitative design was utilized, specifically the narrative inquiry method. Participants included women who delivered babies during the period of the outbreak. Thematic analysis was used to analyze the data to identify the core experiences of the women who delivered babies during the outbreak. The findings from this study showcase the effects of the weak health care system on the lives of women who needed maternal care in such a life-threatening situation. Efforts to improve the health care system should be made in such a way that is geared towards the identified areas from this study by health care providers, stakeholders, policymakers, and the government.

**Keywords:** Ebola outbreak, sustainable development goals, maternal care

## Introduction

The millennium development goals (MDGs) were set to improve the lives and health status of women and children. Strides were made in accomplishing increased access to contraception and providing essential maternal and child health interventions. There were also successes in improving maternal and child mortality,

malnutrition, malaria, tuberculosis, and HIV/AIDS menace (WHO, 2015a). The situation, however, still portrays that many more women and children are still having little or no access to essential health services and education. The mortality rate among women, children, and adolescents still occur with these deaths being preventable. The Sustainable Development Goals (SDGs) are geared towards improving and continuing the attempt at making more effective strides at guiding to increase the efforts of improving women's and children's health (WHO, 2015a).

One concrete action taken to ensure more effective strides at attaining the SDGs is the update of a global strategy built on the essential elements of previous MDGs. The global strategy was created in consultation with stakeholders like the Partnership for Maternal, New-born, and Child Health (PMNC). The objectives of the global strategy by 2030 are to end preventable death, ensure health and well-being, and expand enabling environments. The components of the global strategy include improving and strengthening health systems, utilizing more innovative approaches, enhancing monitoring, evaluation, and accountability processes, comprehensive delivery of health services, provision of more integrated approaches to health interventions, training of more skilled and well-equipped health workers, and so on (WHO, 2015a).

The World Health Organization (WHO, 2019) updated the definition of operations for public health emergencies in the wake of recent disease outbreaks. This reveals the weaknesses in some health systems in several countries. As a way forward, the realization that outbreaks have the potential to cross borders should drive the zeal to always target international collaboration to ensure the health security of communities and countries. Therefore emergency preparations should involve frameworks that recognize public health emergencies to be such that could occur suddenly on a large-scale, so assessment, management, rehabilitation, and recovery interventions should be planned for in collaboration with neighbouring countries and the international community.

### *The role and willingness to work of health care workers during disease outbreaks*

During disease outbreaks, health care workers (HCWs) play an important role which is primary to the control of further debilitating conditions and the maintenance of the overall health of the public; this condition cuts across all populations worldwide (Barnett et al., 2012). There is evidence that the education of HCWs, including midwives, which involves training and preparation activities is very important to ensure that populations experiencing disease outbreak survive the event and recover meaningfully to optimum community health conditions. This involves equipping HCWs with skills vital for the conduction of competent surveillance, communication, reporting, and containment of outbreaks (Chiu et al., 2012; Qureshi et al., 2013). The competence of skilled health care workers has been redefined in the wake of public health emergencies and disease outbreaks. WHO (2019) provides a redefinition of what competent care for women and newborns during public health emergencies in the face of complexities posed by a frail health system. Competent maternal and newborn health professionals can provide evidence-based, human-right-based, quality, sociocultural sensitive and dignified care. They should be trained regularly on updated evidence-based care, their work environment should be enabling; their safety, psychological, and emotional well-being should be provided for. The regulations for standard practice should be ensured by making the standards for quality care accessible to all health care professionals giving care to women and newborns (WHO, 2019).

Several factors influence the availability and positive response of HCWs including midwives to contribute to the containment of the disease during disease outbreaks. Some of these factors include their willingness despite the risks involved, such as uncertainty and insecurity. Other factors are their perceptions and attitudes towards their roles during disease outbreaks (Barnett et al., 2012; Devnani, 2012). Studies have indicated differences in the rate of the willingness of health workers to care for patients who are victims of virulent and life-threatening epidemics, pandemics, and infectious diseases (Buseh et al., 2015).

A study done by Basta, Edwards, and Schulte, (2009) provided descriptions of the determinants of HCWs higher willingness to render care during epidemics; these include the type of disease outbreak

(for example; it was shown that less virulent outbreaks were related with the higher willingness of HCWs to continue to care for patients), also shown by studies that lower threat perceptions of health care workers are related with higher efficacy assertion (meaning higher assertion to be competent to handle the situation). It can be summarized then that when disease outbreaks are less virulent, the threat perception of the outbreak are lower, while the self-determined ability to handle the situation becomes higher among HCWs. This results in a higher level of willingness by health care workers to continue to care for patients in the event of disease outbreaks. When outbreaks of diseases are at its peak, the health care workers in close contact with victims, who by default were placed in a frontline position to salvage the situation, were recorded to express a high rate of unwillingness to respond (Barnett et al., 2012; Basta et al., 2009).

### *The Ebola experience in West Africa including Liberia*

One of such deadly disease outbreaks that have hit the world in recent past is the Ebola Virus Disease (EVD) that occurred in West Africa from 2014-2015. It is important to note that during the Ebola outbreak in Liberia and West Africa as a whole, there was the great need to care for patients who had contracted the Ebola virus, but there was need also to pay attention to other patient populations who needed other types of health care services. Pregnant women, women in labour for childbirth, and women who had just delivered their babies, newborn babies, and children with diverse conditions not related to Ebola were constantly in need of health care services (Buseh et al., 2015). Coping with the new disease with a recorded high mortality rate within the region, including the development of treatment protocols, was a serious concern in the region. The situation was complicated further because the needed resources were not available in countries in the region (one of which was Liberia). These resource constraints were exacerbated by the lack of experienced experts in the treatment and care for patients with Ebola.

The inadequacy of the health system was caused by conditions that were created by the emergence from a civil war that leads to limited availability of health resources and a dysfunctional health care system (Buseh et al., 2015). Also, EVD symptoms are not easily differentiated from other endemic diseases like malaria, gastroenteritis, or cholera (WHO, 2019). EVD manifests symptoms that could be similar to other infectious diseases; meanwhile, these symptoms are fatal. This caused

high tension and anxiety among the health care workers and their attitude towards every patient who sought care changed in such a way that all patients were treated as suspected cases (Hayter, 2015). In appreciating the complexity of the new epidemic, in a statement about the Ebola outbreak in Liberia made by WHO (2015b), it was reported that the highest number of deaths occurred in Liberia. This was also recorded as the most devastating outbreak of Ebola since it first emerged in 1976 in the Democratic Republic of Congo.

By the time the epidemic reached its peak between August and September 2014 in Liberia, it was estimated that 300 to 400 new cases every week were reported. The situation in Liberia was very tragic; the treatment centres were overflowing with patients (which included women in labour, some of which delivered their babies in front of health care facilities). Horrific scenes were recorded; patients died on the hospital premises unattended to and bodies abandoned there for days. Local and international flights were cancelled, and domestic supplies of food, gas, fuel ran low. Public places such as schools, business offices, border control, open markets, and most health institutions were closed down. Fear and uncertainty about the future—for families, for communities, and the country, and its economy was the common feeling in the country. The health care workers did not cease from the care of patients, even though supplies of personal protective equipment, training, and preparation for safety procedures were inadequate. It was reported that 375 health care workers became infected and 189 HCWs died in Liberia (WHO, 2015).

The enigma of the Ebola outbreak was associated with the challenges that were then posed to HCWs within the West African Region. Ebola infections were contracted by HCWs which resulted in the debilitating effects on the health system; that included the closing down of hospitals, the reduction in the health care workforce, and a distrusted health system. It was reported also that health care workers were 21-32 times more likely to be infected with Ebola than were other adults in the general population (Healthcare-in-Europe, 2015). In the three countries that were affected; Liberia, Guinea, and Serra Leone, 50% of all health care workers infected were nurses and midwives, 12% were physicians and medical students, and 7% were laboratory workers. These numbers of deaths of HCWs reflected the need to improve and strengthen safety policies, the supply of adequate protective equipment, and the appropriate preparation and

training for all HCWs. The ICN recommended to governments to ensure the creation of safe working environments for HCWs as a prerequisite to providing care to Ebola patients. The ICN also recommended that nurses and midwives require proper training and education, prompt provision of protective equipment, and to take up an active, frontline role in the development of policies about the prevention of infection transmission and patient care (Healthcare-in-Europe, 2015).

According to WHO (2019), EVD can cause fatal complications among humans up to about 90%. Wild animals transmit the virus to humans and then human to human transmission occurs through physical interactions between them. The clinical manifestations of Ebola infection start to show between 2 to 10 days after a human contract the virus. EVD occurred first in 1976 in two concurrent outbreaks in Eastern Africa: one in Nzara, Sudan, and the other in Yambuku, the Democratic Republic of Congo (WHO, 2019).

The EVD is caused by a virus called Filoviridae, one of the viruses included in the family of hemorrhagic fever viruses that cause uncontrolled bleeding complications accompanied by fevers. The natural host for the Ebola virus is fruit bats (Borio et al., 2002). When humans come in close contact with the fluids such as blood, body secretions, other bodily fluids of animals such as chimpanzees, gorillas, fruit bats, monkeys, forest antelope, and porcupines that are infected by the Ebola virus and/or are found ill or dead or in the rain forest, the humans contract the virus (Borio et al., 2002). Transmission of the Ebola virus among humans occurs when humans come in direct contact with fluids and body parts of other humans. For example, when broken skin or mucous membranes of one human comes into contact with the blood, secretions, or body fluids of other humans who are infected by the virus, even when they come in contact with materials (such as, bed clothing) contaminated with body fluids of other infected people. Once a person is infected with the virus, they remain infectious throughout, as long as the virus remains in them and after death occurs due to the disease (WHO, 2019). People infected with the Ebola Virus are not infectious until the symptoms begin to show, these symptoms begin to manifest between 2 to 21 days after infection.

The symptoms include headaches, fever that occurs suddenly, sore throat, muscle pain, fatigue, vomiting and diarrhoea, skin rashes, clinical signs of renal and hepatic dysfunction, and internal and

external bleeding (WHO, 2019, para. 1). The diagnosis of EVD can be difficult due to the indistinct clinical signs and symptoms compared to other infectious diseases however; laboratory tests can be used to confirm that a person is infected with the Ebola Virus. Examples of the laboratory tests that can be used to confirm EVD include antibody-capture enzyme-linked immunosorbent assay, antigen-capture detection tests, serum neutralization test, reverse transcriptase-polymerase chain reaction assay, electron microscopy, and virus isolation by cell culture. EVD has no developed treatment yet. However, there is a range of potential treatments including blood product administration, immune therapies, drug therapies, and vaccines which are currently being developed. Survival depends on the provision of early supportive care which includes rehydration and symptomatic treatment because there is currently no standard pharmacologic treatment to destroy the virus (WHO, 2019).

#### *The role and experiences of nurses and midwives during the Ebola outbreak*

Midwifery interventions require touch; which is the main medium that people connect. Touch is an important part of the midwife-patient relationship and may be an unavoidable aspect of the caring relationship between midwives and their patients (Connor, 2015). Nurses and midwives use touch to promote healing and provide comfort and care to their patients. Touching patients is done in different kinds of ways during every interaction; for instance, when measuring vital signs, bathing their patients, changing positions of patients in bed, assisting patients to leave their bed to walk, or sit in a chair (Connor, 2015). When midwives touched their patients, especially during the Ebola outbreak, it spoke volumes in terms of reassuring them that the midwife was not afraid to be near them and that they were all in the situation together. Though direct skin-to-skin contact is neither wise nor acceptable, it is recommended that when midwives treat EVD patients, despite the layers of protective equipment, they need to seek for avenues to intentionally touch their patients in a deliberate and meaningful way that will provide care, comfort, and connection between the midwife and the patient (Connor, 2015).

The nurses and midwives were living and working in fear and terror during the Ebola outbreak in Liberia. Their families' lives and their own lives were endangered, however, the nurses and midwives felt obligated by the profession to continue caring for patients during the Ebola outbreak. The nurses and midwives experienced stigmatization by the public during the outbreak. The experiences of the nurse

and midwives included change in the dynamics of the nurse-patient relationship and team nursing. Through training and provision of protective equipment, the nurses and midwives regained their confidence. The nurses and midwives then created methods to touch their patients while using the personal protective equipment and fully conducted nursing procedures, improving the relationship between the nurses and midwives and their patients. The spiritual dimension of health care was identified as crucial to enhancing nurses' well-being. The decision process involved in the nurses' and midwives' choices either to render care or not to render care for patients was made based on emotional connections between nurses, their families, and society. The decision process also was based on their value system, including professionalism and spirituality. The spiritual resources of nurses and midwives also influenced their decision to work (Kollie et al., 2017).

#### *The aim of this study*

The need to strive to meet up with the third sustainable development goal was showcased by the Liberia 2014-2015 Ebola event. To meet up with this SDG, the caregivers should be available, willing, and competent to meet the needs of the victims, survivors of the outbreak. The role of nurses and midwives in containing the disease while more importantly; their willingness and decision to work during outbreaks by caring for the victims and their caregivers during the outbreak and after has been established. The next focus should be the understanding of the experiences of those vulnerable groups or those who stand the chance of being affected greatly in the event of an outbreak. This will provide data for more competent and salient care during Ebola outbreaks. The experiences of survivors and their caregivers in the aftermath of an Ebola outbreak are characterized by distressing physical, social and psychological stressors such as terror, anxiety, ostracism, and stigmatization. Nursing care should include compassionate care to facilitate the resilience of the survivors and their caregivers. This will enhance better coping and transcendence from victimhood to becoming empowered (Matua & Wal, 2015). There is a need to understand how the situation affected specific vulnerable groups of people (such as women in pregnancy, delivery, and postpartum periods). This understanding may portray the areas that need to be improved. The objective of this study was to describe the experiences of women who delivered babies during the 2014-2015 Ebola outbreak in Liberia.

## Method

The qualitative design was used, specifically the narrative inquiry method. The narrative inquiry method was used to gain access to the feelings, thoughts, and experiences of the participants. Data was collected from life stories and narratives of the participants' experiences during pregnancy, labour, delivery, and immediate postpartum periods. The discourse analysis method which involves transcribing the language in the interview conversations before interpretation was incorporated to make sense of the participants' experiences. This was accomplished by unveiling the intentions, motives, and meaning the participants gave to their experiences. The final story was constructed by the participants and researcher; a feature of the narrative inquiry method. The investigator of this study is a nurse-midwife who lived and worked in Liberia during the 2014-2015 Ebola outbreak. Reflexivity was used to control for her insider view which contributed to the analysis and interpretation of the findings. The thick description was used for readers to form their part of the final story.

## Ethics

Each participant granted informed consent before the interview. Confidentiality and anonymity of the participants were ensured by handling the transcription of the interviews in an anonymous format. Transcribed data were stored securely during the period of analysis in a password-coded document on a private computer. The interview recordings were deleted after the analysis period.

## Participants

Five women who delivered babies during the Ebola outbreak in Liberia between the years 2014-2015 were purposively recruited for the study. Their mean age was 36 years, which ranged between 32 and 38 years of age, they were all married and had other children before the Ebola outbreak. These women were all professionals and were employed. Two of these women were colleagues (working at the same academic institution) with the investigator and the others were referred to the investigators by other informants.

## Data collection and analysis

A combination of individual face-to-face interviews and telephone-recorded interviews were utilized depending on which one was convenient for each of the participants. The interviews were unstructured which elicited participants' stories of events concerning their pregnancy, delivery, and the postpartum period. Questions probed the

participants' narratives. The stories prompted the questions that were asked. These questions were asked to clarify the intentions and motives of the participants. Data saturation was achieved with the number of participants. All the interviews were transcribed into text and stored securely. A discourse analysis was conducted by examining the transcribed text data line-by-line and within the context for language patterns and themes. The language interpretations, patterns, and themes were then organized into a final story in text form.

## Results

The analysis of the data presented six major themes in the following pattern: fear, isolation, will to survive, self-protection and preservation, God-dependent safety, and transcendence. The themes were then organized into a narrative in text format. The description of the themes and final story supported by data are presented below.

### Fear

The women identified fear as the general mood and motive behind all they experienced. The fear was due to the uncertainty and very high risk of contracting the EVD from anybody they came in contact with. The deep sense of vulnerability was heightened by the fact that even members of the family could be a potential source of transmission. The virulence and short-term prognosis were also a factor. One of the women said, "I was so afraid that my baby and I could contract the disease from anybody who visited us." Also, during antenatal visits and labour management, the activities of the midwives changed due to fear, as reported by the women.

*When I got to the hospital all the workers did not want to touch me. I was just there looking at them and praying for God to help me. It was terrible to be in labour during that period. The midwives were afraid of blood and fluids that they just left me to labour by me...the baby almost jumped out of me... only then did the midwives come to receive the baby that was almost born.*

It was also identified that the women entertained the fear of losing their babies or their lives in the process.

### Isolation

It was identified from the data that during the stay at the hospital to receive care from the midwives the women felt a sense of isolation. They felt cut off from other people because of the strain in the

human-to-human contact that existed between them and the midwives. The protective gear worn by all the hospital workers made them feel the separation and isolation from the health workers. One of the women said

*...the midwives were covered all over, including their eyes were hidden behind the glass goggles... only their voice could let one know if a male or female attendant was in front of you... the midwives were so covered that only their voices made you feel like you knew them before...I felt like I went through it alone.*

#### *Will to survive*

The women also reported that they were able to scale through because they desired to survive with their babies. One of the participants said “I told myself that I will make it... my baby will make it... I went through that pain all by myself”.

#### *Self-protection and preservation*

To survive the period the women reported that they had to ensure that they adhered to all safety measures to protect themselves and their babies. One of the women attested that her baby grew up to become afraid of people generally. It took her time to help the child to feel comfortable among people as during that period friends and family were restricted from handling the baby.

*When I got home we had to limit those who carried the baby... only my mother-in-law and I carried her throughout... it made her not to be used to people carrying her even when she grew up it was difficult for her to allow people touch her... she was afraid of people. It is now that she is learning to go to people.*

#### *God-dependent safety*

It was identified from the data that the women attributed their safety throughout the outbreak to God who protected them and kept them safe.

*I thank God for making it in such a way that my baby was born in July, before August when the state of emergency was passed. That boy started doing something in me... I started bleeding... the doctor ordered for a CS [Caesarean section] to be done. It was God's mercy that kept us and protected us.*

Other participants also reported that they were kept safe through divine providence.

#### *Transcendence*

Through data analysis, it was identified that the women appreciated the sacrifices made by health workers who were at the health facilities rendering care to patients. The death of health care workers made them sad. It was reported that these health care workers contributed to their survival in some way by being present at the hospital. The women also reported that it would have been easier for them if the health workers did more to encourage them during the period which was characterized by changing dynamics in midwife-patient interactions. That is the midwives could not touch them directly without using the protective gear. It was identified that the women were able to transcend from their health needs to that of the health care workers during the outbreak.

*When I heard that the doctor who conducted the CS on me died later, I felt so sad and afraid to go back there. I thought of how he did that work on me and I have my baby with me and then he died... even the doctor who did his circumcision... I heard he died, and it made me feel that kind of way!... I refuse to go back to that facility until now because of the trauma I have from that kind of experience*

#### *The narrative*

The women who delivered babies during the Ebola outbreak in Liberia experienced fear caused by the terror elicited from the way people died from just physical contact with infected people. The uncertainty and high risks involved made it worse. This made the health workers change the method of touching the women causing them to feel isolated and left alone. The women, therefore, developed the will to survive through self-protection and preservation. They adhered strictly to all that was needed to ensure the safe delivery of their babies and the wellbeing of their newborns. They all depended on God for safety to lead in all things to keep them and their babies safe. The entire experience also came with the women transcending their needs during the outbreak to appreciate the needs of the health workers. They were saddened by the death tolls of the health workers to the extent that some of the women are traumatized and have not been able to go to those hospitals where those health workers died from.

#### **Discussion**

The experience of childbirth among women who delivered babies during the Ebola outbreak in Liberia was characterized by fear created by uncertainty and high risks of contracting EVD. A

study that done by Kollie et al. (2017) also identified fear and terror to be the core factor that characterized mood among nurses and midwives during the 2014–2015 Ebola outbreak in Liberia. The use of protective gear by the midwives exacerbated the fear in women seeking midwifery care and made them feel isolated. It affected the touch therapy that is the hallmark of midwifery care which caused the feeling of isolation in the women. Connor (2015) also identified that touch was an area of strain among nurses and midwives during the Ebola outbreak. The experience of the women who delivered babies during the outbreak in Liberia was characterized by physical, social, and psychological stressors, as was also identified in another study done among EVD survivors and their caregivers (Matua & Wal, 2015). The spiritual dimension of the experiences of the women who delivered babies during the Ebola outbreak is similar to the experiences of nurses and midwives who continued to render care during the Ebola outbreak (Kollie et al., 2017). They depended on God for safety and survival throughout the outbreak.

The distinguishing feature of this study is that the findings have identified the experiences of the women who delivered babies during the Ebola outbreak and by extension provides a description of how the frailty of the health care system can impact on the health care needs of vulnerable populations such as women experiencing pregnancy, delivery, and postpartum during outbreaks and public health emergencies. The limitation of this study is that the depth of the final narrative might have been more extensive if the participants included non-professionals, non-educated, first-time moms. All the participants were married, probably the narrative might have been furnished with a different

perspective if single women or younger girls having unplanned babies were included as participants.

The results of this study can be applied to understand areas that need to be considered in the event of disease outbreaks in similar frail health systems around the world. The need to meet the sustainable development goals could be fulfilled, by utilizing the results of this study in designing midwifery interventions and health policy development, to effectively care for women in need of care associated with childbirth issues during disease outbreaks.

## Conclusion

The SDGs require that improvement be made in the quality of care rendered to women and children during childbirth and health care delivery in general. The recent Ebola outbreak in Liberia exposed the weakness of the health care delivery system by the exacerbated death toll that the country suffered before the containment of the disease was achieved. Women in need of childbirth health care services experienced fear and terror, which was compounded by the complexities emanating from the high-risk virulence through touch. Midwives were then challenged with the need to skillfully perform their duties while keeping patients, their families, and themselves safe. The sustainable development goals pointing to the need for quality maternal health and health care delivery could be achieved by utilizing the results of this study in designing midwifery interventions and health policy development, to effectively care for women in need of care associated with childbirth issues during Ebola outbreak.

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## The Influence of Holistic Aspects on Students' Attitude toward Learning: A case of Adventist Universities in East-Central Africa

Baraka Manjale Ngussa

[ngussathe5th@gmail.com](mailto:ngussathe5th@gmail.com)

University of Arusha Tanzania

**Abstract:** This study investigated the influence of holistic aspects on students' attitudes toward learning among Adventist universities in the East-Central African region using descriptive co relational design. The study was guided by the holistic theoretical underpinnings as reflected in the writings of E. G. White. A sample of 280 out of 1670 students in the final year of degree programs was randomly picked from three universities to participate by filling the questionnaire. Data were analyzed through descriptive statistics and Pearson Correlation. The study established that the holistic aspects were integrated into the teaching-learning process and students had a positive attitude toward learning. There is a positive correlation between the integration of the holistic aspects and students' attitudes toward learning. It is therefore recommended that educators should continue integrating the physical, mental, and spiritual aspects in the teaching-learning process to enhance students' harmonious development and preparation for better service to God and humanity in this world and the world to come. Institutional management teams should ensure the availability of sports and game facilities and quality infrastructure for physical aspect integration. Finally, educators should take advantage of students' positive attitudes toward learning as a determining factor for them to reach their full potentials.

**Keywords:** Integration, holistic, education, attitude, learning, Adventist

be ignored (Eshghinejad, 2018). This is supported by Mbugua et al., (2012) who argue that factors contributing to poor performance include learners' poor attitudes. However effective teaching strategies can be, if the attitude of the learners is negative, learning outcomes cannot be maximized.

According to Eshghinejad (2018), attitude means opinions and feelings one has about something. Linking it with learning, it is an essential factor influencing learners' performance. Anghelache (2013) regards students' mentality as closely linked with attitude. He cites Fabunmi (2007) and Riaz (2011) who argue that attitude is influenced by characteristics of the classroom environment or by students' commitment and acceptance of learning tasks. This suggests that attitude toward learning is shaped by practical experiences learners go through daily within the teaching-learning environments. According to Beers and Beers (2013), faculty and staff who are led by Christian principles of charity and kindness may generate an environment that is pleasant and inviting, thus, providing a conducive learning environment. Therefore, educators have a key role to play for the learners to be attracted to the teaching-learning environment and consequently improve their attitude toward learning. While it is important to monitor students' performance through academic achievement, it is equally important to make sure that holistic aspects are well blended in the teaching-learning process so that learners will be prepared for better service not only in this world but also in the world to come. This can be accomplished through educators' effort to meet learners at the points of their needs.

### Introduction

Education is an instrument through which sustainable development goals can be realized. It is through quality education that institutions of learning can produce well-rounded citizens who will play key roles in national development. This can be possible only if effective learning has taken place. While various factors can determine learning effectiveness, attitude toward learning should not

According to White (1903), Seventh-day Adventist Universities are faith-based higher learning institutions that operate under the holistic Educational Philosophy which advocates for the harmonious development of the physical, mental, and spiritual aspects. According to Beers and Beers (2013), "the foundational distinctive of a Christian college education is the integration of faith and learning" (p.51). The integration of faith and

learning means the blending of academic matters with spiritual aspects. Therefore, unlike secular institutions, a Christian learning institution has to introduce Christ as a personal savior in the teaching-learning process. This is further expressed by (Knight, 1980) who describes Adventist education as a balance to the development of the various aspects of man as he is being restored to his original position as one created in the image and likeness of God.

It is important to note that not much has been studied about the effectiveness of holistic education among Adventist higher learning institutions in Africa. A few related studies such as that of (Rudge, 2016) in the United States, indicated that while the term holistic education is steadily spreading through schools, universities, and organizations throughout the world, the concept, its history, and philosophical foundation are still quite unknown to many professionals in the education arena. When Broom and Murphy (2015) studied wholistic education models and their implications among secondary schools in Canada and New Zealand, they considered wholistic models to include attention to self-esteem, emotions, relationships, and spirituality. While the present study considers physical, mental, and spiritual aspects as ingredients of holistic education, Mahmoudi et al. (2012) contend that holistic education encompasses a wide range of philosophical orientations and pedagogical practices attempting to avoid excluding any significant aspects of the human experience. The study of Lauricella and MacAskill (2015) on the other hand, investigated about potential benefits of wholistic education among North American secondary schools while considering such factors as personal identity, meaning/ purpose, connections to the community, connections to the natural world, and humanitarian values as aspects that constitute holistic education. The study further postulates that holistic education helps students to better choose their course of study in university, to more fully understand their career opportunities after graduation, and to be more informed about the community, natural world, and citizens with whom they interacted.

This study, therefore, sought to establish the effectiveness of holistic aspects and their influence on learners' attitudes among Adventist Universities in the East-Central African Region. The study was propelled by Tucker (2001), a veteran Adventist educator who believed that many of our schools are little more than secular schools with Bible classes.

He perceived an existing mismatch between “the talk and the walk.” As an educator for more than four decades in the Adventist system of education, he posed the following question (Tucker, 2001): “With a philosophy that is so sound, so right and so harmonious with every principle of our fundamental beliefs, why don’t we practice what we preach? ” He finally concludes that “Either the system of education that we hold dear is driven by the principles of True Education—or it is not” (p.182)

## **Literature Review**

Holistic Education is one that is geared towards producing socially, morally and mentally developed persons. Through this system, learners are introduced to the sense of responsibility and are inculcated with skills necessary for life and service (Nyabwari, 2013). The literature review addresses holistic aspects and attitudes toward learning.

### *The Physical Aspect*

The physical aspect of holistic education centres on the fact that our body is the temple of the Holy Spirit. According to Knight (1980), “the condition of the physical body is important to the young Christian because it is the body that houses the brain, and it is with his brain that he makes responsible spiritual decisions” (pp. 209-210). When the body becomes sick, the brain will be affected by the body’s weakness and therefore, it may not function properly. It is therefore essential for education systems to ensure that the body of the learner is well nourished with a balanced diet.

There are various ways by which the physical aspect of the learner can be developed. The first one is through engagement in physical activities. According to Nyabwari (2013), physical education plays a central role in educating the whole student providing him with opportunities to become skilled mentally, develop fitness and gain an understanding of the importance of physical activities. The second one is through involvement in manual labour and Physical exercises. According to White (1923), the mind should not constantly be taxed to the neglect of the physical powers. While institutions of learning should provide facilities for manual labour, students are required to devote a portion of their time for manual work as this may help them to raise funds for their studies and safeguard them against evil influences that prevail in institutions of learning (White, 1968). The third way is through the feeding of our bodies with the proper diet. According to White

(1923), the diet affects both physical and moral health. She argues that “under the influence of unhealthful food, the conscience becomes stupefied, the mind is darkened and its susceptibility to impressions is impaired”(White, 1923, p. 123) Therefore, school management needs to ensure the provision of a balanced diet.

### *The Mental Aspect*

Mental is another important aspect of man’s holistic development. According to Jonynien and Kern (2012) in Alhabees, Alsaida, and Alhabees (2018), mental power is “a state of psychological contentment, or the condition when there is no mental illness. It is the psychological state of someone who is functioning at a satisfactory level of emotion and behavioral adjustment.” According to White (1958, p. 173), it is the will of God that learners should undergo “the training of the mental faculties. He designs that His servants should possess more intelligence and clearer discernment than the worldling, and is displeased with those who are too careless or too indolent to become efficient, well-informed workers.” It is, therefore, the responsibility of our education institutions to set strategies by which the mental powers of the learners can be maximized.

While there are various ways through which mental powers can be developed, the reading of the bible is the best means for mental development. According to White (1977), the Bible is the best source for mental powers. She argues that “if the Bible were studied as it should be, men would become strong in intellect.” In this respect, the Bible should be not just part, but the centre of the teaching-learning process. According to Knight (1980), “the Bible is a foremost source of knowledge and most essential epistemological authority” (p.158). All other sources of knowledge must be tested and verified in the light of the scripture. “He further considers the bible as “the foundational and contextual document for all curricular items in the Christian school.” This means the Bible should not be taught just as an individual subject, but it should be the centre of all academic subjects in the teaching-learning process.

### *The Spiritual Aspect*

The spiritual aspect is essential in preparation for better service in this world and in the world to come. According to White (1974), “the knowledge of God and Jesus Christ, is an exaltation above everything essential in earth or heaven” (p. 313). “It

is the very highest education and also the key that opens the portals of the heavenly city” (White, 1974a, p. 313). Therefore, Christ-centeredness should distinguish true education from other systems of education. This distinction is clear in Adventist education as illustrated by Oppenheimer in Tucker (2001) who wrote about an education system called “Waldorf Schools” which is based on the philosophy of its founder, Rudolf Steiner. This type educates not only the mind to think, but also treats the body and the soul as an integrated whole. As Tucker was impressed by the description of such a system, he was distressed by the fact that while there is much concern about the “soul” there is no perceived need for a “saviour.” Therefore, the system was based on the fundamental definition of Seventh-day Adventist education but without the fundamental reason why Seventh-day Adventist schools were created—to introduce students to Jesus as Lord and Saviour.

It is further argued by Leavitt (2012) that Christian teachers should impress the person of Christ upon students. This can be done in the classrooms by seeking ways to effectively integrate our faith into the academic content of our lesson. In introducing students to the saviour, “the Christian teacher functions in the classroom as God’s minister in the plan of redemption”(Leavitt, 2012). With this regard, the learner is not only imparted with the academic knowledge but is prepared for the soon coming of Jesus Christ whereby the faithful will be ultimately redeemed. According to Anderson (2009), “Adventist education is one of the most effective ways to prepare young people for the second coming of Christ.” He further argues that “our schools—rightly run—are more successful at doing this than any other single evangelistic method, including Revelation seminars, church planting, felt needs evangelism or contemporary worship services.” The introduction of Christ as a personal saviour to the learner is, therefore, the key component of the spiritual aspect which every teacher should advocate.

While there are various ways by which the teacher introduces the personal Saviour Jesus to the learners, role modelling should not be undermined. Role modelling is defined by Narinasamy and Logeswaran (2015) as part of the Ethics of Care which plays a vital role in the relationship between teachers and learners. This relationship should shape students’ character in the classroom setting. According to the General Conference Policy Statement, “the teacher holds the central place of importance. Ideally, the teacher should be both a

committed Adventist Christian and an exemplary role model of the Christian grace and professional competencies” (Leavitt, 2012, p. 5).

Leavitt (2012) further holds that “teaching, like any truly human activity, emerges from oneself, for better or for worse. As I teach, I proclaim the condition of my soul onto my students, my subject, and our way of being together.” Because of this power that teachers possess, teachers must behave in a way that will positively influence students’ character development. According to Leavitt (2012), a Christian teacher should impress the person of Christ upon students. This can be done through the integration of faith into academic content.

### *Attitude toward Learning*

Attitude toward learning can determine learning effectiveness. According to Victor (2013), an individual’s attitude is an important variable in the learning process. Inceoglu (2010) in (Yanik, 2018) further argues that while an individual’s immediate surroundings are effective in forming his or her attitudes, especially in the first years of life. These attitudes may undergo a series of changes according to the individual’s socialization processes and life experiences. This suggests that the life experiences learners pass through in day to day life may determine their attitude toward learning.

While there are numerous factors which can contribute to students’ attitude toward learning, teaching-learning strategy is an important factor which cannot be ignored (Ngussa & Mbuti, 2017). According to Beers and Beers (2013), faculty and staff who are led by Christian principles of charity and kindness may generate an environment that is pleasant and inviting, thus, providing a conducive learning environment. In this study, it is assumed that when the holistic aspects are blended in the process of teaching and learning, students will attain a positive attitude toward learning and consequently, their learning will be effective.

## **Methodology**

### *Research Design*

The study employed both descriptive and correlational research designs. The use of the two designs was because the first two research questions were descriptive while the third research question called for hypothesis testing and thus, a need for correlational research design. According

to McMillan and Schumacher (2006), descriptive design summarizes the current or past status of a phenomenon under investigation, describing achievement, attitudes, behaviours, and other characteristics of a group of subjects. With this respect, the descriptive approach enabled the researcher to describe the current situation regarding the integration of holistic aspects in the teaching-learning process. Correlational design, on the other hand, is defined by Sarantakos (2005) as a method that examines the relationship between or among variables whose major aspects of relationship include the presence or absence of direction and the strength of the correlation. With this respect, the present study sought to establish an interrelationship among holistic aspects and attitudes toward learning.

### *Population and Sampling*

The study employed both simple random and purposive sampling procedures. While East Central African Region has seven institutions of higher learning that offer bachelor degree programs (University of Eastern Africa Baraton (UEAB) in Kenya, Adventist University of Central Africa (AUCA) in Rwanda, University of Arusha (UoA) in Tanzania, Bugema University (BU) in Uganda, Adventist University of Lukanga (AUL) in DRC, West Congo University (WCU) in DRC and Ethiopian Adventist College (EAC) in Ethiopia), three institutions as appear in Table 1 were selected using simple random sampling. The selection of three institutions as the sample is justified by the fact that sampling enables a manageable number of respondents to provide information which leads to the possibility for generalization. Students were stratified according to areas of their specialization such as education, business, and theology and even representation was picked from each stratum as a sample.

The purposive sampling, on the other hand, was applied in the sense that only third-year students from Tanzania and Rwanda and fourth-year students from Kenya were involved in data collection. This was because these groups of students had a longer experience of learning and therefore they would give more meaningful information regarding holistic aspects and attitude toward learning. Variation of selected years of participants was because Kenya uses four-years while Tanzania and Rwanda use a three-year system to offer bachelor’s degree programs. According to Cohen, Manion, and Morrison (2000), the correct sample size depends on the

purpose of the study and the nature of the population under scrutiny. They further advise that the size of thirty is the minimum number of cases if researchers plan to use some form of statistical analysis on their data. The three selected universities had a total number of 1670 students in their final year of undergraduate studies whereby 20% of them, regardless of their areas of specialization, was set to constitute the sample size of 334. The return rate of the questionnaire was 286 which is 85.6%.

**Table 1: Population and Sampling**

University	Population	Sample Size	Return Rate	Return Rate Percent
UEAB	661	132	100	75.6
AUCA	659	132	119	90.1
UOA	350	70	67	95.7
TOTAL	1670	334	286	85.6

#### Validity and Reliability

The validity of the questionnaire was ensured through expert judgment. Before data collection took place, a panel of research experts from the University of Arusha was requested to look at the questionnaire against research questions and gave comments where necessary adjustment was to be done. Corrections were done accordingly before coming up with the final copy of the questionnaire. The reliability of the questionnaire was ensured through calculation of the Cronbach's Alpha of questionnaire data filled by 31 students from the Adventist University of Central Africa, who were part of the study population before actual data collection. The reliability results for each category were above 0.7 Cronbach's Alpha meaning the questionnaire instrument was reliable for data collection. Particularly, as reflected in Table 2, the Cronbach's Alpha for physical aspect was .849, for the mental aspect was .742, for the spiritual aspect was .788 and for attitude toward learning was .823.

**Table 2: Reliability Analysis**

Variable	Cronbach's Alpha	Interpretation
Physical Aspect	.849	Reliable
Mental Aspect	.742	Reliable
Spiritual Aspect	.788	Reliable
Attitude toward Learning	.823	Reliable

#### Results

Analysis of data begins with respondents' demographic characteristics. Males were 144(50.3%) while females were 142(49.7%). A

total of 87 (30.4) were business students, 78(27.3) were education students, 37 (12.9) were science students, 36 (12.6%) were theology students, 29 (10.1%) were Information Technology students and 19 were arts /humanities students. A total of 119 (41.6) were from the Adventist University of Central Africa, Rwanda, 100 (30.9%) were from the University of Eastern Africa Baraton, Kenya and 67(23.5) were from the University of Arusha, Tanzania.

*Research question 1: what is the general perception of students on the integration of the physical, mental and spiritual aspects of learning?*

This research question sought to establish the perception of students on the integration of the three aspects of holistic education in the teaching-learning process. In order to answer this question, it was important to establish the mean scores of these variables with respective standard deviations. The mean scores were interpreted under the following zones of agreement or disagreement: 3.50-4.00 = strongly agree, 2.50-3.49 = agree, 1.50-2.49= disagree and 1.00-1.49 = strongly disagree.

**Table 3: Perception of Students on Integration of Holistic Aspects**

SN	Variable	Mean Score	Std Deviation	Interpretation
1.	Physical Aspect	2.50	.653	Agree
2.	Mental Aspect	2.85	.635	Agree
3.	Spiritual Aspect	2.95	.646	Agree

As seen in Table 3, the mean score for the three variables ranged between 2.50 and 2.95, which is within the agreement zone. Particularly, respondents agreed that the physical aspect (2.50), the mental aspect (2.85) and the spiritual aspect (2.95) are integrated into the teaching and learning process. This suggests harmonious development of the three faculties and is in harmony with White (1958) who advises that "in order for men and women to have well-balanced minds, all the powers of the being should be called into use and developed" (p. 239). It is also in harmony with the Adventist philosophy of education in which White (1974) further recommends: "All the faculties should be well developed . . . if one faculty is suffered to remain dormant, or is turned out of its proper course, the purpose of God is not carried out" (p.309). Since the three faculties are equally developed among students in institutions under

investigation, the purpose of God is therefore manifested to the learners and they are effectively prepared for the service to God and humanity both in this world and in the world to come.

With the highest mean score, the spiritual aspect was perceived by the learners to be more integrated than the physical and the mental aspects. This is something worth noting because “the knowledge of God and of Jesus Christ, which is of great emphasis on the spiritual aspect...is an exaltation above everything that is essential in earth or in heaven. It is the very highest education. It is the key that opens the portals of the heavenly city”(White, 1974a, p. 313). Thus, with the integration of spiritual matters, the learners are rightly prepared for heavenly candidacy. The researcher went further to determine the extent to which specific items in each of the three aspects are integrated into the teaching and learning process.

#### The physical aspect

As can be seen in Table 4, the mean score for the first five items of the physical aspect ranged between 2.50 and 3.49, which is within the agreement zone. Particularly, respondents agreed that their lecturers emphasize healthful living principles (2.84), the university cafeterias provide balanced diet (2.53) and the universities’ health facilities provide excellent services (2.63). This is in harmony with what White (1974b) recommends: “The body must be kept in a healthy condition in order that the soul may be in health. This is because the condition of the body affects the condition of the soul.”

**Table 4:** Integration of the Physical Aspect

SN	Item	Mean Score	Interpretation
1.	My lecturers emphasize healthful living principles	2.84	Agree
2.	University health facilities provide excellent services	2.63	Agree
3.	I actively participate in Physical exercises	2.59	Agree
4.	The university cafeteria provide s a balanced diet	2.53	Agree
5.	The university supports sports and games	2.50	Agree

6.	I regularly attend sports and game activities	2.45	Disagree
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However, with the mean score of 2.45, respondents disagreed that they regularly attend sports and games even though they had agreed that universities support sports and games. Much as students actively engage in physical exercises, they also need to participate in sports and games as recreation activities can help them to reduce tension after study hours. In addition, students agreed that they actively participate in physical exercises (2.59) and the universities support sports and game activities (2.50).

According to White (1958), “the time spent in physical exercise is not lost. The student, who is constantly poring over his books, while he takes but little exercises in the open air, does himself an injury.” As put by Knight, (1980), the condition of the physical aspect is important because it is the body that houses the brain and it is with his brain that the learner makes spiritual decisions (Knight, 1980). This is further supported by Musameh, Shenouda, and El-Dien (2014) who recommend that physical exercise should be part and parcel of the school curriculum. They specifically argue that lack of regular exercise may lead learners to experience stress and anxiety and as a result reduces their self-esteem. It is therefore good to note that the physical aspect is well integrated into the teaching and learning process.

#### The mental aspect

As can be seen in Table 5, the mean score for the mental aspect items ranged between 2.50 and 3.49, which is within the agreement zone. Particularly, they agreed that they are encouraged to read and watch character-building programs (2.93) and their lecturers give mental development strategies (2.89). According to White (1958), it is the will of God that learners should undergo the training of the mental faculties, and God is interested to see his servants possess more intelligence and clear discernment. It is therefore worth noting that lecturers fulfil their responsibility to set strategies by which mental powers of the learners can be maximized.

**Table 5:** Integration of the Mental Aspect

SN	Item	Mean Score	Interpretation
1.	I am encouraged to read and watch character-building programs	2.93	Agree
2.	Lecturers give mental development strategies	2.89	Agree
3.	The watching of dirty movies/ programs is prevented	2.89	Agree
4.	Learners are guided to create knowledge constructively	2.87	Agree
5.	The reading of dirty literature is discouraged	2.87	Agree
6.	Lecturer sessions incorporate problem-solving activities	2.79	Agree
7.	Learners are engaged in problem-solving activities	2.77	Agree
8.	There is a control mechanism against watching of evil programs	2.75	Agree

Table 5 further indicates that students agreed that the watching of dirty movies and/ or programs is prevented (2.89) and the reading of dirty literature is discouraged (2.87). This is in good order because any amusement which disqualifies the youth for secret prayer, for the devotion at the altar of prayer, or for taking part in the prayer meeting is not safe, but dangerous.” While discouraging learners to watch and read materials with evil influences, there must be a substitute for them to refresh their minds. This is supported by White (1977) who admonishes that when we shun the false and artificial, discarding horse racing, card playing, lotteries, prize fights, liquor drinking, and tobacco using, we must supply sources of pleasure that are pure and noble and elevating (White, 1977).

Furthermore, students agreed that they are guided to construct knowledge while teachers take the role of facilitation (2.87), lecturer’s sessions incorporate problem-solving activities (2.79) and they are engaged in problem-solving activities (2.77). This suggests that learners are kept busy in the teaching and learning sessions. According to the Statement of Adventist Philosophy of Education (Seventh-day Adventists-Inter European

Division, 2001), Adventist education should nurture thinkers rather than mere reflectors of others' thoughts. This is what is referred to by Reigeluth (1999) as constructivism, a situation whereby learners actively participate to create knowledge by trying to make sense out of material that is presented to them by the teachers. According to Ornstein and Hunkins, (2009), constructivism keeps learners active in the process of thinking and learning.

#### The spiritual aspect

As can be seen in Table 6, the mean score of the perception of respondents about spiritual aspects ranged between 2.50 and 3.49, which is within the agreement zone. Specifically, students agreed that every lecture starts with a prayer (3.12), they regularly attend worship on campus (2.97) and worship services meet their spiritual needs (2.84). This is a commendable trend because “the strength received through communion with God, united with earnest effort in training the mind to thoughtfulness and caretaking, prepares one for daily duties and keeps the spirit in peace under all circumstances, however trying” (White, 1974a). With these trends, therefore, learners will be able to gain spiritual power against evil influences and the ability to perform their duties effectively.

**Table 6:** Integration of the Spiritual Aspect

SN	Item	Mean Score	Interpretation
1.	Every lecturer starts with a prayer	3.12	Agree
2.	Spiritual affairs are excellent at this university	3.03	Agree
3.	Lecturers integrate spiritual aspects in the learning process	3.01	Agree
4.	My lecturers are good role models	3.00	Agree
5.	I regularly attend worship sessions on campus.	2.97	Agree
6.	Worship services meet the needs of the learners	2.84	Agree
7.	Lecturers live exemplary lives	2.84	Agree
8.	I see the image of God in my lecturers	2.76	Agree

Furthermore, students agreed that spiritual affairs are excellent at the universities (3.03) and lecturers integrate spiritual aspects in the learning process (3.01). They also agreed that lecturers are good role models (3.00), lecturers live exemplary

life (2.84) and they see the image of God in the lecturers (2.76). This is worth noting because role modelling is of utmost importance in introducing learners to their saviour. This is reflected in what Leavitt (2012) says: “Teaching, like any truly human activity, emerges from one inwardness, for better or for worse. As I teach, I proclaim the condition of my soul to my students, my subject, and our way of being together.” Because of this power that teachers possess, teachers must behave in a way that will positively influence students’ character development.

*Research question 2: what is the attitude of students toward learning among Adventist institutions of higher learning in the east-central African region?*

This research question sought to establish the perception of students toward learning attitude. As seen in Table 8, the overall mean score of responses was 3.34, which is within the agreement zone (2.50-3.49). This implies that students agreed to have a positive attitude toward learning. The mean score to specific items equally ranged within the agreement zone meaning that students under investigation had a positive attitude toward learning. According to Fabunmi (2007) and Riaz (2011) in Anghelache (2013), students’ attitude is influenced by characteristics of the classroom environment or by students’ commitment and acceptance of learning tasks.

**Table 7: Attitude toward Learning**

SN	Item	Mean Score	Interpretation
1.	Education will make me a respectable member of the society	3.47	Agree
2.	Things I learn will be helpful in my future career	3.45	Agree
3.	Education will improve my standard of living	3.43	Agree
4.	Learning has increased my knowledge in various aspects	3.40	Agree
5.	I would like to continue with further studies	3.34	Agree
6.	I attend academic programs without missing	3.32	Agree

7	I enjoy participating in class activities given by lecturers	3.25	Agree
8	I enjoy my studies	3.22	Agree
9	I’m always happy to be in class	3.16	Agree
	Overall Mean Score	3.34	Agree

Particularly, students agreed that the education will make them respectable members of the society (3.47), the things they learn will be helpful in their future career (3.45), education will improve their living standards (3.43), learning has increased their knowledge in various aspects (3.40), they would like to continue with further studies (3.34), they attend academic programs without missing (3.32), they enjoy participating in classroom activities given by lecturers (3.25), they enjoy their studies (3.22) and they are always happy to be in classes (3.16). This is worth noting because the attitude toward learning is one of the key determinants for effective learning. According to Beers and Beers (2013), faculty and staff who are led by Christian principles of charity and kindness may generate an environment that is pleasant and inviting, thus, providing a conducive learning environment. This, therefore, suggests that faculty members in Adventist universities under investigation do their teaching job rightly.

*Research question 3: is there a significant relationship between holistic aspects and students’ attitudes toward learning?*

This question sought to establish interrelationships between holistic aspects and students’ attitudes toward learning. It called for testing a null hypothesis which states: *there is no significant relationship between holistic aspects and students’ attitudes toward learning*. The null hypothesis was analyzed through Pearson Product Moment Correlational Coefficient. The testing of this hypothesis sought to establish the correlations between specific holistic aspects and attitudes toward learning as well as correlations among holistic aspects. The nature of existing correlations among variables would be either positive or negative and was interpreted based on the following criteria:  $\geq .70$ =strong relationship;  $\geq .50$ =moderate relationship and  $\leq .50$ =weak relationship.

**Table 8:** Correlation between Holistic Aspects and Attitude toward Learning

		PHYSICAL	MENTAL	SPIRITUAL	ATTITUDE
PHYSICAL	Pearson Correlation	1	.458**	.465**	.225**
	Sig. (2-tailed)		.000	.000	.000
	N	286	286	286	286
MENTAL	Pearson Correlation	.458**	1	.621**	.455**
	Sig.(2-tailed)	.000		.000	.000
	N	286	286	286	286
SPIRITUAL	Pearson Correlation	.465**	.621**	1	.504**
	Sig.(2-tailed)	.000	.000		.000
	N	286	286	286	286
ATTITUDE	Pearson Correlation	.225**	.455**	.504**	1
	Sig.(2-tailed)	.000	.000	.000	
	N	286	286	286	286

**\*\*.** Correlation is significant at the 0.01 level (2-tailed).

As seen in Table 8, there are several interrelationships between specific holistic aspects and students' attitudes toward learning. First, there is a positive yet weak correlation at the significance level ( $\alpha=0.01$ ) between the integration of the physical ( $r=.225$ ) and mental ( $r=.455$ ) aspects and students' attitude toward learning. Secondly, there is a positive yet moderate correlation between the It is also important to note interrelationships among holistic aspects. The study established a positive yet moderate correlation at the significance level ( $\alpha=0.01$ ) between the physical and the mental aspect ( $r=.458$ ) and between the physical and the spiritual aspect (.465). This means the more the physical aspect is integrated, the better the mental and spiritual development of the learner. Therefore, the integration of the physical aspect in the teaching-learning process improves the development of the mental and spiritual faculties of the learners. Lastly, there is a positive yet moderate correlation at the significance level ( $\alpha=0.01$ ) between the mental and spiritual aspects (.621). This means the more the mental aspect is integrated, the better the spiritual development of the learners. Therefore, the integration of the mental aspect in the teaching-learning process improves the development of the spiritual aspects of the learners.

### Conclusion and Recommendations

The researcher came up with the following conclusions: The physical, mental, and spiritual aspects are integrated into the teaching-learning process. However, the spiritual aspect is more integrated than the physical and mental aspects. Students had positive attitude toward learning. They believed the education they receive will improve their living standards and make them respectable members of society. There is a positive yet weak correlation between the integration of the physical and the mental aspects and students'

integration of spiritual aspects (.504) and students' attitudes toward learning. This means the more the integration of the physical, the mental, and the spiritual aspects, the better the attitude of students toward learning. Therefore, the integration of the physical, mental, and spiritual aspects in the teaching-learning process improves learners' attitudes toward learning.

Therefore, the integration of the physical and mental aspects slightly improves students' attitudes toward learning. There is a positive yet moderate correlation between the integration of the spiritual aspect and students' attitudes toward learning. Therefore, the integration of the spiritual aspect moderately improves students' attitudes toward learning. There is a positive yet moderate correlation between the mental and the spiritual aspects. Therefore, the integration of the mental aspect improves the spiritual development of the learners and vice versa. It is recommended that educators should increase the integration of the physical and mental aspects so that students will harmoniously develop their physical and mental powers along with the spiritual aspect and therefore be prepared for better service in this world and the world to come.

Secondly, institutional management teams and policymakers need to create conducive conditions for physical aspect integration. For example, they should ensure the availability of sports and game facilities as well as quality infrastructure that would enable the effectiveness of physical aspect integration.

Educators should maintain the rate of spiritual aspect integration as this will increase the learners' relationship with God and people, thus prepare them for the heavenly kingdom. Educators should take advantage of students' positive attitude toward

learning as a determinant for reaching the highest potentials in the teaching-learning process.

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## “Am I my Brother’s Keeper?” A Reflection on the Cain and Abel Narrative (Genesis 4:1-16) in the Context of Social Responsibility

Josiah B. Andor

josiah.andor@regent.edu.gh

Regent University College of Science and Technology, Accra- Ghana

**Abstract:** This paper is a reflection on the phrase “Am I my brother’s keeper?” in the Cain and Abel narrative and its implications on the concept of social responsibility. The interpretive tool is the literary-critical method of biblical exegesis with emphasis on elements in the text that reveal issues in social responsibility. The issues emanating from the reading are discussed in the context of social responsibility to reveal the lessons. These lessons are then applied generally as part of the discussion of the concept of social responsibility. Interaction with the narrative reveals that God’s original purpose for humans and all his creatures was for them to be responsible for each other’s upkeep, inter-dependence on each other, and co-existing. Humans were made to care for their fellow humans as well as exercise dominion over all the other creatures. Other creatures are also supposed to be responsible for each other and work for the benefit of human life. Cain’s response to God, “am I my brother’s keeper?” is a representation of the effect of sin on the human mind and the degraded level of selfishness. The narrative reveals the divine purpose of social responsibility and the human inclination to be selfish despite this divine purpose. Also, the narrative reveals that other creatures live according to the divine purpose of social responsibility. Finally, the paper postulates that the narrative reveals the presence of consequences where social responsibility is ignored. Hence, the paper calls on all to embrace social responsibility as a divine mandate for humanity and all creatures

**Keywords:** Cain and Abel, Social responsibility, brother’s keeper, Divine purpose, human selfishness

### Introduction

The story of Cain and Abel is one of the first stories that children learn from religious parents and churches. “The entire book of Genesis is said to have exerted a powerful influence on Western thought” (Algeo, 1997, p. 1). Being at the

beginning of the Bible, the stories are among the first that most new believers read when they start reading the Bible. The position of the Cain and Abel narrative in the primeval history makes it a ready story for most readers of the Bible, specifically the Old Testament. It contains what most Theologians refer to as the immediate effect of the Fall in Genesis 3. The aspect of the story that relates to Social Responsibility is the answer of Cain to God’s query regarding the whereabouts of Abel, his brother. When Cain killed Abel as a result of God accepting Abel’s sacrifice rather than his, God asked him where his brother was. His response, “am I my brother’s keeper?” is an indication of neglect of responsibility.

Most studies of this narrative have focused on the typology of the characters in the narrative like (Algeo, 1997; Antic, 2006; Najman, 2003) the sacrifices (Lewis, 1994; Waltke, 1986), and the nature of the tension between them (Algeo, 1997; Najman, 2003). This paper seeks to literarily explore the narrative and reflect on the expression “am I my brother’s keeper?” The paper will also discuss the implications of Cain’s response in light of the principles of social responsibility. The study of a discussion of the method and scope of the study, a review of the narrative in Genesis 4:8-12, a reflection on Cain’s response, “am I my brother’s keeper?”, and practical implications of elements in the narrative on the concept of social responsibility. This outline shall characterize the rest of the paper.

### Scope and Method

The story of Cain and Abel is found in Genesis 4:1-16. The story begins with a description of their

birth (Verses 1, 2) and ends with the fact that the Lord set a mark on Cain to make sure no one kills him upon finding him (verse 15) and he went out from the presence of the Lord to live in the land of Nod (verse 16). Whereas the entire narrative must be viewed as a whole, the focus of this paper is on the aspects that directly relate to Cain's response to God's question and how issues of social responsibility are portrayed in it. Hence, this study narrows down to focus on the part of the narrative that describes the killing of Abel, the interaction between God and Cain, and Cain's response to God's question (Verses 8 -12). The study of these verses will be done with the principles of social responsibility in mind.

Since this study is done in the context of social responsibility, a working definition will suffice. Corporate social responsibility has broadly been defined as "the relationship between global corporations, governments of countries and individual citizens" or more locally, "the relationship between a corporation and the local society in which it resides or operates" (Crowther & Aras, 2008, p. 10). It has to do with that aspect of corporate responsibility that focuses on the environment, local communities, working conditions, and ethical practices (International Institute for Sustainable Development (IISD), 2004, pp. 1–10; Rionda, 2002; Sexty, 2011). All definitions point to the fact that social responsibility has to do with the roles that organizations owe society. As individuals, we owe each other the responsibility of being each other's keepers. This individual aspect is mentioned by Aguinis and Glavas (2012) who talk about grasping it from three multi-level perspectives, namely, institutional, organizational, and individual. This paper, therefore, defines social responsibility as the role of being the keepers of one another and the keepers of the other elements of nature for the common good of all.

This study is not based on fieldwork, but biblical exegesis. The narrative will be studied by the use of a literary-critical reading of the text. It is important to note that there are different literary-critical readings in biblical studies. The method to be adopted here shall be the "new" literary criticism as against the "old" literary criticism which "dealt with units of the Bible, and with the historical settings in which the writing occurred" (Habel, 1971, p. vi). This "new" literary criticism will involve a sketch of the literary context and lexical analysis of the narrative. Describing the "new" literary criticism, Exum and Clines (1993) include

any work that focuses on the text as a unitary object, considering its style, rhetoric, or structure as new tendencies (Exum & Clines, 1993). Spencer describes this approach as the "postmodern view" (Green, 2017; cf. Keener, 2016; Spencer, 2012, p. 48). He explains that interpreters are "generally frustrated with elusive excavations for authorial identity and intention" hence they "prefer the more palpable company of texts and readers" (Spencer, 2012, p. 48)

Harrington, (1991) explains literary criticism to mean the posing of questions about the ability of the language to express a thought, the significance of literary structure for meaning, and the relationship of content to literary form (Harrington, 1991). These are the questions that scholars in the field of literature often ask. Because words are considered the raw materials of any form of literature, the literary critic is "first of all interested in the words of the text and the images and symbols that they evoke" (Harrington, 1991, p. 3). Because of this, the intelligent reader is supposed to have confidence about the accuracy of the text and the meaning that the various parts of the text convey.

This "new" literary criticism, as described by Exum and Clines (1993), involves free movement "from one critical approach to another, combining materialist with reader-response criticism, psychoanalytic with ideological criticism, and so on" (Exum & Clines, 1993, pp. 12–13). Besides, there is a spirit of goodwill and even corporation within the interweaving of methods. This stands in contrast to the disagreements and misunderstandings that characterize literary criticisms in general.

Describing the elements in literary criticism, Harrington (1991) mentions five major concerns; namely, "the words, the characters, the story or thought line, the literary form, the relation between form and content" (Harrington, 1991, p. 5). The elements mentioned are described as aspects of the method that "can help the reader to enter the world of a written text and understand it more thoroughly than ever before" (Harrington, 1991, p. 5).

Harrington (1979) also gives a step by step outline of how one can go by literary criticism. In this outline, he mentions that the first question that the reader needs to ask is what words, images, and symbols appear. He explains that the reader may sometimes consult a dictionary, commentary, or any other work to answer this important question correctly. The second question, according to

Harrington (1979), should concern the overall movement of the text. The question should be about what characters appear and what their relationships are. The third question would also relate to the overall movement of the text, but it will ask about the progress of thought. This question demands that the reader gets to know how the text flows to increase the awareness of the artistic devices used. The fourth and fifth questions help make the notion of artistic communication clearer. This is because, they ask about what literary form the text has, and how the form contributes to expressing the content. These steps, according to Harrington, are applicable to both the New and the Old Testaments (Harrington, 1979, 1991). The foregoing approach shall characterize the reading of Genesis 4:8-12.

### A Review of Genesis 4:8-12

Though this section specifically reviews Genesis 4:8-12, the general literary context (4:1-16) cannot be ignored. Elements from verses 1-7 and verses 13-16 are employed to better understand the narrative. Before the killing of Abel occurred, the story describes their birth in verses 1 and 2. Next, their occupation is stated: Abel was *ra'ah so'n* ("keeper of the flock") and Cain was *obed adamah* ("a worker of the ground"). Several explanations have been offered for the separate descriptions given to the two. Najman (2003) quotes Philo as typically interpreting their separate descriptions to represent types. According to him, Cain typifies wickedness and Abel typifies holiness. He adds that their chosen professions reflect their fundamental differences. In his interpretation, Cain's chosen profession involves him with earthly and inanimate objects and Abel's profession relates him with living things (Najman, 2003). This, he concludes, places Abel in a leadership position against his brother Cain.

In verses 3-4, it is stated that both Cain and Abel brought their offering to the Lord. But the Lord respected Abel and his offering but not that of Cain. This, in verse 5, brought about anger in Cain. Though the text states anger, it will be understood that he was also envious of his brother. The question that the reader is tempted to ask is why Cain will be angry. This question is asked by God in verse 6: "..... 'Why are you angry? And why has your countenance fallen?'" God further explains that Cain's offering was not accepted because he did not do well. The reader is not told specifically what Cain did wrongly. One can only guess that Cain might have flouted some principles God might have laid down for sacrifice. Ellen White explains that:

"They were acquainted with the provision made for the salvation of man and understood the system of offerings which God had ordained. They knew that in these offerings they were to express faith in the Saviour whom the offerings typified and at the same time to acknowledge their total dependence on Him for pardon; and they knew that by thus conforming to the divine plan for their redemption, they were giving proof of their obedience to the will of God. Without the shedding of blood, there could be no remission of sin, and they were to show their faith in the blood of Christ as the promised atonement by offering the firstlings of the flock in sacrifice" (White, 1890, p. 71).

This notion that the reason for God's acceptance of Abel's sacrifice was the shedding of blood is supported by several scholars including Hobbs, (1986), Lewis (1994) and Waltke, (1986). The narrative about how Cain killed Abel continues from verse 8. We are told that Cain talked to Abel his brother. The reader is not told what exactly he told him. The text simply continues with the story that when they were in the field he rose against his brother and killed him. The New International Version, however, reads: "Now Cain said to his brother Abel, 'Let's go out to the field.' And while they were in the field, Cain attacked his brother Abel and killed him." This translation suggests a consequence of what Cain said to Abel with their being in the field. That is, he invited him to go to the field, and then he killed him in the field. It is understood that for the author of Genesis, killing Abel was a progressive development of the original sin (Antic, 2006). It was also like the climax of the consequence of the sin – death.

One is not told how long after killing Abel that the events in verse 9 followed. Whatever time might have elapsed; God's question places a responsibility on Cain to know the whereabouts of his brother. His answer stands in direct contrast to the principle of social responsibility expressed in God's question: "I do not know. Am I my brother's keeper?" This is like shirking off the responsibility that God's questions seem to place upon him.

The rest of the narrative presents the response of God and the punishment given to Cain for the act. God made him aware that He (God) knew the whereabouts of Abel ("The voice of your brother's blood cries to me from the ground" – verse 10). He then placed a curse upon Cain. Within the curse, God indicates that the earth has opened its mouth to receive Abel's blood. Hence Cain's curse was

that “when you till the ground, it shall no longer yield its strength to you”.

In the remaining verses of the narrative, Cain is seen to bargain with God over the intensity of his punishment and that is also granted. God placed a mark upon him to prevent anyone from killing him when he is found. His life is preserved but he had to still suffer the punishment that was placed upon him. Within this brief narrative, a lot of nuances for understanding social responsibility are presented. Specifically, the question that Cain asked God seems to represent the attitude of many who do not adhere to the principles of social responsibility. A detailed analysis of Cain’s question, as well as the implications of Social responsibility in the narrative, shall be the focus of the rest of this paper.

“Am I my brother’s keeper?”

The response of Cain, “am I my brother’s keeper?” has within it a lot of meaning for our reflection. This question is in verse 9 of the narrative and it comes after God had asked him where his brother was. In this section, Cain’s response will be analyzed with other aspects of the narrative. It will then bring forth the implications that this response has on principles of social responsibility.

From the beginning of the story, the narrative explains the relationship that exists between Cain and Abel in verses 1 and 2. They were brothers of the same father and mother. Though the word ‘*ah*’ (“brother”) used to describe their relationship could sometimes refer to someone who is just a friend (Ross, 2001), the context here suggests a relationship closer than that. Unlike other relations in other narratives that use the brother motif (e.g. Isaac and Ishmael, the sons of Jacob, David’s sons, etc), the relationship between Cain and Abel is close and direct. Abel is Cain’s direct ‘*ah*’ (brother). Throughout the passage, this relationship is repeated each time the two of them is mentioned together. The seven uses of the word brother (‘*ah*’) in the narrative are as follows:

Verse 2    *’et-’ahîw ’et-habel* (“his brother Abel”)

Verse 8a   *’el-hebel ’ahîw* (“Abel his brother”)

Verse 8b   *’el-hebel ’ahîw* (“Abel his brother”)

Verse 9a   *hebel ahîka* (“Abel your brother”)

Verse 9b                      *’ahî ’anokî* (“my brother”)

Verse 10   *Demê ahîka* (“blood of your brother”)

Verse 11   *Demê ahîka* (“blood of your brother”)

It is interesting to note the way the word ‘*ah*’ is used in relating Abel with Cain throughout the passage. From birth, he is described as *’et-’ahîw ’et-habel* (“his brother Abel”) in verse 2. The reader notices that Abel could have been described as “a second son” of Adam, but the narrator chooses to relate Abel as the “brother” of Cain than as a “son” of Adam. This is done to prepare the reader for what is about to happen in subsequent verses. That is, to make the reader better appreciate the closeness of the relationship between Cain and Abel. This understanding will explain the gravity of his neglect. Also, Antic (2006) observes that the use of the possessive pronouns (ie, “your” in verses 9, 10, 11 and “my” in verse 9) demonstrates that Cain neither behaved like a brother nor acted as a brother toward Abel (Antic, 2006)

From that introductory note in verse 2, the term brother is not used until verse 8 where the tension is located (verses 8-12 is the focus of this paper). The narrator describes in verse 8 how Cain talked to *’el-hebel ’ahîw* (“Abel his brother”) and how he rose against *’el-hebel ’ahîw* (“Abel his brother”) when they were in the field. The use of *’el-hebel ’ahîw* (“Abel his brother”) both at the beginning and the end of the verse is a construction worthy of notice. At the beginning of the verse, Cain seems to talk (*amar*) to *’el-hebel ’ahîw* (“Abel his brother”) in a peaceful tone. There is no known tension in the verb used. What comes between this peaceful talk and the next verb is the fact that they were in the field. Once they were in the field, Cain “rose against” (*qum*) *’el-hebel ’ahîw* (“Abel his brother”) and killed (*harag*) him.

After this act of aggression, the narrator introduces God again. At the beginning of verse 9, God is asking Cain where is *hebel ahîka* (“Abel your brother”)? This seems to further relate the two as brothers. God’s question also tells Cain that he ought to know where his brother was. He was supposed to be responsible for his brother. Though God could have just asked “where is Abel?” he preferred to add a further description, *hebel ahîka* (“Abel your brother”) to communicate the relationship and point out the atrociousness of his act.

Cain’s response communicates a direct contrast to the principle of social responsibility that the text seeks to portray: “I do not know. Am I my brother’s keeper?” The first part of his response implies that the question required him to know the

whereabouts of his brother. The way God asked “where” required Cain to be able to report about his brother. The second part of his response also implies that he was required to be the keeper of his brother. In short, he was required to be his brother’s keeper to know his whereabouts. Even though Cain wanted to shirk off this responsibility, he still referred to him as *’ahî ’anokî* (“my brother”). In essence, the relationship between them, introduced in verse 2, still existed despite the hatred and desire to shirk off the responsibility of being each other’s keeper. Whether Cain liked it or not he still had to describe Abel as *’ahî ’anokî* (“my brother”). As a brother, he owed him the responsibility of becoming his keeper as expressed in his response.

The verb used *shamar* (“to keep”) connotes the idea of watching over someone or acting as an overseer. It also has a sense of supporting, aiding, and protecting (Brown et al., 1906, p. 1037). Additional meanings could be to tend, guard, take care of, etc (Georg, 1973, p. 289). All the various meanings that *shamar* connote have within them the idea of responsibility. In short, Cain was asking God if he (Cain) had any responsibility of supporting, aiding, protecting, guarding, or taking care of Abel his brother. “Am I my brother’s keeper?” shirks off this very important responsibility that is found in the question posed by God. Shirking off the responsibility does not take away the relationship that he has with his brother. Cain’s sarcastic question, “Am I my brother’s keeper?” betrays both his callousness against God and his hate of his brother made in God’s image (Waltke, 1986).

The relationship between Cain and Abel is further expressed in verses 10 and 11 when God responded to Cain. He made Cain aware that *Demê ahika* (“blood of your brother”) was crying out to him (verse 10) and that when he killed him, the earth opened its mouth to receive *Demê ahika* (“blood of your brother”). The words used here seem to tell Cain that even the earth which is not the brother of Abel performed a role to receive his blood, which his brother had poured. The idea of social responsibility here goes beyond humans to the earth also performing a role to help humans.

The final verse which further pronounces a curse on Cain signifies a direct consequence of ignoring the responsibility of being a brother’s keeper. Because of Cain’s act of ignoring social responsibility, the ground will no longer yield its strength to him. Hitherto, the ground yielded its strength to him, but the neglect of his responsibility

brought upon him the punishment meted out. This punishment has a great impact if one considers the fact that Cain was *obed adamah* (“a worker of the ground”). The punishment was on his main occupation. This occupation seems to be tied to other responsibilities such as being a brother’s keeper. In responding to this punishment, Cain calls into question God’s wisdom, justice, and love and attempts to justify himself. He claimed: “My punishment is more than I can bear. Today you are driving me from the land, and I will be hidden from your presence” (vs 13-14). Even after God mitigates his sentence (v 15), he fails to respond positively to God’s grace (Waltke, 1986). Verse 16 indicates that he simply went away from the presence of the Lord.

The foregoing discussion of Cain’s response, “am I my brother’s keeper” reveals a lot of issues and implications in understanding the concept of social responsibility. The issues imply that humans and other creatures are made to care for one another. Sometimes we shirk that responsibility and suffer the consequences of such neglect. These issues emanating from the text are discussed in the next section.

#### *Social Responsibility: Implications from the Narrative*

The narrative of Cain and Abel brings out a lot of implications for discussions on Social Responsibility. These implications will help us understand the seriousness of neglecting our responsibility toward fellow brothers and sisters as well as the environment. From the narrative it can be gleaned that social responsibility is a divine imperative for all creatures, even non-humans perform their roles to support each other and humans, and neglecting our social responsibility has negative consequences on us and others. These implications shall be the points of discussion for the rest of this paper.

#### *Social Responsibility: A divine imperative*

Both Cain and Abel proved responsibility in their occupations. While Cain was *obed adamah* (“a worker of the ground”), Abel was *ra’ah so’n* (“keeper of the flock”). The work they did was part of being responsible as designed by God. They also showed responsibility in bringing offerings to the Lord. Here we see both occupational and religious responsibility. The next type of responsibility which has to do with caring for a fellow brother is the one that Cain neglected. The fact that God

asked him about it implies that God required it from him.

As indicated in the study, God's question, "Where is Abel your brother?" places responsibility upon Cain to be able to tell the whereabouts of his brother and report accurately. This meaning is given in Cain's response to God. The response implies that God's question included being his brother's keeper, watching over him, caring for him, and being able to account for him. So, we can see that being responsible for each other and other creatures is a divine imperative. This is seen in the mandate God gave their father, Adam, from the beginning (Genesis 1:28). Adam and Eve were to "be fruitful and multiply; fill the earth and subdue it; have dominion over the fish of the sea, over the birds of the air, and over every living thing that moves on the earth" (NKJV). The dominion given comes with a responsibility to keep and be able to give an account of all that was entrusted into his hand.

On our part, we ought to know that apart from our occupational and religious responsibilities, we also owe it as a divine imperative to be responsible socially. We ought to think about those around us who also need some love and care. We ought to work within our means to be supportive of the people in our respective communities. Many Christians live in affluence in communities where some people do not have enough food for their families, children not going to school, and people dying of avoidable illnesses. If Christians will realize that it is a divine imperative to be our "brothers' keeper", then our communities will get better. Some studies suggest that socially responsible behaviour can be a tool for achieving sustainable development (Information Resources Management Association & Iyigün, 2015; Madzík et al., 2018).

#### Social Responsibility: The Role of non-humans

From the narrative, it is observed that though Cain neglected his social responsibility toward his brother, the earth performed its "social responsibility". The earth is not a human being, but when a human being sheds the blood of a fellow human being (a "brother"), the earth "opened its mouth to receive your brother's blood from your hand" (verse 11, NKJV). The earth was, by this act, taking responsibility for the task that God has assigned it. When God cursed Cain too, he added that the ground will "no longer yield its strength" implying that it had hitherto yielded its strength. Whatever was assigned the earth has always been

performed; we still see the role of non-humans in the performance of social responsibility all around us. Fruits of trees, flowers, rivers, and animals all live to perform various roles that will benefit humanity. According to Ellen White:

"There is nothing, save the selfish heart of man that lives unto it. No bird that cleaves the air, no animal that moves upon the ground, but ministers to some other life. There is no leaf of the forest, or lowly blade of grass, but has its ministry. Every tree and shrub and leaf pour forth that element of life without which neither man nor animal could live; and man, and animal, in turn, minister to the life of tree and shrub and leaf. The flowers breathe fragrance and unfold their beauty in blessing to the world. The sun sheds its light to gladden a thousand worlds. The ocean, itself the source of all our springs and fountains, receives the streams from every land but takes to give. The mists ascending from its bosom fall in showers to water the earth, that it may bring forth and bud" (White, 1953, p. 20, 21).

She also explains that "the plant does not germinate, grow, or bring forth fruit for itself, but to 'give seed to the sower, and bread to the eater.' Isaiah 55:10. So no man is to live unto himself" (White, 1941, p. 67). It, therefore, behooves on us humans to also care for them in reciprocity as well as fellow humans as part of our social responsibility. Companies that perform "so-called" Corporate Social Responsibilities for the communities in which they are situated, must also realize that they need to guard their activities against polluting the environment, water bodies, etc. It will be in vain if these companies build amenities for communities, yet their activities destroy the environment. As Zinczuk (2012) argues, the concern about the natural environment and the quality of human life should be considered one of the most important social objectives of every organization. Hence, the implementation of social responsibility should not only aim at avoiding actions that might harm the environment. Organizations must also anticipate future consequences which result from environmental degradation. Since non-humans also perform a great role in our existence, our activities too must be tailored toward caring for them in addition to being our "brothers' keeper".

#### Social Responsibility: Consequences of neglect

The narrative also reveals that the neglect of social responsibility has negative consequences. When Cain neglected his responsibilities toward

his brother Abel, consequences followed. From verse 11, God cursed him. He added that the earth will no longer give him her full strength when he tills the ground and that he will be a fugitive and a vagabond on the earth. He set a mark upon him and sent him away from his presence (verses 12-16).

Somehow his neglect of responsibility affected everyone else and the ground also. Adam and Eve witnessed death for the first time since they were created. They lost a son and possibly grieved over the loss. The earth was also affected negatively. Its yield was no longer going to be the same as before. These negative consequences did not affect only Cain, but everyone else.

On our part too, the neglect of social responsibility affects us as well as others around us. Neglecting to care for those in our communities will worsen the poor situation in our various communities and end up breeding criminals who are likely to worry about everyone else. Neglecting the role of keeping our environment clean will end up causing diseases that will affect all in the community. These negative consequences need to be taken account of in our discharge of social responsibility toward others and the environment. If we act as our “brothers’ keepers” we will not have to suffer these negative consequences”.

## Conclusion

This paper has been reflecting on the Cain and Abel narrative in Genesis 4:1-16 and focuses on issues relating to social responsibility in verses 8-12. A review of the story portrays neglect of social responsibility on the part of Cain when he questions God, “am I my brother’s keeper?”. This response characterizes most of our activities when we neglect social responsibility in our respective communities. The study has revealed that social responsibility is a divine imperative for all humans and non-humans. Fortunately for humans, non-humans have remained faithful to the divine mandate of caring for one another and other creatures including humans. Humans, however, have also tended to neglect this important God-given role, and hence we suffer the consequences. Just like Cain’s neglect brought about negative consequences, so does our neglect of social responsibility bring about negative consequences upon us, those around us, and the entire environment. The Cain and Abel narrative is, therefore, a wake-up call to the task of social responsibility. All persons are called upon to practically take up the role of being each other’s keeper to meet the divine mandate, care for the

environment, and avoid the negative consequences of neglect.

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# Monitoring Cyberloafing through Network Traffic Analysis

**Emmanuella Bashwira**

Corresponding author: [bashwira@aua.ac.ke](mailto:bashwira@aua.ac.ke)  
Adventist University of Africa, Nairobi-Kenya

**Lossan Bonde**

Adventist University of Africa, Nairobi-Kenya

**Abstract:** Internet connectivity has enabled enterprises to operate globally and more efficiently. However, this comes with various undesirable effects. Among those undesirable effects is cyberloafing, which refers to employees' personal use of their companies' internet access during office hours. Although several solutions have been proposed, the behavior is still prevailing. This is why, in the recent past, research has shifted its focus to understanding the causes. Exceedingly high levels of cyberloafing are a sign that the internet connection has become a distraction to employees who are disregarding their work. This paper proposes a technical solution to the problem, a framework for monitoring cyberloafing based on the analysis of big data in the form of network data generated by the business. The framework provides a measurement of the level of cyberloafing and an objective and rational basis for restricting access to the internet without compromising privacy. The solution consists of a data collector capturing the data, parsing, and sending it to a relational database, which in turn stores and organizes it for easy access. An analytics engine will then perform the data analysis and the output will be sent to a visualization component. The proposed solution is a tool that will empower employees and encourage personal accountability while appeasing the employers' fears of loss of employee productivity by providing them with a means to control the behaviour. Future related work will be twofold: (1) implementation of the proposed framework, and (2) integration of machine learning techniques in the construction of a model.

**Keywords:** cyberloafing, network traffic analysis, big data, employee monitoring, internet privacy

## Introduction

The internet has become an essential tool for business operations. It has drastically impacted

work habits: an individual can work from anywhere and anytime, the internet provides easy and quick access to valuable resources, there is a large and growing provision of infrastructure and services over the cloud, among many others. All of these contribute to a large extent to the increase of employee performance within a business. But despite the well-known benefits of rapid advancements of new technologies and the different ways in which they have reshaped the workplace and many other aspects of life, research has shown that more attention should be drawn on the negative effects as well. One major negative effect on organizations has been the employees' misuse of internet resources which distracts them from their core work activities. This misuse of a company's internet resources by employees mostly refers to non-work-related surfing of the web such as online shopping, social networking, chatting, non-work related emailing, and visiting pornographic sites (Hassan, Reza, & Farkhad, 2015).

This behaviour has raised concerns among researchers and business owners for over a decade but remains an unexplored research area in most African countries. Terms such as cyberloafing, cyberslacking, cyberlunching, non-work related computing, among many others, have been used to describe this reality (Ozler & Polat, 2012). Akinade (2002) defines it as the employees' personal use of their companies' internet access during office hours. This issue has raised several concerns ranging from employees' decreased productivity, computer systems and information security threats, employer's liability for employees' actions online, to inefficient use of the available internet bandwidth (Oswalt, Elliott-Howard, & Austin, 2003).

Cyberloafing, however, is not always considered a counterproductive behavior. Since

researchers turned their focus from finding more ways to stop cyberloafing in understanding what causes employees to cyberloafing, it has been suggested that cyberloafing may positively impact employee performance (Henle & Kedharnath, 2012). Lebbon and Hurdley (2013) posit that employees spending less than 15% of their working hours on leisure will not show a decrease in productivity. Therefore, there should not be any productivity concerns as long as work leisure behaviour remains minimal. Thus, in the end, it all boils down to how much time spent on the web brings about a diversion of the company's resources from their business use (Oswalt et al., 2003).

With the rapid expansion of the internet, cloud computing, mobile computing, and, more recently, the Internet of Things, the present era has seen an explosive growth of data which is known as the big data phenomenon. This phenomenon has aroused the keen interest of both academia and industry, and network traffic is not an exception. Network traffic analysis has saved organizations from many security threats and financial losses, but also allows network security technicians to limit employee access to certain sites they deem either unnecessary for them to visit while on the job or unsafe, which has been perceived as a violation of privacy. Although many solutions have been provided to address this problem, it is safe to say that there is still improvement to be made in this area. Existing solutions will be presented, leading to a discussion on how they are either not efficient because of lack of reinforcement, or they can be arbitrary, and in some cases, even unnecessarily or excessively restrictive. This paper proposes a solution that captures internet traffic within a network, stores the traffic along with its size and time of transfer. The stored data is analyzed and compared to the expected size and time. This correlation provides a means to determine whether a given user on the network is exceeding or not his/her expected volume of data transacted through an application and time spent on it while surfing the internet.

The remaining of the paper is organized as follows: first, the research problem and the proposed solution to the problem are presented. A review of existing solutions and brief critics are provided. Then, the future work for this study is introduced. And finally, the paper is concluded with a recapitulation of the proposed solution, its limitations, and future research directions.

## Problem and proposed solution

### *The problem*

In the African context in general, the internet is still considered a scarce resource that needs to be used with considerable parsimony. While the internet is vital and indispensable for most workers to properly carry out their duties within a business or enterprise, it can also have an inhibitory effect on workers' performance. Employees can make use of the internet bandwidth provided by their businesses to attend to their personal affairs (cyberloafing). Even though it is legitimate for them to make reasonable use of the organization's internet resources for some private matters, it is not acceptable that the internet becomes an inhibitor of their performance because of the wasted hours spent on the web. Therefore undetected cyberloafing in any organization can lead it to face decreased productivity, but also issues such as growing poor interaction among employees and considerable financial costs (Ezeh, Etodike, & Chukwura, 2018).

Monitoring has so far been the most effective measure to control workplace deviance. But while different forms of monitoring continue to appear as new technologies emerge, employers need to be careful not to jump on the "heavy-handed" employee monitoring bandwagon just because the tools are readily available. They need to keep at the back of their minds the fact that too much surveillance/monitoring may lead to loss of engagement and motivation due to the employees feeling that their privacy is being violated (Blanchard, 2016).

The problem now resides in finding a way to allow employees in a given organization to use the internet without abuse. Or, it is also better to find a way to use employee monitoring as a tool to boost productivity through reinforcing honesty and personal accountability.

Therefore, this paper will attempt to address the following questions:

- How can an organization allow its employees to use internet resources as needed for their work and a reasonable amount of it for their matters?
- How to determine the reasonable amount of time a user should spend on the internet?
- How to enforce that users do not use the internet beyond a given threshold which might be an indicator that the business internet resources are being misused?

Some scholars may rightfully argue for cyberloafing, but the reality remains that if no measures to control internet usage in the workplace are put in place, this behaviour will only be encouraged, resulting in an ineffective utilization of the employees' time. There is a need to find a balance between work and leisure while reminding employees of their responsibility toward their organization's time. This paper intends to answer the call for a technical solution that can be used as a tool to monitor employees without violating their privacy, but also a tool to educate and raise awareness of the implications of excessive cyberloafing on work performance.

#### Previous literature

However scarce internet connection may still be considered on the African continent, it is important to look at whether it always comes as a gain or as a drain on businesses. The internet has undeniably changed the way the world functions. Its benefits are thus indisputable, and so is the other side of the coin: increased opportunities for cyberloafing. A study on cyberloafing in Madda Walabu University in South-central Ethiopia targeting female secretaries revealed that 70% of this population rationalized cyberloafing and 50% described themselves as unable to perform well when the latter was withdrawn (Shafaat & Truptimayee, 2017). This attempt to give a rationale for cyberloafing is referred to as neutralization (Khansa et al., 2017).

Studies carried out in South Africa show evidence of the prevalence of cyberloafing across organizations around the world but in Africa as well, and the behaviour does not only bring strategic considerations but also ethical considerations to employee monitoring (Blanchard, 2016). Rodriguez (2011) examined the impact of smartphone usage on the performance of employees in South African firms. He aimed to dig deeper into how employees' performance is affected by the use of such devices. In his research, he classifies advanced smartphones under Work Extending Technologies as it has been observed that these devices tend to disturb the balance that should be in place between work and life as they break the boundaries. Moreover, he referred to smartphones as a "double-edged sword" since their benefits are paradoxical: on one hand, internet connectivity on such devices may contribute to an increase in work interruptions leading to distractions, and thus decreased productivity, but on the other hand, smartphones are known to provide quick access to information leading to

faster decision making and speed up business processes.

Oosthuizen, Rabie, and Beer (2018) went further to explore the relationships between cyberloafing, organizational justice, work engagement, and organizational trust among South African office workers in the retail and manufacturing industry. This study revealed, through regression analyses, that when employees perceive the organization is treating them fairly, their trust in it increases, thus high work engagement levels are attained and cyberloafing is significantly reduced (Oosthuizen et al., 2018). Therefore diligent care should be taken in implementing any form of employee monitoring to ensure that its use creates a balance between the employers' productivity concerns and the trust, motivation, and engagement levels in employees thus promoting an ethical employment relationship (Blanchard, 2016).

In an attempt to understand this ethical employment relationship analysis of internet leisure and its ability to boost productivity was considered. Internet leisure is said to be able to influence the level of employee commitment in the workplace, since some interruptions while working may allow certain employees to rapidly complete their assignments instead of decreasing their productivity (Quoquab, Salam, & Halimah, 2015).

Although most studies seem to bring about the idea that cyberloafing is tied to leisure or sometimes the employees' attempt to deal with stress in the workplace, research carried out in Nigeria seems to be of the ideology that the behaviour reflects organizational cynicism or in other words workplace dissatisfaction caused by abusive supervision. This study, carried out on public sector employees, proved the hypothesis right. This proves that the behaviour is not only initiated by selfish or malicious employees but can also be an effect of an unfavourable organization climate (Ezeh et al., 2018).

The issue of cyberloafing and its study is still new in most African countries as more and more organizations are just now getting an internet connection and realizing the importance of developing guidelines and policies for proper usage. It is important to draw attention to the issue and develop mechanisms to handle it in the workplace because, consciously or unconsciously, many senior managers look at cyberloafing as a

barrier to the integration of information and communication technologies in their organizations.

#### The current solutions and their limitations

Although the benefits of integrating information and communication technologies in organizations are numerous, the negative impact of cyberloafing on employee performance and thus the entire organization's productivity has to be minimized. The following are some of the measures used in controlling those negative impacts:

- **Workplace internet use policy:** management has the responsibility to develop and implement policies on internet usage in the workplace. Policies are said to reduce the employees' intentions of abuse since they know what the consequences of their actions will be. Additionally, research has shown that an internet leisure policy provides benefits to both parties (organization and employees) and can increase employee productivity as job satisfaction is attained (Quoquab et al., 2015a; Quoquab et al., 2015b). However, policy alone cannot deter internet misuse if no action to correct the behaviour is taken.
- **Employee education:** employees need to understand the consequences of their actions on the organization as a whole and see the importance of creating a culture of ethical behaviour (Campbell & Lu, 2007). Therefore, in such an ideal scenario, employee awareness will help in mitigating bad behaviour. However, cyberloafing is not perceived as bad behaviour by employees who rationalize it (Shafaat & Truptimayee, 2017). Thus, education and awareness alone are not enough to mitigate its negative impacts on the organization.
- **Sanction/Punishment:** attempting to control bad behaviour is made more effective when punishment is involved. Putting controls in place to detect or deter bad behaviour will be more effective if individuals can see what happens to colleagues who attempt to break the rules. But of course, to be able to correct a behaviour one must have evidence of it happening (Khansa et al., 2017; Schroeder & Whitaker, 2018). Therefore, sanctions and punishments should be considered as complementary measures, since on their own, they cannot deter behaviour that has not been detected and traced to a specific individual/device.

- **Monitoring and employee surveillance:** so far, monitoring has been the most effective way to deal with cyberloafing, and it comes in a variety of ways that may extend to unnecessarily violating the user's privacy. It has been found that employees are less prone to loaf on the job if there are increased chances of getting caught, supported by evidence of past enforcement or disciplinary actions taken to discourage the behaviour. It is important to add that blocking access to certain websites alone is not enough not only because employees can find a way around it by using their mobile phones instead, but the action could be interpreted as a lack of trust in employees (Blanchard, 2016).

The proposed solution is an umbrella technical solution that makes use of network traffic analysis to provide a tool to monitor cyberloafing that will reinforce all the measures listed above while allowing for a balance to exist between work and leisure without violating employee privacy.

#### The proposed solution

##### Description of the solution

The proposed solution is based on an analysis of network traffic from and to the endpoint devices within the enterprise computing network. Every endpoint device is owned and/or used by a unique user. It is, therefore, possible to get the total traffic generated by a single user by cumulating the traffic from his/her owned or used devices.

The data is collected and pushed into a relational database system for storage. The stored data is later analyzed and visualized. To determine the relevance of a user's traffic, each traffic unit of data is traced back to its application of origin. Applications are assigned weights defined for each user or profile for users. The traffic captured, and stored is measured both in time elapsed and volume of data in the unit of traffic. Therefore, for a given period, the following values can be determined for each user:

- The volume of data exchanged for each application used, and the total volume,
- Time spent on each application used, and the total time

With this data, the system can compare the volume of traffic and time spent with expected values through a set of inequalities shown in Figure 2. It can also determine how effective the user is

with internet bandwidth. The computations are done by data analytics tools, and the results can be viewed using visualization tools.

#### The architecture of the solution

The overall design of the solution is depicted in Figure 1 as the system is made of four (4) main components:

- **Data Collector:** its role is to capture relevant network traffic coming in and going out of every endpoint device. When a network packet has been completely transmitted, an insertion is made into the database to record the transaction. The following attributes are used to describe each recorded transaction:
  - **Start time:** time at which the transaction started,
  - **End time:** time at which the transaction ended,
  - **App:** the application from which the traffic originates,
  - **Device:** the device receiving or sending the packet,
  - **Size:** the size of the payload of the packet, measured in bytes,
  - **Direction:** Indicates if the device is receiving the packet or sending it,
  - **Data Management System:** a DBMS used to manage the data.
- **Data Analytics Tools:** this is the brain of the system, where all the computations are performed.
- **Visualization:** this unit handles the displaying of the data, reports, or various dashboards to the user. It relies on both the data management system and data analytics tools.

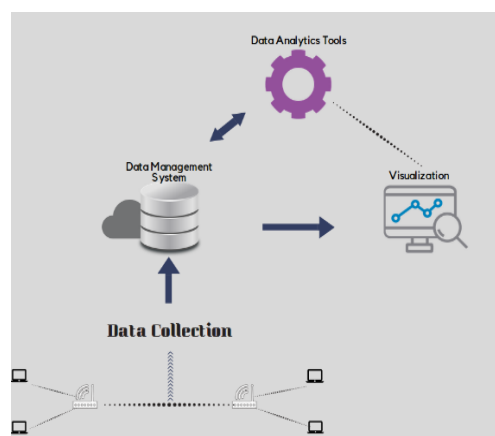


Figure 1: Architecture

The previous subsection introduced the data that are collected from network traffic. This subsection intends to show how that data will be used to determine if a given user or set of users are efficiently using the internet as it pertains to their work. Before describing the algorithm that makes the computation, a set of concepts and their notations need to be defined.

#### Concepts and Notations

Three matrices  $C$ ,  $V$  and  $T$ , a vector  $M_i$  and a constant  $A$  are used:

- $C$ : a matrix of constant numbers that represent the weight (importance) of applications to the job description (duties) of the users.
- $V$ : a matrix of volumes of data transferred over a given period. The values in this matrix correspond to the volume of data traffic for a particular user and on a particular application.
- $T$ : a matrix of time spent by a given user on a given application, and for a given period.
- $A$ : a constant depicting the level of cyberloafing allowed.

The table below summarizes the notations used in the computation algorithm:

Correlation between traffic volume/time and efficiency in the use of the internet

Table 1: Summary of notations

Notation	Meaning
$C_{ij}$	Weight of application $j$ in the work (job) of user $i$ . The value ranges between 0.00 and 1.00
$A$	Allowed level of cyberloafing. The value ranges between 0.00 and 1.00
$V_{ij}$	Volume of data exchanged by user $i$ through application $j$ .
$V_{*j}$	Volume of data exchanged by all users through application $j$ .
$V_{i*}$	Volume of all data exchanged by user $i$ .
$V_{**}$	Volume of all data exchanged.
$T_{ij}$	Time spent by user $i$ on application $j$ .
$T_{*j}$	Time spent by all users on application $j$ .
$T_{i*}$	Time spent by user $i$ on all applications.
$T_{**}$	Total time spent by all users and on all applications.
$M_i$	Number of applications used by user $i$ .

### 2.2.5. A formula expressing efficient use of the internet by user $i$

As a user, one will be said to make good use of the internet if for any application  $j$ , the volume of data he/she exchanged, and the time spent are within the intervals given by the following set of inequalities.

$$\begin{cases} \frac{V_{ij}}{V_{i*}} \leq (1 + \frac{A}{M_i}) C_{ij} \\ \frac{T_{ij}}{T_{i*}} \leq (1 + \frac{A}{M_i}) C_{ij} \end{cases}$$

Figure 2: Inequalities

### 2.2.6. Visualization

Visualization tools have been used by network security analysts to monitor the traffic and keep an eye on any suspicious activities going on inside the network. Many anomalies have thus been easily detected and attacks deterred with the help of such tools. Different tools provide different graphical views or representations of the data that can vary from the representation of specific network events, to a global view of the entire network (Attipoe et al., 2016). One view will usually be preferred to another depending on what the analyst is trying to find out and how they want to relay the information on their findings. For that reason, several visualization features are interesting to consider in the context of this work:

- **A comparative view of traffic per user:** this will allow us to get some insight into the user's level of cyberloafing by comparing the amount of traffic and time they spent on work-related activities with those on leisure or non-work-related activities. The user can

use this information to make changes to their day-to-day activities to reflect better behaviour.

- **A comparative view of traffic per application:** to ensure that the business's internet resources are not being misused, this view can allow the employer, at their discretion, to set a threshold when they notice increasingly heavy traffic from non-work-related applications.
- **A comparative view and an evolution of traffic per type of device:** with each device on the network being linked to its user, this view allows us to know on which devices the users are cyberloafing on the most. Thus, preventive measures will be focused on such devices.

### Limitations and future work

As more and more organizations on the African continent are choosing to digitize their processes and provide internet access to their employees, it goes without saying that there should be proactive and deliberate efforts invested in

handling internet misuse in the workplace. It can be observed from other countries' experiences that restricting access to certain websites or blocking access altogether as a preventive measure against cyberloafing is not always the solution as it brings about other issues on employee satisfaction and engagement levels. Therefore, the choice of any measure to control the behaviour should be made carefully.

One major limitation of the proposed solution should be acknowledged. So far, the concept does not take into consideration data from standalone applications which are desktop applications that do not require internet connectivity to be able to operate. Operating outside the network, data from these applications is not captured. To solve this issue, in the future, a piece of software will be developed and installed on every device with such applications on them. The program will then capture the data on the user's device and send it to the database.

As this is an on-going study, an implementation of the proposed solution will be the focus of the next paper where experiments will be carried out to measure the efficiency and effectiveness of the solution. An application will be developed to be deployed on the network to allow people, in real-time, to have a global view of their performance in terms of bandwidth utilization. This tool will serve as a reminder to employees to remain accountable for their employer's time and resources.

Research in this area is not exhaustive as there is a need for more to be done as volumes of data keep increasing at exponential rates. Machine learning techniques are continually providing more solutions to problems that arise from trying to handle enormous volumes of data. This research will take advantage of such techniques to construct a model based on historical data.

## Conclusion

This paper addressed the issue of the misuse of internet bandwidth by employees within business organizations. Related work on cyberloafing has been presented. The limitations of the currently existing solutions were discussed. In particular, attention was drawn to the privacy violation of solutions based on content filtering, the feeling of untruthfulness by employees' vis-a-vis their administration which results from monitoring solutions. Other solutions based on policy and employee education proved to be ineffective when

they are not reinforced. Additionally, to respond to the limitations of existing solutions, this research proposed a solution that is based on network traffic data capturing and analysis. The solution consists of capturing internet traffic generated by employees, storing the data, and comparing the volume of the traffic and time spent on the internet against the expected values. This comparison helps to determine if an employee is misusing the internet bandwidth or not. The design of the solution has been presented in this paper. Though the proposed solution resolves many of the concerns that arose from previous solutions, its accuracy depends heavily on the correctness of the definition of the applications' weight matrix.

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## A History of Female Athletics in Kenya: Reasons for the Steady Rise in Post-Colonial Times

**Derrick Deya**

deyad@aua.ac.ke

Adventist University of Africa, Nairobi-Kenya

**Abstract:** For a long time, women were not allowed to participate in athletics. They were finally allowed to represent Kenya at international events after independence in 1963. Since, then, their participation has steadily improved. The rapid improvement in the performance of female athletes is catching the eyes of the public and stakeholders at large. This improvement is characterized by the number of medals that the female athletes win at championships at the local, continental, and global stage. During the 2008 Olympics, Kenyan women for the first time won the same number of medals as their male counterparts. This study, therefore, sought to establish the reasons for this steady rise of female athletics in Kenya. The study employed feminist theoretical frameworks because they aim to understand the nature of gender inequality that exists in society. It adopted a descriptive research design. Its study population constituted the athletics rich regions of Kenya. It studied 95 respondents amongst them administrative officers, athletes, Athletics Kenya officials as well as individuals who have been keen followers of the Kenyan athletics scene in the selected regions. These groups were sampled purposively. Information-rich individuals were identified then snowballing was employed. Data was collected through the use of in-depth interviews. The other primary data was collected from the National Archives. For secondary data, the study consulted relevant books, articles, reports, and government documents. Data was analyzed qualitatively through thematic and content analysis by identifying key themes and concepts that explained the problem. The study took 2008 as its departure point as this was the year that Kenyan females started winning most medals in athletics. It covered the period up to 2013 as that marked the climax of female athletics dominance. The study found out that freedom of

women to train, women have been sensitized, the big prize money won, high altitude training

camps, seeking for employment are some of the reasons for the steady rise of females in athletics in post-colonial Kenya.

**Keywords:** Female athletics, Steady rise, Postcolonial times

### Introduction

The International Association of Athletics Federation, the sport's governing body defines athletics in five disciplines: track and field, road running, race walking, cross country running, and mountain running (Hoshino, 2011). All forms of athletics are individual sports except for relay races. However, athletics' performances are often tallied together by country at International Championships, and in the case of cross country, the finishing times of the top athletes from each team or country are combined to declare a term victor.

According to Guttmann (1992), females all over the world have been barred from competing in athletics for a very long time since time immemorial. He proceeds to write that the early 1900s was the onset of females being allowed to take part in sports in Europe and the Americas. They were though not allowed to compete in the sports still but participated as cheerers and meet officials just to officiate as the men competed. Women were still not allowed to participate in competitive sports especially the more vigorous and physical ones. Guttmann (1992) goes on to give a basis for the foundation of this study, in that it brings out the beginning of discrimination of athletes according to gender and shows that it is not a recent thing.

The increase in female participation can also be attributed to the introduction of female's rights in the Americas and Britain. Title IX of the Education

Amendment Act was passed in 1972 to help put in place quality education in America for both genders and balance participation and involvement in athletics and sports. This opened up more opportunities for females to start being included in what was formerly thought to be male-dominated spheres and activities (Irons, 2006). This can be said to be the beginning of the fast-rising participation of females in athletics in the United States of America.

Diffrey (2007) shows that in the recent past, females have proven to be able to compete effectively through resistance and are still met from several corners. This makes an interesting study of the historical development of female athletics and its gendered face.

Hall (2002) indicates that female athletics gained momentum in the late 20th century. Guttmann (1992) is also quoted to have said that athletics in Kenya was majorly a man's affair and the way things are arranged in the universe places men in the fields and while the women perform domestic chores. Garber (2002) writes that females have been denied the right to participate in athletics for many years all over the world. He proceeds to argue that studies have not ventured into writing the development of females in athletics.

Wilber and Pistiladis (2002) have written about Kenyan and Ethiopian female runners dominating races beginning from 800m to the marathons since 1968 in Mexico City. This has been supported by several other writers such as Coach (2004) who give some theoretical reasons as to why the women are steadily rising. Athletes and other relevant stakeholders have not been given a chance to give their opinion on the reasons as to this steady rise. This study, therefore, sought the views of athletes and these stakeholders by interviewing athletes, coaches, and other athletics stakeholders to seek their opinions on this steady rise.

In Kenya, females for some time were not allowed to participate in athletics but eventually when they were given the go-ahead, they still could not be allowed to participate in some athletics events. Today, they have been allowed to take part in all the athletics events that their male counterparts do take part in, and to everyone's surprise; Kenyan female athletes are outperforming their male counterparts in international championships. The female athletes bring the country more glory and medals than their male counterparts who have stayed longer in the sport and thus this study seeks to examine the steady rise of females in athletics in Kenya within a short duration. The study undertook

a historical reconstruction of the development of the participation of women in athletics in Kenya from 1895 to 2013 despite the discrimination in the male-dominated sport. It thus intended to expound on the reasons why female athletes in Kenya are on a steady rise in winning athletic races. The question of Kenyan female athletes' steady rise into world beaters is catching the attention of citizens, stakeholders, interested parties, and sports lovers for some time now. Kenyan female athletes have not only attracted local attention but also international interest as well.

## Review of Literature

According to Wilber and Pitsiladis (2002), for a very long time, Kenyan and Ethiopian athletes have won many competitions and races starting from the 800m to the marathon. Explanations have been given to try to help understand this dominance. Some of the reasons given include; genetics, high altitude training, and the traditional Kenyan/Ethiopian diet. Some scholars agree with this view while some object to it. The reasons given by Wilber and Pitsiladis (2002) do only explain why Kenyan and Ethiopian athletes (both male and female) are dominating certain races but is not explaining why females from Kenya are performing extremely well yet have been participating in athletics for a shorter time, hence this study sought to explain this sudden rise.

According to Coach (2004), Kenyan athletes lead other athletes from other countries in races from 800m to 10,000m because of five major factors:

1. Hard work-Runners like Catherine Ndereba, Pamela Jelimo, Margaret Okayo, and Tecla Lorupe come from poverty-stricken backgrounds, hence do the race to get money to alleviate poverty.
2. Weather/Climate-It favours Kenyan athletes because of the haemoglobin content which makes them acclimatize fast and win races anywhere they compete in.
3. Hilly terrain-Most of the Kenyan athletes are Kalenjins, Kikuyus, and Kisiis who live in the Kenyan highlands. This gives them an advantage as they always practice walking or running up these terrains daily.
4. Food-Kenyans are known to be good eaters of *ugali* (a Kenyan delicacy made of maize/corn flour) and rice which are rich in energy aiding them with a lot of endurance.
5. Posture-Kenyan athletes have a physical posture that gives them an advantage not only over other competitors from other

countries but also favours the females over the males.

6. Hardy-Everything that females in Kenya do in their day to day activities involves the movement of their legs and hands. This gives them the power and will to withstand long distances.

European writers at times are known to write African history from a European point of view. The same case can be said of what Coach (2004) lists as the factors affecting the steady rise of Kenyan athletes. This study sought to give a similar study to an African lens.

Several reasons could have contributed to the improvement of females in the athletics arena. Aronson, Wilson, and Akert (2004) have compiled a list of factors that agree with Berkowitz (1993); Hay (2008), and Lorenz (1963) listed. They include;

1. Low energy availability in female athletes
2. Aggression
3. Drugs
4. Place of females in the sporting world
5. Emphasis on the improvement of the place of women in the sporting world.

What Coach (2004) and Aronson et al. (2004) came up with does not conclusively explain why Kenyan female athletes are dominating races so fast compared to the duration that their male counterparts took to rise. There must be some reasons for this steady rise hence this study sought to find out why.

### *Theoretical framework*

Felman (1993) places feminist theory among the modern theories that seek to explain the place of both genders in the community to improve the place of females in the community and bring about their contributions to the world.

Chodorow (1991) believes that this theory's sole intention is to improve female's status in the community and the whole world. This theory can be borrowed and applied in the study of athletics circles where males have dominated for a long time until recently when females were also allowed to start taking part in athletics with new races being introduced to accommodate them. This aims to improve females' status in the athletics world. It also proves that females can also perform in athletics when given the chance.

### **Methodology**

The study was carried out in Kenya. Kenya as a country was purposively sampled since it is one of the leading nations in athletics regionally and internationally. Athletics rich regions in Kenya such as Rift Valley, Nyanza, Central, and Nairobi were purposively sampled for this study. Both the male and female Kenyan athletes have won most races beginning from the 800m to the marathons during the major championships. Kenya has been an active participant in athletics at the world stage since the 1940's and its long history makes it ideal for this study. The country is one of the most blessed all over the world with a variety of physical features. The study employed a descriptive research design to help in discovering facts that may lead to the solving of the major issues facing society (Kerlinger, 1969).

Qualitative analyses typically require minimal samples and no law dictates to them the sample size required in a study but is guided by the time, finances, and purpose (Glaser & Strauss, 1967). The narrative qualitative approach was used to help guide in ordering the events and create a narrative out of interviews and archival studies (Kerlinger, 1969).

The sample population for the study included athletes, sports editors, government officials (area chiefs), and Athletics Kenya officials purposively picked from Nairobi, Nyanza, Rift Valley, and Central provinces which are the known athletics regions in the country. The study purposively picked on individuals who have and can give the required information. Nairobi was picked because all national events in athletics are held there. Renowned areas in Nairobi where sporting activities are known to take place are Nyayo National Stadium, City Stadium, and Kasarani Stadium. From the Rift Valley, Kalenjins were picked because of their athletic prowess nationally and internationally. Areas in the Rift Valley where athletic activities are known to take place are Kipchoge Keino stadium in Uasin Gishu, Marakwet areas, and Kapkatet stadium in Kipsigis areas. From Nyanza, Luos and Abagusii were picked because they are active participants in athletics, at national and international levels. Areas in Nyanza where athletics activities are known to take place are Migwena in Siaya and Gusii Stadium in Kisii. From Central Kenya, Kikuyus were picked because they are also renowned athletes both at the national and international levels. An area in central Kenya where athletics activities are known to take place is the Rirungu stadium in Nyeri. Sporting

activities are also known to be intense in all these picked areas. Table 1 is a summary of the study sample population.

**Table 1:** Sample Table

Region	G.O	Athletes	Sport Editors	Athletics Kenya offic
Nairobi	3	20	3	2
Rift Valley	3	25	3	2
Nyanza	2	10	2	2
Central	2	12	2	2
Total	10	67	10	08

The study employed a purposive sampling technique. Individuals and groups with whom contact had already been made and believed to be “information-rich” were approached. The researcher started by identifying some individuals from Nyanza, Nandi, North Rift, Nairobi, and Central Kenya. Snowballing was then employed whereby the “information-rich” individuals or groups, in turn, transferred the researcher to other information-rich individuals to help contribute to compiling the required information.

This was done until the new informants were not adding any new knowledge to the study. Primary data was gathered through open-ended in-depth interview guides. Those interviewed included, government officials, athletes, sports editors, Athletics Kenya officials, and any other individuals who were deemed to be of value to the study.

Secondary data was collected from the archives, books, journals, dissertations and theses, newspapers, government records, policy papers, and publications amongst others. This research was also done in institutional libraries. The internet was also instrumental in providing data for this study. Secondary data was mainly retrieved from archival sources as it enabled the study to get ready data (Kristen, 2012).

Data collected was analysed qualitatively. This entailed both thematic and content analysis. Themes were developed and information relevant to a certain theme was then grouped. As advised by Guba and Lincoln (1994) this study employed a pilot that was done to help improve on the research instrument. To validate the instruments, experts in history and research methods` input was sought to help improve on the questions/items and organization.

## Findings

Since attaining self-rule in 1963, there have been several reasons as to why females have been steadily improving in athletics. The study found out that the major reason is the government coming up with policies that encourage females to participate in athletics and gives them the chance to take part in athletics alongside the males. These new policies discourage the discrimination of females in any sporting activity (Coakley, 2009; Njororai, 2013). The Kenyan government has also come up with laws and policies that encourage physical exercises and sporting competitions in schools. The government has gone further and created a ministry for sports with several departments in it. This effort can be seen where both males and females are given equal chances to participate in athletics and other games right from primary schools to the highest level.

For a very long time, Kenyan men have been winning several races year in year out since they first participated in the Olympic Games in 1968 far more than any country especially in races between 800m to the marathon. Women, on the other hand, had no major wins to write about in major athletics championships around the globe. Of significance has been the surge of interest in women’s athletics in recent seasons. Lydia Stephens, Tecla Chembwai, and Elizabeth Chesire were Kenya’s first-ever women’s representatives at the Olympic games in Mexico City (KNA/Mac 796.48. KEN). This surge of interest in athletics is also a reason for the rise in female athletics in Kenya in the post-colonial times. The government greatly gives the females the freedom to participate in athletics just like their male counterparts.

Another reason for the steady rise of females in athletics in Kenya is that women have become sensitized. Women realized that they are not inferior to men but can also do what men can do or

even better it. Women have been allowed to decide for themselves. Brother Colm a renowned athletics coach in Kenya said that

The girls who have stayed in the running camps have changed. They do not understand why they couldn't share opportunities with their brothers or with the boys in the training camps. Nowadays, it's normal for them to share things to talk about. They don't fear, girls at the camp are given the confidence to feel as human beings.

Such athletics camps allow the females to leave home, go, and concentrate on running. Brother Colm proceeds to say

While at the camp, the women no longer train at home where there are destructive demands. They have a place away from home where they can concentrate only on running. Women realized that they have to stand up for themselves and say that they don't have to work inside the house only, they can also come outside and do the running and make a career.

The athletics camps also replicate the daily lives of the girls growing up in the rural athletics' rich regions. Chebet Kipyegon a budding female athlete retorts that "living in the village makes athletes part and parcel of their lives." She proceeds to say that "We ran long distances to go learn in the wee hours of the morning and come back at the end of the day. This could happen up to three times a day." This has made the Kenyans grow up running and whenever they compete it's a normal thing for them as they do not feel anything in the long distances covered as they are used to them.

Females have also had a steady rise in athletics in post-colonial Kenya because of the prize money. The prize money won by athletes in international races has encouraged many females to take athletics as a serious activity. Martha Reel, a journalist with the Post-Gazette magazine argues that females who run to the highest levels are paid a lot of money. Females are now realizing that winning in athletics brings them to the limelight and proves that athletics can raise them to higher grounds both economically and socially. As a result of winning major races, the women athletes have come back home with lots of money which has made people change the negative perceptions that existed about women participating in athletics. This has also helped in improving the worth of the girl

child and as a result, people no longer see her as just a domestic object meant to stay at home and let the men do all the exploration out there. Females can now be seen as people who can also generate good money that can help raise the family's financial status just like the men can.

Winning huge cash prizes encourages female athletes to do their best and win, not once, or twice but always. Rency Chelagat, a female athlete from Nandi is quoted as saying that:

The feeling after winning— 'if you win a big race, that has been part of your dreams; it gets very emotional knowing that the world is watching, it's very encouraging. You feel like crying and sometimes you even cry because you have attained what you want. You have worked very hard; you have trained so hard and finally, you get what you want—and after that, you make a lot of celebration, a lot of parties—more than even for your birthday.

Brother Colm seems to agree with Rency Chelagat. He says that the reason why Kenyan women and Kalenjins, in particular, do well is that

Several reasons make them perform better in athletics. They run every day from the onset, there are no vehicles to move them from one place to the other. Their food also contributes a lot to their success as they are also encouraged by the monetary rewards involved. They also do train a lot.

Colm gives several reasons for the steady rise in female athletics in Kenya but the one that greatly catches the attention of the reader is the monetary value attached to participating in athletics. He believes this is the reason why almost all females in athletics rich regions like Nandi hope that one day they become great athletes.

Another reason for the steady rise of females in athletics in post-colonial Kenya is that females are now taking athletics as a form of employment. Most females are jobless in Kenya and whenever there is a job opening or opportunity, the males will always be given priority since they are thought to be more learned and qualified. Jane, a female athlete at a high-altitude training centre is a qualified teacher but has not been absorbed by the teachers' service commission yet and it has been more than four years since she graduated from college. This long wait made her try her luck in athletics and realized that she could run better and

make a living out of it. As a result of this decision, she is now earning more money from athletics than those employed by the teachers' service commission. She is just an example of females who have found employment in the athletics career and are embracing it. This has also made athletics very competitive because it's only the best who are allowed to enter the lucrative major races.

Another reason for the steady rise of females in athletics is that females are considered hard workers in training. You will always see them ever training as the men lazy around, they are always on the move trying to do one thing or another. Women do get up as early as 5 am every morning to do their morning jogs even before the day breaks. They will always have several jogging sessions and exercises during the day also to help in their agility and performances as runners and athletes. This gives them a lot of endurance and agility which will help them become better athletes.

Another reason that attributes to the steady rise of female athletes in Kenya is the setting up of schools to help tap talents and train them. Singore and Kapkenda are two girls' secondary schools that have been established to follow in the footsteps of what the boys have been doing in producing athletics talents in the Rift Valley region of Kenya. These two girls' schools are known to help in the training and nurturing of girls in athletics. Several leading female athletes have emerged from these athletics training schools. After the thorough and vigorous training, the girls are taken overseas and entered in major competitions. This has played a major role in exposing the girls and improving their performances at the world stage.

During the 1982 12<sup>th</sup> Commonwealth Games in Brisbane, Kenya performed poorly. The team manager, Mr. J. K. Arap Kimeto wrote a report to explain why the team had performed dismally. In a letter to the commissioner for social services Mr. E.M. Mosale, the permanent secretary gave the probable reasons behind the dismal performance (KNA/AMP/5/41). On the 21<sup>st</sup> November 1982, the then National athletics coach advisor, Walter Abmayer compiled a report that can be credited with the steady rise of Kenyan female athletics. This could be said to be the genesis of improved performances of Kenyans in athletics. The recommendations for an action plan for the implementation of athletics included (KNA/AMP/5/42).

1. Careful analysis of Kenyan athletics performances and standard performances in the world.
2. Regular medical check-up for Kenyan athletes, availing of sports equipment, and their release in time for daily training by their employers.
3. Local scholarships for young prosperous athletes in secondary schools by the Kenyan government.
4. Observation of local athletes in their training by selected coaches. This includes the coordination meeting with school authorities for the integration of school athletes in the KAAA training and competition program.
5. A thoroughly worked out operation plan for the years to come was worked out.
6. Assigning of the best coaches in the country to special events or events groups.
7. Continued training and recruitment of athletics coaches at all levels.
8. Improvement of cooperation between the Kenya Amateur Athletics Association and the coaches, the executive officer, and the ministry of sports, culture, and social services.
9. Strict handling of the national cadre in all belonging of training and competitions, including the foreign-based athletes. Fixed and announced meetings, as well as training camps/clinics, are a must for all cadre athletics otherwise they lose their place in the national cadre.
10. National coaches, or head coach, to handle the National Team for any international major games must be announced at the beginning of the season so that they can continuously work with the athletes they later travel with.
11. The selection of athletes travelling to international meetings must be based on performances and sensual integration of their training-competition program.

The Kenya Amateur Athletics Association on the 16<sup>th</sup> February 1983 through its secretary Mr. Robert Ouko to the permanent secretary ministry of culture and social services Mr. Nderi, also came up with proposals to help improve on the performance of Kenyan athletics (KNA/AMP/5/41). The effects of these proposals are being felt up to today especially now that female athletics is on its apex in Kenya. The association proposed that its programs be more organized and coordinated, the government should properly fund the

organizational activities and programs, proper training programs should be organized with adequate facilities, enough trained coaches should be availed to help in the development of athletics in the country, and finally, there should be the proper relationship between the KAAA and the ministry of culture and social services. These proposals were well implemented thus giving rise to the steady rise of Kenyan female athletes. Since 1983, the performance of Kenyan female athletes in the major international circuits has been on an upward trend as a result.

## Conclusion

The study revealed that freedom of women to train, women being sensitized, the big prize money won, high altitude training camps, seeking employment and the implementation of the 1983 Brisbane report are some of the reasons for the steady rise of females in athletics in post-colonial Kenya.

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## Appendices

### Archival Sources

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# Perception of Risk Exposure and Occupational Hazards of Community Health Workers in a Rural County of Western Kenya

**Fletcher Njororai**

Associate Professor, The University of Texas at Tyler, Texas, USA

**Daniel Ganu**

Corresponding author: [ganud@aua.ac.ke](mailto:ganud@aua.ac.ke)

Associate Professor, Adventist University of Africa, Kenya

**Kogutu Caleb Nyaranga**

Lecturer, Mount Kenya University, Kenya

## Abstract

**Objective:** The current study was designed to gain preliminary insights into the prevalence of occupational hazards and the ways community health workers perceive their risks in their workplace and role performance. **Methods:** The study utilized a mixed-method study to collect data and the reports are presented as quantitative data. **Results:** Approximately 76% were female, 95% had received training as Community Health Workers, and 57% had received formal education up to secondary school. The study documented that 97% of the respondents were involved in referrals and follow-ups of patients. Also, 76% were involved in case management of chronic diseases of the patients and 62% were in screening for complications of illness in the community. Eighty-Nine per cent (89%) of the respondents were exposed to psychosocial hazards in the community. There is also a significant level of exposure to biological hazards by the community health care workers with 31% of the respondents were exposed to biological hazards. **Conclusion:** Hazards related to the psychosocial wellbeing can negatively affect the worker's health both through his or her perceptions and experience while biological hazards are a risk for infections and injury.

**Keywords:** Health and safety, occupational, hazards, risk perception, community health workers

## Introduction

Accelerating and sustaining progress in achieving the health targets in the Sustainable Development Goals (SDGs) around the world will require dedicated investment in human resources for health (Commato et al., 2018). Increasingly there are large-scale national community health worker programs around the world that have the potential to extend the reach and accessibility as well as health equity for the inadequately resourced health systems to vulnerable and under-served populations by 2030 which is the target of the SDGs (Naimoli et al., 2015). Although Africa bears 24% of the global disease burden, it has only 3% of the world's health workforce and less than 1% of the world's financial resources for health (Collins et al., 2010). Faced with a critical shortage of skilled health workers, sub-Saharan Africa (SSA) has embraced the potential for lay health workers such as peer educators, home-based care-givers, lay and adherence counsellors, health extension workers, and community health workers to help fill the gap (Callaghan et al., 2010; Jerome, 2010; Lewin et al., 2010; Mwai et al., 2016; Vries, 2018). In low- and middle-income countries (LMICs), the CHW programs widely face many challenges. These include weak political endorsement, financing is often problematic, fragmented oversight and technical support, poor training and unclear curriculum and credentialing, lack of remuneration or poor compensation, a common and well-funded research agenda is lacking, and the evidence on the proven strategies on sustaining and enhancing CHW performance is modest (Naimoli et al., 2015). Occupational health hazards among CHWs are an area hardly researched and mentioned among the challenges they face.

Work is an important social determinant of health, and work characterized by low job security,

high hazards, poverty wages, and limited labour rights contributes to health disparities (Simmons, Lieberman, & Sokas, 2018). Occupational illness and injury carry long-term consequences for affected individuals and their families, organizations, or whichever institutions involved (Simmons, Lieberman, & Sokas, 2018). However, occupational health is often neglected in medical education, in primary care and speciality practice, and other health care providers contexts despite the evidence that workplace exposures contribute to the development of infectious and chronic diseases, such as asthma, TB, Hepatitis C, HIV, mental health issues, injuries, or complicate the management of other diseases, such as diabetes among others (Simmons et al., 2018; De Castro et al., 2009; Ndejjo et al., 2015). In addition to task shifting as a potential contributor, other risks for CHWs could be related to multi-tasking, contextual factors, and role-related risks. Efforts to assess, operationalize and measure the health workers' risk perceptions and the prevalence of these hazards are imperative to ensuring the protection of the workers' health and well-being, their job performance, and the safety, health, and well-being of the clients (Courtenay et al., 2016).

Adequate and systematic data on occupational hazards among healthcare workers and their mitigation measures remain scarce in most of sub-Saharan Africa and other developing countries globally (Ndejjo et al., 2015). Available evidence from sub-Saharan Africa indicates that healthcare workers are frequently exposed to chemical, biological, physical, and psychosocial occupational hazards (Ndejjo et al., 2015). Literature suggests that globally occupational health and safety (OSH) compliance is a problem that cuts across the public and private (for-profit and not-for-profit) sectors including the health care sector which needs multi-disciplinary expertise to effectively address the challenges and explain its impact to development and overall health (LaDou et al., 2018; Luchini & London, 2014). However, there are no studies done with a focus on knowledge, attitudes, implementation, assessment, or adherence to OSH policies specific to CHWs in Kenya.

The World Health Organization (WHO, 2007; WHO, 2006) and (ILO, 2010) classify occupational hazards into mechanical, ergonomic, physical, biological, chemical, and psychosocial. Each government is charged with the responsibility of enacting a special policy and program for OHS that includes relevant services for all employees' safety and safe work environment with the necessary infrastructure for implementation,

monitoring, and evaluation (LaDou et al., 2018; Luchini & London, 2014; WHO, 2013). Occupational injuries and illnesses among health care workers ranked among the highest risks of any industry; however, they could be prevented, reduced, or eliminated (Aluko et al., 2016). Mental health issues among healthcare workers often go unnoticed and hence receive little attention while this is a contributor to occupational risks (Giurgiu et al., 2015).

CHWs may engage in activities that could expose them to occupational hazards knowingly or unknowingly due to many factors. Reference by some community members to CHWs by titles such as 'doctor', 'clinical officer', 'nurse' create confusion not only to CHWs on their roles but also misrepresents the expectations on the role of CHWs in some communities. Understanding the predisposing factors for occupational hazards among healthcare workers is needed to inform occupational health and safety policy and programs for healthcare workers (Simmons, Lieberman, & Sokas, 2018). How CHWs perceive the risks is an important consideration for promoting safety and health for their well-being and role performance.

However, the paucity of occupational health and safety research on CHWs around the world is a major barrier to improving their workplace conditions. There is no documented evidence of previous efforts made to assess occupational health and safety of this category of health workers in Kenya. The current study was designed to gain preliminary insights into the ways CHWs perceive their risks in their workplace and role performance. The findings are useful for determining improvements in knowledge and risk perceptions among CHWs for health education and promotion as well as development and implementation of health safety policies and essential interventions for prevention and control of occupational diseases specific to their contexts and in general. The research questions guiding this research are specified below.

Adequate and systematic data on occupational hazards among healthcare workers and their mitigation measures remain scarce in most of sub-Saharan Africa and other developing countries globally. Available evidence from sub-Saharan Africa indicates that healthcare workers are frequently exposed to chemical, biological, physical, and psychosocial occupational hazards. There is no evidence in the literature of any study that has addressed this issue specifically among CHWs and so this is a springboard for starting conversations and research in this line.

## Research Questions

The study is guided by the following questions:

1. What factors influence engagement and performance of CHWs in the care of people with chronic diseases especially diabetes, hypertension, TB, and HIV/AIDS with multi-morbidities, residing in a rural county in Western Kenya?
2. What is the knowledge of the prevalence of exposure to occupational hazards for CHWs in a rural county in Western Kenya?
3. What is the perception of the CHWs risk exposures in a rural county in Western Kenya?

## Operational Definition of Terms

1. **Occupational Health Hazards** - Occupational Health Hazards for this study is referred to as the risk factors present in the environment of Western Kenya that could pose potential health hazards to the health of the community health workers. (ILO, 2010; WHO, 1995, 2002, 2007).
2. **Occupational Health Safety** – This refers to the activities that contribute to the safety, health, welfare, and well-being of the community health workers in and out of the environment of Western Kenya. (ILO, 2010; WHO, 1995, 2007).
3. **Risk Perception** – This refers to the subjective judgment that the community health workers in the research area of Western Kenya make about the severity of any risk factor that poses potential harm or injury to their work-related task or life (Giurgiu et al., 2015).

## Methodology

### Study Design

This was a cross-sectional study design that involved both the use of a qualitative and quantitative method of data collection. Whereby, structured interview schedules and face to face interviews were administered. This study focused on the occupational health hazards of community health workers in community units of Hamisi and Emuhaya Sub-counties in Vihiga County, Kenya. An in-depth interview was employed as a qualitative method with the community Health Extension Workers (CHEWs) and health facility in-charge where CHWs were linked in Hamisi and Emuhaya Sub-Counties.

### Study Area

Vihiga County is Located in the Western Region of Kenya with its headquarters in Mbale. It borders Nandi County to the East, Kisumu County to the South, Siaya County to the West, and Kakamega County to the North. It is one of the four Counties in the former Western Province. Vihiga County has five sub-counties. Hamisi and Emuhaya Sub Counties were the areas of study; Hamisi sub- Counties have 5 divisions, 7 locations, and 18 Sub locations, 18 community units. All the five divisions in Hamisi Sub County were picked for the study while Emuhaya Sub-county has 3 divisions, 3 locations, and 28 Sub locations, and 28 community units all were picked for the study. Vihiga County is located around 80 kilometres northwest of Eldoret, around 60Km North of Kisumu, and approximately 350km west of Nairobi City. The county has a total estimated population of 688,778 (Vihiga County, 2017).

### Study Population

The study population was lay health workers who were ascribed different titles such as community health workers or volunteers and community health Extension workers as care providers working within the health care system of Hamisi and Emuhaya Sub Counties in Vihiga County. The estimated population was 688,778 inhabitants (Vihiga County, 2017). The county has one public county referral facility, Vihiga County Hospital at Mbale Township and Kaimosi Mission Hospital a faith-based facility under the auspices of NCCCK (National Council of Churches in Kenya). There were two Sub-counties, level 4 facilities in Hamisi and Emuhaya, 18 health centres, 32 dispensaries, and 34 private and mission-based facilities. The average distance to the nearest facility is 5 Km, the County doctor to population ratio is 1:16,146 whereas, the national of doctors to the patient is 1: 16,000 (Kajilwa, 2019). Further, the ratio of nurses to the population has been recorded as 103.4 per 100,000 populations. According to the World Health Organization, the recommended ratio is 250 healthcare workers, which includes physicians, nurses, and midwives per every 100,000 population (Segor, 2012).

### Sample Size and Sampling Techniques

The study adopted a Multi-stage sampling technique to select Sub-counties, divisions, locations, sub-locations, and cluster sampling for community units. Stratified sampling to select levels of health care delivery in Hamisi and Emuhaya Sub Counties, purposive sampling to select participants in both strata and clusters. All

the community health workers in charge of all the community units in Emuhaya and Hamisi were purposively sampled and included as study objects. Community Health Extension workers and health facility in-charges were purposively sampled for in-depth interviews. Slovin's formula was used to arrive at the minimum sample size of 309 for the study.

#### *Data Collection Technique*

Both quantitative and qualitative techniques were used in data collection. A semi-structured self-administered questionnaire was used to collect quantitative data from the CHWs, and an in-depth interview guide was used on CHEWs, Occupational Health and Safety (OHS) focal persons in the County and Sub-county, members of the OHS committee within the facility, and other health officers. Three research assistants were recruited, trained, and taken through the questionnaire and in-depth interview guides. They were all graduates with a bachelor's degree in Public health and were familiar with the topography of Vihiga County to help reach the sampled community units and health facilities. The primary objective of the training was to harmonize concepts on study design and content of the tools for the study before being used in collecting data. A semi-structured questionnaire was self-administered to the respondents, and those who were not able to respond individually were guided by the research assistants. There was a lead field researcher who was responsible for the supervision of the completeness and consistency in data collection and field logistics.

#### **Definition of Variables**

The variables for this study were operationalized based on the data of interest and the nature of context in which these are depicted.

##### **1. CHWs Perceptions of Factors Work Performance**

Perception of CHWs on factors influencing work performance was measured by their response ratings of each of the 9 items that could contribute or influence fulfilling their assigned work-related tasks and responsibilities, on a Likert Scale (Strongly agree = 5, Agree = 4, Not sure = 3, Disagree = 2 and strongly Disagree = 1).

##### **2. Level of Prevalence of Occupational Hazards/Risks.** The level of prevalence of occupational hazards on items given in each category (biological -5, psychological - 5, physical - 4, chemical - 2, mechanical -3,

ergonomic - 3) was measured on a Likert Scale (Strongly Agree = 5, Agree = 4, Neutral = 3, Disagree = 2, Strongly Disagree = 1).

##### **3. Frequency of Exposure to Occupational Risks/Risk Perception.** Frequency of exposure to occupation risks was measured on a Likert Scale (Always = 5, Often = 4, Sometimes = 3, Rarely = 2, Never = 1) by CHWs indicating their rating for each of the 18 items given to which they were potentially/possibly exposed related to executing their duties and responsibilities and work environment.

#### **Data Processing, Analysis & Presentation**

This paper reports on the quantitative data. Data entry, cleaning, analysis, and interpretation of results were done. Descriptive statistics were used to measure the central tendency and dispersion for continuous data. Binary logistic regression was used to explore factors that affect performance and engagement of CHVs and risk perception, and cross-tabulation on factors hindering the CHWs or Volunteers from complying with the occupational policies in the County. Tables, bar charts, pie charts, and histograms were used for the presentation of the data. The socio-demographic characteristics were analysed and presented by use frequencies and percentages. Association between dependent and independent variables, demographic factors versus OHS knowledge was assessed using the Chi-Square test of independence. A *p*-value of less than 0.05 was considered statistically significant. The analysis was done with the Statistical Package for Social Sciences, SPSS-software Version 23 (SPSS Inc., Chicago, Illinois, USA).

#### **Ethical Considerations**

Ethical clearance was obtained from the University of Eastern Africa, Baraton Ethical Review Committee (BERC) which is one of the local ethical review and approval bodies in the country. Thereafter, Vihiga County Administration, Department of medical services, and Public health were informed of the study for approval. Community leaders were briefed on the purpose of the study and their authority too was sought before the study commenced. The Public Health Officer in charge of community health strategy will be the field that will approve to conduct the study. Consent for the inclusion of subjects in this study was sought through a consent form that was read and presented to the informants for their approval or disapproval before they

accepted to participate in the study. Privacy and confidentiality of the information were assured; voluntary participation and withdrawal from the

study at any stage without victimization were allowed, the anonymity of the subjects was assured.

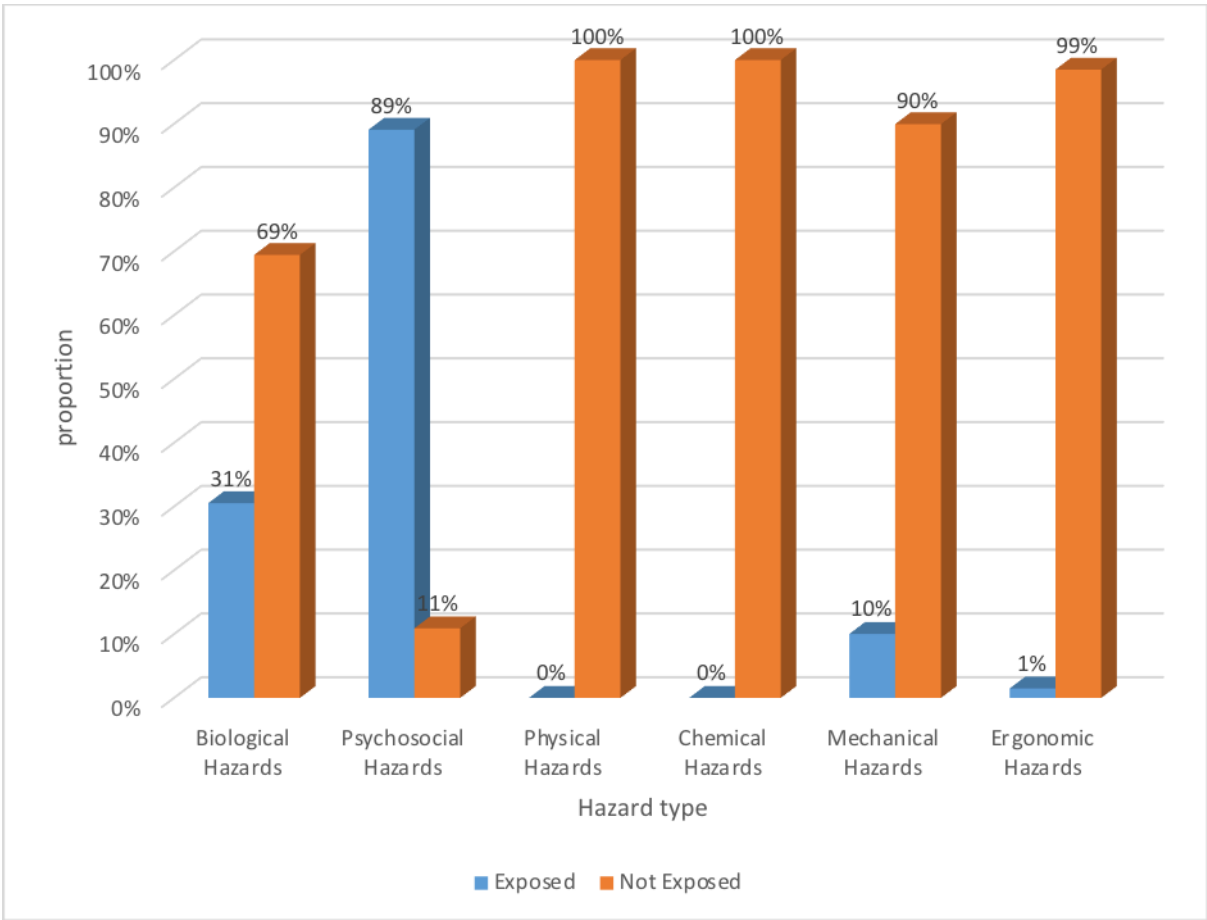
## Results

**Table 1:** Demographic Profile

	Frequency	Per cent
<i>Gender</i>	<i>n=(275)</i>	
Male	67	24.4
Female	208	75.6
<i>Designation</i>	<i>(n=265)</i>	
Clinical officer	2	0.7
Trained CHV	263	94.9
<i>Age</i>	<i>(n=273)</i>	
(18-20)	2	0.7
(21-30)	25	9.2
(31-40)	79	28.9
(41-50)	113	41.4
(51 and above)	54	19.8
<i>Education</i>	<i>(n=270)</i>	
No formal education	3	1.1
Primary education	113	41.9
Secondary education	154	57.0
<i>Years worked</i>	<i>(n=269)</i>	
(1 -3) years	40	14.9
(4-6) years	127	47.2
(7-8) years	61	22.7
(10 years and over	41	15.2

Table 1 above indicated the demographic profile of the respondents as approximately 76% female, 95% had received training as Community Health Workers, and 57% had received formal education up to secondary school. Receiving formal training as a Community Health worker has several implications. Among them is the wider range of very vital healthcare responsibilities performed by the CHWs in their communities. Such responsibilities include helping the poor and handicaps overcome barriers in accessing effective healthcare in the community. They are also largely involved in giving preventive education. Significantly, CHWs help the community people increased access to formal healthcare and improved patient adherence to treatment regimens. The study documented that 97% of the respondents were involved in referrals and follow-ups of patients. Also, 76% were involved in case

management of chronic diseases of the patients and 62% were in screening for complications of illness in the community. In this regards their training in providing this basic medical and preventive care is as crucial as other healthcare workers. More so, almost 20% are 51 years and above and 15.2% had accumulated working experience as Community Health Workers of 10 years and above. The significance of accumulating work experience on the job is that the workers would have developed problem-solving skills, interpersonal relationships, and better at navigating otherwise elusive work environment. Most importantly, they would have also developed self-confidence and self-esteem at work and their responsibilities though they face challenges in this regard as these keep changing. This will enable them to work as team members, communicate appropriately, and manage time efficiently.



**Figure 1:** Prevalence of Exposure to Occupational Hazards

Community Health Care workers faced a growing challenge of health hazards in the community. Figure 1 above showed the prevalence of occupational hazards faced by CHWs in the study population. As projected in figure 1 above, psychosocial hazards ranked highest among the type of hazards exposed to by the community health workers in Western Kenya. Eighty-Nine per cent (89%) of the respondents were exposed to psychosocial hazards in the community. Among the psychosocial hazards faced by the CHWs are psychological trauma, fear as a result of violence in the community, exposure to severely terminal ill patients, structural barriers inhibiting care of patients, high level of work overload causing stress, sexual abuse in the community, and emotional or verbal abuse. There is also a significant level of

exposure to biological hazards by the community health care workers. As shown in figure 1, 31% of the respondents were exposed to biological hazards. Biological risks existing in the study community were the risk of HIV, Tuberculosis, and Hepatitis infection, risk of medical waste contamination, and many other airborne diseases present in the community. Mechanical hazards account for 10% of the hazards. Surprisingly, the CHWs had no problem with physical, chemical, and ergonomic hazards in the community. It is evident from the study that psychosocial hazard is a significant hazard present in Western Kenya in the life of Community Health Workers.

**Table 2:** Binary logistic regression on risk perception of occupational hazards

Risk Perception	B	SE	Wald	df	sig	Exp. (B)	95% CI for Exp. (B)	
							Lower	Upper
Risk of TB	2.966	.789	14.124	1	.000	19.414	4.134	91.180
Risk of HIV	-.293	.507	.334	1	.563	.746	.276	2.015
Risk of Hepatitis	.800	.491	2.659	1	.103	2.226	.851	5.823

Risk of airborne diseases	-.841	1.045	.647	1	.421	.431	.056	3.345
Received Physical abuse at work	.202	.524	.149	1	.700	1.224	.438	3.418
Sexually abused	-19.878	9741.887	.000	1	.998	.000	0.000	
Psychologically stressed	-.286	.474	.364	1	.546	.751	.296	1.903
I work overtime	-1.149	.457	6.310	1	.012	.317	.129	.777
I am pressured at work	1.491	.478	9.740	1	.002	4.440	1.741	11.325
Risk of contact blood and body fluids	21.085	28420.722	.000	1	.999	0.880	0.000	
Risk of being attacked	.393	.677	.336	1	.562	1.481	.393	5.582
I protect myself against blood	2.273	2.323	.957	1	.328	9.709	.102	922.131
I wear gloves	-3.298	2.364	1.946	1	.163	.037	.000	3.805
I wash my hands after procedures	-5.516	1.228	20.190	1	.000	.004	.000	.045
PPE is needed	.881	.717	1.507	1	.220	2.412	.591	9.842
The work area is messy	-.556	.657	.716	1	.397	.573	.158	2.079
I have adequate training on personal protection	-.532	.449	1.408	1	.235	.587	.244	1.415
I receive PEP	37.704	13935.797	.000	1	.998	0.000	0.000	
Constant	-18.414	9965.046	.000	1	.999	.000		

The results of the binary logistic regression analysis for risk perception are presented in Table 2 above. Out of the 18 independent variables available to the regression solution, only four bears a statistically significant relationship to the prediction of risk perception to occupational hazards in the community. The risks of getting infected with tuberculosis include overtime work, the pressure at work, and washing of hands after procedures have a significant impact. The risk of Tuberculosis infection as perceived by the CHWs is significant at  $p=0.000$ ,  $OR=19.4$ , 1, and 95% CI of 4.13-91.18. The odd ratio of the CHW's exposure to tuberculosis infection is 19.414 higher than them not being exposed to it. More so, the pressure at work is significant with a  $p$ -value of 0.002,  $OR= 0.317$ , and 95% CI of 1.741-11.325.

## Discussion

This study builds on previous studies on the roles of community health workers (CHWs) in disease management in communities by exploring risk exposure and risk perception by community healthcare workers in Western Kenya. The study confirms several previously reported findings of challenges of hazards in the community faced by community healthcare workers in different communities. The significant finding of this study was the challenge of various forms of psychosocial hazards in the community that CHWs faced. Notable among these hazards are psychological trauma, fear as a result of violence in the community, exposure to severely terminal ill patients, structural barriers inhibiting care of patients, high level of work overload causing stress, sexual abuse in the community, and emotional or

verbal abuse. A study done in Nigeria found that 83% of the study participants suffered from psychosocial hazards as a result of work overload (Okefor & Alamina, 2018). (Wilkins & Beaudet, 1998) found that job strain was associated with migraine and psychological distress. In their studies (Senthil, 2015) found that psychological hazards in a form of negative feelings ranked 20.3% and verbal or physical abuse 20.5% among Indian workers. Continued exposure to psychosocial hazards can pose a great threat to the mental health of community health care workers. Hazards related to the psychosocial wellbeing can negatively affect the worker's health both through his or her perceptions and experience. Such situations if persisted can, in the long run, harm the worker's health and safety which could eventually affect the level of productivity and service output. Psychosocial hazards go co-currently with the experience of the worker in the workplace and the stress associated with it. Therefore, work-related stress can be viewed as a response of people loaded with long working hours, work pressures, and some other related demands that are often not related to the knowledge level of the worker, and their abilities, challenging them to meet up, cope, and function efficiently, effectively and productively at the workplace (WHO, 2011).

Biological hazards are another variable that significantly ranked high. In the study, 31% of the respondents reported exposure to biological risks such as HIV, Tuberculosis, and Hepatitis infection, medical waste contamination, and many other airborne diseases in the community. For CHWs, infectious agents are among the most

serious occupational risks they are exposed to in the community. There was a high risk-perception amongst HCWs regarding occupational exposure to HIV and AIDS (Akinboro et al., 2012). At the same time, there was poor compliance with precautions in their professional duties. Community Health Care Workers in the sub-Saharan Africa region often perceived themselves as being at a higher risk of HIV and other microorganism infection as a result of the high rate of infection in the larger population in the past decades (Mkuye et al., 1991; Kaimenyi, Ndung'u, 1994; Kermode et al., 2005). This fear and perception among community health workers have significant implications that need to be addressed in their training, workplace safety policy implementation and education, and ensuring a better working environment.

### Limitations

The study acknowledges some limitations. First, the findings of this study cannot be generalized to all CHWs in Kenya since this population is from a specific rural community of the country hence not representative of the entire country. Secondly, many of the community health units in Kenya are not active, and the community health workers in the various community units have varying experiences, a factor that this study did not venture into elucidating owing to the limitations of time and the various dynamics that were involved. Despite the limitations, this is an important step in initiating the discussion on the risk perceptions and occupational hazards of CHW/Vs in the communities in the country and possibly globally.

### Conclusions

The highly significant findings of this study were the challenge of various forms of psychosocial and biological hazards in the community that CHWs face. Notable among these hazards are psychological trauma, fear as a result of violence in the community, exposure to severely terminal ill patients, structural barriers inhibiting care of patients, high level of work overload causing stress, sexual abuse in the community, and emotional or verbal abuse. Continued exposure to psychosocial hazards can pose a great threat to the mental health of community health care workers which may harm their role performance, health, and well-being as well as that of the clients. Hazards related to the psychosocial wellbeing can negatively affect the worker's health both through his or her perceptions and experience. Furthermore, the risks of contracting HIV, Tuberculosis, and Hepatitis infection, medical waste contamination, and many other airborne diseases were among the biological hazards the CHWs are exposed to in the

community. Future research should explore more dimensions on the degree to which these findings of occupational health and safety can be generalized among CHWs and assess the potential interventions that may address these challenges and promote safety and better work environment, health and well-being. Implementation of the OHS guidelines and policy as stipulated in the WHO/ILO documents. Health education to all workers includes CHWs on OHS in their roles and related contexts as well as their responsibilities.

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### Ethical Approval

Ethical clearance was obtained from the University of Eastern Africa, Baraton Ethical Review Committee (BERC) which is one of the local ethical review and approval bodies in the country.

### Informed Consent:

Consent for the inclusion of subjects in this study was sought through a consent form that was read and presented to the informants for their approval or disapproval before they are accepted to participate in the study.

### Registry and the Registration Number of the Study/Trial:

N/A

### Animal Studies

N/A

### Conflict of Interest Competing Interest

The authors have declared that no competing interest exists.

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# Expressive Art Therapy: A Literature Review on Training Kenyan Pre- and Primary School Teachers to Identify Mental Health Concerns through Children's Drawings

Maryanne Aloo Agolla

agollamayah@gmail.com

Africa Nazarene University, Department of Counselling Psychology, Nairobi-Kenya

**Abstract:** Children often lack the language skills needed in expressing their feelings, needs, and experiences adequately. Art is one of the most effective ways for them to express their experiences and feelings of pain, anger, joy, fear, loss, grief, and so on. There is a need to explore the availability of literature on teachers' understanding of art therapy and its role in the promotion of children's psychological well-being. Information for the literature review was collected through an analysis of selected primary data focused on the effectiveness of expressive art therapies across the globe, best practices by art therapists, and some of the common mental health issues evident through children's drawings. Since the child spends a significant portion of his/her life with teachers, the researcher hopes that the information generated by the literature review can guide in the development of various in-service training programs to equip the teachers with the basic skills in identifying mental health needs through children's drawings. This will facilitate early and immediate prevention, identification, and treatment of prevalent mental disorders in childhood. It can be a significant step in the promotion of adolescent and mental health.

**Keywords:** art therapy, mental health, Kenya

## Introduction

From the moment a child can grasp a crayon, he/she begins making marks on surfaces. An activity that begins as a result of curiosity gradually develops as the child grows older. As the child develops better muscle control and intellectual ability, the markings become more meaningful. Drawing this is a way for the child to express his knowledge, feelings, and experiences (Papandreou, 2014). By looking at the drawings made by a child, we can gain an understanding of the child as an individual. This concept has formed the foundation for the development of various theories and practices in

child psychology and development. It has led to the development of art therapy techniques used by psychologists and other health practitioners in the assessment and treatment of various problems affecting children (Slayton, D'Archer, & DA, 2010). Various aspects of the drawings have been integrated into clinical practice and proven effective in the provision of mental healthcare. A particular emphasis is on the use of drawings to diagnose signs of various childhood mental disorders.

According to Oster and Gould (1987), drawings have been used alongside other assessment tools in the assessment of depression, suicidal ideations, personality disorders, attachment style, and coping strategies among other aspects of mental health. Depending on the type of drawing test administered, the drawing done by the child can be used in identifying his overall well-being and needs. Since children spend most of their time in school, the paper explores how knowledge of expressive art therapy can be used in educating teachers to identify early signs of mental health problems. It would make a referral to mental health providers and subsequent intervention easy.

## Background

### *Childhood Mental Health Concerns*

Findings depict a worrying prevalence of mental health issues among young people. About 10-25% of children and adolescents globally are affected by mental health problems impacting their development in a negative manner (Woolford et al., 2015). In Canada, 15-20% has a mental disorder requiring professional care. About 6-8% of them suffer from depression (Meldrum, Venn, & Kutcher, 2008). Some of the disorders common in childhood include ADHD, oppositional defiant disorder, conduct disorder, obsessive-compulsive disorder, autism spectrum disorders, anxiety, and depressive disorders (Department for Education and Skills, 2001). A recent study done in Kenya revealed a high prevalence of mental health concerns such as substance use disorders (30.1%) and depressive disorders (13.9%) among others such as adjustment disorder, anxiety disorders,

Attention-Deficit Hyperactivity Disorder, and intellectual disability (Kamau et al., 2017). The study involved 166 children most of whom were referred by medical practitioners and school teachers. 26.5% of the children had been referred by teachers; an indication of the need for teachers to be competent in identifying these concerns. The child may also have mental health problems evident through behavioural, emotional, and social deficits (Kay-Lambkin et al., 2007). If the problems are not identified and dealt with early, they may prevent young people from achieving their full potential at school and in other areas of life.

The occurrence of mental health concerns in children often goes unnoticed until later when the conditions have progressed (McDonagh, 2010). It allows the conditions to have an impact on vital developmental milestones that occur in childhood years. Social and emotional development can be affected through isolation, stigmatization, lack of emotional control, socially inappropriate behaviour, and inability to form and maintain healthy interpersonal relationships. From a cognitive perspective, the conditions affect brain functioning and may cause significant challenges concerning memory, problem-solving, critical thinking, and other roles. He/she is likely to have poor academic performance. Dyslexia also makes it difficult to read and comprehend written text (American Psychiatric Association, 2013).

### *Drawing and Childhood*

Children often lack the language skills needed in expressing their feelings, needs, and experiences sufficiently. They use drawings to communicate (Papandreou, 2014). Art is one of the most effective ways for them to express their experiences and feelings of pain, anger, joy, fear, loss, grief, and so on. The drawing process involves experience, memory, imagination, and observation (Brooks, 2009); thus, it is an effective way of bringing to light various aspects of the child's life. Drawings can be used in discovering the children's opinions and views regarding their experiences (Einarsdottir, Dockett, & Perry, 2009). Studies have shown the importance of drawing in cognitive development through improvement in abstract thinking skills, improved behaviour, and social skills (Thoemke, 2012). A study conducted by Woolford et al., (2015) revealed that drawings facilitate children's self-report during mental health assessments. Children engaged in simultaneous drawing and interview activities during the assessment gave more information in

comparison to those engaged only in the interview activity. Drawings can be used as projective measures or as a means of building rapport with the child to enable easy sharing of information.

### *Expressive Art Therapy*

Expressive arts therapy involves the use of intuitive and emotional aspects of ourselves through various art forms including creative writings, drawings, dance, drama, and painting (Dumphy et al., 2013; Rogers et al., 2012). Natalie Rogers built on her father Carl Rogers' ideas on the value of creativity and artistic expression in mental health. The technique in psychological assessment involves the use of creative expression as a safe way for individuals to express their emotions, thoughts, and experiences. It is an effective technique adopted by psychologists in facilitating the treatment and management of various psychological problems (Eaton, Doherty, & Widrick, 2007). The paper emphasizes on the use of drawing techniques. Practitioners have contributed towards the field of expressive art through the development of various drawing assessments often administered alongside other psychometric tools. According to Woolford et al. (2015), drawings are commonly used in the assessment of children's mental health needs in clinical settings. The drawings are developmentally sensitive and accommodate the child's point of view about the presenting issue.

### **Purpose**

The paper seeks to outline the knowledge and practices that can be taught to teachers in Kenya to help in the promotion of child mental health. By paying attention to the child's drawings and knowing what to look for, teachers can identify and refer appropriately to the issues that need to be dealt with. It can be done through a focus on expressive art therapies by Natalie Rogers among others. The paper seeks to inspire the development of local programs to facilitate the comprehensive inclusion of teachers in helping children become healthier individuals aware of their abilities and able to cope with the stressors of life.

### **Methodology**

Information for the literature review was collected through a comprehensive computer-assisted literature search focused on peer-reviewed journal articles, professional websites, library catalogues, and other documents on the effectiveness of expressive art therapies across the globe, best practices by art therapists, and some of

the common mental health issues evident through children's drawings. The information outlined in this paper was acquired through a systematic review of facts and findings from the sources. The search was conducted through a focus on specific terms and related synonyms in line with the topic of study such as; art therapy, drawings, screening, diagnosis, identification, measurement, and psychological assessment. The sources were only used in the paper if they met the inclusion criteria; being relevant to the topic and being peer-reviewed. Ethical use of the information was guaranteed through the proper citation of the sources according to American Psychological Association guidelines.

## Discussion

### *Teachers' View of their Role in Child Mental Health*

Many teachers are not aware of the vital role they play in the promotion of mental health in school settings a study by Reinke et al., (2011) revealed that the promotion of mental health was primarily the role of school psychologists. Teachers involved in the study perceived their role as limited to classroom-based behavioural interventions while the school psychologist had the responsibility of carrying out screening and behavioural assessments, monitoring of student progress, and providing socio-emotional support.

In many schools, the promotion of mental health has been made possible through a collaborative approach between the school psychologists/counsellor and teachers. The collaborative effort is not possible in many Kenyan schools due to the lack of school psychologists/counsellors. Some schools may have a guidance and counselling teacher expected to cater to the mental health needs of the students. The guidance and counselling teacher has both teaching and counselling roles; this is overwhelming and raises the issue of dual relationships (Wambu & Fisher, 2015). Such teachers may lack an adequate understanding of child psychology and the relevant activities involved in the identification of mental health concerns, intervention, and proper referral. Kipkemoy (2009) suggests that there is a need for training of teachers involved in the promotion of mental health in school. Guidance and counselling teachers believe their role is that of advising students on what to do when they have problems. This outlines the need to train all teachers on the limits on their roles and how to work with school

counselors or refer in cases where the school lacks a school counselor.

### *Role of Teachers in Identification of Mental Health Concerns*

The work of a teacher goes beyond pedagogy and focuses on the holistic development of learners (Meldrum et al., 2008). Children with mental health problems face many challenges in school if their conditions are not identified and need to be met promptly. Since teachers spend more time with the children, they can collaborate with the school psychologist. Teachers play a significant role in the identification of such children (Loades & Mastroyannopoulou, 2010; Marsh, 2016; McDonagh, 2010). Thus, they require access to adequate and appropriate information to help in the identification of mental health problems among the children under their care.

### *Use of Art Therapy Techniques in the Classroom*

The use of drawings in identifying mental health concerns in children is dependent on the value teachers ascribe to drawings. According to Einarsdottir et al., (2009), the perceptions and expectations teachers have regarding drawings are vital. Teachers can engage children in the draw-a-person technique during classroom activities in lessons such as art or life skills. The technique was developed by Karen Much over as a way to elicit a person's self-concept (Licu & Monica, 2011; Oster & Gould, 1987). Any negative emotions experienced by the individual could be projected onto the drawing in the form of characteristics like sharp bared teeth, glaring eyes, or even the presence of weapons in the drawing. In the drawing of a person, some of the signs to look out for may include; the poor integration of parts in the drawing, use and intensity of shading in various areas, size of the figure drawn, length of arms, presence of teeth, size of hands, lack of body parts, and depiction of facial expressions. For instance, a drawing that is missing limbs may be a sign of being troubled or feelings of inadequacy. Other classroom drawing activities such as drawing a family, teachers can be trained on some of the signs to look out for. Teachers can learn to look beyond the basic functions of drawing such as enhancement of fine motor skills and development of social skills (Papandreou, 2014).

The draw-a-person-in-the-rain technique is used by psychologists in providing diagnostic information about a person's perception of and

reaction to environmental stressors (Oster & Gould, 1987). It also provides information about the individual's self-regard and dependency issues. It can also be administered to children by teachers as a way of assessing ego strength. Teachers can be trained to analyze the picture to identify the child's view of his/her ability to cope with stressful circumstances, availability of protective resources, and other aspects. Some of the signs to note would be a lack of protective clothing like raincoat and umbrella, rain focused only on the person drawn, facial expression, body structure, and size of the person drawn.

There are several art therapy techniques that teachers can be trained to use in identifying the mental health needs of children. Some of these include drawing an unpleasant experience, an animal, earliest recollection, a feeling, mood, wish, or dream. In all of these, there is one notable fact; the need to focus on the process of drawing. It allows an understanding of the narrative the child wants to express and creates a connection between the markings and meaning (Einarsdottir et al., 2009). A study done by Loades and Mastroyannopoulou (2010) showed that teachers can recognize the existence and severity of a mental health problem.

### *Benefits of Expressive Art Therapy*

Expressive art therapies such as art, dance, music, and creative writing should be incorporated into the child's life experiences due to their many benefits in promoting the wellbeing of the child. About art specifically, it is evident in the studies above that art provides a way for the child to communicate something he/she would otherwise not be able to adequately express in words. Children, especially in the pre- and primary school levels may lack the verbal and communication skills needed in sharing what they are experiencing. In a study by Morrisson (2017), expressive art therapy gives children a chance to view their experiences in a new way; this helps in reframing and integrating their experiences in a manner that promotes better coping. Art therapy has been found to enhance the therapy process.

In cases of traumatic experiences such as abuse, children may be afraid or afraid to share what they are going through. Expressive art therapy will allow the child's feelings to manifest in their drawings. Barnes-Smith et al. (2015) agree that expressive art therapy serves as an outlet for children's emotions safely and constructively. It

builds the child's sense of empowerment and teaches them about their emotional self, healing, and self-actualization. It provides a foundation and allows the teacher to follow up on any concerns and involve mental health practitioners as needed.

### *Possible Outcomes of Training*

The training of teachers on childhood disorders and other mental health issues is likely to contribute towards early identification and intervention thus better outcomes for both the child and the family (McDonagh, 2010). It will enhance the identification and management of disorders like attention-deficit hyperactivity disorder, depression, learning disabilities, and other conditions before they progress and have a significant effect on the child's development in various aspects. In a recent study, teachers noted a lack of training for handling mental health needs as one of the top three barriers to the provision of quality mental health services in schools (Reinke et al., 2011). Thus, the development of programs integrating education and mental health can equip teachers with the knowledge and skills needed (Atkins et al., 2010).

In the classroom setting, art therapy can be incorporated into, not only art lessons but also life skills, social studies, science, and other lessons. Teachers can be trained on how to do this without compromising the curriculum content and learning. About art therapy, teachers can be trained on the relationship between child mental health and the content of the art made by children. They can know the patterns, colours, and content to look out for in children's drawings. Thus, the art knowledge will influence the content and learning experiences teachers prepare for children as they already know what red flags to identify (Njemi, 2018).

It will equip the teachers with the knowledge, skills, and confidence to provide holistic care for the children and not just limited to education and academic outcomes. It will improve the relationship between the teachers and individual learners as the teachers will acquire a better understanding of each child and how to cater to their unique needs; this can contribute towards an improvement in academic performance. It may form a foundation for the development of similar programs for the secondary level as evident in the use of art therapy techniques with adolescents (Oster & Gould, 1987).

## Conclusion

In conclusion, a child spends a significant portion of his/her life with teachers. Teachers' understanding of the psychological well-being of the child will go a long way in ensuring holistic care. Through the knowledge generated by this review, in-service training programs can be developed to train teachers on how to use expressive art therapy techniques in the identification of the psychological needs of the children. Consideration and implementation of the recommendations below will ensure the contribution of teachers towards ensuring all children have a strong and healthy foundation for development in their childhood years. It will allow for the timely identification of disorders and other mental health concerns which can then be referred to psychologists and other relevant mental health practitioners for appropriate interventions. The successful implementation of such a program would improve the state of child mental health in Kenya immensely.

## Recommendations

Based on the valuable role of teachers in the early identification of mental health problems among children, as identified above, it is vital to consider the following recommendations:

1. Development of a training program to equip teachers with the knowledge and skills on the use of expressive art therapy techniques with children of different ages. It can facilitate the identification of areas of concern at an early stage.
2. Development of a mental health program focused on the in-service training of teachers on childhood disorders and other mental health conditions to look out for in the children's artwork. It can be done through a focus on potential triggers and symptoms.
3. Development of comprehensive pre-service training programs for teachers in training to prepare them for their role in the promotion of mental health in school settings.
4. Development of a comprehensive referral program the teachers can use as a guide on how to intervene in cases of suspected mental health problems. This will facilitate collaborative work between teachers, school counsellors, parents, and external mental health professionals on interventions.

5. Development of curricula on what teachers can do in their capacity to promote mental health awareness within the school. It may include a consideration of age-appropriate classroom topics and awareness promotion on mental health issues, activities to nurture the children's resilience, self-concept, social skills development, emotional regulation, and other concepts. The Resilience Project is a good example of how this can be done (Stewart, 2008).

## 6. Implications for Future Research

The concepts outlined in the paper can form a foundation for future research on the use of art in promoting mental health. Researchers can conduct studies to explore the effectiveness of art activities in the treatment and prevention of mental health issues and not just the identification and diagnosis. Such studies can be conducted with different populations; children, adolescents, and adults of different cultural backgrounds. It will help in the identification of variations that may exist across the populations.

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# **Influence of Headteachers' Open Performance Appraisal Knowledge on Pupils' Academic Achievement in Public Primary Schools in Serengeti District, Tanzania**

**Nyagiati Andrea**

Kisii University, Kenya

**John Yambo**

Corresponding author: [yambojm@kisiuniversity.ac.ke](mailto:yambojm@kisiuniversity.ac.ke)

Kisii University, Kenya

**Kennedy Getange**

Kisii University, Kenya

**Abstract:** Appraisal and review system has been one of the tools that are used in improving public services and performance. The purpose of this study was to determine the influence of headteachers' open performance appraisal knowledge on pupils' academic performance. A quantitative and qualitative research survey design was adopted. The target population involved all primary school teachers, school quality assurers', Human Resource Officer, and District Education Officer, totalling to 1213. Random sampling technique was used to obtain 328 teachers and 33 headteachers, that is, 30% of the population, while the District Education Officer and Human Resource Officer and School Quality Assurance officers were purposively selected because they are few and the only existing ones. This study used semi-structured interviews, questionnaires, and documentary analysis for data collection. Qualitative data obtained was analyzed descriptively while SPSS software version 23 was used to analyze quantitative data. To ensure the face and content validity of research instruments, two experts in the department of Education Administration Planning and Economics of Kisii University scrutinized the research instruments and validated them. A pilot study was conducted for reliability reasons. Anonymity, confidentiality, privacy, and informed consent of the respondents were ensured. The study adhered to the ethical consideration accordingly Findings of this study revealed that headteachers in Serengeti District

know performance appraisal that was 79.3% of headteachers and 67.9% of teachers respectively. The study recommended that education stakeholders concerned should ensure that both teachers and headteachers are trained about PA to allow for periodic appraisal, a process that will facilitate meeting set goals and objectives.

**Keywords:** teachers, performance, appraisal academic performance schools, Tanzania

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## **Introduction**

Performance appraisal is a formal system of measuring, evaluating, and influencing employee's efficiency and effectiveness to assigned goals and objectives. Findings in a recent study by Iraki (2013) and Olusoji (2013) pointed out that the main objective of performance appraisal is to determine how productive an employee is and determine if employee productivity can be improved. In Australia, performance management was introduced to cater to the performance state working environment in 1994 by the Ministry of Education and Children's Services. It was a new technology that was meant to monitor and control teachers' work. Most of the Australian Education managers regard the performance management system as the most suited means through which teachers' work is evaluated. Teachers' performance evaluation has taken different phases in South Africa. The Teacher Evaluation Report (2015) revealed that since the Apartheid era there was a system of school control, inspection, and appraisal of teachers that was overtly focused on accountability, in that teacher development and other school improvements were

neglected; through the 1980s and 1990s, a period of great political turbulence with widespread resistance against apartheid authorities in schools. In this period, inspectors were denied access to schools by militant pupils, and teachers refusing any form of evaluation of their work or their schools. However, the inspection policy was not implemented. Resistance to apartheid policy led to an emergence of the new teacher union, from which the South African Democratic Teachers Union developed. Reforms took place where the mould inspection was replaced by new quality management programs that developed into the current integrated management system.

The Ministry of Education and Culture (2005) reveals that the performance appraisal system was introduced in July 2004 by Circular No. 2 of 2004 and was referred to as the Open Performance Review and Appraisal System in Tanzania. This system replaced the closed annual confidential report system which was characterized by the absence of feedback, personal biases, and lack of employee participation. It is different from the closed performance appraisal system where a supervisor would sit in the office alone and evaluate workers' performance in their absence and thereafter send confidential reports to the public service commission. Open performance review and appraisal system demand the supervisor and employees to sit together and agree on performance goals and objectives which will later be used as the evaluation standard. Similarly, the study carried out by Nigera (2004) emphasized that besides the two sitting together to discuss the performance, it also gives room for a third person to be invited to serve as a mediator in situations where the supervisor and employee may seem not to agree during the appraisal. According to Bietenhader and Bergmann (2010), although the performance appraisal system, like other reforms including political, administrative, and economic reforms that have been introduced in the country to develop and improve the economic status of the country, the performance appraisal system has not yet been fully implemented in most developing countries, Tanzania being inclusive. The same attitude is

expressed in Uganda by Abraham (2010) that since the introduction of performance appraisal in 2000, very little attention has been put on performance appraisal scheme; pointing out how the ministry officials, education service and headteachers complain of the effectiveness of this scheme; that in some cases important decisions like promotions are done without considering performance appraisal forms hence leaving behind hardworking teachers in the promotion process. What's more, Odhiambo (2005) reported similar results in the Kenyan context that performance appraisal reveals faults that needed urgent attention if teacher appraisal has to be used to improve the quality of teaching and education.

Serengeti District has four divisions namely; Rogoro, Gurumeti, Ikorongo, and Ngoreme. The district also has thirty wards and 84 villages. There are 110 public primary schools with 1280 teachers and 21 public secondary schools with 366 teachers. Moreover, there are 4 private primary schools and 4 private secondary schools in the district. For the last three years, the primary school leaving exam results have not been encouraging. The district recorded an average score of 43.4%, 40.6%, and 59.6% in the three consecutive years; 2013, 2014, and 2015 respectively. On the other hand, private primary schools performed better with an average mean score of 91%, 91.7%, and 92.3% in the same years (Primary School Leaving Certificate Report, 2013, 2014 and 2015). These results are not encouraging since the average mean ranking grade is C which is not considered as good performance according to the National Examination Council of Tanzania. Effective teacher appraisal is expected to provide schools with a required academic performance standard that meets the National education sustainable goals that will promote teachers' accountability and individual developments. Therefore, it was clear that there is a need to explore teachers' performance appraisal systems in relationship to pupils' academic success in public primary schools in the district. Table 1 shows the performance for primary school leaving examination in the district for three consecutive years.

**Table 1:** Distribution of Primary School Leaving Examination Results in Serengeti District between 2013 and 2015

Subject	Mean score			
	2013	2014	2015	Mean
Kiswahili	51.4	52.2	70.9	C

Social science	58.6	41.3	56.5	C
Science	38.7	39.6	64.4	C
Mathematics	32.7	35.4	51.4	D
English	36.00	34.9	55.1	D
Average	43.48	40.68	59.66	C

Source: PSLE (2013, 2014 & 2015) School Ranking

In table 1 it can be observed that Primary School Leaving Examination mean score for the last three years has been C grade.

### 1.1. Statement of the Problem

Ordinarily, teacher appraisal is a key lever for increasing the focus on teaching quality and enhancing achievement. It can also be used to improve teachers' performance and learners' academic achievements. Despite the public service Act cap 298 (2009) to emphasize all the public service employees in Tanzania to be evaluated under Open Performance Appraisal, the system has not been effectively implemented in schools as it is expected to promote accountability and increase teacher productivity with pupil's academic achievements. Besides, the government efforts to provide schools with required academic performance standards through providing free education in public primary and secondary schools, training and employing an adequate number of teachers, employing quality assurance officers, and appointing skilled and experienced headteachers, the pupils' academic achievement is still not encouraging as indicated in table 1 where the mean score for the last three years is still a C grade, which, according to the National Examination Council, is average and needs improvement. Therefore, the current study intends to assess the influence of teachers' performance appraisal on pupils' academic performance in public primary schools in Serengeti District and provide a way forward.

### **Influence of headteachers' open performance appraisal knowledge on pupils' academic performance**

The knowledge about performance appraisal is an important tool for headteachers in attaining pupils' academic performance. According to Dessler (2002) supervisors (headteachers in this case) must be equipped with basic appraisal techniques, understanding and avoid problems that can cripple the appraisal process. In this case, if headteachers play their role effectively in the appraisal process, their fellow teachers will also

understand them better. The work of Middlewood and Cardno (2001) on managing performance appraisal in the United Kingdom contended that there are two issues in any discussion of headteacher appraisal: what is to be appraised and how is that appraisal to be conducted. To these central concerns have to be added several subsidiary issues: who is appraised; what are the outcomes of the process, who owns the process; and when is it to be conducted as lack of self-confidence, expertise, subject matter knowledge, and perspective on what it is like to be in the classroom. The supervisors have to ensure the performance appraisal policy is understood, accessible, and adhered to by employees. This was prescribed by Murphy and Cleveland (2007) who prescribed that if supervisors play their role in the performance appraisal process effectively, employees will understand them. Therefore, lack of knowledge can lead to a lack of skills and competencies for effective implementation.

Headteachers were assumed by their subject teachers not to have enough knowledge concerning performance appraisal in Zimbabwe. The study conducted by Machingambi (2013) on teachers' perceptions of the implementation of the performance management system in high schools. A case study design which combined both the qualitative and quantitative approaches were employed. Participants involved 40 senior teachers. Moreover, headteachers were found not to have attended any training about the performance appraisal system in Zimbabwe. The study carried out by Tshabalala and Mapolisa (2013) on the problems faced by heads of schools and teachers in the implementation of performance appraisal in Nkayi District, proved this claim. A descriptive survey was adopted, targeting all primary and secondary schools in the district. A random sample was used to choose 170 teachers and 30 headteachers. On the question of training, 75% of the respondents disagreed to have received any

training in the implementation of performance appraisal. They also complained not to have been consulted during the conceptualization of the system; rather, they were consulted during the implementation period. The previous study seems not to be specific to the question of the population because both primary and secondary schools were involved.

In Kenya, Asiago and Gathii (2010) conducted a study concerning teachers' perceptions of performance appraisal practices in public secondary schools in Limuru District, Kenya. A survey design was employed involving 18 head teachers and 155 teachers. To gauge their knowledge of performance appraisal, the respondents were asked to indicate whether they had undergone any specialized training on performance appraisal. Responses portray that most of them never went any training on performance appraisal while a few indicated some training. In this case, headteachers' proficiency in performance becomes a hindrance in handling their subordinates. Their competencies, especially on performance appraisal, become questionable. The previous work did not involve other important educational administrators who are responsible persons to plan for training and providing resources, a gap that the current study involved the DHRO, DEO, and DSQAs. This is because Alvi (2016) contended that these informants are recognized to be richer than others and they are more likely to provide insights and understanding for the researcher.

Additionally, appraisers, particularly headteachers tend to lack knowledge about the

**Table 2:** Sample technique

Respondents	Population	Sample Size	Percentage
Headteachers	110	33	30
Teachers	1095	328	30
DEO	1	1	100
DHRO	1	1	100
SQAO	6	6	100
Total	1213	369	

Source: Serengeti District Council (2017)

Table 2 shows a total population of 1213 where 110 head teachers and 1095 teachers will be randomly selected to get a sample size 33 head

performance appraisal. This affirms to the study done by Mpululu (2014) about the effectiveness of open performance review and appraisal system of public primary school teachers in Mvomero District, Tanzania. The study adopted a descriptive survey design that involved both qualitative and quantitative approaches. Participants involved 20 appraisers and 120 appraisees. The study found out that only 42 respondents understand how performance appraisal is implemented and 98 of them did not know how performance appraisal operated. It was denoted that a low level of understanding was contributed majorly by the fact that teachers were not trained.

### Research methodology

This study adopted the descriptive research design, which Enanoria (2005) describes as a systematic method for gathering information from (a sample of) individuals to describe the attributes of the larger population of which the individual are members. The target population for this study included 1 District Human Resource Officer, 1 District Education Officer, 6 District School Quality Assurance officers, 110 primary school headteachers, and 1095 primary school teachers, summing up to 1213 as Table 2 illustrates. The researcher used 30% to get a sample size of 33 out of 110 headteachers and 328 out of 1095 teachers. This is based on the work of Best and Kahn (2005) and Bloomberg and Volpe (2008) who contend that 30% is statistically considerable and convenient, as represented in Table 2.

teachers and 328 teachers respectively. Besides, 1 DEO, 1 DHRO, and 6 SQAOs were purposively involved. The study took on multiple data

collection methods namely, questionnaires, interviews, and documentary reviews. The validity of the research instruments was guaranteed by giving the instruments to two experts in research methodology in the faculty of Education Administration, Planning, and Economics of Kisii University to scrutinize and ensure that they were reflected objectives. For reliability, a test re-test of the findings was calculated and a Pearson's correlation coefficient of 0.856 was obtained, which, according to Odhiambo (2005) was considered reliable.

## Findings

### *Influence of headteachers' open performance appraisal knowledge on pupils' academic performance*

Headteachers' responses to their performance appraisal knowledge were analyzed and presented in Table 3.

**Table 3:** Headteachers' responses about knowledge on performance appraisal

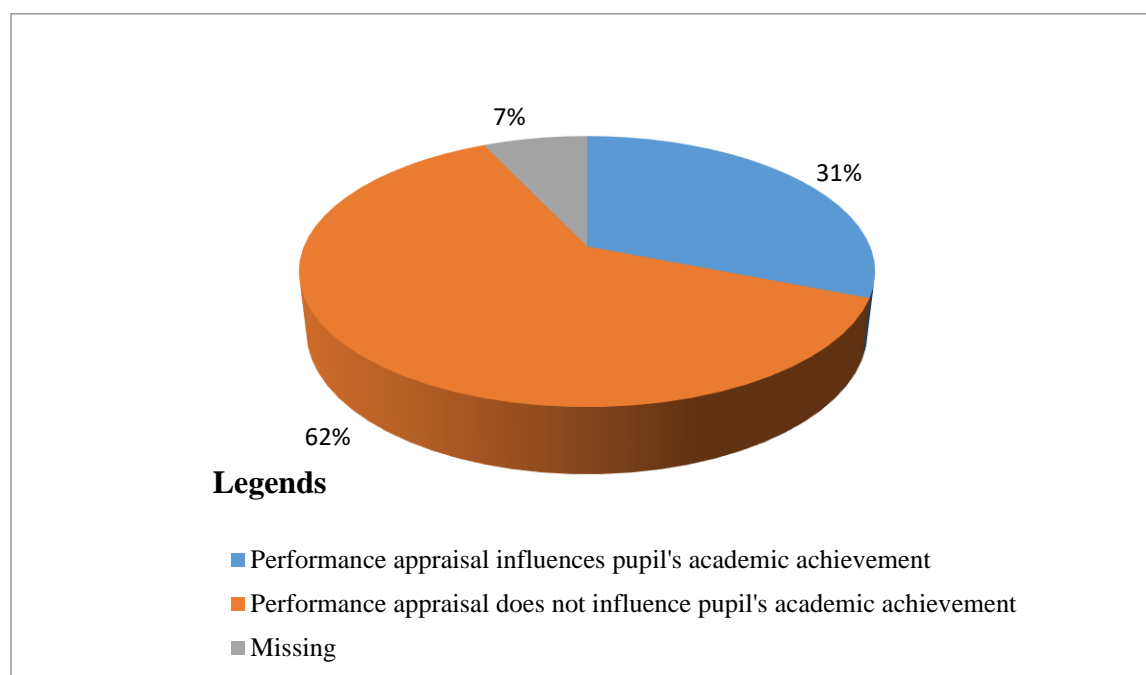
Response	Frequency	Per cent
No	4	13.8
Yes	23	79.3
Missing	2	6.9
<b>Total</b>	<b>29</b>	<b>100.0</b>

Table 3 shows that 23 (79.3%) out of 29 headteachers accepted to know about performance appraisal while 4 (13.8%) disagreed to have the same. However, 2 (6.9%) indicates nothing. During the interview, 21 (72%) equally agreed. Correspondingly, Dessler (2002) reported that supervisors' knowledge of performance appraisal is essential in effective implementation of the system.

### *Influence of Head Teachers' Knowledge on Pupils' Academic Achievement*

The study was set to assess the influence of headteachers' knowledge on pupils' academic performance. Concerning that question, the following responses were generated: - **Head Teachers Responses on the Influence of their performance appraisal Knowledge on Pupils' Academic Achievement**

The headteachers' answers on the influence of their performance appraisal knowledge on pupils' academic success are presented in Figure 1.



**Figure 1:** Headteachers responses on the influence of their performance appraisal knowledge on pupils' academic achievement

Figure 1 indicates that 62.07% of headteachers disagreed that performance appraisal influences pupil's academic achievement while 31.04% of them accepted that opinion. During the interview, 73% consented while 27% did not. This was found to be true because the main document analysed, primary school leaving examination results posted negative deviation despite constant appraisals. However, 6.9% said nothing. Such perceptions were revealed by Gebrie (2015) study where teachers contended that they were annoyed by appraisal results.

### Conclusion

Headteachers' knowledge about performance appraisal influences pupils' academic achievement. Though most of them need to attend training about PA to be more skilled and competent about the system and this could be the reason why they don't periodically appraise their subordinates as required hence leading to the bad grades in national exams. Therefore, education stakeholders especially the DEO and DHRO should emphasize headteachers conducting PA at least quarterly, to ensure that set goals and objectives are met within the prearranged time.

### Recommendations

The Ministry of Education, Science and Technology, and Local Government Authorities should ensure proper allocation of funds, particularly for teacher performance appraisal training. This will enable the DEO, SQAOs, and

DHRO to conduct training to teachers concerning performance appraisal. By so doing, schools will be managed by objectives and periodic review and assessment/evaluation will be enhanced to achieve effective teaching and learning in schools.

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