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Leveraging ICTs to Improve Sexual Health Literacies and Practices of University Students in Kenya

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Abstract

The Objective of the study was to leverage ICTs to improve sexual health literacies and practices of 300 First- and Second-Year female Bachelor of Education students from three purposively selected public universities situated in urban and peri-urban contexts of Kenya. The study, an intervention dubbed Campus Girl Keepers (CGKs) project, had three components: needs assessment to determine CGKs' level of sexual health literacies and practices at baseline; intervention phase (consisting of three campus dialogues on sexual health-related topics and establishment of CGKs-led WhatsApp Communities of Practice for sharing sexual health information); and documentation of CGK project impact on students' sexual health literacies and practices.

Research questions included: What agentic activities did CGKs undertake to improve their sexual health literacies and practices?

Data collection was done through documentary analysis of: Summaries of WhatsApp chats over project period; CGKs' self-reflections; and field notes of face-to-face campus dialogues and individual interviews with three Deans of Students.

Data analysis was done using open-coding to generate themes that were used to present findings of the study.

Findings of the study indicated that CGKs were self-directed to engage in the study through data collection on patterns and trends in female University students' sexual health literacies and practices; utilization of data and evidence to proactively engage in quality WhatsApp and face-to-face campus dialogues and to interrogate their emerging sexual health literacies and practices. The range of topics discussed and the breadth and depth of self-disclosures in discussions affirmed that quality friendships were nurtured. Incorporation and leveraging WhatsApp extended safe spaces for CGKs to have unlimited access to sexual health information anytime, anywhere, anyhow.

The conclusion reached is that CGKs' project, situated in a local context, was impactful and agentic in aligning CGKs sexual health knowledge with their sexual health behavior. CGKs became each other's keeper keen to succeed together. They built social trust and harnessed each other's social capital to transform their storied lives. They honed their social and emotional skills. Solutions to female university students' sexual health literacies and practices stemmed from within – among CGKs themselves.

Recommendations from the findings of the study are that teacher education programs should build female (and male) University students' social and emotional skills to enable them manage their sexual health and well-being; create safe spaces for University students to interrogate their sexual health literacies and practices; and harness other ICTs to support University students' sexual health literacies and practices. This journey ends where another begins: to sustainably bolster female University students' cognitive and social skills which determine their motivation and ability to access, understand and appraise sexual health knowledge and competently use it to improve their sexual health practices, with potential overflow to secondary school students they will teach upon graduation.

Key Words

Campus Dialogues Health-Literate Knowledge Building Literacies Self-Disclosure
Sexual Health Literacies Sexual Health Practices WhatsApp Communities of Practice

Introduction

The University of Nairobi's Early Grade Reading Institute leveraged ICTs to improve sexual health literacies and practices of 300 First- and Second-Year female Bachelor of Education students drawn from three purposively selected public universities situated in urban and peri-urban contexts of Kenya.

The study, an intervention dubbed Campus Girl Keepers (CGKs) project, had three components: needs assessment to determine CGKs' level of sexual health literacies and practices at baseline; intervention phase (of three campus dialogues on sexual health and establishment of CGKs-led WhatsApp Communities of Practice for sharing sexual health information); and documentation of CGK project impact on students' sexual health literacies and practices. Each University had a CGK liaison who oversaw campus girl activities such as: supporting collection of baseline, mid-line and end-line data; organizing campus dialogue; liaising with Dean of Students' office and managing WhatsApp group.

Purpose of the Study

The study leveraged ICTs to improve sexual health literacies and practices of female University students in Kenya.

Research Questions of the Study

CGK project answered three questions: What was the CGKs' sexual health literacies and practices at baseline? What agentic activities did CGKs undertake to improve their sexual health literacies and practices? How can teacher education programs better support female University students on issues surrounding gender equity, sexual health literacies and wellbeing and personal safety?

Additional Research Questions

The study was guided by these additional questions: What issue was addressed and why was it important in the particular setting or context? Have similar studies been carried out and what are their relevance to the study? How was data collected? How was that data collected assessed? What variables were investigated, measured or analyzed? How were these variables defined? How were the data analyzed? What tools were used to analyze the data? How was the validity of the measures used in the study determined? What are the main conclusions of the study? What is the relevance of the findings to our context/population? What are reasonable implications for local/regional/national policy making? What worked well in the project? In light of the findings, what might have been done differently? How will the findings of the study be shared?

Issue Addressed and Importance to Study Context

This study was conceptualized in 2018 based on the Principal Investigator's (PI) ten-year experience teaching at a public University in Kenya then. The PI had noted with concern that

many 1st Year female¹ students joined the university with seemingly little sexual health knowledge. This observation was informed by the big number of female students who fell prey² to schemes³ devised by senior students (i.e., males in second- or advanced levels of study and older men living around the University) within the first semester of their enrolment during the gold rush⁴. Before they knew it, the female students found themselves entangled in a web characterized by: pre-marital sex and prostitution (Yakaboski and Birnbaum, 2013); abortions and/or unwanted pregnancies; Sexually Transmitted Infections (STIs, including HIV/AIDS), and drugs and alcohol abuse.

The PI was privy to information about marriages of convenience where female students cohabited with the opposite sex⁵ to make ends meet or defray costs of university education. Typically the female students moved into the man's house and took on additional responsibilities including doing household chores such as cooking and cleaning the house. The immediate casualty was the female student's grades. The PI interacted with one female student who deferred her studies, as many others did, due to strains associated with a divorce⁶ from a marriage of convenience during gold rush.

Many Freshers⁷ went away from home - some for the very first time - when they enrolled in the university. From the PI's observations, some of the students poorly managed their newly found freedom. Some of them skipped classes and resurfaced only during end-of-semester examinations. There was insufficient follow-up of truant students. The students, desperate to excel academically, become gullible to unscrupulous lecturers⁸ and acquired sexually transmitted marks⁹ (Muasya and Gatumu, 2013).

The PI decided to intervene; hence the present study. She formed a team of three researchers to support implementation. The team coined the name Campus Girl Keepers¹⁰ (CGKs) project and purposively selected female students pursuing Bachelor of Education Course¹¹. They hypothesized that if the female students improved access to, understood and appraised sexual health information, they would effectively apply it to improve their own sexual health practices and that of secondary school students they would teach upon graduation. They would be Secondary School Girl Keeper. The broader goal was to reduce gender and sexual health inequalities.

¹ Male students may have sexual health challenges by female students are affected differently, and face the most brunt in sexual health issues.

² This was a presumption that female students were unaware of the schemes hatched by male students and as such are vulnerable. This may or may not be true.

³ Strategies used by male students and older men to lure female students (prey) into (exploitative) sexual relationships.

⁴ Gold rush: act of senior male University students and older men targeting and securing the friendship of 1st Year female students (gold), often within the first semester of their enrolment in the University.

⁵ The opposite sex would be male students or older men living around university.

⁶ A female student in her 2nd Year or advanced level of study is 'left' or 'divorced' in favor of a 1st Year one acquired during the gold rush.

⁷ Those in their First Year of study at the University, who connotatively were assumed also to be fresher (hence the term gold)

⁸ Muasya, J. N. (2013). Exploring discourses of access and sexual harassment in higher education A study of students' perceptions of University of Nairobi's Institutional Culture, Kenya. Unpublished PhD Thesis, Open University of South Africa.

⁹ Sexually transmitted marks: It is a situation where a student has sex with a lecturer in exchange for marks or good grades.

¹⁰ Keeper is derived from a biblical phrase made by Cain when God asked him where his brother Abel was. He said, he was not his brother's keeper and thus not responsible for his whereabouts and/or well-being. A Campus Girl Keeper cares about the whereabouts and well-being of another girl (aka fellow female student).

¹¹ These were students being prepared to teach in secondary schools in Kenya which have learners between 13 and 19 years of age (adolescents).

Similar Studies Conducted and Relevance to the Study

Before reviewing relevant literature, we operationalized key terms of the study. We defined literacy as a set of abilities to understand and use reading and writing, including navigating new media and electronic text, for personal and community development. CGKs needed to be agile in moving along the continuum of reading, writing, critical understanding and decision-making using both print and electronic media.

Indeed, CGKs possessed a repertoire of literacy skills, or literacies, such as: prose literacy (to understand texts/chats they read on WhatsApp); document literacy (e.g., to understand and fill out questionnaires); as well as technological, cultural, media and computer literacies, among others. These literacies must be dynamic and malleable¹² for one to effectively function in the 21st Century.

We adopted the WHO (2009)¹³ definition of health literacy as cognitive and social skills which determine the motivation and ability of individuals to gain access to, understand, appraise and use health information to promote and maintain good health. The definition fit well with cognitive and social dimensions of the CGK project because CGKs co-created sexual health information on WhatsApp and during campus dialogues but each CGK appropriated it to their own lives.

The connection between literacy, health, wealth and well-being is undeniable. Low health literacy is consistently associated with poor health outcomes. Health-literate individuals have better access to health information and improved capacity to use it effectively. Such individuals make healthy choices, pursue healthy lifestyles and navigate the world of health care, in a way that suits their lifestyle (Beauchamp & Sparkes, 2014¹⁴).

We defined sexual health literacy as the ability to understand and evaluate the risks, responsibilities, outcomes and impacts of sexual actions. That means individuals integrate their sexuality into their lives, enjoy their sexuality, and do so knowing they are in control of their health. Being sexually healthy, therefore, involves managing sexual relationships and healthcare, negotiating sexual pressures, and managing the moral stigma of sexually transmitted infections, sexual identities and social norms of acceptable sexual behaviour.¹⁵ Applying learned information to make decisions about health in this context means being able to communicate with sexual partners about complex risk information in dynamic and changing circumstances.

Sexual health literacy demands tailored approaches to meet specific needs of individuals and communities. Our tailored approach included nesting sexual health literacy within WhatsApp Communities of Practice and harnessing the power and promise of social media technologies.

¹² <http://en.wikipedia.org/wiki/Literacy>

¹³ <https://www.who.int/healthpromotion/conferences/7gchp/track2/en/>

¹⁴ <https://search.informit.com.au/documentSummary;dn=191519495197645;res=IELHEA>

¹⁵

<https://www.gla.ac.uk/researchinstitutes/healthwellbeing/research/mrccsosocialandpublichealthsciencesunit/programmes/relationships/pcsn/sexualhealthliteracy/>

This is consistent with Nutbeam's¹⁶ interactive health literacy domain, which relies on communication and applying health information; functional health literacy domain, which involves basic reading and writing skills; and critical health literacy domain, which involves information analysis and controlling one's health. Previous interventions have addressed functional health literacy but downplayed interactive and critical health literacy. Through WhatsApp Communities of Practice and face-to-face campus dialogues, all three health literacy domains were honed among CGKs.

We included critical health literacy domain because of its link to empowerment and compatibility in discussing sexuality, reproduction, informed consent, negotiation skills and weighing risks associated with alternatives. CGKs would employ critical health literacy to appraise, and use sexual health literacies to make informed decisions about their sexual practices.

We assumed CGKs would willingly engage in sexual health knowledge building (Keating, 1999)¹⁷ and use the social capital (Coleman, 1988¹⁸) in their repertoire to engage critically with sexual health information. We hoped they would nurture social trust amongst them and engage in genuine mutually beneficial activities to improve their sexual health literacies and practices.

Because we live in an oral and visual culture, we included the combined use of face-to-face campus dialogues and social media as invaluable visual and interactive learning tools.

Learnings happened when Campus Girls surfed the internet, shared a video or just chatted each other up on WhatsApp and when they met face-to-face for a 'good laugh'¹⁹, as some of them referred to the campus dialogues.

There is a plethora of research from different parts of the world on sexual health literacy of adolescents in secondary schools. For instance, a cross-sectional study was conducted among 461 respondents in rural and urban areas of Lao PDR in 2017²⁰. Respondents completed a self-administered questionnaire with five parts: socio-demographic, personal health, Sexual and Reproductive Health (SRH) knowledge and behavior, Sexual and Reproductive Health Literacy (SRHL), and functional literacy. The researchers calculated the SRHL score based on the HL-EU index and used descriptive statistics to determine the score and levels and used bivariate statistics and multiple linear regressions to identify factors associated with SRHL in the adolescents.

Findings indicated that 65.5% had inadequate SRHL. Scores were positively and significantly associated with several factors, including: school location (β : 3.218; $p < 0.001$), knowledge on SRH and attending SR class in school (p : 0.010— $p < 0.001$), and functional literacy on condoms, which reflected how respondents understood the use of condoms (β : 0.871; $p < 0.001$). The study concluded that most school adolescents had inadequate SRHL and thus required comprehensive sexual education to ensure that adolescents can access, understand, appraise and apply good SRH knowledge in decision-making to benefit their own health.

¹⁶ Nutbeam, D. (2000). Health literacy as a public health goal: A challenge for contemporary health education and communication strategies into the 21st Century. *Health Promot. Int.* 15, 259–268.

¹⁷ Keating, D.P. (1999). Developmental health as the wealth of nations. In Keating, D.P. and Hertzman, C. (eds). *Developmental health and the wealth of nations*. New York: The Guilford Press.

¹⁸ Coleman, J.S. (1988). Social capital in the creation of human capital. *American Journal of Sociology*, 94s, S95-S120.

¹⁹ The Campus Girls said the campus dialogues were useful for destressing.

²⁰ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6334956/>

The Lao PDR study was informative given some CGKs were in their late teens. It is possible they, too, graduated from high school with inadequate sexual (and reproductive) health literacy. The study also outlined the importance of sexual health education – the main focus of our study.

Researchers from the University of Tasmania, Australia,²¹ invited 1786 (male and female) students to complete an anonymous online questionnaire during August/September, 2013. Sexual Health Literacy (SHL) was assessed using ARCSHS National Survey of Australian Secondary Students & Sexual Health (ARC) and the Sexual Health Questionnaire (SHS). Predictors of literacy scores were evaluated by linear regression.

Findings indicated that female sex, older age, sexual education, and sexual experience were significant predictors of SHL. The study included students from different disciplines and found that those in medical/nursing disciplines had the highest sexual health literacy. There were also statistically significant differences by birthplace with overseas-born students (from Malaysia, India and China) having significantly lower ARC (-3.6% , $P < 0.001$) & SHS (-4.2% , $P < 0.001$) compared to Australian/New Zealander students. The study investigated religious affiliation and found that students of Buddhist (ARC: -5.4% , $P = 0.014$; SHS: -6.7% , $P = 0.002$), Hindu (ARC: -8.8% , $P = 0.098$; SHS: -12.2% , $P = 0.027$), Muslim (ARC: -16.5% , $P < 0.001$; SHS: -13.4% , $P = 0.001$) and Protestant (ARC: -2.3% , $P = 0.023$; SHS: -4.4% , $P < 0.001$) had markedly lower SHL compared to agnostic/atheist-identifying students.

This study answered the question that location/birth place and religious (or cultural beliefs) affect sexual health literacies and practices. The importance of sexual education was reiterated in this study as was the one done in Lao PDR.

Whereas the University of Tasmania study reported that students in medical/nursing disciplines had the highest sexual health literacy, another study assessing reproductive and sexual health literacy of 173 female participants (including medical personnel) from villages of Armavir and Lori Marz in the Northern Armenia²² proved otherwise.

The Armenia study investigated issues related to women's health, specifically sexually transmitted infections (STIs) and cervical cancer as well as their contraceptive choices. Both general population and medical personnel demonstrated lack of knowledge of diseases classified as STIs. Most respondents (88%) used no mode of contraception. The study concluded that there is a significant deficit of knowledge regarding reproductive health, specifically, STIs and cervical cancer modes of prevention and methods of effective contraception. Furthermore, the poor knowledge of these subjects was shared by medical professionals.

Like previous studies, this study foregrounded the need for health education to promote safe sexual practices proven to decrease the risk of STI exposure and use of modern methods of contraception. The study challenged health service providers' sexual health literacies and ameliorated the need for students to have at their disposal a repertoire of skills to access, understand and appraise information from multiple sources and apply it to their lives.

²¹ <https://www.publish.csiro.au/SH/SH14223>

²² <https://clinmedjournals.org/articles/ijwhw/international-journal-of-womens-health-and-wellness-ijwhw-5-107.pdf?jid=ijwhw>

Martin (2017) used paired interviews with friendship groups (of a purposive sample of 49 participants aged 16-19)²³ and observational online activities to explore young people's experiences of finding, understanding and evaluating online sexual health information. The participants were diverse in gender, sexuality, religion and geographical locations of Scotland in terms of deprivation and urban/rural classification.

Findings indicated that participants varied in their confidence and ability to find and identify reliable information, and typically regarded identifying and filtering reliable sources as challenging. Barriers to accessing information on websites included: inaccessible language; inappropriate or non-relatable information; and websites that were difficult to navigate or did not function correctly. Concerns about stigma and 'being seen' seeking sexual health information was a key barrier. Stark differences, often mediated by gender, sexuality and educational circumstances, emerged in perspectives towards accessing sexual health information and support online.

Martin's (2017) findings imply that different social media platforms present different opportunities and challenges for students seeking sexual health information that would require development of critical health literacy skills. The study flagged out stigma associated with seeking sexual health knowledge, especially in African contexts where the topic is taboo or can only be discussed with a specially selected older member of the extended family.

Martin (2017) asserted that dissatisfaction with school-based sexual health education appears to be a catalyst for online information-seeking, but school-based sexual health education did little to equip young people to use the online environment effectively. The study concluded that gender, sexual identity, stigma, structural factors and social support converge and intersect around young people's SHL.

Martin's (2017) study motivated us to include strategies that minimized stigma associated with sexual health literacy; use WhatsApp Communities of Practice to share positive messages to increase uptake and developing CGKs interactive and critical skills for seeking and appraising online information. These skills will be required especially because the influence of the internet is growing within a rapidly changing sexual health information landscape, which amplify challenges faced by young people in navigating the online environment. By using social media, we expanded the sources of sexual health information that complemented traditional ones. Martin's study validated our effort to operationalize sexual health literacies. We developed tools to determine effectiveness of the CGK intervention but future researchers should develop more robust tools to measure sexual health literacies and practices quantitatively.

Latif, Rana, Qadir, Ali Imran, & Younis (2017)²⁴ undertook a case study of Pakistan to illustrate how mobile health can be implemented in the developing world. Latif *et al.*, research validated our choice of social media to promote sexual health literacy among students given the ubiquitous

²³ <http://theses.gla.ac.uk/8528/7/2017MartinPhD.pdf>

²⁴ Latif, S., Rana, R., Qadir, J., Ali, A., Imran, M.A., & Younis, M. S. (2017). Mobile health in the developing world: Review of literature and lessons from a case study. INEEE Access: Special Section on Health Informatics for the Developing World.

deployment of mobile phone technology in Kenya, with consistently rising mobile penetration statistics.

Indeed proliferation of mobile phones has stimulated innovative applications of mobile Health (or *mHealth*) for personalized and tailored care, with a penetration rate of 49.4% in 2016. We concurred with Latif *et al.*, that *mHealth* offers tremendous opportunities for contexts with scarcity of health infrastructure and resources. The findings of Latif *et al.* study had important implications on development of policies and strategies for sustainable adoption of *mHealth*.

We reviewed a study which brought together 38 researchers, community members, and service providers to explore gay men's sexual health literacy²⁵. The research team used a World Café method to hold three rounds of discussions about sexual health literacy in relation to gay men, providers, and underlying systems. Documented notes were analysed thematically through two rounds of group synthesis and a subsequent review by one investigator.

Findings indicated that sexual health literacy was influenced by ways the men access information: through peer networks, and coded communications with prospective partners. This study opened a window for us to better understand some of our CGKs who confided in us that they were lesbians. This study affirmed for us how the Internet influences access to, delivery of and engagement with information, while new technologies and changing sexual norms complicate message consistency and risk assessment. The gay men in this study, just like lesbian CGKs in our study, had high sexual health literacy and that they value bottom-up/community-based over top-down/expert models of providing sexual health literacy.

Noteworthy also, knowledge and communication skills were seen as key determinants of sexual health literacy and non-traditional health sectors also play key roles. The study pointed underlying determinants of sexual health literacy including stigma related to sexual orientation, access and organisation of health care services, systemic shifts to self-care models, political ideologies which were general anti-lesbians or silent about it.

Participants also recognised activism and mobilisation within gay communities as integral to sexual health literacy. The study concluded that innovations in biomedical technologies and access to online information are critically shaping experiences of sexual health literacy for gay men. The expanded theoretical framework emerging from these findings serves as a starting point to inform enhancing sexual health literacy and designing effective interventions.

Yakaboski and Birnbaum (2013)²⁶ investigated challenges of students' affairs at Kenyan public Universities and isolated four major ones: increasing costs of attendance, resulting impact on student behaviours and actions, lack of training and senior leadership, and regular campus closures.

²⁵ https://sti.bmj.com/content/sextrans/91/Suppl_2/A85.1.full.pdf

²⁶ Yakaboski, T., & Birnbaum, M. (2013). The challenges of student affairs at Kenyan public universities. *Journal of Student Affairs in Africa*, 1(1&2), 33–48. ISSN 2307-6267 | DOI: 10.14426/jsaa.v1i1-2.34

Yakaboski and Birnbaum (2013) study set the context for the present study on effect of mass higher education embraced by Kenya to solve economic and social challenges; with profound effects on university students, faculty and professionals who provide the vital student support services necessary for academic success.

To date, Kenya's demand for access to affordable higher education far exceeds the system's ability to deliver quality instruction and student support (Owuor, 2012). Massification of higher education also adopted policies that shifted the cost of attendance to students (and their families) against a poorly performing economy (Fehnel, 2003²⁷).

The Kenyan government has implemented numerous reforms intended to increase educational efficiency and degree production. However, far fewer resources have been provided for services to support enrolled students. Yakaboski and Birnbaum (2013) saw this as problematic and posited that admitting students to university without providing appropriate levels of support often results in a failed academic experience and wasted institutional resources. One student said, *"It doesn't seem like the [student services] staff are able to help too much, because they feel like there is too much to do, too many students."*

Student interviewed in Yakaboski and Birnbaum (2013) study reported ongoing frustration with tuition and fee increases without corresponding increase in services or the quality of education. Not surprisingly, some students withdrew from University because they could not afford basic necessities such as rent, transportation, and school supplies after paying their tuition and fees.

Yakaboski and Birnbaum (2013) asserted that every student interviewed believed that a degree was essential to gainful employment. However, a disproportionate number of women indicated having thoughts about returning home to assist with domestic income and work. The female students cited financial cost of attendance as well as hardships students' families experienced due to their not being at home.

Consistent with studies done in Armenia and Scotland, Yakaboski and Birnbaum (2013) study reported that in rural universities, increasing costs and ongoing economic problems exacerbate existing social conditions in more profound ways. Yakaboski and Birnbaum identified prostitution (Ambuka, 2012²⁸), exploitive relationships and HIV/AIDS as significant problems by student service professional at each institution they visited, although a few senior administrators downplayed the magnitude of each.

Prostitution among college women (and increasingly men) was used to pay universities fees and a viable solution for students facing hunger or homelessness. One counsellor said, *"We have developed educational programs explaining the dangers and the importance of safe sex but we have almost no power to intervene with the actual behavior."*

²⁷ Fehnel, R. (2003). Massification and future trends in African higher education. In D. Teferra & P.G. Altbach (Eds.), *African higher education: An international reference handbook*, (pp. 73-81). Bloomington, IN: Indiana UP.

²⁸ Ambuka, J. (September 5, 2012). Campus divas not monsters; they're a reflection of society's moral turpitude. *Sunday Nation*, Nairobi, Kenya. Retrieved from <http://www.nation.co.ke/oped/Opinion/Campus-Divas-not-monsters/-/440808/1497400/-/sxh4py/-/index.html>

A Dean of Students said, *“We don’t have the resources to care for babies or ill students, so we must move them off campus or encourage them to go home until they are able to resume their studies.”* Another dean lamented, *“A few of our students resort to this [prostitution] because they believe so much in the degree, in the promise of education. We try to provide options, but with the pressure to stay in school, they sometimes see no other option.”*

Yakaboski and Birnbaum (2013) reported also about on-campus and off-campus live-in relationships, where a woman cohabits with a man in exchange for cleaning, meal-preparation and sex. Yakaboski and Birnbaum called these marriages of convenience trial marriages in which the male student pays for the female’s fees and tuition. Yakaboski and Birnbaum reported that these arrangements often only lasted a year. With enrolment of 1st Year female students, the gold rush (Lime, 2010 cited in Yakaboski & Birnbaum, 2013) would happen: with the older men breaking up with their current girlfriends and finding younger ‘fresher’ women for a live-in relationship.

Yakaboski and Birnbaum (2013) reported that Student service personnel usually explain the gold rush concept to new students during orientation to no avail. One Dean who said, *“Once a man has found a new girlfriend, there are not many options for the women who now need to find money for tuition and a place to live. Most of them came from single sex secondary schools and this was their first relationship [...] they thought it would last.”*

Yakaboski and Birnbaum (2013) acknowledged student service personnel’s dilemma and concerns about the effects of these behaviours on students yet lacking resources to implement large-scale, on-going programming initiatives to educate students about the potential consequences of their behaviours or provide alternative accommodation. Yakaboski and Birnbaum noted that these personnel resorted to guidance and counselling, which focuses on dealing with the problems of individuals, or small groups of students, who present a specific problem.

Muasya and Gatumu’s (2013) study²⁹ explored ethical challenges which researchers encounter while exploring discourses of sexual health (and sexual harassment in particular), which if not dealt with professionally could affect quality of data. They identified ethical challenges such as access and consent of research participants; handling participant’s traumatic experiences; privacy and confidentiality of study participants and data. The researchers shared insights on ‘speaking the unspoken’ (Kamau, 2009:229) sexual health issues and representing them for academic and professional audiences in the public domain, (Edwards and Ribbens, 2000). The study informed ethics section of this research.

Our study adopted grounded theory. Data analysis enabled inclusion of Social Cognitive Theory (SCT) - an outgrowth of Social Learning Theory (SLT) - by Albert Bandura. According to SCT, learning occurs in a social context with a dynamic and reciprocal interaction of the person,

²⁹ Muasya, J. N., & Gatumu, J.C. (2013). Ethical issues in researching discourses of sexual harassment in higher education: Experiences from the University of Nairobi, Kenya. *International Journal of Education and Research*, 1(10), 1-10.

environment, and behavior.³⁰ SCT emphasizes social influence, external and internal social reinforcement and the unique way in which individuals acquire and maintain behavior within the social environment in which the individuals perform the behavior. A person's past experiences determine whether behavioral action will occur. The past experiences influence reinforcements, expectations, and expectancies, which collectively shape whether the person will engage in a specific behavior and the reasons why the person engages in that behavior. The theory explains how people regulate their behavior through control and reinforcement to achieve goal-directed behavior that can be maintained over time.

SCT has six constructs. The first is reciprocal determinism, which is the dynamic and reciprocal interaction of: person (individual with a set of learned experiences and accumulated social capital); environment (social context in which the person lives); and behavior (responses to stimuli to achieve goals).

The second construct is behavioral capability, which a person's actual ability to perform a behavior through essential knowledge and skills. To successfully perform the behavior, the person must know what to do and how to do it. The person learns from the consequences of their behavior, which also affects the environment in which they live.

The third construct is observational learning in which a person can witness and observe a behavior conducted by others (especially their role model), and then reproduce the behavior. Sub-skills associated with observational learning include: paying attention to the behaviour, retaining or committing the behavior to memory and reproducing it later. Depending on how strong the model is, or if the person sees successful demonstration of the behavior, they can also complete the behavior successfully.

The fourth construct is reinforcement, which are the internal or external responses to a person's behavior that determine the likelihood of continuing or discontinuing the behavior. Reinforcements can be self-initiated or in the environment, and reinforcements can be positive or negative. This construct illustrates the reciprocal relationship between behavior and environment.

The fifth construct is expectations, which are the anticipated consequences of a person's behavior. Outcome expectations can be health-related. The person anticipates the consequences of their actions before engaging in the behavior. The anticipated consequences can influence successful completion of the behavior. The person relies on their previous experiences to isolate the expectations. Expectancies also draw from previous experiences but focus on the value placed on the outcome. Expectancies are thus subjective to the individual.

The last construct is self-efficacy, which is the level of a person's confidence in his or her ability to successfully perform a behavior. Self-efficacy is influenced by the person's specific capabilities and other individual factors, as well as by environmental factors (barriers and facilitators).

³⁰ <http://sphweb.bumc.bu.edu/otlt/MPH-Modules/SB/BehavioralChangeTheories/BehavioralChangeTheories5.html>

SCT was relevant to our study, which focused on behaviour modification where sexual health literacies and practices are concerned. We acknowledged the dynamic and reciprocal interaction of each CGK (her set of learned experiences and accumulated social capital regarding sexual health literacies); her environment (the WhatsApp Community of Practice and campus dialogue forums as critical social contexts); and her behavior (expected change in CGK's sexual health practices towards the goal: living a healthy and fulfilling life). Each CGK had potential and ability to be responsible for improving their own sexual health literacies and practices using knowledge, skills, values and attitudes acquired through the CGK project what to do to acquire, understand, appraise sexual health information and how to competently use it to improve their sexual health practices.

Through self-disclosures in WhatsApp and dialogue sessions, each CGK learned about consequences of irresponsible sexual health practices. The CGK related with models who shared experiences of sexual health experiences resulting from bad decisions and choices. These experiences served as strong deterrents that led to negative sexual health behavior in some of the CGKs to suffer extinction. This process reinforced positive behavior and discouraged negative behavior. There was a reciprocal relationship between each CGK's sexual health practices and the environment created by the CGK's project.

CGKs had expectations that motivated them to participate in the CGK project voluntarily. Their expectations included for instance being healthy, being self-reliant, excelling academically and maintaining healthy relationships. The CGKs relied on their own previous experiences and that of others to interrogate sexual health literacies and practices. Differences in outcomes from the CGK project may be explained, in part, by each CGK's expectancies based on the value they attached to the outcome of the project. At the end, as each CGK's self-efficacy skills were enhanced; they became self-driven and more confident in taking charge of their sexual health literacies and successfully improve their sexual health practices.

Research Methodology

This section answers some of the additional research questions: How was data collected? How was that data collected assessed? What variables were investigated, measured or analyzed? How were these variables defined? How were the data analyzed? What tools were used to analyze the data? How was the validity of the measures used in the study determined?

CGK project was an intervention implemented in three purposively selected Universities in urban and peri-urban areas of Kenya. Data were collected using summarization of WhatsApp discussions over the project period; analysis of self-reflections and field notes from face-to-face campus dialogues. Other data were collected through individual interviews with three Deans of Students from the three Universities. CGK reflections on their sexual health literacies and practices were collected over the course of the project and integrated with data from other sources including the campus dialogues and interviews with the Deans.

Monitoring and evaluation was integral to CGK project design. Inception meetings were held to determine the female students' sexual health knowledge and practices at baseline; WhatsApp

posts, personal reflections and campus dialogues field-notes over project life-cycle were analyzed to document change in campus girls' sexual health literacies and practices. Within this design, the difference-in-difference approach was followed to determine changes in CGKs over time in order to control for unobserved dynamics, thereby ensuring accurate capture of additionality. Proof of concept was accommodated through tracking the campus girls over project implementation period in order to measure within-subjects improvements, which further allowed for inferences to be made to a similar target population.

Although initially the results were to be disaggregated by geographical location of the University (i.e., urban and peri-urban), the researchers pursued instead a deeper understanding of the phenomena. Female students attending universities in urban and rural areas faced similar sexual health issues. The ubiquitous nature of technology blurred the divide in access to information among the female University students in urban and peri-urban areas necessitating downplaying of location as a key variable of the study. The study instead focused on some of the root causes of sexual health issues among CGKs with important implications on systemic transformative changes in the educational system to eliminate those causes. Future research should investigate the relationship between geographical location and level of female University students as was affirmed in the literature reviewed.

Data were analyzed using open-coding to categorize themes that emerged (Strauss & Corbin, 1997³¹). The inductive nature of open-coding allowed new themes to emerge from data. We also analyzed the documents using an inductive qualitative content analysis procedure to identify themes. Researchers acknowledged already existing avenues within universities to handle student welfare, including Dean of Students' offices and the health services. The CGK project, therefore, complemented and further extended those efforts. The only difference between CGK project and existing ones was in its programming and in who drove the process.

Credibility and trustworthiness were ensured through source and methodological triangulation. Data were compared data across data sources and existing literature (Gibbs, 2007³²). Findings were discussed with CGKs through WhatsApp groups and through member-checks with researchers. Moreover, reflections and critical thinking based on evidence and shared experiences were instrumental in development of independent evidence-based decision making by CGKs about their sexual health practices. A combination of self-reports and interviews with Deans of Students Offices provided a composite picture of CGKs and used to determine impact of CGK project. Recommendations for continued support of campus girls were made based on the findings.

Note:

Researchers undertook the research from a privileged position. All of them were employees of Universities. It is possible that some of the views and even findings of the study were affected by this position. However, the researchers bracketed their feelings in order to be critical without criticizing.

³¹ Strauss, A.L. & Corbin, J. (1997). *Grounded theory in practice*. London: Sage.

³² Gibbs, G. (2007). *Analyzing qualitative data*. Thousand Oaks, CA: Sage.

Ethical Considerations

Sensitive subjects, such as sexual health, place researchers in a difficult ethical position on how to collect reliable and valid data and still do no harm to participants. Sensitive subjects are not only surrounded by embarrassment, victimization, silence, ignorance, secrecy, stigma, threats and discrimination but researchers also intrude into participants' private spheres or delve into their deeply personal experiences and also raise moral questions of what is wrong and right (Muasya and Gatumu, 2013).

Ethical issues can arise at data collection, analysis, report writing and dissemination of findings. For this reason, CGK project team made ethical considerations throughout the life-cycle of the project. First, they were not included in WhatsApp Groups at the request of CGKs to maintain privacy and increase trust, respect, and confidentiality of information shared therein.

Researchers relied instead on Campus Liaisons' summaries of WhatsApp deliberations. To improve the quality of summaries, the Liaisons were trained beforehand on effective summarization. Noteworthy also, the summaries were run by WhatsApp Group members before being shared with the research team for transparency and accountability.

Adequate and informed consent was sought from participants before project onset. Participants were informed about the purpose of the project and that participation was entirely voluntary. Those unwilling to participate were allowed to do so without explanation or repercussions. Willing participants were reminded they were free not to answer questions or discuss any topic if they felt embarrassed, threatened or uncomfortable.

Researchers did their best to protect and safeguard participants' privacy and anonymity. Pseudonyms were used in presenting and discussing findings of the study based on participants' private stories. Some of the CGKs were under 18 years of age. A comprehensive assessment of potential child safety risks was undertaken, and appropriate measures to prevent, mitigate, and respond to child abuse, exploitation, violence, or neglect in all documents implemented.

Guidance and counseling services were organized in case any CGK was affected in anyway either from their self-disclosures or by listening to other CGKs storied lives. Researchers were patient and maintained good rapport with CGKs throughout project life-cycle. They provided enough wait time to participants reconstruct and/or reflect on issues under discussion.

Presentation and Discussion of Findings of the Study

CGK Project Team held inception campus dialogues with CGKs to brief them about the study. The meetings elicited thought-provoking questions such as the ones in Excerpt 1.

Excerpt 1: Some of the questions asked at inception meetings

- Actually I have this issue. Am not in any relationship not because I have no one approaching me but because there are many boys approaching me that am even confused on who to choose and I also fear the consequence of relationship like heartbreak, being dumped. So what should I do?
- I just hate the kind of experiences that I have encountered since Form 4 (12th Grade) and for sure I hate myself. But one thing that I like about myself if that I normally make the right but painful choices.
- My roommate in First Year (I am in 2nd Year) got bad company of friends who used to watch pornography. She used to skip lectures and in no time she was addicted. She would change boyfriends as frequently. I prayed for her. I used to have bible study with her but unfortunately she got pregnant and aborted. I was disappointed since she had done a mistake. Her behavior didn't change much. I saw her the other day and she is pregnant.
- I am confused. We were told that husbands are found in campus yet when we came we are being warned about them. Tell us how we choose our partners who will not take advantage of us.
- Between having a sexual relationship and a long distance relationship which is better?
- How can a person deal with long distance relationship?
- Is it good having a baby while still in campus?
- I have been humiliated in an abusive relationship. What should I do? Is it bad to have a close relationship with a man but not be intimate? And where do you draw the line between intimacy and friendship between the opposite sex?
- I have best friend...she has got a weak character. She is a poor decision maker. How should I help her?
- I found my lover cheating on me but I could not leave him because he was giving me money and helped to sustain me in school.
- Are contraceptives good for preventing pregnancy? Is it good to procure an abortion considering the situation?
- Even after the talk about gold rush I found myself in a relationship with a second year student. On Day Two of the relationship he asked for sexual intercourse. I was not ready but he forced me at the end of the day we found ourselves in a struggle. I physically hurt him and he slapped me. From that day NO MORE BOYFRIENDS!!!
- Have been bothered with my menstrual cycle dates at times I can miss my flow for a month following that the last one came on a date ... the months. And at times ranges between 25, the flow comes come three days before or after. Is it regular or irregular?
- I am hard-working. I faced a problem with bacterial infection which was caused by a cheating boyfriend. I opened up to my mother since I did not know what to do since I was new in campus; I consulted a medical doctor and am good now.
- I have periods for three weeks resting for one week then menstruating for another three weeks. What do I do?

From Excerpt 1, CGKs' concerns at baseline included: how to maintain healthy relationships; boosting self-efficacy; managing time for academic and social activities; handling premarital sex,

physical and sexual abuse and reproductive health including use of contraceptives and sexually transmitted infections; and menstrual health. The issues informed the needs assessment undertaken to establish level of female university students' sexual health literacies and practices at baseline. Findings from the needs assessment are presented below beginning with CGK self-reports.

From self-reports, CGKs' sexual health literacy '*was high*' with CGKs further outlining benefits accruing from high sexual health literacy³³ including: prevention of unwanted pregnancies, reduction of risk for HIV other STIs, good grades in education, and link to a more successful life. Children raised by women who are sexually healthy and well-educated tend to have better learning and life outcomes. These findings are contrary to literature (e.g., Martin, 2017) which reported lower sexual health literacy among adolescents.

Consistent with Yakaboski and Birnbaum's (2013) study, CGKs were '*exposed*' to sexual health knowledge upon enrolment at the University and warned sternly about engagement in premarital (unprotected) sex. Cases of suicide/passion murders in Universities over love gone sour were shared. CGKs identified disconnect between sexual health knowledge and inability to apply the knowledge in their sexual health practices.

From self-reports, CGKs were '*left to their own whims and devises*' after the orientation week, which they considered a loophole. There was little follow-up after orientation to determine adherence to sexual health messages as further affirmed in Yakaboski and Birnbaum's (2013) study in which student service personnel do not have the required resources to support University students' welfare.

From self-reports, many CGKs lacked self-management skills. There was no support system to monitor class attendance as was the case in secondary schools. Everybody assumed they were all '*grown up*' and '*ready to face the world.*' In reality CGKs felt pushed, rather too quickly, into an unfamiliar world with an '*overwhelming sense of freedom*' without responsibility. They had to '*keep themselves busy*' as they knew how. Some of them skipped lectures, especially when they realized that there were no dire consequences for missing the classes.

Many CGKs dressed and did their hair '*the way they want, however they want.*' Tamara said:

You dress the way you want, even walking almost naked, and there is no one to question your choice. You 'sleep outside' and no one even notices. You have to have a strong personality for you to be steadfast. There doesn't seem to be follow-up from anyone (lecturers and parents) on your social and/or academic spheres of life. It is incumbent upon you to organize yourself to attend lectures, tackle assignment deadlines and also attend to the increasing and equally compelling social life and the demands thereof.

From self-reports, CGKs had to learn quickly, and sometimes '*the hard way*' on how to handle friendships. '*Naïve students*' were often the most gullible. They hopped onto the '*sunny-side*³⁴ of

³³ <https://www.who.int/healthpromotion/conferences/9gchp/sexual-reproductive-health-literacy/en/>

³⁴ Activities considered fun and pleasurable

the University band wagon,’ to have fun. In no time they fell prey to senior students and older men during the *‘gold rush.’*

Some CGKs were in abusive relationships - with cases escalating around *gold rush* time. Kang’ina said her boyfriend, Allan, physically and emotionally tormented her and openly cheated on her. She said she *‘had no choice but to persevere in order to complete [her] education.’* It was *‘normal’* also for some girls to have several boyfriends. Sexual harassment and assault^{35,36} were rampant too, especially in the first semester of each academic year during gold rush.

From self-reports, some CGKs got so *‘swallowed up by the allure of the good life’* that they forgot *‘all the beautiful theories about sexual health.’* They cited disillusionment with life that compelled them to find *‘fun things to do.’* CGKs were aware that choices have consequences, including unplanned pregnancies whether you engage in sex out of ignorance or to escape from poverty. Tamara summed up thus: *‘This freedom leads to vices such as unsafe sex without the female student thinking about the consequences of such action.’* Remereria was forced to procure an abortion in High School (11th Grade) and had lived with the trauma and guilt since. The guilt pushed her to have a baby when she joined University just to be sure the abortion had not made her sterile. Some CGKs could not take care of their children and study at the same time. Childcare responsibilities were shifted to parents/guardians, much more when babies’ fathers *‘disappeared in thin air.’*

From self-reports, some CGKs kept bad company. Tabia, for instance, had a friend she admired intensely. She did everything her friend did. By the time she terminated the relationship, harm had already been done. Her grades were poor and she was also HIV positive. Tabia was eager to share her experiences to dissuade other CGKs from falling into such traps.

Kerebi had menorrhagia.³⁷ She needed many sanitary towels but her parents did not give her any money after paying college fees. She kept her situation secret so that her parents would not worry.

From self-reports, some CGK were good role models. Juhudi said:

I can’t forget the reason I am in campus. I have to keep my sexual life pure and complete my studies successfully. I want to be an inspiration to fellow young women. I have to uphold my dignity. Many male students in campus are jokers. When they become interested in a relationship with me, I politely let them know that am not interested.

In campus dialogues among the questions we asked was why female students had unprotected sex with full knowledge of consequences thereof. Farida said, *“Madam, we will be very candid.”* This statement triggered heart-to-heart discussion among CGKs as exemplified further in Excerpt 2.

³⁵ <https://www.aljazeera.com/indepth/features/movement-tackling-sexual-harassment-kenya-universities-200128053056255.html>

³⁶ <https://www.bbc.com/news/world-africa-51644876>

³⁷ Menorrhagia is a situation where menstrual periods are abnormally heavy or one experiences prolonged bleeding.

Excerpt 2: Students' comments on their sexual health literacies and practices

Xora: No family member has ever cared to look for me or even find out how my child and I are doing or offer any help.

Karen: I was innocent and vulnerable; I had just joined university with so many dreams to achieve. Little did I know they would forever remain just that ...dreams. I justified my careless sex encounters by believing it was the right thing to do since all my girlfriends were doing it. Then John came along and promised me heaven but when I told him I was expectant, he applied for an inter-university transfer and that was the last I saw or heard of him.

Beverly: My friends and I wanted the good things in life...the most expensive shoes, expensive designer bags, make-up and wines that we had only read about in glossy magazines. We competed to have them all. So we easily befriended wealthy men online and these men did not shy away from taking care of our fantasies.

Zuhura: High-end cars picked us every Friday afternoon and dropped us back on Sunday evening – loaded with more than enough pocket money for the whole week and lots of shopping. We didn't care what they asked us to do for them as long as our lifestyles were maintained. Then I fell pregnant. The man walked away and I have never heard from him despite raising his twins. My friends too abandoned me as I was no longer in their stylish class.

Joy: I have had three abortions since I joined university two years ago. I couldn't have stood the stigma or rejection by the church, parents and friends if I had kept the pregnancies. I know abortion is dangerous but it is a better option than rejection.

Kyra: Urbanization has forced me and my friends to see sex as a business. We want a flashy life but we can't afford it because we are students and out there unemployment is the order of the day. Greed and desire also drive us into the arms of wealthy old men, commonly known as sponsors. Sometimes you go out with several...all for money. Meeting the men is easy – they are available. You just dress well and smile at them. They will troop to your side...why struggle to make a living when sponsors are readily available?

Caro: I am a university student and I need designer perfumes, suits and the like and the only route available for me to achieve this is through financial support usually given by sponsors in exchange for sex. I must sustain a lavish life. A life I have always admired. Kenya's socialites like Huddah have made it big time; I know that I too can make it. If a 'sponsor' takes care of your financial needs and you take care of his sexual needs it is not a bad idea.

Xena: I make my hair every week, get my nails done and have designer outfits – this can only be given by a sponsor. I have always aspired to be like the beautiful women I see on social media (Facebook and Instagram). It is my turn to also show that I am as good as they are, if not better. So I got a 3-C. He picks me in a flashy car. He gives me cash and bought for me this nice cellphone – an Oppo Reno 2. He takes care of my all upkeep. I cannot complain at all. I get the financial and material goods for only a small price – sex.

Marion: Sex is the only way to survive the hard economic times. The man gives you money or buys you gifts in exchange for sex. Sex is a tool to good life, including owning expensive and latest smartphones as well as designer clothes, shoes, bags and perfume. Socialites³⁸ are our role models. If she made it I can also make it. With rampant use of ARVs, we don't worry anymore about HIV and AIDS. I just have unprotected sex and then take the P2 drug (morning after pill) to avoid pregnancy.

Habiba: Because of the financial benefits of transactional sex, many of us don't stick to one sex partner. We have several, each with a financial responsibility – there is one to pay rent, another for my salon costs, another to pay school fees and yet one to fund my expensive lifestyle of clubbing³⁹. I think about having fun and worry about consequences later.

We talked to Deans of Students and now present their views. Dean Amina affirmed the study was timely and potentially insightful to explain the *'paradox'* or disconnect between female

³⁸ Individual, usually coming from a wealthy or privileged background, who has a high position in society and enjoys spending time attending fashionable social gatherings. The term has come to mean also high-end of high class prostitutes.

³⁹ Going to night clubs and enjoying night life.

students' sexual health literacies and their sexual health practices. Dean Amina said, "*The study should zero in on how to unravel the paradox. Why do they do this? Is it money? Is it peer pressure that pushes them to conform... to fit into these peer groups? Why do they say: everyone is doing it?*" Dean Amina advised that the pressure to '*swim with the tide*' must be interrogated. She said the students convince themselves they are mature in decision-making about life choices and can handle consequences. She added, '*University life is a new experience. They [students] need life-skills to navigate it.*'"

Dean Katana commented about high levels of poverty among CGKs in his University which drove them to make bad choices. He blamed parents for giving students insufficient pocket money. This forced some of the CGKs to look for it elsewhere - usually in the wrong place. They get a '*change of lifestyle*' because the boys give them money. They get a false sense of comfort that they have a good life and are better off than their colleagues who have no such boyfriends. In reality, they are essentially trapped. When they fall pregnant, they are rejected by parents and the community at large. Only those with strong personalities and determination withstand rejection. Consequently, they opt for abortions, which could be fatal.

To Dean Katana, orphaned students are the most vulnerable; they do not feel appreciated and easily lose self-esteem. Dean Katana opined also that rampant sexual violence had spawned lesbianism. Unfortunately, some of the same-sex relationships were characterized by cheating and jealousy. According to Dean Katana, relationships seemed toxic either way. In come-we-stay ones, the CGKs got the '*short end of the stick.*' They were forced to do all the chores, cook for their men and ensure their house and clothes were clean.

Dean Katana blamed some parents who buy their daughters condoms and sex-toys. He wondered, "*What message does such a parent send to their daughter?*" Dean Katana identified other issues CGKs dealt with including: phone sex; poor personal hygiene, mental ill-health, drugs and alcohol abuse, identity crisis and esteem issues. He observed that anyone with poor personal hygiene may be shunned by others, feel unloved and become suicidal. Such a student may not succeed academically.

Dean Petronella claimed students enroll in University with low or limited sexual health knowledge. She attributed this to '*restricted backgrounds*' and little exposure to sexual health matters. The much they know is that '*sleeping with a man is bad but the how and consequences are alien to them.*' These sentiments contradicted CGKs' self-reports. According to Dean Petronella, the sudden freedom students experience is '*a culture shock*' they can perceive positively or negatively.

CGKs who had been in boarding schools respond positively. They are eager to interact and understand the opposite sex. They see them as brothers and academic competitors; not lovers. Those with negative outlooks "*lived in restricted backgrounds with strict rules and prying eyes of the community at large.*" They "*want to do and experience everything they did not know about. In the process, they get involved in unprotected sex, have multiple partners and deal with dire consequences of such behaviour.*'

According to Dean Petronella, freedom and enjoyment are often short-lived; coming to an abrupt end with an unwanted pregnancy. Once a girl falls pregnant, they have two options: to carry the pregnancy to term or to terminate it. Some of the students' boyfriends usually push them to procure abortions, with promises of gifts and more money. They threaten: *"If you want to carry the pregnancy to term, the relationship is over."* Only one per cent of the boys take responsibility for pregnancy and childcare. Many pregnant girls are abandoned; and may experience double rejection: from the man responsible for the pregnancy and from parents *"who insist getting a baby was not part of the deal to join university."*

Dean Petronella opined that single motherhood comes with other challenges. They have to seek alternative accommodation, often off campus and in deplorable contexts. She added that securing services of a caregiver comes at an extra cost, stretches the already meagre resources and further compounds a CGK's financial situation. The CGK may underperform as they juggle academics and childrearing. They may defer their studies and take longer to graduate. Dean Petronella concluded that a CGK may carry the (unwanted) pregnancy stigma for life. It can be even more traumatizing for one who procures an abortion and encounters complications in the process.

Some of the interventions in the Dean of Students offices to help students cope with University life

1. Peer counsellors (trained)
2. Leadership (elected leaders who deal with social issues)
3. Clubs and societies
4. Religious associations
5. Ethnic associations
6. Counselling department

Dean Petronella shared insights about some of the students who after squandering their opportunities at the University made drastic changes in their lifestyles. Through her office, they reformed. The *'reformed'* became CGKs' ambassadors telling their colleagues about the futility of *'high life.'* They used their personal experiences to advise incoming students.

Dean Petronella noted that the only drawback was that there were few Universities with formal structures and programs to support University students. If there were more programs they would harness the potential of the *'reformed'* to share, guide and educate other CGKs on the change they need to make to lead successful lives.

Content analysis of CGKs' and Deans' response surfaced challenges facing students including: poverty; parental neglect; mental health challenges –such as feeling unloved and uncared for or low self-esteem and low self-concept; bitterness and cynical outlook of life; vengefulness based on past experiences, prostitution (and resultant objectification of the body); identity crisis and sexual orientation; sexting⁴⁰; reproductive health; personal hygiene; and peer pressure. Then there was the unmanaged desire for the fine things of life and the need to maintain a public

⁴⁰ **Sexting** is sending, receiving, or forwarding sexually explicit messages, photographs, or images, primarily between mobile phones, of oneself to others. It may also include the use of a computer or any digital device.^[1] The term was first popularized early in the 21st century and is a portmanteau of *sex* and *texting*, where the latter is meant in the wide sense of sending a text possibly with images

image based on social media role models whose definition of success included: flashy cars, expensive clothes, partying and alcohol.

These findings are consistent with those in Yakaboski and Birnbaum's (2013) study. They amplified and enriched discussions on time-management, self-regulation and social and emotional skills development; the broader goal being to develop in CGKs executive functioning, which is a set of mental skills that include working memory, flexible thinking, and self-control.⁴¹ Executive function skills are used every day to learn, work, and manage daily life. If one lacks executive function, they find it difficult to focus, follow directions, and handle emotions, among other things.

In addition, not all CGKs *'fell on the way side.'* They did *'resist temptations* and chose *'to hold on to the end'* of their program of study.' Collectively, they had strong personal qualities associated with social and emotional intelligence such as: self-awareness; self-management; social awareness; relationship skills; optimism, goal-directed behavior; personal responsibility; and decision-making. They also had solid support systems within their families and religious affiliations. They knew who they were and what they wanted to be. Nothing came in the way to their goals. They thus committed all their time to studies.

Impact of the Intervention on Campus Girl Keepers Sexual Health Literacies and Practices

CGK project was student-led and begun with: 1) data collection on patterns and trends in female University students' sexual health literacies and practices; 2) utilization of these data and evidence generated as jump-off points to stimulate quality campus dialogues on topical issues and interrogate emerging sexual health literacies and practices of female University students.

We used humanistic approaches⁴² to collaboratively devise sustainable solutions to female students' sexual health literacies and practices. We firmly believed each CGK had the innate capacity to grow emotionally and psychologically towards the goals of self-actualization and personal fulfilment. Our responsibility was, therefore, to create a safe space⁴³ for transformative dialogues to happen.

Incorporation and leveraging CGK-only WhatsApp Communities of Practice extended this safe space and provided unlimited access to sexual health information anytime, anywhere, anyhow. We set rules of engagement and importance of maintaining CGKs rapport, trust, commitment, confidentiality, and privacy throughout project life.

⁴¹ <https://www.understood.org/en/learning-thinking-differences/child-learning-disabilities/executive-functioning-issues/what-is-executive-function>

⁴² <https://www.skillsyouneed.com/learn/counselling-approaches.html>

⁴³ A safe space is a place created for individuals who feel marginalized or vulnerable to come together to communicate regarding their experiences.

Data were collected using summarization of WhatsApp discussions over project period; analysis of self-reflections and field notes from campus dialogues; and through individual interviews with three Deans of Students of participating Universities.

The range of topics discussed and the breadth and depth of self-disclosures made on WhatsApp Groups and during campus dialogues confirmed quality friendships had been nurtured as would in a sorority. Progressively issues discussed became deeply personal.

Research activities honed CGKs' social and emotional skills, as deduced from campus dialogues. CGKs were asked to write an adjective that best describes their progressive transformation and to add descriptors to qualify their adjectives. CGKs' personal voices below are reflective of the complete metamorphosis that happened.

Xora learned to live within her means, maintain her dignity, and excel academically. She said:

I had financial difficulties but I tried to utilize the little I had the best way I could without engaging in any activity that could have jeopardized my dignity, and more importantly, my academics.

Eva walked out of a toxic relationship. She said:

I met this man and after two months he started acting awkward. He started posting another girl [on social media] and I felt left out. I now know my values and I decided to break with him and start a new life. I feel much happier without him.

Eva's observations concurred with Habiba's who said: *I now have no problem in terms of relationships. I have been approached by many but I try my best sticking to one.* Karen seemed to agree with Eva when she said:

I am principled. I am the kind of person who sticks to my principles such that I usually fear to fail or to start any relationship because of the consequences. Even when guys approach me I am always honest to them that I don't want to fall in love.

Karen not only stuck to her principles but was also honest in declining offers for friendship from the opposite sex saying: *'experience is the best teacher.'* This self-regulation served Karen in the short term. She, however, needed to learn how to enter into and maintain healthy heterosexual relationships and was referred to counsellors.

Whereas Karen still feared to fail or even start a relationship, Tessy had got into a healthy and trusting relationship. She said: *I am a First Year. I found a boyfriend and he is faithful. He loves me more than I love him. He never wants to see me in problems. He wants me happy always.* Clara's situation was like Tessy's as she said: *I met an introvert guy just like me. He loves reading. He keeps me on toes and reminds me of why am here [at the University]. Am glad to have him.*

Caro acknowledged milestones she had achieved in her interpersonal skills. She said: *I got a very hard time because of the many people which most are social but after mingling with them at least I can say hellow to someone which was quite hard for me in the first days.*

Kyra became confident and talkative. She said: *So for me, I always speak up that's why no one can take advantage of me as far as relationships are concerned.* In this way, Kyra was like Karen who was honest in expressing her opinion about friendship offer.

Both Kyra and Karen shared with Caro and Xora the quality of being open, honest and principled. Caro said: *I am social. Being social makes me to have many male friends who in turn wanted to take advantage of me. But due to my principles, I could not allow them to 'use' and 'dump' me.* Just like Caro, Hope had received advice on the Do's and Don'ts of University life. But her reaction was different from Caro's. Hope said:

In 2018, as I was in First Year, following the advice I had gotten from my parents and elders back home I was so determined to stay without a boyfriend and not to engage in any mischievous behavior. However with time pressure from peers pushed me into curiosity and wanting to fit in. I, therefore, fell in love with a guy who was a 2nd Year by that time. I later came to realize that the boy had a girl in his Year who they even had a child together. The experience was so painful...my piece of advice to all ladies... before getting into a relationship they should take time to know the persons they are dating.

Grace experienced the most growth compared to Caro, Kyra and Karen. Grace said: *I am a fighter. After my experience I said I will keep on fighting and make myself the best...* Grace also made another resolve: *I keep on sharing it (sic experience) with friends so that I don't feel like am alone in this world.* For Grace, sharing her experiences helped her *find balance in life* [this world]. Sharing was emotional catharsis for her. She acknowledged that her journey to recovery would be long. She reached out to seek for further help to deal with her reproductive health challenge. She said:

After giving birth actually I went for an operation. I've been having a lot of complications so I don't know how I can be helped. At times it takes me like two weeks without going for my long call and when it comes I am in a lot of pain.

Grace's case and other similar ones pushed us to our wits end. Owing to modest project funding, we were least prepared to handle Grace's case but continue to seek medical solution to her situation. Marion described herself as persistent. She said:

I have passed through a lot but I have decided not to give up in life. When I was young I had gone through many circumstances. Although I have come from a family which is not stable, when I came I thought I would have someone to go with me through the journey of schooling but at long last he told me he cannot take up my burden but I still know after he has given up on me I will continue with life and reach my dream.

Marion's sentiments were similar to those of other CGKs. Their resolution was to '*continue with life*' and reach their dreams. Though some had unresolved issues stemming from their family backgrounds, they found a non-threatening environment for self-disclosure.

Beverly had grown in social trust and self-disclosures they undertook were mutually beneficial as she said:

I find it easy to share out my problems to a person that I see that she can really help me come out of it successfully. Most of my friends, classmates and generally my age-mates find it easy to share different issues with me.

Joy's breath of sexual health knowledge base expanded. She said: *After my abortions, I have learnt that girls' health is very important and should be guarded jealously.* Joy's sentiments resonated with Sue's and many CGKs who committed to taking care of their sexual health. Sue said:

I have had a good experience since I came to the University. I am very serious about my life. I can give credit to religion and God for this. Personally I can't say it has been much of a struggle since I got self-control. I haven't thought about dating or having a boyfriend so far since from observation, (I am INFP in Myer Biggs Personality types) so I tend to be so much introspective. I don't need a boyfriend so I am not bothered about one at this point....personally my view is that sexual health is important. These talks are important. Please talk to my campus-mates as I have a burden for them. I can recommend a powerful book to campus girls: I kissed dating goodbye. It can be of much help to them.

What worked well in the CGKs' project

Content analysis yielded findings affirming CGK project milestones were achieved. CGKs flourished. Xora was self-reliant, more frugal and wanted to maintain her dignity. She chose to focus and excel in her studies. So did Clara and Sue. Caro and Kyra were more confident and with higher self-esteem. Eva was courageous. She and Grace discovered their value(s) and self-worth. Eva, Habiba, Karen, Tessy and Clara were happier and maintained healthy relationships. Karen was principled. She and Caro were honest. Our champions, the *reformed* included Hope, Grace and Marion. Marion was persistent and resilient. From this, we concluded that CGK project had armed the CGKs with the arsenal they needed to access, understand, appraise and competently use information to improve their sexual health literacies and practices.

We were intentional in letting CGKs' ideas and experiences influence project design and implementation. CGKs engaged actively in data collection, analysis, interpretation of findings, and subsequent recommendations. They were only facilitated but drove the process themselves.

Consistent with the social cognitive theory, the CGKs increased self-efficacy and are now engaging in positive and protective practices. They know where and how to access information, they can walk away from toxic relationships and speak up against sexual and gender-based violence and offer support to survivors. They can evaluate risks, responsibilities, outcomes and impacts of sexual actions. They are better able to manage sexual relationships.

The study moved beyond individual responsibility to social trust and responsibility among CGKs. The CGKs created supportive environments, harnessed their social capital on sexual

health and honed each other's life skills. By so doing, they increased the options available to them to exercise more control over their own sexual health and over their environments, and to make choices conducive to sexual health and well-being. By improving each other's access to sexual health information, and their capacity to use it effectively, they empowered each other to maintain good sexual health practices.

ICTs provide unprecedented opportunities, most of which is yet to be harnessed. The study recognized the place of gender-responsive innovations to achieve transformative gains for female students, and by extension, society as a whole. In the spirit of the internet of things, the study integrated ICTs in female student's lives consistent with their ways of doing and being and aligned to and consistent with their love for social media. WhatsApp texts were instrumental for GCKs' growth and development. They created agency and awakened their interest in catalyzing social change where sexual health practices are concerned.

Consistent with Vongxay et al.'s (2019), comprehensive sexual education models in different combinations do make a difference. Sexual education is, however, necessary but not sufficient to effect sustainable change in sexual health practices. In any case, CGKs self-reports at baseline affirmed their sexual health literacy was high. They needed an additional but gentle nudge to translate knowledge into healthy sexual practices. Effective interventions must, therefore, go beyond access to sexual health information to the 'how' of understanding, appraising and applying the knowledge to improve their sexual health practices. This requires alignment of knowledge and practices for better sexual health. The CGK project filled this critical gap. Inferences from data and evidence generated indicated a positive correlation between CGK's sexual health literacies and their sexual health practices. Future research can use inferential statistics to determine this correlation more precisely.

We interrogated, for instance, why a female student who fully understood the consequences of premarital sex would still go ahead and have it. Participants' responses and extant literature elevated our interrogation beyond sexual health knowledge to motivational factors and the quality of thought processes an individual faced with a sexual health dilemma undergoes before taking action. What is this that is so compelling that an individual can throw all caution to the wind even when they are fully aware of the consequences of unprotected sex? Future research can investigate the role of motivation in behavior change.

The study inevitably brought together issues of gender as a social construct and the discourse of power in Kenyan universities. There is a narrative in literature that economic disparity- where men have a lot of money and women have none may drive women to engage in cross-generational relationships. Our research challenged that notion. Some of CGKs in our study came from middle- and upper middle- class families. They got into these relationships simply for the lavish lifestyle it affords. Undercurrents within these relationships challenged those power dynamics.

The findings above also challenged the basis for poverty-driven program for HIV/AIDS prevention in developing countries.⁴⁴ Poverty was not necessarily the reason for disconnect

⁴⁴ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2882971/>

between CGKs' sexual health literacies and practices. Future interventions must, therefore, go beyond the popular and rhetorical attention given to poverty reduction to addressing social determinants of sexual health practices among female University students. A much more nuanced understanding is needed on interaction between poverty and sexual health literacies and practices. Otherwise we risk making simplistic assumptions that low levels of sexual health literacy (SHL) inversely correlate with sexual health practices (SHP) – i.e., female students with low SHL engaging in riskier SHP. This assumption did not hold sway in our research.

Njunge⁴⁵ stated that studies conducted all over sub-Saharan Africa have consistently shown that sugar daddy relationships are not as wide spread as is assumed. Whereas this is reassuring, the evidence from CGKs proved otherwise. Njunge stated also that numerous programs are in place to empower women by giving them access to education, jobs, and contraceptives. We concur with Njunge that youth and community involvement are important in addressing societal and gender norms, and risky sexual behaviors, which eventually lead to behavior change. There is need to create safe spaces or sororities where women discover their innate potential as change agents of their own circumstances, including their sexual health. Awareness-creation must target men as well to come full circle in sexual health interventions.

Implications of the CGK project and suggestions for further research

CGK was aligned and framed within the context of the global Girls' Education movement and support for Canada's Feminist International Assistance Policy aimed at **stepping up commitment to evidence-based decision making** by investing in policy research, better data collection and evaluation for gender equality.

Based on the findings of the study, CGK project has potential to contribute to ending poverty in all its forms (SDG 1) by moving the locus of control to female University student herself. She must activate the power within to create the change she wants to lead a healthy life and promote her wellbeing at all ages of her life (SDG 3). Collectively the project has potential to reduce gender gaps in education (SDG 4) one girl at a time; and ensure gender equality (SDG 5)⁴⁶, for example by helping CGKs remain enrolled in University. Health literacy is a form of empowerment, especially in situations where power relations (such as gender inequality) reduce the ability of certain groups to access information. It can improve future economic opportunities (SDG 8) for Female University students through full and productive employment and decent work for them. In that way it can reduce inequalities (SDG 10). By advancing access to better jobs and by delaying pregnancy, sexual and reproductive health literacy can also help break chains of intergenerational poverty (SDGs 1 and 10) as well as contribute to peace, justice and strong institutions (16).

Our study has profound implications for theorizing on the social determinants of sexual health literacies and practices. In much the same way studies on HIV and AIDS focus on complex

⁴⁵ <https://internationalhealthstudent.wordpress.com/2013/03/14/cash-car-cell-phone-the-3-cs-boyfriend/>

⁴⁶ <https://www.who.int/healthpromotion/conferences/9gchp/sexual-reproductive-health-literacy/en/>

interactions among economic distribution, wealth, and HIV, inclusion of these variables will shed more light on structural and policy approaches to sexual health literacies and practices.

Extant literature revealed interconnectedness between sexual health literacy and practices and reproductive health literacy and practices. Future studies should cover both sexual AND reproductive health literacy and practices. Such studies must tease out socio-economic factors that singly and/or in combination affect women at varying levels (e.g., individual, household, and neighborhood) and through various causal pathways, at the ecologic levels. Such research must also reflect how the motivation and competences to access, understand, appraise and apply sexual health information is helpful for coping with sexual health problems. What motivates young women to behave the way they do in spite of their wealth of sexual health knowledge? Why are health practices of CGKs discordant with their sexual health knowledge?

More innovative and youth-friendly services are needed to expand spaces where young people ‘ventilate’ or discuss openly sexual health issues ‘*so as not to feel alone in this*’ and to co-create solutions. WhatsApp is a viable option. What other media and strategies can be employed particularly in low-tech and no-tech contexts?

We made a cursory link between social economic status and sexual health literacy and practices. Future research can delve deeper into this. Our research contributed to the design of sexual health literacy and practices interventions targeting pre-service teachers; with important implications on secondary school learners they will teach upon graduation. More research is needed.

Knowledge is a global public good (Stieglitz, 1999). Higher levels of CGKs’ sexual health knowledge yielded manifold social benefits. CGKs were able to address social and environmental determinants of sexual health. Future research can include economic determinants. Equal attention can be given to student services in Universities to ensure they present clear, accurate, appropriate and accessible information for both female and male students.

Future studies should advance gender equality and the empowerment of women in public universities via social protection systems, access to public services of good quality and sustainable support infrastructure. Strategic transformative shifts in services and infrastructure that meet the needs of University women and girls must be built to disrupt ‘*business as usual*’ modus operandi and remove structural barriers that ensure no Campus Girl is left behind.

Health literacy affects health yet it has not been formally applied to sexual health. Future research can use robust tools to assess sexual health literacy and practices. Inferential statistics such as (linear) regression can be used to determine predictors of literacy. Other research could tease out predictors of sexual health literacy and practices including, but not limited to, female sex, older age, sexual education, and sexual experience.

The present study focused only on female University students in the school of Education. Other research should include other disciplines and religious and cultural affiliation. Strategic

interventions are needed that address female students' financial concerns. Solutions must also include on-going coaching and mentorship for smooth transition from high school to University.

Sharing findings of the study

Findings will be uploaded onto CODE's website and that of University of Nairobi and hyper-linked to partner Universities for international reach. Dissemination will include social media (Facebook and Twitter) and CGKs' WhatsApps. Brochures with key messages will be distributed through Dean of Students' Offices. The research paper will be presented at the 12th Pan Africa Literacy for All Conference in Zambia in May, 2021 and at the 3rd Annual International Conference on Research and Innovation in Education to be held at the University of Nairobi in October, 2021. CGKs' WhatsApp Communities of Practice will remain active and likely outlive the project.

Conclusion

CGK project, and ICT-based intervention was evidence-based, situated in a local context, impactful and agentic in aligning CGKs sexual health knowledge and their sexual health behavior. CGKs became each other's keepers keen to succeed together. They built social trust and harnessed each other's social capital to transform their stories lives. This honed their social and emotional skills. Solutions to female university students' sexual health literacies and practices stemmed from within – among CGKs themselves. This journey ends at another beginning: sustenance of female University students' ability to access, understand and appraise sexual health knowledge and competently use it to improve their sexual health practices.

Recommendations

Based on the findings of the present study, the following recommendations were made. Strategic sexual health literacy and practices interventions in teacher education programs should:

- Build female (and male) University students' social and emotional skills to manage their sexual health and well-being.
- Create safe spaces for University students to interrogate sexual health literacies and practices.
- Recognize the 'reformed' and encourage them to unleash their full potential as agents of change (through workshops/motivational talks) to share their storied lives with others.
- Harness ICTs to reach as many female students as possible. Some of them are always on their smartphones⁴⁷ and thus innovative use of social media such as WhatsApp has potential to effect behaviour change.

⁴⁷ Kenya is quite advanced in the use of technology and internet penetration is at 52 million people against a population of about 50 million as per May 2019, according to Internet World Stats www.internetworldstats.com/stats1.htm. Slightly over 7m Kenyans are regular Facebook users. Over the last five years, more people have purchased smartphones than before because they are now affordable. In 2013, a smartphone cost Sh23,000 (\$2,300) on average but now one can get a smart for as low as Sh5,000 (\$50). Many young people aged between 18 and 35 own smartphones – this is the group where the subject of the study falls under. In 2017, the Pew Research Centre found that 82% of Kenyans access social media using their phones.

- Raise assertive and empowered Campus Girl Keepers who competently apply their sexual health literacies to transform their sexual health practices. Each context must, however, be treated on its own merit to implement a successful sexual health programme.

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Appendix: Extending Campus Girl Keeper Activities

In May 2019, the PI, Prof. Hellen Inyega, participated in a Femicide Victims’ Vigil organized under the hashtags: #HerLifeMatters and #EndFemicideNow to condemn the high death rates of women and ladies in Kenya. Over 40 young women had been killed in acts of gender-based violence by significant others, including their lovers, within a period of six months prior. And these were only the cases that had been highlighted by the local media. The actual statistics are grimmer. According to the United Nations Office on Drugs and Crime report showed that nearly 70 percent of all women intentionally killed in Africa in 2018 alone were killed by intimate partners (or other family members). The report indicated that little progress has been made in preventing such murders.

The slain women, some of who were University students, had been raped before being murdered. One woman was murdered together with her unborn child. The woman named Christine Maonga (the one in graduation regalia) had been a student in Prof. Hellen Inyega’s class two years before. The Women’s families and friends, UN Women, Feminists in Kenya, women rights lobby groups, including Feminists in Kenya, COVAW⁴⁸ and CREAMKenya⁴⁹, and prominent women leaders from across the country and University students were in attendance to show solidarity as shown in the video at this twitter feed <https://twitter.com/hashtag/herlifematters> and <https://tv47.co.ke/2019/05/27/nairobi-to-host-a-femicide-victims-vigil/>



⁴⁸ Coalition on Violence Against Women

⁴⁹ Centre for Rights Education and Awareness (CREAWKenya)