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An Evaluation of the Effectiveness of Behavioural Intervention Strategies Employed towards the Mitigation of HIV Risky Sexual Behaviour among Students in Institutions of Higher Learning in Western Kenya

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Abstract
Researchers have confirmed that the reason for the relatively high HIV incidence among people between 15-24 years globally is Risky Sexual Behaviour. Researchers subsequently identified a challenge regarding effective mitigation of the behaviour world over. They further identified Institutions of Higher Learning, which host a significant proportion of youth, as fertile breeding grounds for this behaviour. This study consequently evaluated the strategies employed in the mitigation of HIV Risky Sexual Behaviour among students in these institutions in Western Kenya overall, and specifically; evaluated the HIV prevention behavioural. The study employed qualitative and quantitative approaches to ensure triangulation and crosschecking of the research process. Employed were probability and non-probability sampling techniques generally and specifically, cluster sampling then simple random sampling. Chosen was a sample size of 399 students from a population of 13,002 students at seven institutions. Key informants were sampled purposively as follows; 5 NGO officials, 6 county government officials, 6 officials working in health care centers and 6 dean of students and 1 student counsellor. Selection of four Focus Group Discussions was purposive with each FGD having eight purposively selected student leaders from four institutions. An interview administered semi-structured questionnaire was employed to collect data from students, an FGD guide for the FGDs and Key Informant interview guides for the key informants. Descriptive statistics, an index-score, qualitative analysis and chi-square and were done for analysis. The HIV Risky Sexual Behaviour index-score revealed that a majority 269 (67.4%) of the respondents are involved in HIGH HIV Risky Sexual Behaviours. From chi-square tests, regarding behavioural strategies, information provision and counselling and other forms of psycho-social support are found to be statistically significant with p-value = 0.007 and p-value = 0.080 respectively. The study concludes that HIV incidence and prevalence rates in these institutions are likely to double in the near future if stakeholders continue to apply mitigation strategies in the exact manner they are currently doing. At behavioural level, the study thus recommends enhancing counselling and other forms of psychosocial support and stigma, and discrimination reduction programmes.
Keywords: Effectiveness, Behavioural Intervention Strategies, Mitigation. HIV, Risky Sexual Behaviour, Students, Institutions, Higher Learning
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1.1 Introduction

HIV has been a challenging health issue and a leading cause of ill health and demise at a global level (WHO, 2020). By the year 2017, 76.1 million people had contracted HIV worldwide. Besides, there were also around 38 million persons infected with HIV in the world during the year 2019 alone (WHO, 2020).The disaster furthermore stands among the top 10 deadliest epidemics throughout history and has had adverse effects on the

human population since its discovery (UNAIDS, 2020).HIV has particularly ravaged young people more than other age groups. In 2014 alone, 3.9 million persons who were aged between 15 and 24 years lived with the virus while HIV newly infected 620,000(UNICEF, 2016). Additionally, reported incidence among people with ages 15 up to 24 years stood at 31% of global incidence (UNAIDS 2020).Dwyer-Lindgren *et al*. (2019) also affirm both HIV incidence rates to be highest among the youth globally. In the year 2019, the African region also reported the highest incidence of HIV at 3.7% compared to a much lower average rate of 0.7% globally (WHO, 2020; UNAIDS, 2020).

Researchers have therefore over time been trying to understand why HIV mostly affects the youthful population (UNAIDS, 2018) and it is HIV Risky Sexual Behaviour that has been found to be the largest impediment towards the control of the high HIV incidence rates among young people(UNAIDS, 2018).Risky Sexual Behaviour refers to behaviour that expose people to sexual and reproductive ill health which includes; contracting HIV, contracting Sexually Transmitted Illnesses, getting unwanted pregnancies, conducting unsafe abortions among other conditions (Halperin & Epstein, 2004; Leclerc-Madlala, 2008; Uchudi*et al*., 2012; Berhan & Berhan 2015; Shisana *et al*., 2009; Gonzales & Kadengye, 2019). Consequently, stakeholders have employed numerous strategies in an attempt to mitigate HIV among the youth. The concern nevertheless to researchers had been that despite numerous strategies existing to address SRH and HIV challenges, youth continue to engage in HIV Risky Sexual Behaviour (Chanakira *et al.*, 2015).

In USA, Caldeira *et al*. (2009) found out that 10% of female students previously involved in vaginal sex also had multiple sex partners, unprotected and intoxicated sex despite knowing that sexual contact was the most common way that HIV and Sexually Transmitted Infections were passed from person to person (UNAIDS, 2018).Moreover, a study conducted on Institutions of Higher Learning on HIV in Africa by Wegner *et al*.(2018) discovered that campus life put students risked the life of students because of their lack of ability to negotiate for safer sex or no sex. Studies done in sub saharan African countries including Kenya, Ghana and Nigeria identified students of these institutions as a group high at risk for infection of HIV because of their involvement in HIV Risky Sexual Behaviours (Oppong & Oti-Boadi 2013; Osonwa *et al*., 2013; Adam & Mutungi, 2007; Mberia & Mukulu 2011).

During academic year, 2020/21 Kenyan universities admitted at least 546.7 thousand students and in 2019; the Country admitted at least 430.6 thousand students in Technical and Vocational Education Training colleges. Furthermore, 3.5% of the country' s population were found to have a university degree as the highest educational levelwhile another 7% percent had completed a middle level or technical training after secondary level (Faria, 2021). Institutions of Higher learning therefore offer a representative source of the Kenyan youth. That these institutions are formal also means that they help provide an organised source of the youthful population. To demonstrate the extent of the HIV crisis in Institutions of Higher Learning, Guserva (2016) revealed the HIV prevalence in the Kenya's public universities. Prevalence for University of Nairobi stood at 15% while for Kenyatta University stood at 13% and Egerton University at 11%. Kisii University reported a HIV prevalence of 10%, Jaramogi Oginga Odinga University of Science and Technology 9%, Maseno University 9%, Jomo Kenyatta University of Agriculture and Technology (JKUAT) 8%, Moi University 7%, Dedan Kimathi University (DKUST) 6% and Masinde Muliro University of Science and Technology (MMUST) 5%. The rest of the public Kenyan universities presented HIV prevalence of 5% each. All the universities had HIV prevalence above the national prevalence of 4.9% in that year (Guserwa, 2016).

Western Kenya has the highest rates of HIV in the Country. The top five HIV high-prevalent Counties in Western Kenya were Busia, Homa Bay, Kisumu, Siaya and Migori (MoH, 2020). Therefore, this study found that there was urgent need to evaluate the employed strategies towards the mitigation of HIV Risky Sexual Behaviour among students of Institutions of Higher Learning in Western Kenya in order to find out what and where the strengths and weaknesses may be.

1.2 Statement of the problem

Studies have been carried out on HIV Risky Sexual Behaviour among youth in general but research specific to youth who are students of Institutions of Higher Learning and their involvement in HIV Risky Sexual behaviour is scanty for Western Kenya. Certainly, researchers have also studied strategies used to mitigate HIV Risky Sexual Behaviour. In spite of this what researchers had wanted us to know was how to mitigate the sexual behaviour of students of Institutions of Higher Learning in order to be able to successfully achieve international, regional, national, local and institutional HIV incidence and prevalence targets as much as had been achieved with other age groups. What researchers world over were failing to understand was that despite the volume of strategies dedicated by various stakeholders towards the mitigation of HIV Risky Sexual Behaviour among these students, they vehemently continued to take part in HIV Risky Sexual Behaviour. This has slowed down the steady progress that achieved in HIV prevention. Furthermore, most studies had focused greatly on causal factors of Risky Sexual Behaviour but there are limited studies on why youth are not taking up these strategies, and what challenges stakeholders are facing in the implementation of these strategies. Accordingly, this study sought

to fill this information gap with specific focus on Institutions of Higher Learning that offer a representative source of the Kenyan youth and Western Kenya, which has the highest HIV rates in Kenya. The study therefore found it necessary to evaluate the effectiveness of behavioural intervention strategies employed towards the mitigation of HIV Risky Sexual Behaviour among students in Institutions of Higher Learning in Western Kenya.

1.3 Research Objective

To evaluate the effectiveness of behavioural intervention strategies employed towards the mitigation of HIV Risky Sexual Behaviour among students in Institutions of Higher Learning in Western Kenya.

1.4 Research Question

How effective are behavioural intervention strategies in the mitigation of HIV Risky Sexual Behaviour among student of Institutions of Higher Learning in Western Kenya?

1.5 Justification

Data from this study provides knowledge to researchers and stakeholder regarding mitigation of HIV Risky Sexual Behaviour among students in Institutions of Higher Learning. The findings also contribute to the ongoing debate on the Sendai Framework on Disaster Risk Reduction, the global Sustainable Development Goals (SDGs), the Kenya Government's Big Four Agenda specifically Universal Health Care; and Kenya's vision 2030. Information from this study will help various actors understand the breadth, vastness, depth and presentation of this situation that is presenting a challenge. These stakeholders include ministries of health and education within the national and county governments of Kenya, Institutions of Higher Learning, their students, HIV Non-Governmental Organizations and health care centers serving these students on HIV and Sexual and Reproductive Health issues.

1.6 Review of Related Literature

Literature related to the study is reviewed in this section.

1.6.1 Disaster management and sustainability components of the study

In Kenya HIV was declared a national disaster bythe late Mr. Daniel Toroitich Arap Moi, the former president of the republic of Kenyain 1999 (NACC, 2016). By 2015, the population of HIV infected people in Kenya were 1.5 million and the country ranked fourth regarding HIV rates in the world of whom majority (60%) of cases were of young persons between the ages of 15 and 24 years. Kenya is a very youthful County, those whose ages are between 18, and 35 years make up 75% of the Country's total population. Specifically, those aged between 15-24 years made up almost a fifth (18.83%) of Kenya's population (OHCHR, 2015). This means that HIV can have adverse effects on the County if left unchecked.

Sustainability is the ability of Institutions of Higher Learning to continue evolving and working over the long term (Atkisson, 2011). Tilbury (2011) emphasized that the transformation of a universities towards sustainable development required the realignment of 100% of its activities with a paradigm that is critically reflective and that supports the construction of futures that are more sustainable. Indeed this realignment includes the health of students, specifically their sexual health embodied within the successful mitigation of HIV Risky Sexual Behaviour that this study seeks to achieve. In summary if, stakeholders do not address HIV incidence as adequately as they should in Institutions of Higher Learning, ultimately these universities and colleges will be unsustainable and eventually lead to their degradation and collapse.

1.6.2 The youth concept

It is important to be aware of what the term 'young people' mean. The UN interchangeably employs the terms 'young people' and 'youth' to mean people who are aged 15-24 years (UNDP, 2018). Similarly, this study has adopted the use of these terms.

1.6.3 Understanding HIV in Institutions of Higher Learning

Towards the understanding of HIV in Institutions of Higher Learning, findings by Kelly (2001) offer a good base. Kelly reviewed seven case studies at University of Namibia, JKUAT and University of Nairobi in Kenya, University of Zambia, University of Benin, University of Western Cape in South Africa and University of Ghana. Kelly notably concluded that the presence of HIV within Institutions of Higher Learning was surrounded by a thick cloak of ignorance. Kelly also confessed that there was a high level of denial, silence, secrecy, and fear of stigmatization and discrimination about HIV in Institutions of Higher Learning in Sub Saharan Africa described as piecemeal response, understanding that was inadequate and considerable disarray in its attempts on how the impacts of HIV could be managed. This provides a background as to how these Institutions of Higher Learning in Africa have processed HIV issues.

Nevertheless, over the years, much has changed. Ntata *et al*.(2008) for example carried out a cross-sectional study in Malawi among university students in their first year to determine distributions of HIV related sexual behaviours and knowledge. They discovered that levels of HIV knowledge between sexes were similar. They

discovered that majority of male and female students felt that they had sufficient knowledge about HIV. Additionally majority of students were also aware of where to test for HIV on campus, but a few reported a lack of knowledge about their HIV status. The study also discovered that most of students who had never tested for HIV test had intentions to do so. Additionally, there was no association found between prior HIV testing with sex. Majority (68.4%) of students felt that they were not at risk of acquiring HIV infection. Overall, majority (66.8%) of students had knowledge on places to access condoms on campus, while over one third(38.7%)confessed to exact knowledge on use. Moreover, over half of the students had used a condom the last time they had engaged in vaginal sex while having multiple sex partners reported by 40.4% of students. Indeed the thick cloak of ignorance around HIV in Institutions of Higher Learning that Kelly (2001) mentioned earlier was being lifted but challenges still existed on how to successfully mitigate these various HIV Risky Sexual Behaviour among the students.

Ajayi *et al*.(2019) subsequently carried out a study using a cross-sectional survey at Nigerian universities to determine how consistently condoms were used, to explore the determinants of the use of condoms and the reasons for the lack of consistency in their use.The researchers recruited 800 female and male students using stratified random sampling and discovered that sexually active participants who had used condoms consistently were 38.6% of ($n = 498$). The study found knowing their partner's HIV status, students of university located in a high HIV prevalence area, discussion of HIV and Sexually Transmitted Infections with their sexual partner, being and engaging in sex with only their steady partner to be associated with higher odds of consistent condom use. Meanwhile unavailability of condoms, trust, dislike of condoms, and a perception that condoms reduced sexual pleasure were discovered to be the main reasons found for inconsistent use of condoms.

1.6.4 The concept of risky behaviour

Two concepts of risk influence this study. The first is the realist concept presented by Zinn (2008) and the second is the political legal concept presented by McCarthy *et al*.(2009),which is also referred to as the neurocognitive concept by Steinberg (2009). These concepts make several basic assumptions. The first concept assumes that risk can be objectively defined and is real, and that people make choices of either safe or risky behaviour on the basis of cost-benefit (Fischhoff *et al*., 1993). The second concept assumes young adults and adolescents are pruner than mature people are to risk taking and that human beings based on their perception of the likelihood of a negative outcome make rational decisions about risk (Kirch,2008).

The first concept is true for this current study as the risk of HIV is real considering that infirmity and mortality that have taken place globally because of HIV is evident as presented in section 1.1 of this thesis. Section 4.3.2 of this thesis also demonstrates that respondents of the current study made decisions on the use of condoms on a cost-benefit basis. The second concept is also true for this current study as statistics have been presented in section 1.1 of this thesis that confirm that young people proner to taking risks than older people. The current study is therefore in agreement with these concepts.

Some theorists, however, have created a socio-cultural framework and distanced themselves from the realist view of risk taking. These include Tulloch & Lupton (2003), Lupton (1999), and Tulloch (2008). They see risk taking as being shaped by socio-cultural expectations and norms. Mason *et al*. (2013) also reported that what may be viewed as a safer choice in the larger socio-cultural scheme may be viewed as a risk by society. The goal should then be to discover how young people define risk and what factors shape their perceptions of risk from a socio-cultural perspective. The faced risks are therefore culturally and socially embedded, and they take these risks partly as a way of fitting into the social and cultural context (Pilkington, 2007). This may explain the persistent engagement of young people in HIV Risky Sexual Behaviour despite being aware of the consequences, as they may not consider the behaviour as risky as mature persons do.

1.6.5 HIV prevention behavioural strategies

Many Institutions of Higher Learning across the world have employed various intervention strategies towards the mitigation of HIV Risky Sexual Behaviour among their students (Wyk & Pieterse, 2006). Among the three strategies that have been employed are behavioural intervention strategies. According to Coates *et al*. (2008), behavioural intervention strategies aim to reduce the number of sexual partners individuals have; increase the consistent and correct use of condoms and improve treatment adherence among people living with HIV. UK Consortium on AIDS and interventions development (2013) gives an example of behavioural interventions as provision of information for example sex education. In this section, HIV prevention behavioural strategies are discussed as information provision, counselling and other forms of psychosocial support, stigma, and discrimination reduction programmes as summarized from various authors.

1.6.5.1 Information provision

At the University of Michigan, the "*Sexperteam*" programme was formed which educated campus communities about sexual health and relationships. Their interactive style demonstrated that consensual sexual activity could be healthy, positive and fun (HRCF, 2019). Newcomb *et al*. (2017) assessed the preliminary efficacy, acceptability and feasibility, and of the intervention known as "*2GETHER*". The researchers brought on board 57 male couples ($N = 114$) who were youth into a hybrid group and individual intervention and assessed

acceptability through exit interviews and post-session surveys and, examined the initial efficacy at a two week long posttest. The study found out that 93% of participants said they had only positive views of "2GETHER", while all components received high ratings. Specifically they noted reduction in HIV risky behaviour, information, behavioural skills, and HIV prevention-related motivation, and an increase in posttest and pretest investment in relationships. This study does provide a good basis to compare the current study with regarding the provision of HIV information to students.

In Malaysia, Soleymani *et al.* (2015) conducted a survey of postgraduate students at a Malaysian public institution to find out how much they knew about sexual and reproductive health. Between September 5, 2012 and September 15, 2012, 434 postgraduate students were randomly selected from the university's student body using a cross-sectional design and systematic random selection. The internet (78.6%) and newspapers (61.8%) were identified to be the most common sources of information in the study. Most (97.9 %) of students knew that HIV is an STD but that majority of them believed that the spread of STDs was through shaking hands (92.1 %),is noted with heavy concern. The use of condoms was seen to be the most common way to avoid STDs (88.4 %). Furthermore, SRH knowledge was discovered to be significantly connected with the faculty, marital status and age of the students while the educational status and socio-demographic factors accounted for less than a tenth (9%) of the variability in Sexual and Reproductive Health knowledge. The study provides a good basis to compare the current study with regarding the provision of HIV information to students. In China Li *et al*. (2007) reported that 58.4% of students had ever received health education on HIV prevention at their colleges.

The University of Namibia made "Contemporary Social Issues" a required subject for first-year students, which addressed ethics, gender, and HIV. Additional courses on HIV/AIDS were also given by some departments. In 2001, the institution developed a radio station to mainstream HIV problems among young people through music, jingles, theatre, and talk shows. In addition, the University launched a "My Future is My Choice" tutoring and mentoring programme for children ages 15 to 18 through a life-skills curriculum. In addition to HIV prevention, the programme aimed to improve participants' everyday abilities. There were eleven lessons in all, and they lasted around two hours apiece. It was often spread out over a period of five weeks, with two classes every week. More than 300,000 pupils had received training by 2004 (Otaala, 2000). This programme goes to demonstrate how information provision on HIV may be done through innovation.

According to Chilisa & Bennell (2001), University of Botswana responded to the threat of HIV and HIV Risky Sexual Behaviour through curriculum change. As part of their curriculum, students were taught about HIV and HIV Risky Sexual Behaviour as part of a life skills programme. This programme was a direct response to the school's desire to help students better prepare for life after high school. As a supplement to other curriculum improvements, the life skills method was used to teach students how to deal with HIV in their professional lives (Chilisa &Bennell, 2001). Meanwhile in Ethiopia, behavioural strategies for Institutions of Higher Learning were organized at a National scale by National Alliance for State and Territorial AIDS Directors (NASTAD). The Alliance was successful in executing three (3) SISTA Training of Trainers (ToT) sessions, which reached 1,200 female students at six (6) universities. In addition, they held four (4) edutainment sessions and weekly mini-media programmes at six (6) institutions and distributed over ten thousand HIV prevention pamphlets and booklets. Finally, they held four (4) HIV prevention panel talks at six (6) universities (NASTAD, 2021).

Moreover, according to Otaala (2000), the University of Namibia established a programme called *'Stepping Stone.'* The programme partly focused on HIV peer education. According to Grundling & Pillay (2003), In addition, the University of Pretoria implemented an HIV peer education model in which trained student volunteers participated in community outreach programmes, media campaigns, education and awareness projects. Across the continent, as part of the Ghana Education Service's Population and Family Life Education project, some senior members of the university developed a course on HIV and AIDS, which was made compulsory for every student (Van Wyk & Pieterse, 2006).The University of Cape Town had also been offering a student peer education programme since February 1994. This well-established programme was known as the "*Students' HIV and AIDS Resistance Programme"* and was overseen by the HIV and AIDS Unit. The programme utilized various forms of media in order to spread and maintain awareness of HIV issues. The Students' HIV and AIDS Resistance Programme aimed to contribute towards education, information and prevention (Michel & Fish, 2004). The Nelson Mandela Metropolitan University also had an established Student Peer Education programme (Crewe, 2000).

According to Immonje (2016), three of the four Kenyan universities studied had a common stand-alone HIV and AIDS Course. These were multidisciplinary in the sense that they contained information from various disciplines; Biology, Public Health, Geography, History, Business Studies, among others. In Maseno University, which had Health Sciences and Public Health as well, HIV was taught in Biological and the other relevant Health Sciences. Such HIV education she reports was also likely to appear on students transcripts in the respective carrier subjects. Immonje (2016) further reported that Maseno University had designed a stand-alone common course for all students and that quite a large amount of HIV education went on during the orientation week and this included HIV instructional sessions from the peer educators. There was an HIV club at Highridge

Teachers Training College, where students met on Tuesdays to discuss HIV-related concerns. Another club on campus was dedicated to raising awareness of HIV and other sexually transmitted diseases. The college's other clubs were also encouraged to educate their members about HIV and set up venues for dialogue about the disease (Nzioka *et al*., 2007).Immonje (2016) additionally discovered there was evidence of HIV curriculum mainstreaming through co-curricular activities of peer educators under the auspices of the dean of students office in their weekly counselling seminars also referred to as *coffee houses*. In essence therefore, some HIV co-curricular mainstreaming were in existence in all the four universities of the study from which it was discovered that 66% of the students had been taught HIV courses upon joining the university.

1.6.5.2 Counselling and other forms of psycho-social support

Beres *et al*.(2017) reports that psychosocial support interventions allow students the opportunity to make better decisions around their Sexual and Reproductive Health and that outcomes of interest include social wellbeing, mental health, emotional health, and quality of life, Sexual and Reproductive Health decision-making and common mental health disorders. Additionally, they noted that implementation of psychosocial support interventions increases participation retention, which may be related to intervention timing, study follow-up procedures, engagement of participants with the subject matter and delivery (Beres *et al*., 2017).

Tuke *et al*. (2020) conducted a study in Uganda whereby social support was investigated as a determinant of psychosocial adjustment over 12 months in HIV-infected, HIV-exposed uninfected and HIV-unexposed uninfected youth. Researchers looked at how cumulative lifetime adversity and social support affected psychosocial adjustment (self-esteem, distress, hopefulness, a positive outlook on the future and a sense of purpose) over a period of 12 months in HIV-infected, HIV-exposed uninfected, and HIV-unexposed uninfected youth. Time-varying adversity and social support were linked to psychosocial adjustment over the course of a year using linear mixed effects models. Adversity was associated with poorer self-esteem, increased distress, and a lack of hopefulness, optimistic attitude, or feeling of purpose regardless of HIV status. Higher levels of discomfort were predicted by a lack of social support, lower positive outlook and low sense of purpose over 12 months. The researchers discovered that low social support predicted higher distress and lower positive outlook over 12 months.

According to Benevides *et al*. (2019) the "Evidence-to-Action Project's" University "Leadership for Change Initiative" in Niger, 200 students trained as peer leaders reached almost 8,000 youth and provided counselling services to students. Meanwhile, according to Otaala (2000), the University of Namibia established a programme called *'Stepping Stone.'* that partly focused on provision of counselling services. Through the programme the University of Namibia also introduced a new HIV Awareness Week prevention initiative, which took place twice annually. During HIV week, prominent speakers from government and civil society were invited to address themes including psychosocial.

As presented by Hoho *et al.* (2017), Several studies on the prevention of HIV infection have been carried out in academic institutions. There remained, however, a paucity of study into the psychological and social well-being of South African university students living with HIV and AIDS. In contrast to their dormant counterparts who lacked sexual self-efficacy as a result of insufficient social support, the researchers discovered that the flourishing SLWHA tended to display self-acceptance, autonomy, and a sense of purpose in life.Han *et al*. (2018) presentedevidence of the use of Community Health Workers in promoting psychosocial outcomes in People Living with HIV. According to the authors, the Future Community Health Workers intervention should broaden its scope and incorporate fidelity metrics into its delivery to target major psychological determinants of HIV outcomes.

At the University of Botswana, Students against HIV and AIDS was founded in 1998 and has supported several HIV-related student initiatives. Students against HIV and AIDS promoted discussion on sexual health and HIV, encouraged cooperation among many stakeholders, and participated in national and international HIV and AIDS activities, such as the September-held Month of Prayer and World AIDS Day (Mberia & Mukulu, 2011). Moreover, according to SIDA (2010), the majority of universities in Kenya had established clear mechanisms to coordinate psychosocial support services for HIV patients. This was accomplished by Health Units, AIDS Control Units, the Chaplaincy, and Student Deans. The Dean's office was primarily concerned with counselling and management of student initiatives. The chaplaincy offered spiritual and emotional care to all students, especially those infected with or affected by HIV. On campus, church leaders reportedly provided psychosocial assistance for the infected and the impacted by offering prayers and counselling sessions. In addition, a number of human rights organisations battled for the rights of the infected through a number of campaigns. In addition, they provided financial and emotional support to the afflicted and affected. Additionally, peer counselling was highly developed.

According to Ochieng & Maiyo (2008) Even though more than 90 % were aware of HIV, a comprehensive behaviour change approach has yet to be implemented. Their survey-based study was conducted in five primary teacher-training institutions in the Rift Valley district of Kenya. The goal of this study was to investigate the psychological, economic, and social repercussions of HIV that have forced the introduction of psychosocial

support services for HIV-positive students in postsecondary institutions. The findings demonstrated that the psychological, economic, and social repercussions of HIV are extensive and that numerous institutions have psychosocial support systems in place, while facing obstacles in their efforts to deliver these services. The study stated that psychological support systems are vital in all tertiary educational institutions and urged that the young be fully involved in the provision of these systems.

1.6.5.3 Stigma and discrimination reduction programmes

HIV stigma is a socially created phenomena that demeans HIV-positive individuals and deems them socially unsuitable, resulting in stigmatisation, stereotyping, and discrimination (Earnshaw & Chaudoir; King'ori *et al*., 2012; Badahdah & Sayem, 2010).As emphasized by Pulerwitz *et al*. (2010), Since the early years of the HIV epidemic, stigma has been recognised as a key obstacle to effective HIV prevention, care, and treatment. Pulerwitz et al. (2010), after conducting more than ten research in Asia, Africa, and Latin America, found that HIV-related stigma was associated with reduced use of voluntary counselling and testing, erroneous information regarding transmission, and a lack of desire to share test results. Lessons learnt in terms of programmes include the necessity of tackling worries of spread and unfavourable societal judgments, the best way to aid institutions in detecting stigma, and how to best engage persons with HIV in programmes.

In Nikaragua, Solórzano *et al*.,(2008) looked at the use of mass media for social change among young people ages 13–24 and found that those who were exposed to the intervention the most were much less likely to have stigmatising attitudes than those who were exposed the least. Stigma and prejudice programmes that have been successfully conducted around the world could be adapted by higher education institutions. One example is the study by Chinaglia et al. (2007), which examined the provision of non-stigmatizing, holistic health services to Brazilian male truck drivers, and found that the number of truckers who took an HIV test as a result of the intervention increased significantly at the intervention location. The vast majority of people who took part in the survey said they appreciated the services and that they weren't stigmatising. Using staff training, data exchange, and participatory policy formulation for hospital workers, Mahendra et al. (2006) conducted a study in India. Health-care employees who had the least stigmatising attitudes climbed from 12% to 27%, while those who had the most stigmatising attitudes decreased from 24% to 7% when the intervention was implemented. Counseling and testing processes, patient confidentiality and universal precautions were also improved.

At St. Xavier's College in India, In order to institutionalise and sustain stigma reduction in an educational setting, the project team first obtained college administration's support. Following this, they taught a group of faculty members to become master trainers who would then train students. Seventeen faculty members from a variety of disciplines participated in a three-day training to overcome pre-training deficiencies such as a lack of HIV understanding and stigmatising attitudes. The faculty training centred on the definition, forms, causes, and effects of stigma, as well as HIV-related myths and misconceptions. The programme began with examining stigma and discrimination based on caste, gender, and socioeconomic status in order to assist the faculty in comprehending HIV-related stigma. The training exercises assisted staff members in examining their own attitudes and overcoming any reluctance to initiate dialogues with their students about delicate topics like sex, sexuality, and contraceptives. Overall, faculty members viewed the training as significant and beneficial for students (ICRW, UNDP and STRIVE, 2013).

It was further noted by Nzioki *et al.* (2017) in Kenyan colleges showed there were measures to combat stigmatisation and discrimination against infected individuals in every institution studied. However, Highridge and Migori Teachers Training Colleges appeared to be doing more than Shanzu Teachers Training College in this regard. According to reports, the prominence of the epidemic in Migori TTC has led to an escalation of measures to combat discrimination and stigma, and more than half of respondents believe some success has been accomplished. The majority of respondents at Shanzu Teachers Training College believed that stigma and discrimination are still a significant issue. Respondents at Migori Teachers Training College reported prejudice against individuals suspected of being infected.

Additionally in Kenya, Kaai *et al*. (2007) looked at an intervention focusing on adherence counselling for people on antiretroviral therapy to address stigma and discrimination and discovered significant reductions in internalized stigma and significant increases in disclosure to a greater number of family members were observed.

1.7 Research Methodology

The study used the approach of mixed method research thereby incorporating both qualitative and quantitative research approaches. Creswell (2017) describes mixed methods research as a strategy to inquiry encompassing the collection of both quantitative and qualitative data, their integration, and the use of various designs that may incorporate philosophical assumptions and theoretical frameworks.

The study sites were Institutions of Higher Learning in Western Kenya. For the purpose of this study, Western Kenya refers to the geographical Western region of Kenya therefore the area that is geographically located in the Western part of Kenya. This area was chosen as it has the highest number of Counties with the highest prevalence and incidence of HIV and AIDS in Kenya (Gok, 2018). These Counties with the highest

prevalence and incidence of HIV located in Western Kenya are; Kisumu, Migori, Siaya, Kakamega, Homa Bay and Busia (GoK, 2020).

The study was carried out among students of Institutions of Higher Learning. There was a total population of 13,002 students which included a population of 1,000 students at Great Lakes University of Kisumu. Additionally there were 3318 students from The Kisumu National Polytechnic, 540 students at Alupe University College in Busia County, 6,345 students at Rongo University in Homabay County, 663 students at Tom Mboya University College, 400 students at Lugari Diploma Teacher Training College in Kakamega County and 736 students at Kenya Medical and Training College Bondo campus in Siaya County.

This research employed both probability and non-probability sampling techniques.

Primary data was collected using 3 different instruments. These included an interviewer-administered semi-structured questionnaire for student respondents; a Key Informant Interview schedule and a Focus Group Discussion Questionnaire. Student leaders who were chosen to be the participants in the FGDs were found to be best suited as participants for this data collection method as they usually have plenty of information on their constituents and by virtue of the positions they hold are usually outspoken about student matters. Data was also collected through Secondary sources.

Qualitative data such as field Focus Group Discussion notes and transcripts were cleaned to yield precise information that could easily be used for analysis and report writing as per the study thematic areas. Each team led by the researcher went through three transcripts and compared them with the audio versions to check whether accuracy and consistency of data reported had been sustained. The quality of quantitative data was highly checked. To tighten the quality, the study quantitative data were collected from the field using a web based - online system Open Data Kit. The data was collected by the team of data collectors using their android smart phones. The team of data collectors included the researcher and two trained assistants who were well trained by the Open Data Kit collect expert/administrator. An xlsform was developed by the expert with no room for sending incomplete form to the server by the research assistants. The researcher with consultation with the expert created an ONA server where data were being relied from the field after being collected.

Quantitative data were analyzed using Statistical Package for Social Sciences (SPSS) 20.0 and excel spreadsheet. The quantitative data was organized, coded and edited by a process called data cleaning (Punch, 2003). Frequencies and descriptive statistics were applied to evaluate the effectiveness of behavioural intervention strategies in the mitigation of HIV Risky Sexual Behaviour among students in Institutions of Higher Learning in HIV Western Kenya. In this study, inferential analyses were done with focus on bivariate analyses. Bivariate analysis was done to ascertain the association and level of significance between the waves of students i.e. 'low' and 'high' Risky Sexual Behaviours with; a) background information, and b) the effectiveness of the strategies used to mitigate students' HIV Risky Sexual Behaviour.

1.8 Findings

Findings on the evaluation of the effectiveness of behavioural strategies employed to mitigate students' HIV Risky Sexual Behaviours in Institutions of Higher Learning are presented in this section.

1.8.1 Overall effectiveness of behavioural strategies

Table 5.1presents a summary of behavioural mitigation strategies that were found to have been applied in Institutions of Higher Learning in Western Kenya towards HIV Risky Sexual Behaviours among students.

Table 1: Behavioural sstrategies used to mmitigate HIV Risky Sexual Behaviour

Ways through which behavioural intervention strategies have had an impact on students' sexual and reproductive choices/decisions	**Low sexual risky behaviours (n=130)**	**High sexual risky behaviours (n=269)**	**X2**	**P-value**
Information Provision	81.3	18.7	7.375	0.007***
Counselling and other forms of psycho-social support	56.1	43.9	3.069	0.080*

**p>0.1 **p>0.05 ***p> 0.01 statistically significant between strategies and level of HIV Risky Sexual Behaviour*

Source: Field data, 2020

The p values were used to show the level of significance/differences between the waves. Null hypothesis was rejected if p-values were $p<0.1$ at 90 % confidence level; $p<0.05$ at 95% confidence level; and $p<0.01$ at 99 % confidence level. This means that there was statistically significant evidence or difference between the low and high Risky Sexual Behaviours among students in reference to behavioural interventions in mitigating HIV Risky Sexual Behaviours among students in Institutions of Higher Learning in Western Kenya.

Therefore regarding information provision the study shows that there is a statistical significance with p-value = 0.007 between the two categories of HIV Risky Sexual Behaviour (High Risky Sexual Behaviour and

Low Risky Sexual Behaviour). This implies that information provision has been successful in helping mitigate HIV Risky Sexual Behaviouramong students. Moreoveras shown in the Chi-square test in table 5.1, when it comes tocounselling and psycho-social support, the study shows that there is a statistical significance with p-value = 0.080 among the two categories of HIV Risky Sexual Behaviour (High Risky Sexual Behaviour and Low Risky Sexual Behaviour).This implies that counselling and psychosocial support has been successful in mitigating HIV Risky Sexual Behaviour. The most successful behavioural intervention has thus been found to be information provision followed by counselling and psychosocial support. This means that institutions and other stakeholders should continue to put focus on HIV information provision as they strengthen counselling and psychosocial support efforts.

Key Informants such as the dean of students of The Kisumu National Polytechnic also reported that they successfully held health talks on HIV for students. The official of Homabay County also reported that they were successful in regular training of students of Institutions of Higher Learning as they received sufficient support from the County government for these initiatives. Furthermore, the official from Compassion International, a Non-Governmental Organisation in Busia shared that they were successful in the distribution of pamphlets on awareness and knowledge to students and that these had successful implications towards Risky Sexual Behaviour. They also added that they successfully reached out to students during sporting activities and as there was a large audience during such functions, their interventions had significant impact.The Lugari Diploma Teachers Training College nurse also shared that her strengths were that she was well trained and had long-term experience when it came to HIV guidance and counseling services of students. The nurse at Rongo University additionally shared that there was an established university health committee which dealt with HIV matters and that there was an existing HIV course offered in the first year of students' study, additionally she added that they made use of use of peer education during cultural day. The County Government of Kisumu also conducted regular training of their health workers and enhanced existing and upcoming health facilities that students in Institutions of Higher Learning could access for use. On the other hand, the Lugari Teachers Training College dean also stressed the need to improve on guidance and counselling at their institution. From the survey, stigma and discrimination reduction programmes are reported as not being provided to the students.

1.8.2 Information provision on HIV

Information provided to students on HIV by Institutions of Higher Learning in Western Kenya is broken down in Table 2.

Table 2: Level of students' information on HIV

Level of information that students have on HIV	Male [number, %]	Female [number, %]	Total [n, %]
Low information	6 (3.0)	5 (2.5)	11 (2.8)
Moderate information	72 (35.6)	91 (46.2)	163 (40.9)
High level of information	124 (61.4)	101 (51.3)	225 (56.4)

Source: Field data, 2020

The current study found that majority of students, 225 (56.4%) had high-level information on HIV. The majority of men 124 (61.4%) had high-level information of HIV and similarly, the majority of women 101 (51.3%) also had high-level information of HIV. Nevertheless, the men were found to have more high level HIV information than women did. It is paramount therefore that stakeholders get to understand the reason for the discrepancy between high-level knowledge in men verses women. Additionally, researchers need to enhance their interventions to ensure female students' high level knowledge increases to similar levels as the males.

Apart from those who had high level of information, there were those who had moderate information on HIV. In this study, these were 163 (40.9%) and were therefore less than half of the respondents. Less than half of the females 91 (46.2%) had moderate information on HIV. For males, slightly over one third 72 (35.6%) had moderate information on HIV. More females were found to have moderate information on HIV as compared to males. Stakeholders should make an effort to ensure that those who have moderate level knowledge move to the point where they have high-level knowledge. The findings from the respondents are corroborated by information from Rongo University, Great Lakes University of Kisumu and Bondo Kenya Medical Training College Focus Group Discussion participants, who reported that HIV is taught to them as part of their curriculum. Bondo Kenya Medical Training College and Great Lakes University of Kisumu Focus Groups who had a high number of students studying health-related courses attributed their high-level knowledge on HIV to the programmes most of them were studying which are health-based programmes.

Some Key Informants also shared how they provide HIV information to the students. The heads of clinics at Rongo University, The Kisumu National Polytechnic and Tom Mboya University College reported that they hold HIV talks during 1st years' orientation events. At Lugari Diploma Teachers Training College, the head of clinic reported of inviting guest speakers from the nearby Lumakhanda hospital to talk to the students on HIV yearly. An official from Compassion International Kenya in Busia, which is a Community Based Organization in that

County, and an official of *Medecins Sans Frontieres*, which is a Non-Governmental organization in Migori County, informed that they do hold workshops and seminars to educate students in Institutions of Higher Learning on HIV. An official from the Migori County Ministry of Health accounted that they do hold awareness creation workshops and seminars for students in Institutions of Higher Learning through a programme called "*DREAMS*" which specifically targets female students.

An official from the County government of Kisumu further reported that they hold HIV seminars for students while an official from The Kakamega County testified that they hold HIV in-service training for student teachers. Moreover, an official of Homabay Hospital mentioned that they train peer educators for Institutions of Higher Learning; while an official of Bondo Hospital mentioned that they hold HIV awareness programmes for students. The deans of students of Rongo University, The Kisumu National Polytechnic, Alupe University College and Tom Mboya University College all informed that they hold HIV talks for their students. Despite this high provision of information from an array of stakeholders, the survey still revealed that a few of the men 6 (3%) and a few of the females 5(2.5%) had low knowledge about HIV though there is not a significant difference between males and females who have low HIV knowledge. There is need for stakeholders to attempt to understand why a few students still have low knowledge on HIV and put interventions in place to ensure that these students are identified, reached out to and that their level of HIV knowledge appropriately and adequately enhanced.

Norman & Carr (2003) say that HIV knowledge is significantly related to concern for personal risk. In agreement, Andrew *et al*. (2018) also realized that information about a disease might be an initial step towards behavioural risk change. Chaves *et al*. (2014), Bigala *et al*. (2014), James *et al*. (2018), Dilorio *et al*. (2000), Pharr *et al*. (2017) and Li *et al*. (2020) also support this notion. Nevertheless, and on the contrary Onah *et al*.(2004) and Omoyeni *et al*.(2014) reported that high knowledge of HIV had no correlation with subsequent sexual behaviour among their respondents.

For this reason, this study sought to find out to what extent respondents had information on Sexual and Reproductive Health. Good Sexual and Reproductive Health is referred to as a state of complete physical, mental and social well-being in all matters relating to the reproductive system (Hoffman *et al*., 2017). Table 3 therefore presents Sexual and Reproductive Health levels of information among Students of Institutions of Higher Learning in Western Kenya.

Table 3: Level of Information on Sexual and Reproductive Healthamong respondents

Level of Information about Sexual and Reproductive Health	**Male [number, %]**	**Female [number, %]**	**Total [n, %]**
Low knowledge	16 (7.9)	15 (7.6)	31 (7.8)
Moderate knowledge	111 (55.0)	114 (57.9)	225 (56.4)
High level of knowledge	75 (37.1)	68 (34.5)	143 (35.8)

Source: Field data, 2020

The study found that just over one-third 143 (35.8%) of respondents have a high level of Sexual and Reproductive Health (SRH) knowledge. Close to forty percent of men 75 (37.1%) have high level of Sexual and Reproductive Health knowledge while over one third of women 68 (34.5%) have a high level of Sexual and Reproductive Health knowledge. Those who have moderate knowledge are the majority 225 (56.4%). A majority of females 114 (57.9%) have moderate knowledge as well as a majority of males 111 (55%). A low number of students 31 (7.8%) have low level of Sexual and Reproductive Health knowledge. Of the males, 16 (7.9 %) have low-level knowledge while of the females 15 (7.6%) have low-level knowledge on Sexual and Reproductive Health. There is urgent need for stakeholders to put in interventions that will increase the provision of high level SRH knowledge to all students.

In the Focus Group Discussions held with Bondo Medical Training College and Great Lakes University of Kisumu, some participants shared that students learning in health-related institutions have high-level knowledge on Sexual and Reproductive Health issues. This is especially so when it comes to treatment of Sexually Transmitted Infections and feel that this makes them engage in HIV Risky Sexual Behaviour at a higher rate than those who are not studying in health courses-inclined institutions. Looking at related studies, in a study carried out by Yared *et al.* (2017), despite awareness of Sexually Transmitted Infections, over twenty percent of the respondents had contracted a Sexually Transmitted Infection, gotten pregnant and had unsafe abortions in the past one year.

This current study reveals that students in Institutions of Higher Learning in Western Kenya who have high level information on HIV are 225 (56.4%) while students in Institutions of Higher Learning in Western Kenya who have high level information on Sexual and Reproductive Health are 143 (35.8%). There is thus more focus on providing students with HIV knowledge at the expense of providing them with Sexual and Reproductive Health knowledge which is counter-productive in the fight against HIV. Stakeholders should seek to bring a balance between the two by optimizing both. Table 5.4 summarizes the knowledge on the extent to which Risky

Sexual Behaviour results in contracting HIV among students in Institutions of Higher Learning in Western Kenya.

Table 4: Extent of knowledge that Risky Sexual Behaviour results in contracting HIV

Knowledge on the extent to which Risky Sexual Behaviour results in contracting HIV	**Male [number, %]**	**Female [number, %]**	**Total [n, %]**
None	0 (0)	2 (1.0)	2 (0.5)
Small	11 (5.4)	10 (5.1)	21 (5.3)
Moderate	43 (21.3)	33 (16.8)	76 (19.0)
High	148 (73.3)	152 (77.2)	300 (75.2)

Source: Field data, 2020

This study also sought to find out the extent to which students have information that Risky Sexual Behaviour results in contracting HIV. Subsequently, the study found that the majority 300 (75.2%) of respondents have a high level of knowledge on the extent to which Risky Sexual behaviour results in contracting HIV. A majority of women 152 (77.2%) have high level knowledge on the extent to which Risky Sexual Behaviour results in contracting HIV. A majority of men 148 (73.3%) also have high level knowledge on the extent to which Risky Sexual Behaviour results in contracting HIV. This is positive information in that students are highly aware of the relationship between Risky Sexual Behaviour and contracting HIV. Stakeholders to optimize this knowledge so that all students have high-level knowledge at the highest levels should enhance intervention efforts. Additionally a few respondents 76 (19%) have moderate knowledge on the extent to which students know that Risky Sexual Behaviour results in contracting HIV. A few men 43 (21.3%) have moderate knowledge on the extent to which students know that Risky Sexual Behaviour results in contracting HIV while a few females 33 (16.8%) also have moderate knowledge on the extent to which students know that Risky Sexual Behaviour results in contracting HIV. Stakeholders to ensure that students who have moderate SRH knowledge achieve high SRH knowledge should enhance intervention efforts.

Those who have low knowledge on extent that Risky Sexual Behaviour results in contracting HIV are few 21 (5.3%). For the men 10 (5.1%) have low knowledge on extent that Risky Sexual Behaviour results in contracting HIV and for the females 11 (5.4%) have low knowledge on extent that Risky Sexual Behaviour results in contracting HIV. Once more, stakeholders to ensure that students who have low SRH knowledge achieve high SRH knowledge should enhance intervention efforts. There are also 2 (0.5%) who have no knowledge at all on the extent that Risky Sexual Behaviour results in contracting HIV and these are both female.

Among the Key Informants who had programmes geared towards first year students only, The Dean of Students' of Alupe University College reported that;

> We have a mentorship programme that puts emphasis on prevention efforts targeted at the incoming first years that are not yet sexually active

This programme is likely to go a long way in delaying sexual debut and thus contributing positively in mitigating HIV Risky Sexual Behaviour. In an FGD held with the participants from Alupe University College, a male participant reported that;

> For first year students, there are talks given by the Ministry of Health particularly to create awareness on HIV and AIDS but the facilitators usually do not call a spade a spade. They should hit the nail on the head. They should be bold. They should also conduct the activity every semester instead of once off. It is sad that no NGOs or CBOs are involved in providing such activities

From the above statement, students are seen to be desperate for boldness in the delivery of HIV information. Additionally, they desire for the information to be shared more frequently than is being done. The study also looked at where information was provided from. Table 5 presents sources of HIV and Sexual and Reproductive Health information.

Table 5: Sources of HIV and Sexual Reproductive Health information

Sources of HIV and Sexual Reproductive Health Information	Male (n=120) %	Female (107) %	Total [(n=227), %]
Peer educator	34.2	38.3	82 (36.1)
Friend/Classmate	16.7	13.1	34 (15.0)
Regular/periodic small group meeting (BCCG)	10.0	16.8	30 (13.2)
Curriculum/Lecturer in class	52.5	47.7	116 (51.1)
Health worker in the University or College	10.8	13.1	27 (11.9)
Counselor in the University/College	20.8	24.3	51 (22.5)
Health Worker in a center outside the University or college	22.5	16.8	45 (19.8)
Faith Based Organization	10.8	14.0	28 (12.3)
Non-Governmental or Community Based Organization	30.8	16.8	58 (25.6)
Family member	11.7	10.3	25 (11.0)
Other please specify	8.3	3.7	14 (6.2)

Source: Field Data, 2020

Majority of students 116 (51.1%) received knowledge from the curriculum in class such that majority of males 61 (52.5%) and majority of females 55 (47.5%) received knowledge from their curriculum. Care and attention should thus be given in the development and review of such curricula, as they are the most common source of HIV information for students. Additionally students received knowledge from Non-Governmental Organizations or Community Based Organizations around the community. These were 102 (25.6%) respondents. Some sourced their HIV and Sexual and Reproductive Health information from peer educators. These are 144 (36.1%). Knowledge from the student counselor within the Institution of Higher Learning reached 90 (22.5%) of the students. This was followed by knowledge from health workers outside the university or college from whom 79 (19.8%) of students gained their knowledge. Meanwhile 60 (15%) of students got their knowledge from friends or classmates; 53 (13.2%) from regular or periodic Small Group meetings on campus; 49 (12.3%) from Faith Based Organizations, 47 (11.9%) from the health worker in the University; 44 (11.0%) received knowledge from a family member while 25 (6.2%) received knowledge from other Sources. These Other sources included first years orientation including parties, internet including social media, trainings, debate platforms, social workers and counselors and school newspapers and pamphlets. Stakeholders need to look at all the sources of information that students have on HIV and enhance the ones students find most popular then improve upon their delivery of the same. Figure 1 presents specific information that students learned regarding HIV, Sexual, and Reproductive Health from initiatives at University or College.

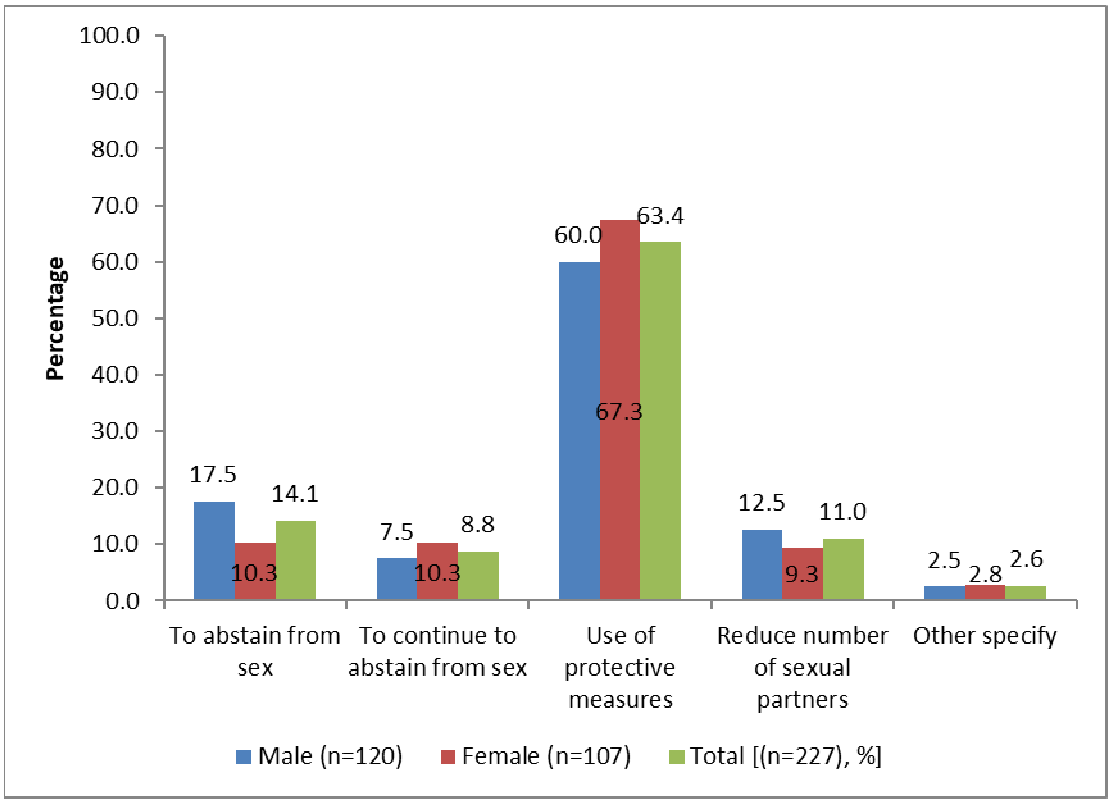

Figure 1: Knowledge from HIV and SRH training beyond firstyear of study
Source: Field Data, (2020)

Those who learned how to now abstain from sex constituted 45 (14.1%) of the respondents of whom were 35 (17.5%) of males and 20 (10.3%) of females. For those who learned how to continue to abstain from sex, these constituted 28 (8.8%) of the respondents. Of these, there were 20 (10.3%) of the females while there were 15(7.5%) of the males. Nevertheless, what students learned most was to use protective measures to reduce Risky Sexual Behaviour. The majority belonged to this category 252 (63.4%) of whom there were 132 (67.3%) of the females and 121 (60.0%) of the males. Those who learned to reduce the number of sexual partners were 44 (11.0%) of whom there were 25 (12.5%) of the males and 18 (9.3%) of the females. Students also learned other behaviour risk reduction including; being faithful to one partner, the knowledge that HIV is manageable, Knowledge on female condoms and encouragement to get HIV tested for HIV. Other than protective measures, stakeholders thus need to enhance other measures that they use to provide information to students beyond first year. Table 6 presents methods used to provide HIV and Sexual and Reproductive Health information to students.

Table 6: Methods used to provide HIV and SRH information to respondents

Education Methods used	Male (n=202)	Female (n=197)	Total (n=399)
Traditional media platforms (Newspapers/radio/TV)	33.2	34.0	33.6
Social media platforms (Facebook, Whatsapp, Instragram etc)	71.3	73.6	72.4
Art and entertainment (Plays,drama, dance theatre etc)	25.7	17.8	21.8
Institutional/Non institutional (lectures/ motivational talks/seminars/workshops)	63.4	59.4	61.4
Peer to peer education	39.6	50.8	45.1
Other specify	7.9	4.6	6.3

Source: Field data, 2020

Stakeholders used an array of methods to provide HIV, Sexual, and Reproductive Health information to students. The one most cited by students as being used by stakeholders were social media platforms such as Facebook, Whatsapp and Instagram at 289 (72.4%). Stakeholders should thus study more on how to use social media to best relay HIV information to students and apply the same. This was followed by Institutional/Non-Institutional lectures, motivational talks, seminars and workshops. These contributions were cited by 245 (61.4%) of the students. Peer to peer education was cited by 180 (45.1%) of the respondents. Traditional media platforms such as newspapers, radio and Television were also cited by 134 (33.6%) of respondents, art and entertainment such as drama by 87 (21.8%) of respondents and finally others which included banners, church retreats, classmates and friends, elders, Google search, guidance and counseling, journals and books, notice board,

parents and, student's clubs. These were cited by 25 (6.3%) of the respondents. The dean of students of Rongo University College reported to using the University Facebook page, Instagram and Whatsapp to disseminate HIV and Sexual and Reproductive Health information to students while an official of Medicines Sans Frontiers in Homabay talked of how they used Religious Education movies and music for the same purpose. For Tom Mboya University College, the Dean of Students reported that the policy to allow the use of modern methods was not yet approved but was waiting council approval for it to be functional. Table 7 presents methods students felt were best to relay HIV and Sexual and Reproductive Health information.

Table 7: Methods respondentsfelt were best to provide HIV and SRH information

Methods Information transmission	**Male (n=202)**	**Female (n=197)**	**Total (n=399)**
Traditional media platforms (Newspapers/radio/TV)	11.9	8.6	10.25
Social media platforms (Facebook, Whatsapp, Instragram)	47	41.6	44.3
Art and entertainment (Plays, drama, dance theatre)	15.3	11.2	13.25
Institutional/Non institutional (lectures/ motivational talks/seminars/workshops)	34.2	36	35.1
Peer to peer education	34.2	40.6	37.4
Other specify	3.5	1.5	2.5

Source: Field data, 2020

Students also shared that they preferred an array of methods for providing HIV and Sexual and Reproductive Health information to them. The one most cited by students were social media platforms such as Facebook, Whatsapp and Instagram by 177 (44.3%) of respondents. This was followed by Peer to peer education by 149 (37.4%); Institutional/Non-Institutional lectures, motivational talks, seminars and workshops at 140 (35.1%), Art and Entertainment such as drama by 53(13.25%), Traditional media platforms such as Newspapers, Television and Radio at 41 (10.25%) and others by 10 (2.5%). Others included; guidance and counseling from a professional, online search engines such as Google, notice boards, parents and safe spaces for open dialogue.

An official of Nyarami VCT Migori County reported to using peer educators as mobilizers whom they used to carry out daylong events and youth day clinics for students. A Compassion International Kenya in Busia County official said that they had created a Facebook page that posted on matters concerning reproductive health and HIV matters where students could raise and add comments. They had also created Whatsapp groups where students could get knowledge and help. Figure 2 presents a breakdown of Factors believed to have contributed towards effective communication of HIV and Sexual and Reproductive Health by students.

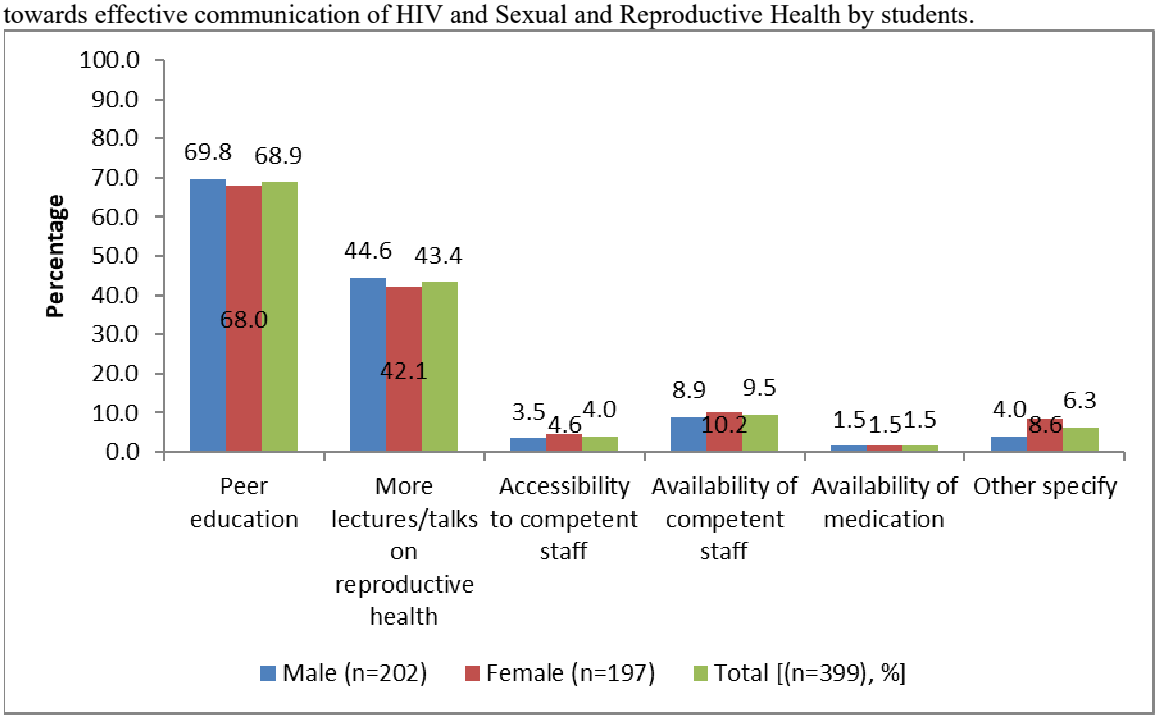

Figure 2: Factors contributing towards effective communication of HIV and SRH
Source: Field Data, (2020)

There are factors that students believed contributed towards the effective communication of HIV and Sexual and Reproductive Health knowledge. Of these, peer education was rated highest among the students, of which 275 (68.9%) of students supported; 234 (68.0%) of the females and 141 (69.8%) of the males. This was

closely followed by Talks on Reproductive Health where the learning institutions organized presenters to talk to the students on HIV and Sexual and Reproductive Health Knowledge. Availability of competent staff in relation to HIV and Sexual and Reproductive Health was cited by 38 (9.5%) of the students, 20 (10.2%) of the females and 17(8.9%) of the males. Accessibility of competent staff in relation to HIV and Sexual and Reproductive Health was further cited by 16 (4.0%) of the respondents, 18 (4.6%) who were female and 14 (3.5%) who were male. Availability of medication was cited by 6 (1.5%) of the respondents as a factor that contributed towards the effective communication of HIV and Sexual and Reproductive Health knowledge while other factors mentioned included; through billboards; campaigns; social media; Guiding and counseling; Radio and journals; and Internet platforms especially for the shy students. These others were 25 (6.3%) of the population of whom 34 (8.6%) were female and 16 (4.0%) male. Table 8 presents students' access to behaviour change communication in Institutions of Higher Learning in Western Kenya.

Table 8: Respondents' aaccess to Behaviour Change Information

Access to behaviour change communication	Rongo University	Tom Mboya University College	Kisumu Polytechnic	Great Lakes University of Kenya	Lugari Diploma TTC	Alupe University College	Bondo KMTC
Nil	54	15	23	62	0	0	0
Low	66	3	18	19	1	4	1
Moderate	45	7	23	3	4	5	5
High	41	3	3	5	4	4	9

Source: Field data, (2020)

The extent to which respondents had access to Behaviour Change Communication was assessed. This study has shown that, just less than half 196 (49.1%), had moderate access to Behaviour Change Communication while close to one-third 116 (29.1%), had high access to Behaviour Change Communication. Meanwhile, slightly less than one fifth 74 (18.5%) had low access while 13 (3.3%) had no access at all to Behaviour Change Communication.Ngigi & Busolo (2018) refer to Behaviour Change Communication (BCC) as an interactive process of any intervention with individuals, groups or communities to develop communication strategies to promote positive behaviours, which are appropriate to their settings. For this study, this appropriate behaviour would refer to behaviour that would reduce HIV Risky Sexual Behaviour such as proper and consistent use of condoms, maintaining one faithful partner, abstaining from sexual intercourse among others. Communication would therefore need to be appropriately done in order to elicit the accurate change in behaviour from non-desirable, to desirable.

In the meantime, specifically the extent to which respondents had access to information on how to prevent unplanned pregnancies was assessed subsequently. It was detected that just less than half 194 (48.4%), had moderate access to information on how to prevent unplanned pregnancies while 152 (38.1%) had high access to information on how to prevent unplanned pregnancies. Meanwhile, 44 (11%) had low access to information on how to prevent unplanned pregnancies while 10 (2.5%) had no access at all to information on how to prevent unplanned pregnancies. Table 9 presents the extent to which students lacked information on planning for pregnancies.

Table 9: Access to information on Planning for Pregnancies

Access to information on unplanned pregnancies	Rongo University	Tom Mboya University College	Kisumu Polytechnic	Great Lakes University of Kenya	Lugari Diploma TTC	Alupe University College	Bondo KMTC
Nil	2	5	3	3	0	6	0
Low	16	0	8	3	8	24	0
Moderate	50	52	43	63	42	35	50
High	32	43	47	31	50	35	50

Source: Field data, (2020)

The extent to which respondents had acquired information on how to prevent Sexually Transmitted Infections was also revealed, and it was uncovered that 177 (44.4%) had acquired moderate information on how to prevent Sexually Transmitted Infections while 152 (38.1%) had acquired a high level of information how to prevent Sexually Transmitted Infections. Meanwhile, 56 (14%) had acquired a low level of information on how to prevent Sexually Transmitted Infections while 9 (2.3%) had acquired no information at all on how to prevent Sexually Transmitted Infections. Table 10 presents students access to information on Sexually Transmitted Infections.

Table 10: Access to information on Sexually Transmitted Infections

Access to information on STIs?	Rongo University	Tom Mboya University College	Kisumu Polytechnic	Great Lakes University of Kenya	Lugari Diploma TTC	Alupe University College	Bondo KMTC
Nil	9	1	2	1	0	0	0
Low	63	0	21	5	0	3	1
Moderate	48	7	25	15	7	5	3
High	42	5	27	9	5	4	10

Source: Field data, (2020)

Additional studies also confirmed that students' insufficient sex education contributed to cross-generational sex among university female students (Kheswa &Mahlalela 2014; Poscia *et al*., 2015). The Dean of Students of Kenya Medical Training College Bondo reported that his office was involved in conducting health talks and seminars on HIV; he also added that they made use of technology for example internet and social media. The official at Jaramogi Oginga Odinga Teaching and Referral hospital also reported that they used Ministry of health websites, use of media to teach Reproductive Health and health matters; and planned sessions orientation when first years students were reporting. The official from Menya Medical Research Institute in Busia shared that in his opinion sex education should be a major subject in the institution and that they provided educative communication materials to support the youth. The Dean of Students of Tom Mboya University College shared that they held health talk during orientation. Meanwhile The Dean of Students of Lugari Diploma Teachers Training College shared that they posted messages educating on HIV on the notice board while an official of Rongo University reported that they had a facebook student page and Whatsapp peer educators' walls, which they used to disseminate HIV information. Additionally, an official from The Kisumu National Polytechnic commented that Peer Counselors and departmental class representatives held talks with the students at their departments and at orientation for 1st year students on sexual behaviour, grooming and others. He added that materials for educational actions were also provided and that Wi-Fi was available for students to search for HIV information online. The Rongo University Clinic official reported that they held sensitization sessions on HIV prevention during orientation particularly Abstinence. The official of Rongo University also reported that they also made use of social media through their health representative to share information.

5.4 Counselling and other forms of psycho-social support

Figure 3 presents HIV Counseling of Students in Institutions of Higher Learning in Western Kenya.

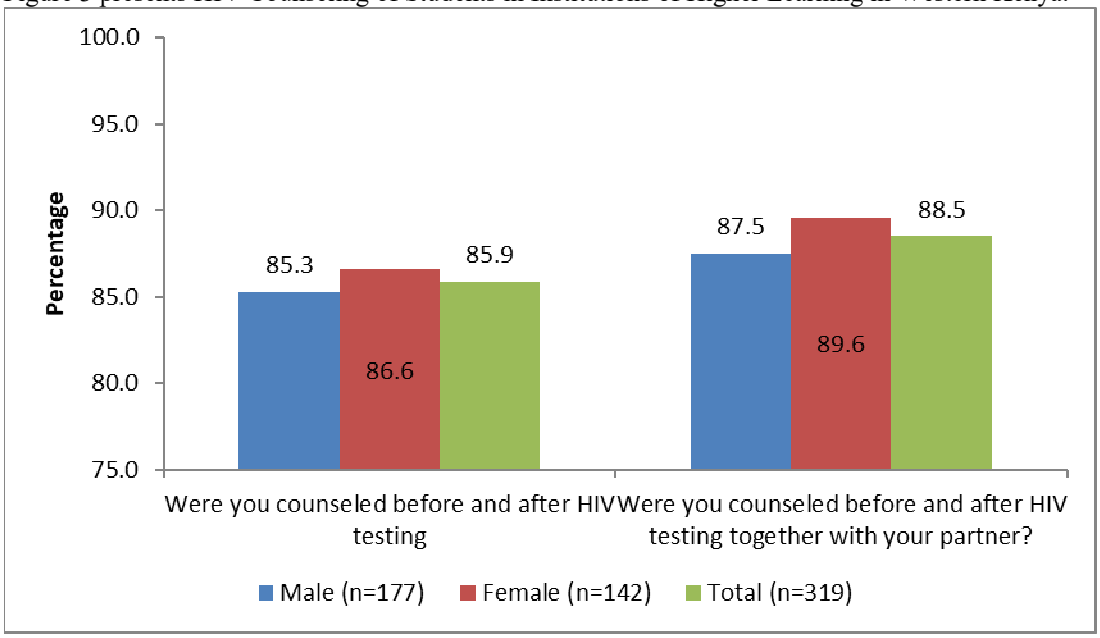

Figure 3: HIV counselling of respondents

Source: Field data, (2020)

Out of the 319 students who had engaged in sexual intercourse, there were 177 male students of whom 150 (85.3%) had been cancelled after going for a HIV test. Out of the 142 female respondents, 123 (86.9%) had been cancelled when they went for HIV tests as an individual. In total, 274 (85.9%) of those who had engaged in sex and went for a HIV test received counselling. There was therefore need for all stakeholders involved in HIV

testing to ensure that they all provided HIV counselling to 100% of those students who sought the services. Additionally those who had been cancelled together with their partners were 87.5% of men, 89.6% of females and a total of 88.5% of the respondents. The Dean of Students of Lugari Teachers Training College confirmed that they had a Guidance and Counselling Department in place that provided HIV counseling to the students.

Additional information was sourced from Key Informants. The official from County Government of Migori reported that they did offer counselling and psychosocial support to students in Institutions of Higher Learning but not within the institutions themselves due to stigma. The official of Ampath PLUS Siaya shared that they did offer counseling and psychosocial support to some to students. The official at Bondo Hospital confessed that they provide psychosocial support by monitoring any students, just like any other patient who may have been diagnosed with HIV. The official from Compassion International Kenya a Non-Governmental Organisation in Busia County reported that they had a programme for HIV infected students on how to live positively. Kenya Medical Research Institute also had a Memorandum of Understanding with Alupe University College to provide services to Alupe University College students. Their official reported that they offered counseling services for students before and after HIV testing.Other than Counselling, psychosocial support was assessed. According to WHO (2009) types of psychosocial support include provision of mental health support for the students, support groups, peer support, collaboration and referrals to various stakeholders, and primary health care services including the distribution of HAART.

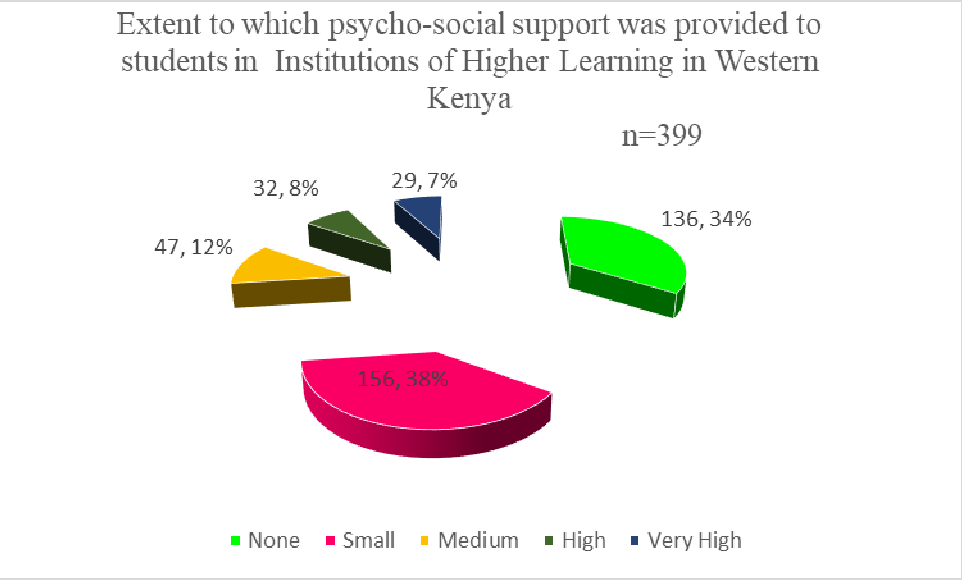

Figure 4: Extent to which psycho-social support services were provided to respondents
Source: Field data, (2020)

In the survey, 136 (34%) of students reported that there was no psychosocial support provided to them as students of Institutions of Higher Learning, 156 (38%) reported that services were provided to a small extent, 47 (12%) to a medium extent, 32 (8%) to a high extent and 29 (7%) to a very high extent. The extent to which stakeholders were providing psycho-social support services to students in Institutions of Higher Learning in Western Kenya were therefore found wanting.

The officials who reported that they did not provide psychosocial support to the students regarding HIV included those of; The Kisumu National Polytechnic, Rongo University, Tom Mboya University College, Alupe University College, Great Lakes University of Kisumu and Tom Mboya University College. This demonstrates that most Institutions of Higher Learning were not providing psychosocial support services to students infected or affected by HIV other than HIV counselling. The organizations other than those earlier mentioned in this section that admitted to providing psychosocial support to students in Institutions of Higher Learning included the dean of Students of Kenya Medical Training College Bondo, The County Government of Kakamega, Homabay Hospital, Jaramogi Oginga Odinga Teaching and Referral Hospital, Alupe Sub-County Hospital, Ampath PLUS Bondo County; County Government of Busia, Nyarami VCT in Migori, *Medicines Sans Frontieres*in Homabay, County Government of Homabay, County Government of Kisumu and County Government of Busia. The dean of students of Kenya Medical Trainng College in Bondo shared that they had psychosocial support groups in the institution. The official at Ampath PLUS Bondo Siaya County also shared that they held psychosocial support groups for HIV positive students. Jaramogi Oginga Odinga Teaching also provided Team Building and Referral Hospital as a form of psychosocial support for students who also complained of a lack of follow-up on the students after counseling had been provided the counseling sessions

were usually provided during orientation and there was usually no follow-up after. The official also added that there was a deficiency when it came to policy in providing behavioural interventions.

The official at Kenya Medical Research Institute emphasized guidance and counseling services within Alupe University College were lacking. The Dean of students at Alupe University College though declared that they had a mentorship programme, which served to provide psychosocial support to students infected and affected by HIV. Meanwhile the Alupe University College Dean also shared that they provided guidance and counseling programmes and invited guest speakers from the hospitals to talk to the students.

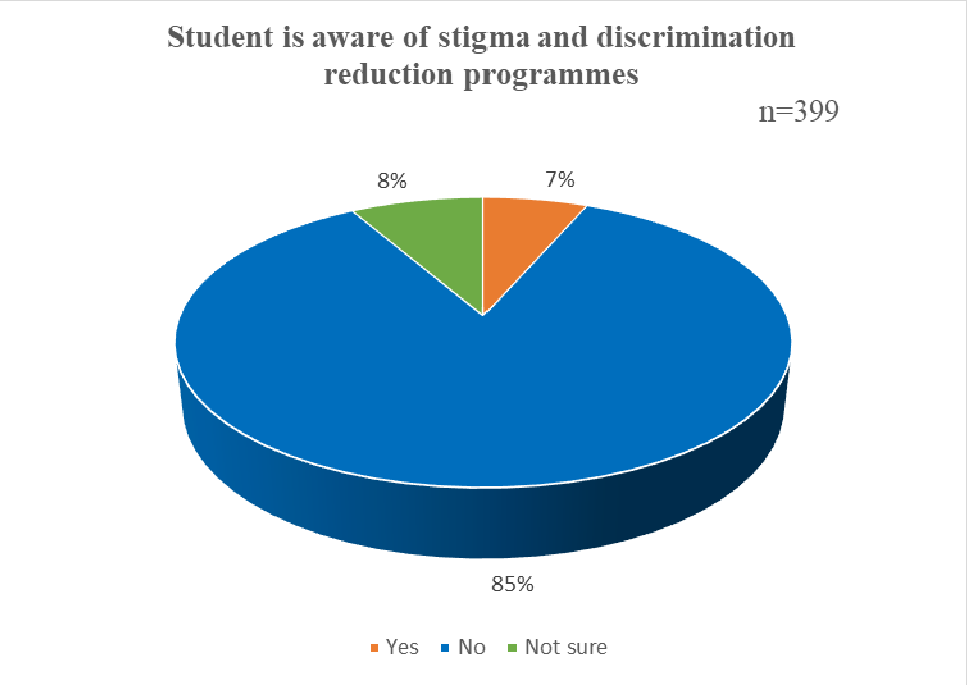

Figure 5: Respondents awareness of stigma and discrimination reduction
Source: Field data, (2020)

In the survey, 339 (85%) of students reported that there were not aware of any stigma and discrimination programmes available to them as students of Institutions of Higher Learning, while 28 (7%) were aware. Meanwhile 32 (8%) were not sure of the availability of these programmes. The official from Medicines Sans Frontiers Migori County commented that they have a policy on supervision to remove discrimination and reduce stigma through which they train staff against stigma and discrimination. Grossman & Stangl (2013), report that there is mounting evidence that HIV-related stigma and discrimination are barriers to HIV testing, to sero-status disclosure, to retention in care and uptake of and adherence to antiretroviral therapy (ART). They emphasize that stigma associated with HIV continues to hamper prevention and treatment efforts. Stigma and discrimination reduction strategies therefore contribute immensely in addressing HIV prevention among students in Institutions of Higher Learning in Western Kenya.

1.8.3 Challenges in implementing behavioural strategies of HIV prevention

Table 11 presents the challenges faced in communicating about Risky Sexual Behaviour among students in institutions of higher learning in Western Kenya.

Table 11: Challenges faced in communication about HIV Risky Sexual Behaviour

(n=399)

Communication Challenges faced	Nil	Low	Moderate	High
Extent to which respondents had access to behaviour change communication	3.3	18.5	49.1	29.1
Extent to which respondents had access to information on how to prevent unplanned pregnancies	2.5	11	48.4	38.1
Extent to which respondents had access to information on STIs	2.5	14	44.4	39.1

Source: Field data, 2020

The Dean of Students of Lugari Diploma Teachers Training College complained that there was need to improve on the provision of guidance and counseling which was a challenge in the institution. Additionally, an official from Bondo Hospital, Siaya County expressed that one of the challenges they experienced with implementing the behavioural Strategies in Institutions of Higher Learning was insufficient finances. This notion was agreed upon by officials from the County Governments of Kakamega, Kisumu and Homabay and the

official from the Jaramogi Oginga Odinga Teaching and Referral Hospital in Kisumu.

The Dean of students of Bondo Kenya Medical Training College complained of a lack of sufficient staff that could implement the behavioural strategies such as providing counseling and psychosocial support, and implementing stigma and discrimination reduction programmes. For counseling particularly, The Kisumu Polytechnic students' counselor complained of a lack of involvement of all student sexual partners when it came to counseling .The official of County Government of Busia also mentioned that there was lack of clarity in policy on the provision of behavioural interventions in Institutions of Higher Learning as a challenge.

Meanwhile, lack of modern ways of providing sexual education was mentioned as a challenge by the dean of students Tom Mboya University. The Dean of students at Kenya Medical Training College in Bondo complained of lack of enough staff to train students, irregular meetings and seminars when it came to implementation of interventions, lack of sufficient time dedicated to these interventions and uncooperative students. The official from Compassion International in Busia also shared that one of the challenges they were facing was that some students assumed that they already had knowledge of what they are being educate on which served as a psychological hindrance in information provision. Meanwhile, the nurse at Lugari Diploma Teachers Training College expressed the difficulty she experienced as dealing with students who were mostly married adults in the institution. The official from Jaramogi Oginga Odinga Teaching and Referral Hospital in Kisumu further expressed a lack of follow-up guidance and counseling sessions and cases of cases of students after they interacted with them during orientation events in their first year and further complained of low budget allocation and lack of enough funds.

The Rongo University clinic head additionally confessed that there was a lack of capacity regarding guidance and counseling in the clinic and that more money should be added in the budget to enhance provision of behavioural interventions. None of the institutions confessed to provision of stigma and discrimination reduction services, which poses a major challenge. The official of the County Government of Kisumu also shared frustration about inadequate finances, lack of policy implementation in the provision of behavioural interventions and a lack of cooperation between the Ministry of Health and students in Institutions of Higher Learning. Additionally the Dean of Alupe University College reported that;

> Other than organizing talks for the students there is nothing else we can do, since this is a free society students are free to stay where they want and with whosoever they wish to

Stakeholders also need to go through the process of debriefing to encourage them towards mitigation efforts. Table 12 presents challenges faced in communicating about Risky Sexual Behaviour in Institutions of Higher Learning in Western Kenya, which is part of a summary of what has been discussed in this section.

Table 12: Challenges faced in communicating about Risky Sexual Behaviour

Communication Challenges faced on Risky Sexual Behaviour			**(n=399)**	
	Nil%	Low%	Moderate%	High%
Extent to which respondents had acquired Behaviour Change Communication at University/College	3.3	18.5	49.1	29.1
Extent to which respondents had acquired information on how to prevent unplanned pregnancies at University/College	2.5	11	48.4	38.1
Extent to which respondents had acquired to information on how to prevent Sexually Transmitted Infections at University/College	2.5	14	44.4	39.1
Extent to which respondents had received information on the relationship between the consumption of psychotropic drugs and Risky Sexual Behaviour at the University/College	2.3	12.8	37.8	47.1
Extent to which respondents had received information on the value of the use of Pre-exposure prophylaxis in the reduction of HIV exposure at the University/College	12.3	30.1	31.3	26.3
Extent to which respondents had received information on the value of the use of Post-exposure prophylaxis in the reduction of HIV exposure at the University/College	12.8	29.3	32.1	25.8
Extent to which respondents had knowledge on the proper use of condoms from your University/College	5.8	9	22.8	62.4
Extent to which respondents had adequate knowledge on the hazards of abortions	6	11.8	42.1	40.1

Source: Field data, (2020)

1.9 Conclusion

Regarding the HIV Behavioural intervention strategies these interventions are found to be successful in helping students to mitigateHIV Risky Sexual behaviour in Institutions of Higher Learning in Western Kenya. The most successful has been found to be information provision followed by counseling and psycho-social support. Stigma and discrimination reduction programmes were on the other found to be extremely scanty.

1.10 Recommendation

Regarding study objective two, stakeholders are found to be putting more focus on providing students with HIV knowledge at the expense of providing them with Sexual and Reproductive Health knowledge as well which is counter-productive in the fight against HIV. It is important that all (100%) of the students have high-level knowledge on HIV. Therefore, it is important for the Institutions of Higher Learning in Western Kenya to improve upon their provision of HIV information to both female and male students to a point at which all students and of both genders is highly informed on HIV.

There is need for all stakeholders involved in HIV testing to ensure that they all provide HIV counseling to 100% of those students who sought the services.More effort needs to be invested by stakeholders to better interventions in providing stigma and discrimination reduction programmes to students in Institutions of Higher Learning in Western Kenya.There isfurther need for all stakeholders involved in HIV testing to ensure that they all provide HIV counseling to 100% of those students who seek the services. Additionally more effort needs to be invested by stakeholders in providing psychosocial support services, Stigma Reduction Programmes to students. Since only less than half of the respondents, used a condom correctly and all of the time that they had sex there is need to enhance interventions that frequently train students in Institutions of Higher Learning on correct condom use. Additionally, since a majority of respondents only used a condom sometimes when they had sex there was also need to enhance efforts on interventions to increase the uptake of contraception and PReP. The recommendation is further emphasized by the finding that almost a third of married respondents confessed to having had extra marital sex without a condom.

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