

Program Evaluation Report

Evaluating a youth peer health education program in Njombe, Tanzania

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Abstract

Aim: This project aimed to evaluate a youth peer health education program in two primary schools in Njombe, Tanzania by assessing the youth peer health educators (YPHEs) knowledge retention, the quantity and quality of the YPHEs' interactions with the peer learners; and barriers and supports that they perceived to be impacting their roles as YPHEs, 1 year post peer health education training.

Methods: The post-test Knowledge, Attitude and Practice (KAP) questionnaires from the same 20 YPHEs that had been collected and analyzed by Papuga, Buck, Liduke & Gagnon (2011) were used to assess the YPHEs' knowledge retention 1 year post training; data were analyzed descriptively using Microsoft Excel®. Information on the health education activities in which they were engaged in the past year was gathered using questions 1, 2, and 3 of a 6-item questionnaire and analyzed descriptively.

Information on the YPHEs' perceived barriers and supports to interacting with the peer learners was collected using questions 4, 5 and 6 on the 6-item questionnaire as well as focus group interviews which were analyzed using qualitative thematic analysis. **Results:** The average knowledge score post initial training in 2011 was 75.9% (95% CI: 72.4% - 79.4%), similar to the average knowledge score 1 year after having received training of 69.7% (95% CI: 64.1% - 75.3%). Condom use was a feature of the

YPHEs' knowledge about HIV/AIDS that decreased one year after having received training. The proportion of YPHEs who thought that condoms were useful in protecting a person from HIV went down from 80% in 2011 to 63% in 2012; those who thought that the correct use of condoms reduced a person's chance of getting HIV/AIDS declined from 95% in 2011 to 73% in 2012. The average score on the attitude portion of the questionnaire in 2011 was 88% (95% CI: 80.8% - 96.6%) which is similar to the average attitude score of 86% (95% CI: 80.8% - 89.1%) in 2012 with a majority showing an unfavorable attitude towards revealing their HIV status to others. In both schools, YPHEs visited classes to conduct peer health education about HIV/AIDS and other sexual health issues such as puberty and

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pregnancy. Peer learners' disruptive behavior, peer learners' preference for didactic teaching methods and classroom gender dynamics were YPHEs' perceived barriers impacting their roles. In contrast, knowledge derived from youth peer health education training program, YPHEs contact with one another and teachers were perceived supports. **Conclusion:** The YPHEs are a group of diligent and dedicated youth who have taken their roles very seriously and are committed to raising awareness about HIV/AIDS and general health in their peers. The decline in certain aspects of knowledge and attitudes about HIV/AIDS, one year post YPHE training, poses a potential risk to the HIV prevention among youth in Njombe, as the YPHEs might be conveying inaccurate information. This program evaluation also provides recommendations (summarized in Table 5) including a booster YPHE training session before YPHEs conduct further peer education activities emphasizing condom use and HIV/AIDS social stigma; continual organization of one-on-one peer education sessions in addition to group sessions by the YPHEs; subsequent YPHE training that provides YPHEs with necessary skills in dealing with disruptive peer learners and also incorporates a female-only session to address gender specific concerns that may hinder girl's participation in YPHE activities; and continual support and motivation from the responsible teachers, adult peer health educators and other key stakeholders of this YPHE program.

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Introduction

In 2011, 34 million people worldwide were living with HIV/AIDS (UNAIDS, 2012). While HIV/AIDS is a global epidemic, Sub-Saharan Africa (SSA) ranks as one of the highest affected regions in the world. By the end of 2010, it was estimated that 67% of all people living with HIV/AIDS and 70% of new HIV infections originated in SSA (WHO, 2011). The United Republic of Tanzania (URT) is one of the youngest and poorest countries facing the HIV pandemic in SSA (TACAIDS, 2008), with 160,000 children infected and more than 1.3 million children orphaned by AIDS (TACAIDS, 2008). It is estimated that more than half of all new infections in sub-Saharan Africa are among young people (UNAIDS, 2010). In recognition of the vulnerability of young people to HIV infection, several countries have implemented school-based intervention programs aimed at improving adolescent sexual and reproductive health (UNAIDS, 2010). Evaluations of school-based peer education programs in developing countries have shown that these interventions are effective in delaying onset of sex, decreasing the number of sexual partners and increasing the use of condoms (Cowan et al., 2008; Miller et al., 2008; Speizer, Heller, & Brieger, 2000). In general, results suggest that peer-to-peer learning is effective in providing preventative HIV/AIDS education among children in primary and secondary schools.

Youth peer education has been widely used as an alternative or complementary to interventions presented by adults and is becoming an increasingly popular method for promoting behavioral change in HIV prevention programs (Cowan et al., 2008; Cowan et al., 2010; Miller et al., 2008; Papuga, Buck, & Liduke, 2011; Visser, 2008). One of the main arguments for introducing peer education programs among youth is due to the belief that adolescents are more likely to discuss openly about sexual

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practices with their peers than with adults (Visser, 2008). This is especially the case when individuals are ambivalent about their own opinions, and look to those in the same social standing for guidance, suggesting that peer educators need to be seen as credible by their peers in order to be influential (Turner & Shepherd, 1999; Visser, 2008). Visser (2008) argues that peer educators make the educational process accessible to members of a community and also present information in a less intimidating manner and in a language that is suitable for young people. Peer education also affects personal growth of peer educators as they develop a greater understanding of themselves and it empowers young people to make a difference in the lives of other people (Visser, 2008). A further outcome of peer education is that it increases youth participation in decision-making, which contributes to their taking ownership of their own health and taking initiative to address some of the problems they experience (Aggleton & Campbell, 2000).

In spite of the strengths of youth peer education programs, evaluations of them show that curriculum-based and adult-led education programs are the most common interventions and that they have stronger evidence of effectiveness compared to peer-led, non-curriculum-based education programs (Napierala Mavedzenge, Doyle, & Ross, 2011). Napierala Mavedzenge, Doyle, & Ross (2011) argue that adolescents require more guidance in order to use information from peers appropriately and that further research is needed to understand the content of messages peers convey to each other (Doyle et al., 2010; Napierala Mavedzenge et al., 2011).

The involvement of adults in the dissemination of information is another area of interest in youth peer education programs. Milburn (1995) suggests that if youth peer educators do not have the power to determine the nature and type of information being delivered, then youth peer education programs become strategies for promoting adult-related agendas. This issue may influence a youth peer educator's motivation, and thus it could have a negative effect on their performance and on the way they deliver

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information to their peers. Other challenges reported by peer educators between the ages of 13 and 20 include concerns about feeling incompetent when it comes to gender inequality issues or emotionally charged topics such as rape and trauma (Visser, 2008) as well as balancing between the roles of expert and group member. In addition, studies have also shown that part of being accepted as a peer educator, is to avoid being ridiculed by the peer learners. This is a common obstacle in implementing such programs because peer-educators seek to adapt their 'educational' messages to avoid rejection by their peers and adults who might disapprove of sexual education (Selikow, Ahmed, Flisher, Mathews, & Mukoma, 2009).

Peer education programs that provide peer educators with adequate support and structure can keep peer educators focused and motivated (Visser, 2008). The selection of peer leaders and educators as role models for healthy behavior, are other important elements affecting the effectiveness of peer education interventions. It appears that volunteer or teacher-chosen peer educators are "higher achievers," more socially advantaged and not representative of their classmates (Mason-Jones, Flisher, & Mathews, 2011). Peer learners should therefore, be encouraged to nominate their own peer educators to ensure that economic and social conditions of the peer educators are the same as those they are trying to influence (Wolf & Bond, 2002).

Current Youth Peer Health Education program in Njombe, Tanzania

The McGill University-Ingram School of Nursing partnered with CHAKUNIMU, a local grassroots non-government organization, to evaluate whether a YPHE program could be established as a useful tool in disseminating information about HIV/AIDs in primary schools in Njombe, Tanzania (Papuga, et al., 2011). The study aimed to describe the factors involved in establishing a YPHE training program and to evaluate it through a pre- and post-test analysis of Knowledge, Attitude and Practice

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(KAP) scores. Two schools, Mlevela Primary and Nyumbanitu Primary were selected based on their results on a KAP survey of HIV/AIDS , which indicated HIV/AIDS educational needs, and the interest for an educational intervention shown by the individual schools (Lomenda, et al., 2010). The YPHEs were chosen through a democratic voting system in their classes (grade 4, 5 or 6), meaning that those who wanted to volunteer had an opportunity to do so, and could be elected by their classmates. Twenty students were selected as YPHEs (n=10 males, n=10 females). Five males and five females from each school were selected for equal distribution of sex. The ages of the YPHEs were between 11 and 16 so that they might remain in school for the next few years to promote sustainability, while being mature enough to discuss issues related to sexual health. After they were chosen, the twenty YPHEs received peer health education training over a five-week period. The YPHE training program was created using two different teaching guides. The first teaching guide entitled “Kuzumguzia Waelimishaji Rita,” (Talking about peer health education”) was modified from a peer health education manual used by adult peer educators in the community. The second teaching guide was modified and translated from the “Good Things for Young People: Reproductive Health Education for Primary Schools, Teacher’s Guide for Grade 5” (Obasi et al.) created for teaching Tanzanian school-aged children about reproductive health and HIV. The teaching guides were created in Kiswahili and given to the twenty YPHEs in a package with a notebook, ruler and pen.

YPHE training was provided by a team of instructors including adult peer health educators, a graduate student, and one of the authors B. Liduke (an expert with extensive knowledge about HIV/AIDS in the community). The training instructors were both female and male, who were comfortable with sexual health and HIV/AIDS topics. The female instructors did some of the teaching about male sexual health and vice versa, and questions relating to male sexual health were often targeted

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towards girls and vice versa to create a forum for open discussion and a sense of curiosity among the YPHEs as opposed to embarrassment or discomfort.

Teaching activities included games, role-playing, storytelling, reflective practice, ‘meaning sharing’ of personal experiences where YPHEs were either pressured or pressured another peer to do something, and practicing communication skills, such as saying ‘no.’ The YPHEs also practiced teaching selected topics from their training session and received feedback from the team of instructors. The YPHEs were also asked to do gender-specific role-plays in which the male YPHEs were asked to be the initiators of sexual activities and the female YPHEs practiced saying ‘no.’ Further discussion was held explaining that boys and girls can both be victims of sexual assault and they practiced different ways to say ‘no’ to potential perpetrators. Instructors emphasized the importance of walking or running away from an unsafe situation if someone was not listening to their requests. The YPHEs were encouraged to speak and ask questions throughout the training session and are reported to have had a high level of confidence and participation throughout the five-week training session (Papuga et al., 2011). Pre-and post-test knowledge and attitude questionnaire scores showed that on average, HIV related knowledge scores increased by 4.27 points, an increase of 32.4% ($p < .05$). This initial look at a YPHE-training program in Njombe suggested it was successful in increasing HIV knowledge and attitudes in YPHEs.

Aim of Current Program Evaluation Project

Given the importance of peer education programs generally, and the initial evidence of their effectiveness in Njombe, the current program evaluation aimed to assess the long-term impact of the YPHE program in order to improve the current and future youth peer health education training programs in Njombe and surrounding regions. Following from the work by Papuga, et al. (2011) this program

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evaluation assessed Njombe's youth peer health educator's knowledge retention, one year post-peer education training. This program evaluation sought to answer the following questions:

1. What knowledge, attitudes and practices about HIV/AIDS do YPHEs possess one year after having received their peer health educator training?
2. What peer health education activities have the YPHEs engaged in during the last year?
3. What are the YPHEs perceptions of the barriers and supports to interacting with the peer learners as trained YPHEs?

Methods

Program Evaluation Design

Phase I: Introduction and planning

Phase I of the project consisted of: creating an Advisory Committee (AC); introducing the program evaluation plan to the community and obtaining community consent; and explaining the project to the parents and guardians of the YPHEs. After the parents and guardians had signed the consent forms, the graduate student (GS) presented the project to the YPHEs who received peer health education training in the two aforementioned primary schools. The YPHEs were given a detailed explanation of the purpose and procedure of the project, time commitment required as well as potential risks and benefits, and signed their assent to participate. The AC assisted in identifying one male and one female CHAKUNIMU volunteer who assisted in administering questionnaires to the YPHEs and acted as moderators for the YPHE focus group interviews.

Phase 2: Administration of KAP and 6-item questionnaires to YPHEs

Once all assent and consent forms were collected, KAP questionnaires were administered to all YPHEs in a classroom in Nyumbanitu Primary School. The KAP questionnaire assessed the KAP about

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HIV/AIDS that the YPHEs possessed, one year after having completed their YPHE training. The same 20 YPHEs were given post-test questionnaires and were asked to answer a 6-item questionnaire including 3 open-ended questions immediately after the KAP questionnaire. The six questions were used to collect data that YPHEs might not want to disclose in the focus group interviews. They were able to shed light on YPHE interactions with their peers and share ideas for improvements that might be made. Data collected from this questionnaire were used to further guide three of the four focus group interviews.

Phase 3: Conducting Focus Group Interviews

Once all questionnaires were collected, a pilot focus group interview was conducted with the five male YPHEs from Nyumbanitu Primary School. The pilot focus group interview took 25 minutes to complete and did not result in the desired in-depth discussion among the YPHEs. The lack of discussion was attributed to the moderator's not receiving adequate training and not applying recommended approaches to focus group methodology. Results also showed that some of the Kiswahili words on the interview guide had multiple meanings and as a result, the moderator had misinterpreted the meaning of those words which changed the intent of some of the focus group interview questions. The two moderators later received training which included a review of the modified interview guide to minimize misinterpretation of the wordings, an overview of the focus group methodology, roles of the moderator, probing techniques and demonstration of interview skills through practice interview role-playing including how to handle challenging participants. Following the moderator trainings, three focus group interviews took place at the two aforementioned Primary Schools, as this was a convenient location for YPHEs. Focused group interviews were private, uninterrupted, and were audio-recorded. One focus group interview was conducted in Nyumbanitu Primary School, and two in Mlevela Primary School.

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Moderators of the same sex interviewed the boys and girls separately. Interview questions were open-ended and were posed in Kiswahili. The GS took notes on the setting and any distractions during the interviews.

Participants

The project evaluation participants were the same 20 YPHEs who received peer health educator training in the study conducted by Papuga et al. in 2011. YPHEs consisted of 10 male and 10 female. Their ages ranged from 12-17 years old. Their education level was standard (grade) 5 (40%), standard (grade) 6 (20%) and standard (grade) 7 (40%).

Ethical Considerations and Community Approval

Ethical considerations for this project were made in accordance with the Canadian Institute of Health Research guidelines for health research involving Aboriginal people (CIHR, 2011) as is recommended by the McGill University Institutional Review Board. This project was guided by a participatory approach, and as such, key stakeholders in the community were involved in the planning, implementation, analysis, and interpretation of the results. Similarly, the evaluation of the YPHE program was developed in collaboration with the local program evaluator, key stakeholder, and one of the authors (B. Liduke).

All data collected were kept secure under lock and key in B. Liduke's office and could only be assessed by the project evaluation team. No information that could identify participants was entered into the computer, however as precaution, all electronic data were password protected. This ensured that anonymity and confidentiality were maintained throughout the program evaluation process. The KAP questionnaires and 6-item questionnaires will be stored for seven years in B. Liduke's office in Njombe,

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Tanzania and the computerized data, audio-recordings, and transcripts of the focus group interviews will be stored for seven years, at the office of M. Buck, McGill University.

Data Collection Tools

KAP questionnaire

The first program evaluation question was addressed using a post-test KAP questionnaire which included three sections: (1) socio-demographic data and personal health practices (2) knowledge of transmission and prevention methods of HIV/AIDS, and (3) attitudes towards individuals with HIV/AIDS and personal beliefs. The KAP questionnaire had been used in the preceding studies by Lomenda, et al. (2010) and Papuga, et al. (2011). The KAP questionnaire had been revised by the AC of the 2010 study to ensure that it was culturally appropriate and it had been translated into Kiswahili at that time.

6-item questionnaire

The second program evaluation question was addressed by using questions 1, 2 and 3 of the 6-item questionnaire, ‘*How many of your peers in school did you talk to about HIV/AIDS in the last year?*’, ‘*Did you talk to boys and girls equally?*’ and ‘*Did your peers come to talk to you about other issues than those about HIV/AIDS?*’ To ensure that it was culturally appropriate, the questionnaire had undergone revision and translation to Kiswahili by B. Liduke.

Focus groups

The third program evaluation question was addressed using focus group interviews, which allowed the YPHEs to talk freely and in-depth about their experiences as YPHEs. The moderators began the interview with open-ended conversational questions such as, ‘*Please tell me about your experience*

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as a YPHE.’ The moderators were familiar with the interview guide questions and referred to the interview probes for elaboration and clarification. The interview guide included additional probes using concepts that were introduced from the answers obtained from questions 4, 5 and 6 on the 6-item questionnaires, ‘*What part of being YPHE did you like best?*’ ‘*What was the most difficult part of being a YPHE?*’ and ‘*What could be improved to better support you in your role as a YPHE?*’ The interview guide questions underwent several revisions to ensure that the Kiswahili translation of the words accurately captured the essence of the questions.

Data Analysis

KAP Questionnaire

The KAP questionnaire yielded quantitative data, which were analyzed using Microsoft Excel®. Questions in the knowledge section were ‘yes,’ ‘no,’ or ‘I don’t know,’ or offered several possible answers. All of the questions were given a score of 1 for the correct answer and 0 for the wrong answer. ‘I don’t know’ was deemed a wrong answer. For questions that had multiple correct answers, the GS tallied all correct answers and divided them by the total number of possible correct answers for a total of 1 point. There were 23 questions in the knowledge section, hence scores ranged between 0 and 23. The answers to the questions in the attitudes section of the questionnaire were provided in the same format as the knowledge portion. There were eight questions in this section, with each question having a score of one for a favorable attitude towards people living with HIV/AIDS and zero for an unfavorable attitude. For example, in the question, “If you found out your friend in school had HIV, would you still play with them?” ‘Yes’ was a more favorable attitude, ‘No’ and ‘Don’t know’ were deemed as an unfavorable answers. Scores varied between 0 and 8. For health practices and socio-demographic items in the KAP, frequency distributions were calculated. Descriptive statistics were used to respond to the first program

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evaluation question. Paired t-test were not performed due to our inability to access individual identifiers of the previous study's KAP surveys, thus, 95% confidence intervals of the mean scores at each time were used to describe the overall knowledge scores related to HIV/AIDS immediately post-training and one year later. Changes in scores of 10 percent or more were considered to be important.

6-item Questionnaire

Descriptive and qualitative analyses were performed on data resulting from the 6-item questionnaire. Frequency distributions were used to organize the quantitative data from questions 1 through 3, and thematic analyses were performed on the qualitative data from questions 4 through 6. The later answers were used to further guide the focus group interviews.

Focus Group data

During the interviews, the GS took field notes to document non-verbal communication to complement to the audio-recorded interviews. Following each interview, the GS who is fluent in Kiswahili and George Sanga, a local educator partner and primary school teacher recordings transcribed them verbatim. The interview transcriptions were then translated from Kiswahili to English. The transcribed interviews were divided into content areas: YPHE general experiences, YPHE specific activities, YPHE's perceived barriers and supports to interacting with the peer learners. The paragraphs, sentences and words contained within each content area were then condensed into themes.

Results

1. What knowledge, attitudes and practices about HIV/AIDS do youth peer health educators possess one year after having received their peer health educator training?

1. a Assessment of knowledge about HIV/AIDS

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Overall post-training knowledge scores, 1 year after completing training, ranged from 41% (9.5/23) to 88% (20.3/23). The average was 69.7% (95% CI: 64.1% - 75.3%), similar to their 2011 average post-training score of 75.9% (95% CI: 72.4% - 79.4%). Several features of the YPHEs' knowledge of HIV/AIDS were maintained and others appeared to have increased (Table 1). For instance, a majority (95%) of the youth peer health educators knew that AIDS was an incurable disease, were aware mosquito bites (100%) were not media for infection and that behaviors such as sharing meals (100%) did not have infective potential. There was an apparent increase in the proportion of YPHEs who thought that HIV/AIDS could not be transmitted through air (65% in 2011 to 90% in 2012), that it was not possible to get HIV/AIDS by using a latrine (70% in 2011 to 95% in 2012) and that a person could not infer their HIV status by sending their partners for testing (45% in 2011 to 75% in 2012). In addition, the proportion of YPHEs who thought that having sex without condoms and having many sexual partners increased their risk of HIV/AIDS increased (53% in 2011 to 70% in 2012 and 16% in 2011 to 70% in 2012, respectively). Furthermore, the proportion of YPHEs who thought that a girl could protect herself from HIV by insisting her partner use a condom, using a female condom and stopping having sex completely also increased (60% to 70.6%, 10% to 29.4% and 10% to 52.9%, respectively).

However, a number of features of their knowledge about HIV/AIDS appeared to have decreased. The proportion of youth who thought that condoms were useful in protecting a person from HIV went down from 80% in 2011 to 63.2% in 2012; the percentage who thought that the correct use of condoms reduced a person's chances of getting HIV/AIDS declined from 95% in 2011 to 73.7% in 2012; the proportion who thought that having one sexual partner will reduce a person's chance of getting HIV declined from 85% to 73.7%; the proportion who thought that being unfaithful to a partner would increase their risk of getting infected with HIV decreased from 84% to 35%; and the proportion who thought that having sex in exchange for money would increase their risk of getting infected with HIV

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decreased from 79% to 25%.

A decline in knowledge about mother-to-child transmission of HIV was also noted. For instance, 85% of YPHEs thought that HIV could be transmitted from mother to baby during pregnancy in 2011, while only 57.9% held the same view one year later. Ninety five percent of YPHEs thought that HIV could be transmitted from mother to baby during birth immediately after training in 2011; while only 84.2% held that same view one year later. All YPHEs thought that HIV could be transmitted from mother to baby through breast milk immediately post training in 2011, whereas only 89.5% held that view one year later (Table 1).

1. b Assessment of attitudes about HIV/AIDS

Favorable post-training attitude scores, 1 year after completing training, ranged from 63% (5/8) to 100% (8/8). The average score was 86% (95% CI: 80.8% - 89.1%), similar to their 2011 average score of 88% (95% CI: 80.8% - 96.6%). All but one of the questions went up or was maintained in the direction of having a ‘more favorable’ attitude (Table 1). The question that went down in the direction of having a ‘least favorable’ attitude was “ If you were told that you had HIV, would you tell anyone the results?” in which 56% answered correctly at training completion, while 27.8% answered correctly one year later.

1. c Assessment of practices about HIV/AIDS

Most of the YPHE were taking initiatives to protect themselves from HIV infection by remaining abstinent, knowing their HIV status and abstaining from factors that contribute to unsafe sex practices (e.g., use of alcohol). Results from this year (2012) indicate that 90% of YPHEs have been tested for HIV (10% did not answer); 60% of YPHEs know their status (30% do not know their status and 10% did not respond) (Table 2). Note that not all data collected have been summarized in this table owing to

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the response rate - as such, confidentiality of the YPHEs would not be preserved if these results were indicated.

2. What peer health education activities have the youth peer health educators engaged in during the last year?

All of the YPHEs talked to more than 20 of the peer learners in school about HIV/AIDS, 50% of the YPHEs taught an equal number of boys and girls and 55% of the YPHEs talked to the peer learners about topics other than HIV/AIDS, such as, puberty and pregnancy (Table 3). YPHEs visited classes to conduct peer health education about issues related to HIV/AIDS and other sexual health issues such as, puberty and pregnancy.

In Nyumbanitu Primary School, all 10 YPHE stood together in front of the class and taught the other students. The teaching sessions took place in the afternoon, around 3 p.m., after they were finished with school chores. They taught four times a month. They taught standards 5 and 6 in one week and standards 3 and 4 in alternate weeks. In Mlevela Primary School, a specific class period was set-aside for health teachings and YPHEs presented within these times. However this period was only allocated for standards 5 and 6, and not standards 3 and 4. Therefore, standard 4 students did not receive as many peer education sessions as standards 5 and 6 and standard 3 students did not receive any YPHE teachings. Also in Mlevela Primary School, two YPHEs at a time stood in front of the class and taught as opposed to the whole group method used in Nyumbanitu Primary School.

In both schools, YPHEs organized HIV awareness activities. They performed role-plays, theater and gave poem readings with health messages. They were invited to speak in community gatherings and in both schools they taught using posters that they had made. In both schools, peer educators were visible and other students were able to easily approach them for individual discussions. In fact, in the focus group interviews, it was revealed that it was not uncommon for YPHE to be approached by the

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peer learners who wanted to know more about HIV on their way home from school. Several YPHEs also reported that they also talked to adult community members and family members about HIV/AIDS. The YPHEs interacted with both genders and did not have to separate the boys and girls to facilitate communication.

3. What are the youth peer health educators' perceptions of the barriers and supports to interacting with the peer learners as trained youth peer health educators?

3. a barriers to YPHEs interacting with peer learners

Peer's disruptive behavior

One pressing issue encountered by the YPHEs was the peer learner's disruptive behavior. A majority of the YPHEs experienced difficulty in trying to gain the peer learner's attention and participation, particularly in the case of disruptive or uninterested peer learners. Many of the YPHEs did not know how to deal with noisy peer learners and described feelings of sadness and lowered confidence when the peer learners did not want to listen to them. One YPHE says, "They make noise and talk a lot. I tell them to stop making noise and then I continue to teach and then I feel bad because I have told them to stop making noise and they refuse to listen" (Y1). For another youth peer health educator, keeping noisy peer learners on track cost a great deal of time and sometimes took the place of peer health education teachings:

"I find it challenging when I am teaching and students make noise and they are laughing, I do not like that behavior. When they make noise, I stop teaching and I start to ask them to keep quiet and meanwhile the time for teaching runs out. The teacher for another lesson walks in and we stop teaching." (Y17)

Other YPHEs reported that peer learners were only disruptive when they were alone with the YPHEs and did not make noise when a teacher was present.

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Peer's preference for didactic methods

YPHEs were given classroom access and time to do peer health education activities on school days. Despite being trained in participatory peer health education skills (such as drama and role-plays), YPHEs from Mlevela Primary School found it difficult to apply drama and role-plays into their teaching because the peer learners were used to a didactic approach to learning. As a result, they struggled to get students to be open to these more interactive styles of learning and drifted back toward the more traditional method of didactic teaching:

“In class we teach in front of the class because students are not interested in role-plays we only write lessons on the board and teach. When we want to introduce other methods, such as games, students are not receptive. When we use role plays to try and help the students understand the lesson better, the students refuse and so we have to use the method of writing alone.”(Y12)

According to some of the YPHEs, the peer learner's preference for didactic approach to learning diminished their ability to help them understand the lessons better.

Classroom gender dynamics

Two male YPHEs reported that the gender dynamics in the classroom presented barriers in interacting with the female peer learners. One YPHE reported that there were classroom discussions about sexual behaviors amongst the boys and that the girls were shy to join in these discussions, often preferring to sit amongst themselves and refusing to participate in peer health education activities. One of the male YPHEs said, “In our class, the teacher arranges for the boys and girls to seat together but the girls usually change their seating arrangements when the teacher leaves the classroom.” (Y17). The other YPHE continues to explain more about female and male classroom behavior:

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“We used to think that if a boy and a girl sat together in class it was wrong. Through the teachings we have learned that there is nothing wrong with that and that a girl and a boy can be together. When we tried to tell our peers this, they did not agree that it was okay for a boy and a girl to be together.” (Y12)

This excerpt indicates that socially learnt concepts of gender are deeply engrained and resistant to change in some youth making it difficult for boys and girls to interact in the classroom.

3. b Supports to YPHE interacting with the peer learners

HIV/AIDS knowledge derived from the youth peer health education training

The YPHEs reported that the knowledge they obtained from the YPHE training provided them with an understanding of HIV/AIDS, and enabled them to teach the peer learners about HIV/AIDS. One YPHE reported, “I have learned a lot, because before I had received the training I did not know much and neither did my peers, and so because I know a lot, I am able to teach my peers” (Y14). The focus group discussions showed that some of the YPHEs had knowledge about the basic facts about HIV/AIDS. Several of them mentioned that HIV could be spread through sexual intercourse, blood contact, and breast milk and through sharing of sharp objects like needles and razorblades.

YPHE’s mutual support for one another

Several of the YPHEs reported that their first source of support is one another. YPHEs talked to and relied on each other to help out with questions about the lessons and difficult questions from the peer learners. One YPHE says, “When my peers ask me a question that I am not able to answer I ask my fellow YPHEs” (Y13). Several YPHEs from Mlevela Primary School suggested that although teachers were helpful with answering their questions, they looked to each other first, for solutions on difficult

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questions and issues regarding HIV/AIDS because they saw themselves as being more knowledgeable about the subject matter than their teachers.

Support from teachers

The responsible teachers in each school assisted the YPHEs in answering difficult questions, and organizing the YPHE activities in the classroom. One YPHE from Nyumbanitu Primary School states, “When we are done with the school chores, the teacher rings the bell and helps us gather the students and then the teachers call us to teach the students.” (Y9). In Mlevela Primary School, the teachers supported the YPHEs by intervening to discipline disruptive students who interrupted peer health education activities and assisting the YPHEs with difficult questions.

YPHEs’ recommendations for program improvement

YPHEs also gave suggestions for improvement of their work as youth peer health educators. YPHEs demonstrated a perceived awareness of their lack of HIV/AIDS knowledge. “I would like to be taught more about STIs so that I can get a better understanding of the topic and so that I can teach others at school, in the community and other gatherings.” (Y17). Most of the YPHEs reported that they wanted to receive teaching about issues related to HIV/AIDS and puberty. Some indicated the need for support from community leaders and suggested that they wanted to talk to community leaders about the possibility of teaching members of their community. Students also indicated the need for networking with other schools and reported that they needed a means of transportation to travel to other schools. Some YPHEs requested for more teaching materials like chalk, notebooks, pens, books, posters and youth friendly health magazines.

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Discussion

The following discussion focuses on the key findings of Njombe's YPHEs' knowledge and attitudes about HIV/AIDS 1 year post-peer health education training; the quality and quantity of the YPHEs' interactions with the peer learners; and they YHPEs perceived barriers and facilitators to carrying out their roles.

Knowledge about HIV/AIDS

Overall knowledge post-YPHE training in 2011 was maintained, but it did not improve. In 2011, the overall knowledge score was 75.9% and the YPHEs were provided with guidebooks to help them improve their knowledge about HIV/AIDS. The lack of increase in overall knowledge from last year suggests that the YPHEs still have misconceptions about HIV transmission and prevention which will affect not only their understanding of their own risk and decisions regarding safe sexual behavior but that of their peer's as well. It is possible that the lack of increase in overall knowledge about HIV/AIDS noted in this program evaluation might be due to the decay of knowledge over time between the educational intervention in 2011 and knowledge assessment one year later. In the absence of a booster YPHE training session between the 2011 YPHE training and subsequent knowledge assessments, the YPHEs' knowledge about HIV/AIDS will decline and the YPHEs will continue to be at risk for teaching incorrect information to the peer learners. Therefore, a booster YPHE training session is warranted to improve the YPHEs' overall knowledge scores before they engage in further educational activities with the peer learners. In addition, studies should investigate the KAP of YPHE post-training at different intervals to fully assess optimal timing for subsequent booster sessions to increase HIV/AIDS knowledge. Other possible explanations may be that YPHEs are not motivated or empowered to engage in self-directed learning about HIV/AIDS. All the YPHEs who responded during the focus group

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interviews indicated that they still had their guidebooks but only a few had said that they read them.

They were all provided with these guidebooks which contain information that is consistent with the lessons that they received from the training in 2011. It was expected that they would use these books to read more about the information that they have received in the YPHE training, look up questions they had or try to clear any confusion that they possibly had while learning the lessons. Therefore, in addition to receiving a booster training session, the YPHEs could be encouraged by the training instructors to take responsibility for their knowledge through independent, regular review of their guidebooks to prevent knowledge decay.

It is also possible that the knowledge they have learned from their respective schools and other sources outside of YPHE training program might be incorrect. When asked where they first heard about HIV/AIDS, 65% of the YPHEs mentioned their teachers (Table 4). In the focus group interviews, several YPHEs also said that they go to teachers for help with questions that they are not able to answer. While teachers may have the potential to be a good source of information about HIV/AIDS they may not be providing the YPHEs with the most accurate information about HIV/AIDS. However, before we can draw conclusions about this, studies should assess teacher's HIV/AIDS knowledge levels and examine how confounding sources of information received from both schools and information obtained from friends or teachers can influence the YPHEs knowledge on HIV/AIDS.

Although results suggest no difference in overall knowledge, item-based results show that features of HIV/AIDS knowledge appeared to have either increased or decreased. For example, an increase in the proportion of YPHEs who thought that HIV/AIDS could not be transmitted through air or by using a latrine was noted; and the proportion of YPHEs who thought that a person could not infer their HIV status by sending their partners for testing increased as well. In contrast, YPHE's knowledge appeared to decline on questions about condom use. For instance, the proportion of YPHEs who thought

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that condoms were useful in protecting a person from HIV and the percentage who knew that the correct use of condoms could reduce a person's chances of getting HIV/AIDS declined one year after training. While the above results indicate a decline in knowledge about condom use, results measured by two other questions on the same questionnaire indicate an increase in YPHEs knowledge about condom use. This discrepancy may be due to the formatting of the questions, so that the questions that require multiple answers were not always completely answered compared to single answer questions, which were almost always completely answered.

Nevertheless, it is possible that the YPHEs may have retained knowledge in topics that are directly related to their lives (e.g., mosquito bites and sharing meals as not having an infective potential) and retained less knowledge on the issues that did not present immediate consequence to their lives (e.g., correct use of condoms). It is also possible that the community's perceptions towards condom use may have an impact on the YPHEs knowledge about condom use. For instance, a study about the barriers to condom use in Arusha and Kilimanjaro regions of Tanzania showed that people who stated that condoms reduced sexual enjoyment were significantly less likely to have used condoms regularly and most parents do not approve of the supplying of condoms to sexually active youth (Mnyika, Kvale, & Klepp, 1995). Further studies could identify other negative attitudes (e.g., psychological factors and traditional beliefs) towards condom use in Njombe and surrounding regions and target them for YPHE training. Ultimately, the decrease in HIV/AIDS knowledge related to correct condom use and usefulness of condoms is significant, as YPHEs who relay inaccurate information to peer learners about condoms will hinder HIV prevention among the youth. Given the significance of condom use in reducing the risk of HIV infection and the YPHE's decreased knowledge about condom use, the recommended booster YPHE training session could emphasize the usefulness and correct use of condoms.

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Attitudes about HIV/AIDS

The program evaluation also demonstrated that the majority of the YPHEs appeared to have maintained an overall positive attitude towards people living with HIV/AIDS, one year after having received YPHE training. This could be related to the fact that the educational training that they received has allowed them to understand that HIV is an example of another chronic disease and this may help them overcome the potential stigma that arises from the community. Despite the overall positive attitudes, the majority of the YPHEs showed a negative attitude towards revealing their HIV status to other people. It is possible that the YPHEs have a heightened awareness or personal experience of stigma in their communities that we are not aware of and there is a concern that the YPHEs might be transmitting this negative attitude to the youth that they are educating. In order to alleviate the YPHEs' negative attitudes of stigma towards HIV/AIDS and prevent them from transmitting it to the peer learners, the previously described booster training session could teach YPHEs about social stigma and discrimination and its hindrance to HIV prevention.

YPHEs interaction with the peer learners

In both schools, YPHEs visited classes and taught about HIV/AIDS in large groups of ten and in groups of two. There are several advantages to conducting YPHE teaching in groups. First, presenting the material as a group provides a 'buffer' effect whereby, the YPHEs with accurate knowledge are able to correct the YPHEs whose knowledge is accurate. Second, group presentations in the classroom ensure that a large number of the peer learners are receiving peer health education and it also improves YPHEs visibility to the peer learners. Third, group presentations, which usually require preparation, would presumably prompt some of the YPHEs to review the correct HIV/AIDS information from their YPHE guidebooks. Lastly, formalized group presentations as YPHE activities indicate that the school officials and teachers see the YPHE program as being important. Nevertheless, there are disadvantages to YPHEs

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conducting peer health education teaching in groups. For instance, there might be varying personalities that range from dominant to the meek whereby the quiet YPHEs might not feel as comfortable contributing to the YPHE teachings (even if they have adequate knowledge about HIV/AIDS) thus sacrificing the effectiveness of the group presentation. Given the benefits for both group and individualized interaction with the peer learners, YPHE teachings in both schools could be limited to less than 10 presenters to ensure equal participation from all presenters.

Peer learners might prefer individualized interactions with the YPHEs, as they might feel uncomfortable in raising sensitive issues related to HIV/AIDS in a classroom format due to a lack of confidentiality. Individualized interactions may provide the peer learners with a safer place to ask questions or share their concerns with the YPHEs with whom they feel most comfortable. Results from the focus group interview indicate that some of the peer learners are not comfortable in participating in classroom discussions. Therefore, YPHEs could continue to organize and facilitate one-on-one YPHE sessions in addition to group sessions to accommodate peer learners who might want to interact with individual YPHEs and convey information that they might not be comfortable sharing in a classroom setting. Furthermore, YPHEs have recently been provided with identification cards, YPHEs could be encouraged to continue wearing their identification cards, as they are tools to improve visibility by the peer learners who want to engage in one-on-one YPHE sessions. A downside to individualized interactions with YPHEs would be that a peer learner who interacts with a YPHE who has decreased knowledge about HIV/AIDS might receive incorrect information. It is difficult to monitor the content of the messages that YPHEs relay to the peer learners in individual interactions but the hope is that the booster training session and promotion of self-directed learning will increase all the YPHEs knowledge about HIV/AIDS and minimize the YPHEs transmission of incorrect information to the peer learners.

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YPHEs' perceived barriers impacting their roles

The YPHE also experienced barriers to carrying out their roles. These barriers were: peer learners disruptive behavior, peer learners preference for didactic teaching methods and classroom gender dynamics. The YPHEs reported that noisy peer learners interrupted the YPHE teachings in the classroom. However, the YPHEs also mentioned that the peer learners were less disruptive as the YPHE program progressed. This could indicate that the peer learners became more comfortable with the presence of the YPHEs in their classrooms and with the subject matter or that the YPHEs became more adept in their roles. Nonetheless several of the YPHEs did not know how to deal with noisy peer learners and described feelings of sadness when they did not want to listen to them. Subsequent YPHE training could discuss disruptive behavior (e.g., noisy peer learners) as potential challenges to conducting YPHE teaching in the classroom and provide YPHEs with necessary skills in dealing with disruptive peer learners through role-plays.

Peer learner's preference for didactic teaching was another barrier to YPHEs interacting with peer learners. Results show that the peer learners in Mlevela Primary School have a preference for didactic teaching styles and are not receptive to learning about HIV/AIDS using interactive styles of teaching such as drama and role-playing. The peer learners may have a preference for didactic styles of learning because it fits with the dominant teaching method. Studies show that Tanzanian primary school teaching style is mainly teacher-centered recitation routines (O-saki & Agu, 2002) and emphasis is placed on passing national exams through memorizing information, rather than the development of critical thinking, knowledge application or problem-solving skills (Cooksey & Riedmiller, 1997). A downside to didactic approaches to learning is that the peer learners take on a passive role in their learning and the YPHEs are seen as the expert teacher, which is contrary to the development of critical debate and dialogue about HIV/AIDS, a key feature of peer education programs (Aggleton & Campbell,

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2000). This dialogue is important as it might engage peer learners in discussions about their sexual health in a more interactive manner. Considering the importance of dialogue about HIV/AIDS in YPHE programs, the responsible teachers could support the YPHEs to continue utilizing interactive learning styles (e.g., role playing and games) in addition to the traditional didactic style of teaching.

Another barrier mentioned by the YPHEs was classroom gender dynamics. Two male YPHEs reported that the female peer learners were less willing to participate in the YPHE activities than the boys. Interestingly, the difference between the boys' and girls' willingness to participate also applied to the focus group interviews. According to a community member in Njombe, women are "to be seen and not to be heard". Women are not expected to be part of important discussions with men and they are discouraged from voicing their disagreements with decisions made by men. These statements are similar to studies that show that many African women lack control over sexual matters, and are expected to be submissive and leave the initiative and decision-making in sexual relations to men (Ampofo, 2001). It might be possible that the girl's participation in the classroom is undermined by their socialization to be submissive and unquestioning. It is also possible that because sexual matters are not openly discussed in their homes or in schools the girls may be shy to share their opinions. This raises the question of whether the female YPHEs are as effective as their male counterparts if they do not have the same level of participation.

It is, however, worth noting that the male YPHEs are concerned about the girl's unwillingness to participate and would like them to participate more. This finding, in addition to the decision to include girls in the YPHE program, indicates that the community sees value in girls taking an active role in making sexual health decisions. Therefore, it is recommended that the YPHE teaching in the classroom continue to be carried out by a mixture of boy and girl YPHEs and YPHEs could ensure that girls are given equal opportunity to engage in classroom discussions. Furthermore, the information about the

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girl's unwillingness to participate in the YPHE activities was shared by some of the male YPHEs.

Therefore, the YPHE training program could incorporate a female-only session whereby female instructors will validate this concern (i.e., unwillingness of the girls to participate) with the female YPHEs and subsequently address any of the gender specific concerns that may hinder their active participation in the YPHE activities. In addition, this female-only session could seek to empower the female YPHEs to learn negotiation skills, how to speak out, self-confidence, and decision-making and leadership skills.

YPHEs' perceived facilitators impacting their roles

The YPHEs also received support to facilitate their interaction with the peer learners, notably knowledge derived from the YPHE training program, YPHEs mutual support for each other and support from the teachers. Most of the YPHEs who responded during the focus group interviews reported that the knowledge they had received from the YPHE training had helped them teach the peer learners about HIV/AIDS. YPHEs also reported that they were able to ask each other for assistance with questions that were difficult to answer and that the responsible teachers in each school assisted them in planning the peer health education teachings in the classroom. These findings indicate that the YPHEs and the teachers see value in the YPHE program and want it to continue. If the teachers are supportive of the YPHEs, it might also encourage other members of society (community leaders and other parents) to be more supportive of the work that the YPHEs are doing. This could create a chain reaction, whereby if everyone is supporting the YPHEs, they are going to feel empowered to do their work. Continual motivation and support from teachers, the adult peer health educators (APHEs) and other key stakeholders in the community is therefore warranted to maintain YPHEs' momentum and HIV/AIDS knowledge at high levels (Laukamm-Josten et al., 2000).

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The YPHEs reported that they also needed various supports and resources such as more teaching about HIV/AIDS, networking with other schools and teaching materials to improve their work as YPHEs. These recommendations show that the YPHEs want to collaborate in improving the YPHE program. YPHEs from Nyumbanitu Primary School said that they would like to network with the YPHEs from Mlevela Primary School. Networking of YPHEs is important for this program's stability as YPHEs from both schools will be able to come together periodically to have formal exchange on the various ways they each conduct YPHE education activities. This may empower the YPHEs to find new ways of interacting with the peer learners and keep them motivated to improve their work as YPHEs. It was also revealed that once a year, the AC awarded awards in the form of notebooks and pens, to the YPHEs that demonstrated good teaching skills. The YPHE program could continue to give performance awards to YPHEs in order to keep their motivation going and help their desire to excel in their roles.

In conclusion, there was an initial increase in the overall knowledge at 5-weeks post YPHE training in 2011(Papuga et al., 2011) and this overall knowledge appears to have been maintained one-year post YPHE training. HIV/AIDS knowledge related to condom use decreased one year after receiving training, hence the YPHEs may be conveying inaccurate information to the peer learners, which would hinder HIV prevention among the youth. Findings also indicated that peer learner's disruptive behavior, peer learner's preference for didactic teaching methods and classroom gender dynamics were YPHEs' perceived barriers to interacting with the peer learners. In contrast, knowledge derived from youth peer health education, YPHEs contact with one another and teachers were perceived supports. This program evaluation has provided recommendations (summarized in Table 5) that could be used to improve the YPHE programs in Mlevela and Nyumbanitu Primary Schools.

Limitations of this program evaluation include variation in the focus group moderator's interviewing styles; further training could have been provided to moderators to insure constituency in

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interviewing skills. A second limitation was the previously unknown preferred language of communication amongst the YPHEs of their tribal dialect (Kibena), which might have affected their participation in Kiswahili interviews. A final limitation of this project was the inability to access individual identifiers of the previous study's KAP surveys, which resulted in descriptive group knowledge scores rather than assessing individual changes in knowledge, as would have been possible with individually compared scores.

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Appendices**Table 1**
Knowledge & attitude for HIV/AIDS results, 2011-2012Legend: *Italics*: >10% increase in scores from 2011 to 2012; Underlined: >10% decrease in scores from 2011 to 2012.

	Posttest (2011) % correct	Posttest (2012) % correct
KNOWLEDGE		
Do you think that a person can get infected with HIV through mosquito bites?	100	100
Can a person get infected with HIV by sharing a meal with a person who has HIV/AIDS?	100	100
Can a person get infected with HIV by sharing needles with someone who has HIV/AIDS?	100	95
<u>Can a person get infected with HIV by holding hands with someone who has HIV/AIDS?</u>	100	85
<i>Can HIV/AIDS be transmitted through the air?</i>	65	90
<i>Do you think that it is possible to get HIV/AIDS by using a latrine?</i>	70	95
Do you think that a person who looks healthy can have the HIV virus?	60	68
What are some ways a person can protect themselves from HIV?		
1. <u>Use condoms</u>	80	63.2
2. Don't have sex	85	78.9
3. Be in a faithful relationship	35	36.8
4. Use female condoms	15	15.8
5. other_____	0	0

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What are some ways people can increase their risk of getting infected with HIV?		
1. <i>Have sex without condoms</i>	53	70
2. <u>Exchange money for sex</u>	79	25
3. <i>Have many sexual partners</i>	16	70
4. Inject drugs with contaminated needles	74	80
5. <u>Be unfaithful to your partner</u>	84	35
6. Other_____	0	0
<u>Do you think that people can reduce their chances of getting HIV/AIDS by using a condom correctly every time they have sex?</u>	95	73.7
Is it okay to use the same condom more than once?	75	78.9
<u>Can people reduce their chances of getting HIV/AIDS by having only one sex partner who has no other partners?</u>	85	73.7
<u>Can HIV be transmitted from a mother to a baby during pregnancy?</u>	85	57.9
<u>Can HIV be transmitted from a mother to a baby during birth?</u>	95	84.2
<u>Can HIV be transmitted from a mother to a baby through breast milk?</u>	100	89.5
In which ways do you think an HIV positive mother can avoid transmitting HIV to the baby?		
1. <u>Medications before birth</u>	50	36.8
2. Not breastfeeding	80	84.2
3. Cesarean section	15	5.3
4. Other_____	5	0
5. Don't know	0	0
<u>Do you know where you can go to get an HIV test in your community?</u>	100	85
At which of these places can you get an HIV test?		

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1. Sexual health clinic/HIV testing center	50	55
2. <u>Hospital/clinic</u>	75	60
3. Family planning center	25	25
4. <i>Dispensary</i>	25	55
<u>If you test positive for HIV, do you have AIDS?</u>	45	5
<i>Can you find out if you have HIV by sending your boyfriend/girlfriend for testing?</i>	45	75
Can HIV/AIDS be cured?	90	95
Can a girl protect herself from getting HIV if her boyfriend has HIV?	70	70
What can a girl do to protect herself from getting HIV if her husband has HIV?		
1. <u>Refuse sex</u>	75	64.7
2. <i>Insist on her partner using a condom</i>	60	70.6
3. <i>Use a female condom</i>	10	29.4
4. <i>Stop having sex completely</i>	10	52.9
5. Don't know	60	5.9
6. other _____	0	0
ATTITUDES		
<i>Do you believe that HIV/AIDS is a punishment from God for bad behavior?</i>	66	85
If a member of your family became sick with AIDS, would you be willing to care for him or her in your household?	90	95
If a teacher has HIV, should he or she be allowed to continue teaching in school?	95	100
If your classmate has HIV, should he or she be allowed to continue to come to school?	100	100
If you found out your friend in school had HIV, would you still play with them?	95	95
<i>If you knew that a shopkeeper or food seller had HIV, would you buy vegetables from them?</i>	80	90

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<u>If you were told that you had HIV, would you tell anyone the results?</u>	56	27.8
Would you ever want to be tested for HIV?	100	100

Legend: *Italics*: $\geq 10\%$ increase in scores from 2011 to 2012; Underlined: $\geq 10\%$ decrease in scores from 2011 to 2012.

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Table 2 (modified)

Practice related behaviors, 2012

	Frequency
In the past 12 months have you been tested for HIV?	
Yes	85%
No	15%
Have you ever been tested for HIV?	
Yes	90%
No	0%
No answer (n=2)	10%
If yes, have you been told the results of your most recent HIV test?	
Yes	60%
No	30%
No answer (n=2)	10%

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Table 3
Youth peer health education activities, 2012

	Frequen cy % (n=20)
1. How many of the peer learners in school did you talk to about HIV/AIDS?	
0-5	5%
6-10	0%
11-15	10%
16-20	0%
>20	80%
No answer	5%
2. a. Did you talk to boys and girls equally?	
Yes	50%
No	45%
Did not talk to anyone	0%
No answer	5%
2. b. If you answered No, which gender did you talk to more often?	
Boys	2/9 (22.2%)
Girls	7/9 (77.7%)
3. Did the peer learners come to talk to you about other issues other than those about HIV/AIDS?	

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Yes	40%
No	55%
Did not talk to anyone	0%
No answer	5%

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Table 4

Demographic information, 2012

Characteristics	Frequency % (n=20)
<u>Sex</u>	
Male	50%
Female	50%
<u>Age (Years)</u>	
12	35%
13	25%
14	30%
15	0%
16	5%
17	5%
<u>Grade</u>	
5	40%
6	20%
7	40%
<u>Religion</u>	
Christian	90%
Muslim	5%
None	5%

When I have a health problem, I ask God for help.

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Strongly agree	45%
Agree	30%
Disagree	10%
Strongly disagree	5%
No answer	10%
When I have a health problem, I ask my congregation for help	
Strongly agree	25%
Agree	15%
Disagree	35%
Strongly disagree	15%
No answer	10%
When I have a health problem, I ask my spiritual leader for help.	
Strongly agree	30%
Agree	20%
Disagree	25%
Strongly disagree	15%
No answer	10%
Where do you usually go if you are sick or to treat a general health problem?	
Tanwat hospital	40%
Government hospital	45%
Private hospital	5%
Church hospital	5%
Other= never been hospitalized	5%

For which reason did you last seek medical help?

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HIV testing	30%
Cough/cold	40%
Injury	5%
Infection	0%
Malaria/TB	15%
Other: Never been sick	5%
No answer	5%
About how long does it take you to get to school?	
< 15 minutes	50%
16 -29 minutes	10%
30 minutes to 1 hour	15%
>1 hour	25%
How many people do you live with at home?	
1-3	40%
4-6	45%
7-9	5%
More than 9	0
No answer	10%
Have you ever heard of the virus HIV or the illness called AIDS?	
Yes	100%
No	0%
If yes, where did you first hear about HIV or AIDS?	
TV	5%
Teacher	65%

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Friend	0%
Family member	0%
Someone in the community	10%
Religious leader or church	0%
Radio	5%
Peer health educators	5%
No answer (n=2)	10%

Does any member in your family have HIV/AIDS?

Yes	0%
No	75%
Don't know	20%
No answer	5%

Table 5
YPHE program recommendations

Commitment and dedication of youth peer health education and school support for YPHE program.
<ol style="list-style-type: none"> 1) The youth peer health educators should be commended and formally recognized for their commitment to the youth peer health education program. Recognition could come in the form of a certificate for ongoing contributions, t-shirts with YPHE or other logo on the sleeve, a pin with the Highlands Hope Umbrella or other logo on it. 2) The schools should be commended for their ongoing support and contributions to the YPHE program. Formal public recognition is recommended e.g., a statement on the Highlands Hope Umbrella website; a plaque indicating the school's commitment and contributions to the YPHE program
Knowledge and attitudes about HIV/AIDS
<ol style="list-style-type: none"> 1) Conduct booster YPHE training sessions on a regular basis (at least once a year) reviewing the teaching related to HIV/AIDS as well as emphasizing areas of knowledge gaps (e.g., the usefulness of condoms in preventing HIV transmission; issues of social stigma and discrimination related to HIV/AIDS). 2) Encourage YPHEs to take responsibility for their knowledge through regular review of their guidebooks so as to keep current of the details related to HIV/AIDS and sexual health.
YPHEs' interaction with the peer learners
<ol style="list-style-type: none"> 1) YPHEs could organize and facilitate one-on-one peer education sessions in addition to group sessions to accommodate peer learners who might want to interact with individual YPHEs and convey information that they might not be comfortable sharing in a classroom setting. 2) YPHEs could be encouraged to wear their identification cards, as they are a tool to improve visibility by their classmates who want to engage in one-on-one peer education sessions. 3) YPHE teachings in the classroom could be limited to less than 10 presenters to ensure equal participation from all presenters.
YPHEs' perceived barriers to carrying out their roles
<ol style="list-style-type: none"> 1) Subsequent YPHE training could discuss disruptive behavior (e.g., noisy peer learners) as potential challenges to conducting YPHE teaching in the classroom and provide YPHEs with

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necessary skills in dealing with disruptive peer learners through role-plays.

- 2) The responsible teachers could support the YPHEs to continue utilizing interactive learning techniques (e.g., role playing and games) in addition to the traditional didactic style of teaching.
- 3) YPHE teachings in the classroom could continue to be carried out by a mixture of boy and girl YPHEs and YPHEs could ensure that girls are given equal opportunity to engage in discussions.
- 4) YPHE training program must incorporate a female-only session whereby female instructors will validate this concern (i.e., unwillingness of the girls to participate) with the female YPHEs and subsequently address any of the gender specific concerns that may hinder their active participation in the YPHE activities.
- 5) Female-only session could seek to empower the female YPHEs to learn negotiation skills, how to speak out, self-confidence, and decision-making and leadership skills.

YPHEs' perceived facilitators to carrying out their roles

- 1) Teachers and school officials should be commended for their role in supporting the YPHE program and activities.
- 2) Continual motivation and support from teachers, the adult peer health educators and other key stakeholders in the community is warranted to maintain YPHEs' momentum and HIV/AIDS knowledge at high levels.
- 3) The YPHEs from both schools could come together periodically (perhaps at least once a year) to have formal exchange on the various ways they each conduct YPHE education activities.
- 4) The YPHE program could also continue to give performance awards to YPHEs in order to keep their motivation going and helping their desire to excel in their roles.

Possible future evaluation

- 1) Investigate the outcome of YPHE education training at different intervals to fully assess the optimal timing for subsequent training sessions to maintain HIV/AIDS knowledge.
- 2) Identify the negative attitudes (e.g., psychological factors and traditional beliefs) towards condoms and target them for YPHE education training
- 3) Examine how confounding sources of information such as information received from schools and information obtained from friends or teachers can influence the YPHEs' knowledge about HIV/AIDS.
- 4) Do a prospective study on the leadership contributions of the first 20 formally trained YPHE.