

Impact Evaluation of the Join-In-Circuit in Schools in Zambia

Final Evaluation Report



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Abbreviations and Acronyms

ACASI	Audio, computer-assisted self-interview
AIR	American Institutes for Research
CSE	Comprehensive Sexuality Education
ESA Commitment	Ministerial Commitment on Comprehensive Sexuality Education and Sexual or Reproductive Health Services for Adolescents and Young People in Eastern and Southern Africa
FGD	Focus group discussion
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit (German Agency for International Cooperation)
GRZ	Government of the Republic of Zambia
JIC	Join-In-Circuit
KII	Key informant interview
MoGE	Ministry of General Education
MoH	Ministry of Health
NAC	National HIV/AIDS/STI/TB Council
NASF	National AIDS Strategic Framework
NGO	Nongovernmental organisation
PPAZ	Planned Parenthood Association of Zambia
NASF	National AIDS Strategic Framework
R-SNDP	Revised Sixth National Development Plan
SNDP	Sixth National Development Plan
SRH	Sexual reproductive health
SSI	Semistructured interview
STI	Sexually transmitted infection
ZDHS	Zambia Demographic Health Survey

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Executive Summary

High rates of sexually transmitted infections and low knowledge about prevention methods represent a significant public health challenge in Zambia. According to the 2013–2014 Zambia Demographic and Health Survey, 13% of all 15- to 49-year-old people in Zambia are living with HIV, translating to 15% of women and 11% of men. The challenge may be particularly difficult for youth as 4.8% of females aged 15–19 and 4.1% of males in the same age group are infected with HIV. Low levels of knowledge compound the challenge among adolescents: only 38.9% of young women and 42.3% of young men aged 15–19 possess correct and comprehensive knowledge about HIV and AIDS (ZDHS, 2013–2014).

Impact Evaluation. This report details an impact evaluation of an interactive sexual and reproductive health programme, the Join-In-Circuit (JIC) on AIDS, Love and Sexuality, implemented in schools in Livingstone and Choma districts, Zambia. In 2015, the Zambian Government and the German Corporation for International Cooperation (GIZ), in collaboration with the non-governmental organisation (NGO) Afya Mzuri adapted the JIC as a “booster” to support two national initiatives: (a) the delivery of Comprehensive Sexuality Education (CSE) and (b) the uptake of Adolescent Responsive Health Services in the Zambian school context. The JIC uses an interactive group approach where participants rotate between thematic stations in a circuit. At each station, a trained facilitator works to help students learn and discuss a sensitive topic in an open manner using games, role-play, story-telling, pictures and other tools that ease comprehension, stimulate dialogue, and promote the uptake of health services.

Our mixed-methods evaluation complemented a cluster randomized controlled trial (C-RCT) with qualitative data from students and headteachers. For our C-RCT, we randomly assigned 134 schools to one of three treatment arms where students received the JIC, or to a control group where students did not receive the JIC. We designed the three different treatment arms to test whether targeting the program to specific learners within schools may also have impacts on other learners not assigned to receive the program, and whether specific targeting approaches may be particularly impactful. Each of the arms targeted learners in a different way based on their position in each school’s social network. The full study included 8,270 learners enrolled in either grade 6 or grade 11 of the sample schools with 1,949 participating in the JIC.

Results. Our findings indicate that the two-hour JIC intervention had broad positive impacts on learner sexual and reproductive health behaviour and knowledge: the JIC increased HIV testing rates, increased the likelihood that students visited a health facility for family planning advice over the past 6 months, and increased whether students were aware of any family planning methods. The program was more impactful for girls, increasing whether a girl had ever tested for HIV by 12-percentage points (29%), visits to a health facility for family planning advice in the prior 6 months by 10-percentage points (39%), and awareness of family planning methods by 6-percentage points (9%). We also find important differences in the impacts of the program across

the two different grades that received the intervention: our analysis suggests that the JIC improved the knowledge of the younger cohort and the behaviour of the older cohort. The positive results are particularly encouraging considering the short, two-hour intervention and the fact that the project timeline only allowed us to measure 3-month impacts: a short timeframe to expect behaviour change.

Our evaluation also allowed us to measure whether students that received the JIC passed that knowledge along to students that did not receive the program: we find evidence that the JIC students had positive spillover impacts on the knowledge and behaviour of students that did not receive the JIC. We find little evidence of differences in impacts or spillovers between the different treatment arms. These positive spillovers occurred despite focus group discussions with learners who indicated that they had strong reservations about talking to their friends about sexual and reproductive health topics. The students mentioned two main concerns: (a) that their friends are not be good sources of information and (b) that they might tell other people.

Our qualitative data suggests broad support for the JIC among headteachers and students. Both students and headteachers noted that the program delivered relevant information in an engaging manner. Both groups also appreciated that the program was led by external facilitators with whom students felt more comfortable asking questions.

The qualitative data also suggested several possible improvements to the program implementation. Some headteachers found the implementation of the JIC to be disruptive as the facilitators came during regular class hours potentially inhibiting other lessons. They suggested that the JIC might be better implemented as part of after-school clubs. Implementing organizations noted that the program would also benefit from better pre-implementation outreach to secure buy-in from parents and important community leaders.

Moving forward. The encouraging, short-term impacts of the JIC program on a range of participants' sexual and reproductive health outcomes indicate that the JIC can serve an important booster role to the current provision of CSE in schools and increase health services uptake. An important next step will be to measure the longer-term impacts and ensure that the efficacy of the program persists over time. Additionally, it will be important to consider the stark differences observed in the program impacts by gender and whether there are programmatic adaptations that could improve program impacts for boys. If the Government decides to scale the JIC to additional regions, schools, or grades, it will be important to consider the positive characteristics of the JIC model that arose from the qualitative work (external facilitators, interactive pedagogical approach) and the potential effects on the efficacy of the program that might arise from any implementation changes.

Introduction

This report presents the results of AIR’s evaluation of the school-based Join-In-Circuit on AIDS, Love, and Sexuality (JIC) HIV-prevention programme. The evaluation employed a mixed-methods design with two main components: a cluster randomized controlled trial to rigorously assess the impact of the JIC programme and a qualitative assessment to assess the quality of implementation and help triangulate the quantitative findings. The purpose of the evaluation is to learn if and how the JIC changes the sexual and reproductive health (SRH) knowledge and practices of students who participate in the study, and their classmates. GIZ Zambia contracted AIR and its partner Palm Associates to conduct the evaluation of the JIC.

The JIC is a promising tool to boost the effectiveness of Comprehensive Sexuality Education (CSE) delivery in schools and increase health services uptake among young people. CSE is an integrated component of the Zambian curriculum for children in Grades 5–12. However, baseline data collection for this evaluation identified that delivery of the CSE component faces several obstacles including limited teacher willingness and skills to teach CSE, inadequate teaching materials, and insufficient books and other resources for learners (AIR, 2018). The JIC works to overcome these obstacles through an interactive group approach where participants rotate between thematic stations in a circuit: at each station, a trained facilitator works to help students learn and discuss a sensitive topic in an open manner, using pictures and other tools that ease comprehension and stimulate dialogue. The Ministry of General Education (MoGE) adopted the JIC as an interactive methodology to complement CSE delivery and promote Adolescent Youth Friendly Health Services in Zambian schools following a 2015 agreement between the Zambian Government and the German Development Corporation through German Agency for International Cooperation (GIZ).

Given the JIC’s promising potential to bolster CSE delivery, GIZ, the National HIV/AIDS/STI/TB Council (NAC), the MoGE, and the Ministry of Health (MoH) of the Republic of Zambia decided to rigorously evaluate the impact of JIC in schools through a cluster randomized controlled trial in schools in Livingstone and Choma districts. GIZ contracted Dr. Anselm Rink (University of Konstanz) to lead the design, and in 2016 separately contracted the American Institutes for Research (AIR) to assist Dr. Rink with design of the evaluation and to lead the implementation of the evaluation.

Evaluation Overview and Context

Policy Context

According to the Zambia Population Based HIV Impact Assessment Survey (ZAMPHIA, 2016), approximately 11.6% of the 15- to 59-year-old population is living with HIV and 46,000 new HIV infections occur in Zambia each year. The long-term vision of the Republic of Zambia is to end the threat of AIDS by 2030, in line with the 2016 United Nations General Assembly Special

Session on Drugs Political Declaration, Sustainable Development Goals, Seventh National Development Plan (7NDP) 2017-2021, and National AIDS Strategic Framework 2017-2021. The country is working toward halting the spread of HIV and AIDS and gradually reversing the trend by 2030.

The Seventh National Development Plan (7NDP, 2017–2021) recognises HIV as a crosscutting issue with specific objectives and indicators. The crosscutting nature was expected to reduce teenage pregnancies, abortions, and sexually transmitted infections, including HIV. Family planning is a continued priority in the 7NDP, as well as in the country’s National Health Strategic Plan 2017–2021. The objectives of the National Family Planning Guidelines include initiating and sustaining measures to slow the nation’s high population growth, enhance people’s health and welfare, and prevent premature death and illness, especially amongst the high-risk groups of mothers and children (ZDHS, 2013–2014, p. 87).

The new National AIDS Strategic Framework (NASF) 2017-2021 focuses strongly on HIV prevention as a strategic future investment and aligned with the Investment Framework concept proposed by the Joint United Nations Programme on HIV/AIDS (UNAIDS). The NASF emphasizes highly effective prevention interventions and efficient implementation of the HIV response through additional resource mobilisation. Another important change was that the main target group for prevention expanded from young people aged 15-24 years old (in the previous NASF) to those aged 10–24 years old in the current NASF. Furthermore, it prioritised comprehensive sexuality education, prevention, and medical and psychosocial service provision for youth aged 10–14 years. Increased access to condoms amongst sexually active youth has been envisaged for those aged 15 years and above.

In December 2013, the Republic of Zambia, through the Ministry of Education, Science, Vocational Training and Early Education (MESVTEE), and the Ministry of Community Development, Mother and Child Health, affirmed the Ministerial Commitment on Comprehensive Sexuality Education and Sexual and Reproductive Health Services for Adolescents and Young people in Eastern and Southern African (ESA Commitment). The ESA Commitment focuses on in- and out-of-school CSE and youth friendly health services. The ESA commitment linked CSE together with increased access to adolescent- and youth-friendly health services, including facility and community sexual and reproductive health (SRH) services, to decrease teenage pregnancy and HIV infections in high risk areas.

Corresponding to recognised national and international commitments, identifying and implementing highly effective prevention interventions is crucial for curbing new HIV infections and early pregnancies. Educational programmes on HIV and reproductive health, and rights for adolescents and young people at large, can increase the demand for adolescent and youth-friendly health services. Programmes that recognize the multisectoral overlap between the

education and health sectors may be particularly impactful in meeting the age-specific SRH needs of adolescents and young people more broadly.

Relevant National Data

According to the ZAMPHIA 2016, 11.6% of all 15- to 59-year-old people in Zambia were living with HIV: 14.5% of women and 8.6% of men. The proportion of women and men with knowledge of HIV prevention methods increases with age, with adolescents aged 15–19 years having the lowest level of knowledge. Data from the *Zambian Demographic and Health Survey (ZDHS) 2013-2014* indicate that only 38.9% of young women and 42.3% of young men aged 15–19 possess correct and comprehensive knowledge about HIV and AIDS (ZDHS, 2013–2014).

Only about 40% of young women and 49% of young men aged 15–24 years who had sexual intercourse in the previous 12 months used a condom during their last sexual encounter. About 16% of young men and 12% of young women had their sexual debut before their 15th birthday. In Southern Province, the median age at first sexual intercourse stands at 17.1 years for women and 17.5 years for men (ZDHS, 2013–2014).

According to the MoGE (previously MESVTEE) Educational Statistical Bulletin 2014, Southern Province had the highest rate of pregnancies countrywide, at 1.1% (2,713 pregnancies) for all school-going girls. The majority of these pregnancies occurred in Grades 1–7, with 2,357 pregnancies, against 356 pregnancies in Grades 8–12. Safe and unsafe abortions and miscarriages are not included in these statistics. Most of these pregnancies were recorded in primary schools in rural areas; in secondary schools, the pregnancies are slightly higher in urban areas. Only one quarter of pregnant girls in the primary grades, compared to three quarters of the ones in secondary grades, are readmitted into schools. In addition, the ZDHS 2013–2014 reports that, countrywide, 29% of all adolescent women aged 15–19 are already mothers or are pregnant with their first child.

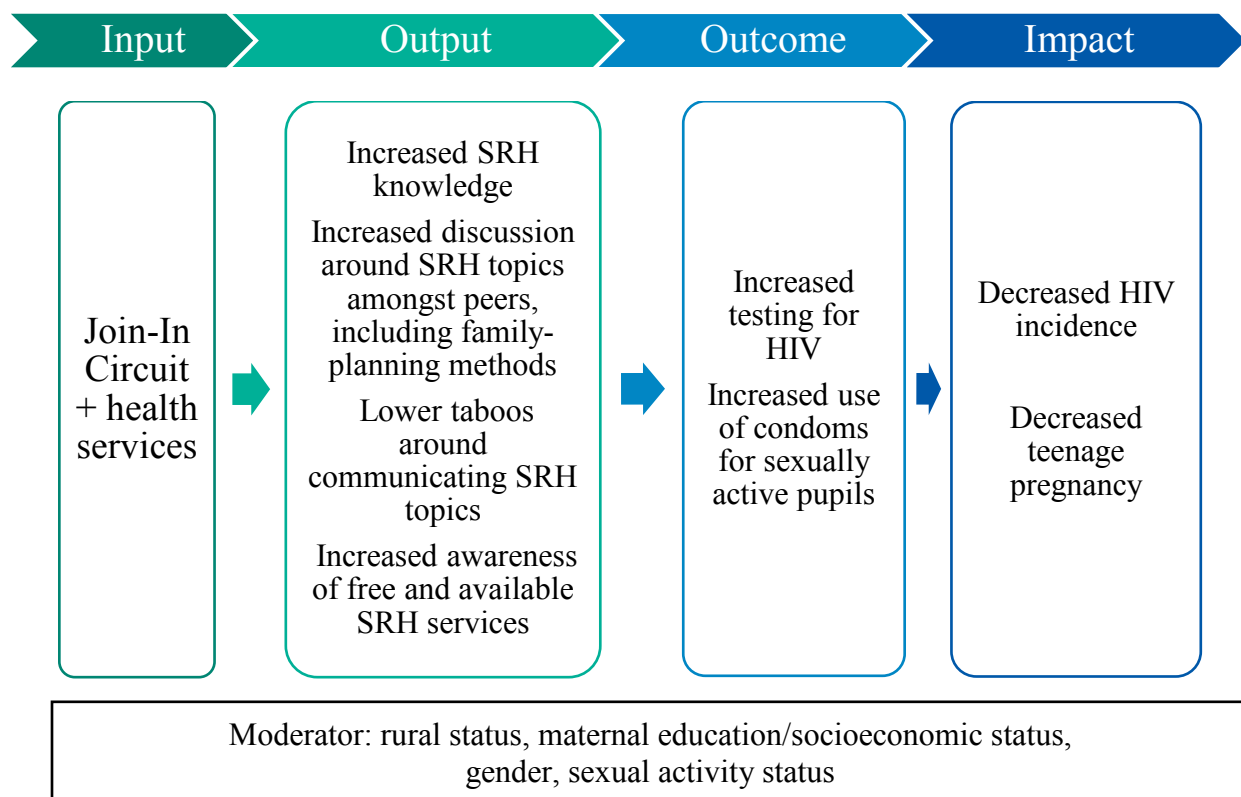
The low levels of sexual and reproductive health (SRH) knowledge and high rates of students practicing risky behaviours suggests a need for an intervention, in addition to the CSE curriculum, that improves knowledge and shifts behaviours.

Program Description and Conceptual Framework

The JIC is a behaviour change tool that aims to improve SRH knowledge and empower participants to make better-informed choices. In Zambia, the JIC is combined with health service provision. The program uses external facilitators to encourage participants to learn and engage in a structured but open environment by exploring SRH topics through 6 focused stations: ways of transmission; sexually transmitted infections; body language; positive living; love, sexuality, and protection from HIV; and contraceptives. At each station, a facilitator leads the participants through an interactive scenario or story to help students learn, promote comprehension, and stimulate discussion.

The JIC aims to decrease HIV incidence and teenage pregnancy. We present the conceptual framework that links the program implementation to the anticipated impacts in Figure 1. The program aims to directly increase SRH knowledge, availability of services, and encourage discussion of SRH topics among friends and peers. The increased knowledge is then expected to improve behaviours such as increased HIV testing and increased condom usage among sexually active pupils which, in turn, is expected to decrease HIV incidence and teenage pregnancy.

Figure 1. JIC Program Conceptual Framework



Research Questions

There are four main research questions, developed with the conceptual framework in mind, that underpin this evaluation:

Question I: What is the impact of the JIC on key outcomes for the children who participated in the JICs (“direct impact” because it is the impact on children who were directly affected)? This question aims to establish the direct impact of JIC participation on (a) comprehensive HIV knowledge, (b) knowledge of family-planning methods, (c) frequency of condom use among students who are sexually active, (d) frequency of HIV testing, and (e) frequency of attending health facilities or seeing health professionals for SRH services.

Question II: What is the impact of the JIC on key outcomes for the children who did not participate in the JIC, but who had classmates in the same grade who did? One of the main mechanisms behind JIC is facilitating discussion and open communication of messages within the students’ social network, even after the JIC is ended. Hence, we expect the JIC to have an impact not only on JIC participants directly but also on the friends of JIC participants. Assessing the indirect effect will allow us to properly calculate effectiveness of the intervention, defined as the combination of the direct and indirect impacts on outcomes.

Question III: Do the estimated impacts of the JIC vary by different student-targeting mechanisms? We want to understand the optimal way to target individuals in school networks to achieve maximum attitudinal and behavioural change. To do so, we tested three possible ways to select which students should participate in the JIC: The first one is by simply selecting the students randomly; the second one is by analysing the social network and selecting the most “central” students (i.e., the ones who have the most friends); the third one is by selecting the most central students and their closest friends. To answer this research question, we will test whether the effectiveness of the programme varies by the different targeting mechanisms.

Question IV: How do students and other stakeholders perceive the JIC? What are the barriers along the chain of impact connecting the JIC with outcomes? How do teachers perceive the JIC and do they think it has potential to complement and boost CSE?

Study Design

Our mixed-methods evaluation of the JIC supplemented a C-RCT with rich qualitative data on the implementation of the programme. We designed the C-RCT to measure the causal impact of the JIC programme on student knowledge, attitudes, and practices, and to answer research questions I-III. We address research question IV using qualitative data collected through key informant interviews and focus group discussions. Figure 2 illustrates the timeline for the study.

Figure 2: Study timeline



This section details each of the components of our mixed-methods evaluation.

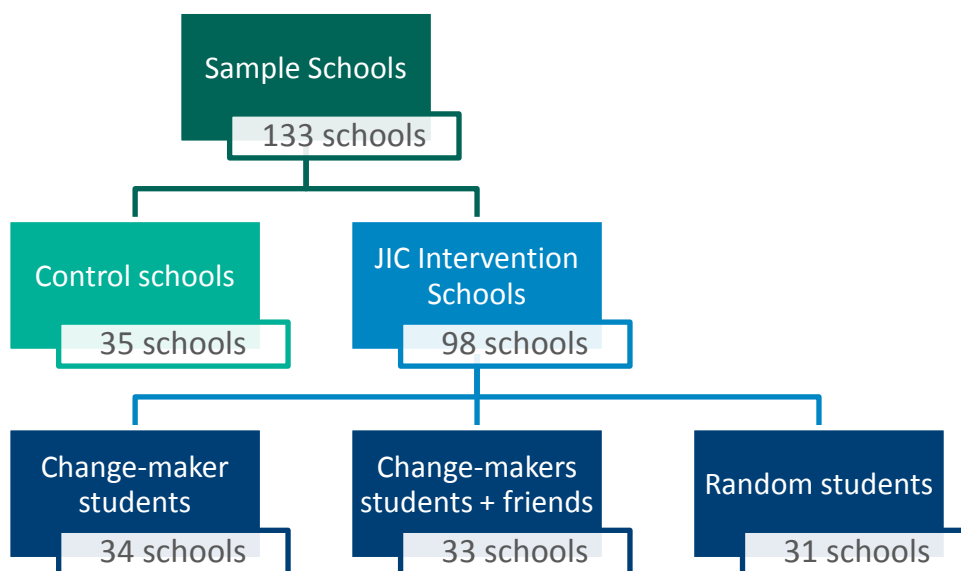
Impact Evaluation Design

We designed our C-RCT to measure the impacts of the JIC on a variety of student outcomes. As described in the baseline report, we worked with local MoGE officials to identify a sample of car-accessible schools in Choma and Livingstone districts that have either grade 6 or grade 11

students and enrolled 133 schools in the evaluation.¹ Within groups of similar schools (district, school type [primary/secondary], school location [urban/rural], and whether the JIC had been conducted at the school previously), we randomly assigned each school to one of four evaluation arms: (a) treatment, random selection of students; (b) treatment, selection of most central students; (c) treatment, selection of the most central students, each paired with a friend; and (d) a control group. Figure 3 illustrates the school-level randomization of schools into the different evaluation arms. The research design was pre-specified and registered with the clinical studies database clinicaltrials.gov and is detailed in the baseline report.

This study followed ethical standards for data collection. We read all students a statement about the research and gave them the option to refuse to participate in the study, making clear that refusing to participate would not affect their ability to benefit from any program that might be introduced into the area. The enumerators also told the students that they could refuse to answer any question and that their information would remain anonymous, with no identifying information shared with anyone outside of the research team. The research design and protocols were all reviewed and passed ethical clearance from the ethical review board.

Figure 3: C-RCT Design



¹ The original sample comprised 204 schools identified from District Education Office records. Of the 204, 34 were ineligible because they were either unreachable by car, did not have the target grades, or had closed. The 170 eligible schools were split into five groups of 34 schools across the three treatment arms and two control arms. The two control arms included a group of 34 priority control schools (of which 28 were reached) and 34 optional control schools (of which 7 were ultimately included) that were surveyed subject to available resources. Our final sample comprises 133 schools.

Quantitative Data Collection and Analysis

Quantitative data collection

The evaluation team collected endline data at the evaluation schools between September 2017 and December 2017. The enumerators completed 8,027 student surveys comprising all learners enrolled in either grade 6 or grade 11 and who were present at the schools on the day the team visited, irrespective of whether they were assigned to receive the JIC and regardless of whether they participated in the baseline survey. Enumerators did not follow up with learners who were present at baseline but not at endline due to budget limitations and logistical challenges. Across both the treatment and control groups, we administered endline surveys to 76% of the students who completed a baseline survey.²

The endline data collection followed the same survey protocol as the baseline data collection with surveys conducted using audio, computer-assisted self-interview (ACASI) software on smartphones. This method allowed participants to privately answer questions on a smartphone with headphones, providing an added layer of comfort when answering sensitive questions and ensuring that the questionnaire is delivered in the exact same way to each participant. The audio component also helped ensure that we were not administering the survey to a biased sample only comprised of literate students: a significant concern given the low literacy rates among 6th grade students in Zambia. The survey was available in both Tonga (the local language in Southern Province) and English.

Our endline survey data provide a picture of the education system and learners within grades 6 and 11 in Livingstone and Choma Districts (Table 1). The average self-reported age of the learners in our sample is 13 years of age with most learners falling within a 5-year band for each grade: within grade 6, 90% of learners are between 11 and 15 years old while 90% of learners in grade 11 are between 15 and 20 years old. Our sample has more female learners than male learners with females representing 54% of the overall sample, 57% of the grade 11 sample, and 52% of the grade 6 sample. In line with the sampling and randomization, almost 80% of the students in the sample are in grade 6 and a little over 60% of the sample are in Choma District.

² Almost all attrition was due to students who completed the baseline survey not attending school on the day of the endline as fewer than 10 students refused to participate in the research. These absences could bias our results if students who participated in the JIC or attended a JIC school changed their attendance because of the program which would change the composition of the study body at JIC schools relative to the control schools. However, attrition rates were comparable across the different treatment arms suggesting that the program did not change attendance and that our results are impact estimates are unbiased among students that regularly attend school.

Table 1: Endline Summary Statistics

Outcome	Obs.	Mean	Std. Dev.	Min	Max
Female	8,028	0.54	0.5	0	1
Male	8,028	0.46	0.5	0	1
Age	8,028	13.27	2.43	8	28
Grade 6	8,028	0.79	0.41	0	1
Grade 11	8,028	0.21	0.41	0	1
Religion: Christian	8,028	0.93	0.26	0	1
Mother alive	8,027	0.85	0.36	0	1
Father alive	8,027	0.75	0.43	0	1
Choma district	8,028	0.62	0.49	0	1
Livingstone district	8,028	0.38	0.49	0	1

Quantitative analysis

We run three sets of related analyses to answer the three quantitative research questions. First, we measure the impact of the JIC on students assigned to receive the program by estimating the regression:

$$y_{it} = \alpha + \beta \cdot Treatment + \tau \cdot Post + \gamma X_{it} + \sigma S_i + \epsilon_{it}$$

where y_{it} is outcome y for learner i in time t , $Treatment$ is a dummy variable equal to one for students in treatment schools at endline, $Post$ is a dummy variable equal to one for all students at the endline, X_{it} are student demographic characteristics, S_i are stratum fixed effects, and ϵ_{it} are conditionally mean-zero error terms clustered at the school level.³ We estimate this regression using students at treatment schools assigned to receive the JIC and students from control schools who would have been assigned to receive the JIC had their schools been in a treatment arm. The coefficient β represents the impact of the JIC program.

Next, we run a slightly modified analysis to answer Research Question 2 by measuring spillover impacts - whether the outcomes of students who are not selected to participate in the JIC, but who attend JIC schools, change because of their interactions with students who attend the JIC. This corresponds to estimating the same regression equation as above but with a different sample: this analysis compares students at treatment schools who were not selected to participate against comparable students at control schools who would not have been selected to participate, had their control school been assigned to one of the three treatment arms.

³ We also included a binary variable for students who attended the optional control schools since their inclusion in the study was not entirely random. This analytical decision does not affect the program impact estimates.

Finally, our third analysis addresses Research Question 3 by examining whether the impacts and spillovers estimated above vary by targeting approach. This corresponds to estimating the regression equation:

$$y_{it} = \alpha + \beta \cdot Treatment_a + \tau \cdot Post + \gamma X_{it} + \sigma S_i + \epsilon_{it}$$

where the difference from the above equation stems from the inclusion of three different treatment variables: each equal to one for schools assigned to each of the three treatment arms.

Within each analysis, we examine impacts on two sets of outcomes: key indicators and composite indices. Our key-impact indicators include a) comprehensive HIV knowledge, (b) knowledge of family-planning methods, (c) frequency of condom use among students who are sexually active, (d) frequency of HIV testing, and (e) frequency of attending clinics or seeing health professionals for SRH services. Our indices capture SRH knowledge and behaviours. The knowledge indices measure learner awareness of family planning, condoms, HIV, and STIs while the behaviour indices measure sexuality, testing, and care seeking behaviour at youth friendly corners. Finally, we combine these various indices into overall indices measuring overall knowledge, overall behaviours, and combined knowledge and behaviours. We focus on the impacts of the JIC on the small number of key indicators and composite indices to minimize the probability that we falsely identify impacts where there are none: a probability that increases in the number of tests and is related to the multiple comparisons or multiple testing problem.

Qualitative Data Collection and Analysis

The endline qualitative data collection took place in October-November 2017 and included key informant interviews (KIIs), semi-structured interviews (SSIs), and focus group discussions (FGDs) to solicit opinions on the JIC and the applicability of the JIC to complement the delivery of the national comprehensive sexuality education curriculum. We conducted 5 KIIs with implementing partners, 8 KIIs with headteachers of schools that received the JIC, 8 focus group discussions with learners that participated in the JIC, and 4 semi-structured interviews with learners who participated in the JIC.

All interviews were digitally recorded, transcribed, translated into English, and coded using the NVivo qualitative data analysis software package. The research team created a preliminary coding structure based on the research questions, interview protocols, and memos of themes that emerged during data collection. During the process of data reduction, researchers characterised the prevalence of responses, examined differences among groups, and identified key findings related to the research questions.

Findings

Direct impacts of the JIC on knowledge and behaviors

We first examine the impact of the JIC on the knowledge and behaviors of students who participated in the program. This analysis compares students selected to participate in the JIC against comparable students attending the control schools. We find that the program improved outcomes across a range of key indicators including increased HIV testing, increased family planning health seeking behavior, and increased awareness of family planning methods (Table 2).

HIV testing. Our results indicate that the JIC increased HIV testing rates for students who participated in the JIC by 9-percentage points representing an almost 22% increase. In addition to the increased testing rates identified in the quantitative data, several focus group participants referenced recently being tested for HIV multiple times. In one case, a boy reported being tested for HIV as many as seven times. According to a key informant from Choma, the extent to which JIC participants accessed HIV testing varied by age due to the issue of parental consent (which was required for children under 16):

“Those who accessed [HIV testing] are the grade 11s. They are the ones who were mostly accessing these services because like I said, we had a low turnout on parents so you found that for the grade 6s, most of them would be needing consenting from the parents, so even after the JIC run, it was difficult for them to access the services so that is why most of the people who were accessing the services between grades 8 to 12. The grade 6s would only access if their parents have come.”

Information seeking behavior. Our quantitative data indicate that the JIC led to an 8-percentage point increase in the likelihood that students visited a health facility for family planning advice over the past 6 months. One reason may be because the JIC promoted health facilities as a source of SRH information. Our qualitative data indicate that many students considered health facilities to be the most reliable source of information on sexual & reproductive health. For instance, a female student explained that clinics have “*expert knowledge*” on the topic, while a male student stated they are “*the most reliable source of such kind of information.*”

Students were particularly receptive to the counseling offered by health facilities in conjunction with health service delivery. A male student, for example, described a recent experience in which he received useful guidance during a consultation at the health facilities.

You can get the full information from the clinic (...) When I went there (...) last week I was sick and before they treated me they had to test me for HIV and to teach me how can I protect myself, how I can prevent it, and how can it cause harm to me.

Another male student described various situations in which he received counseling at the local hospital. *“When you go there on Saturday for PPAZ you are advised to go for an HIV test, after testing you are counselled or even before you are counselled and even when we go for male circumcision we are counselled, we are taught.”*

In addition, some students appreciated the privacy conferred by health facilities, when compared to getting information on sexual & reproductive health from friends or relatives. Many students reported being uncomfortable or afraid of talking about sex and STIs with their families. Some girls stated that they were afraid of being beaten or yelled at if they asked their relatives about sex. This factor appears to influence students’ positive assessment of clinics as more private sources of information on sexual & reproductive health. As one male student explained,

Also me I also go to the clinic because the counsellors are the safest place where I can go [rather] than talking to friends or parents because you don’t know them and they also don’t know you. Unlike if you told a friend or for example your uncle he might end up telling your parents.

In addition to increasing clinic visits, qualitative data suggests that participating in the JIC may have encouraged students to seek additional SRH information on the internet. Many respondents reported seeking additional information with some highlighting the increased role of the internet as a source of information as one male student stated that “After I started this group, I started Googling, asking how can I prevent [STIs], how can I protect myself, after that group came.” A student in another focus group echoed similar behavior stating that “After I read that [JIC] pamphlet that's when I looked at the information and started Googling...”

Family planning knowledge. The estimated improvements in behavior are complemented by increased knowledge of family planning methods: learners who participated in the JIC are 5-percentage points more likely to know a family planning method, representing a 6% increase from the baseline levels.

Other outcomes. The positive impacts on the range of outcomes listed above represent encouraging impacts throughout the program’s conceptual framework including the output of increased awareness of free and available SRH services and the outcome of increased HIV testing. Our results are not, however, universally positive as we find little evidence that the program changed either condom usage or comprehensive knowledge of HIV transmission and identification.

The lack of impacts on condom usage run contrary to statements made during focus group discussions; one group of male FGD participants found the pictures at the STI station to be very graphic and disturbing and indicated they were more likely to have protected sex after seeing those pictures. One reason for the lack of impacts on condom usage may be that behavior change is a slow process that requires reinforcement and the JIC is a relatively short, single-dosage

intervention administered over 2 hours. Additionally, individuals who are already engaging in unprotected sex with a current partner may be more likely to change their behavior in response to new information when they switch partners and are less informative about the specific risk of engaging in unprotected sex with the new partner.

Table 2: Direct impacts of the JIC on key indicators

Outcome	Obs.	Pre-program mean	Treatment Effect (s.e) (1)
Has tested for HIV	6,180	0.412	0.09 ** (0.035)
Family planning health facility visit in last six months	6,101	0.274	0.084 *** (0.024)
Aware of family planning methods	6,350	0.665	0.062 ** (0.025)
Used condom during last sex	1,201	0.525	-0.021 (0.047)
Comprehensive knowledge of HIV	6,588	0.245	0.02 (0.017)

Notes: Clustered standard errors in parentheses. *, **, and *** indicate significance at the 90, 95, and 99 percent confidence levels, respectively. OLS regressions reported. All regressions include controls for learner gender, religion, whether the respondent's parents are alive, and stratum fixed effects.

Aggregate indicators. In addition to the impacts on the key indicators, we also find broad impacts across a range of indices and aggregate indices (Table 3). We find that students who participate in the JIC have greater SRH knowledge: a result driven by increases in family planning knowledge, condom knowledge, and HIV knowledge. Our estimates suggest limited changes in STI knowledge.

We also find that the program led to improvements in healthcare-seeking behavior driven by increases in youth friendly corner awareness and visits, and increases in an HIV testing index which measures testing and awareness of the test result.

Table 3: Direct impacts of the JIC on composite knowledge and behavior indices

Outcome	Obs.	Pre-program mean	Treatment Effect (s.e) (1)
Panel A: Overall			
Overall Index	6,588	19.167	1.791 *** (0.485)
Panel B: Knowledge			
Knowledge Index: Overall	6,588	16.943	1.37 *** (0.447)
Knowledge Index: Family planning	6,588	3.27	0.585 *** (0.163)
Knowledge Index: Condoms	6,588	3.149	0.238 *** (0.081)
Knowledge Index: HIV	6,588	7.961	0.525 *** (0.173)
Knowledge Index: STIs	6,588	2.562	0.021 (0.117)
Panel C: Behavior			
Behavior Index: Overall	6,588	2.224	0.421 *** (0.157)
Behavior Index: Sexuality	6,588	1.036	0.114 (0.075)
Behavior Index: Testing	6,588	0.781	0.214 *** (0.077)
Behavior Index: Youth friendly corners	6,588	0.408	0.093 *** (0.035)

Notes: Clustered standard errors in parentheses. *, **, and *** indicate significance at the 90, 95, and 99 percent confidence levels, respectively. OLS regressions reported. All regressions include controls for learner gender, religion, whether the respondent's parents are alive, and stratum fixed effects.

Impacts by gender

We estimate larger, but statistically indistinguishable, impacts of the JIC on girls who participate in the program relative to boys who participate. The same variables that are significant in the full specification are significant for the subsample of girls (Table 4). We estimate a 12-percentage point increase in HIV testing among girls that participated in the program, representing an almost 30% increase, while the program is not estimated to have had a significant impact on the testing rates of boys. Similar patterns are evident for health facility visits in the last six months and

awareness of family planning methods: the program is estimated to have had a significant 10-percentage point increase on health facility visits for girls and a smaller 7-percentage point increase for boys while the program is estimated to have increased family planning awareness by 7-percentage points for girls and 5-percentage points for boys. We find no evidence that the program had a significant impact on condom usage or comprehensive knowledge of HIV for either girls or boys. The differences in impacts are only statistically significant for recent health facility visits.

The estimated impacts on the indices demonstrate a similar pattern. The large and significant impacts on both the knowledge and behavior index for girls are not quite sufficient to overcome the pre-program differences between male and female program participants. Qualitatively, multiple respondents (both student participants and key informants) suggested that behavior change may face a larger barrier for boys: according to one female student, “*For some, even if they know the information, they say ‘what can I do because I’m already used to having sex, so every week, every Tuesday I need to have sex’. This is what I have heard some of the boys in my class say.*” Similarly, a male student said that even though his peers may know the dangers of unprotected sex, “*they tend to ignore the risks.*”

Table 4. Impacts of the JIC by gender

Outcome	Obs.	Girls		Boys		p-value test of (1)=(2)
		Pre-program mean	Overall Impacts (s.e) (1)	Pre-program mean	Overall Impacts (s.e) (2)	
Panel A: Key Indicators						
Has tested for HIV	7,541	0.413	0.118 *** (0.037)	0.41	0.06 (0.038)	0.02
Family planning health facility visit in last six months	7,456	0.251	0.098 *** (0.026)	0.3	0.067 ** (0.028)	0.21
Aware of family planning methods	7,764	0.655	0.076 ** (0.029)	0.677	0.047 * (0.028)	0.29
Used condom during last sex	1,421	0.559	-0.008 (0.061)	0.508	-0.026 (0.053)	0.77
Comprehensive knowledge of HIV	8,059	0.239	0.018 (0.020)	0.251	0.021 (0.000)	0.91
Panel B: Indices						
Knowledge Index: Overall	8,059	-0.198	0.183 *** (0.057)	-0.051	0.128 ** (0.053)	0.20
Behavior Index: Overall	8,059	-0.174	0.234 *** (0.072)	0.08	0.141 * (0.000)	0.09

Notes: Clustered standard errors in parentheses. *, **, and *** indicate significance at the 90, 95, and 99 percent confidence levels, respectively. OLS regressions reported. All regressions include controls for learner gender, religion, whether the respondent’s parents are alive, and stratum fixed effects.

Impacts by school grade

We split our sample by student grade to examine whether the JIC has different impacts on the students in the two grades of the evaluation. We find that the program had positive and significant impacts on knowledge and behaviors of grade 6 students, increasing awareness of family planning methods and information seeking behavior in the form of health facility visits with the 6-percentage point increase in health facility visits representing a 20% increase. We also find significant increases in overall knowledge among grade 6 students indicating gains across the broader knowledge spectrum. Our results indicate that the JIC had a greater impact on grade 11 students where it led to increases that were statistically-significant different from grade 6 students in condom usage and health facility visits which combined to yield a significant increase in the composite behavior index.

Qualitative data suggested that implementing organizations found that the two grades responded differently to the two interventions. One of the key informants from an implementing organization stated that there is a drastic difference in participation rates among younger and older students. He stated that 6th graders were less enthusiastic and shy when they were asked to describe pictures with graphic details for example while 11th graders were more active and receptive of the information provided. Describing the challenges of working with younger children, this respondent stated: *Sometimes you would have to keep on giving them energizers just to make them feel free, and in the process now, you're doing energizers about 4 or 5 times...and still [most of them are] quiet. With the adolescents perhaps 15 years going up, you find that they would speak their mind.*"

The qualitative data also support an untargeted approach where all students in selected grades receive the JIC. Headmaster interviews revealed that random selection left the selection process unclear to students and triggering a negative response among some of them. According to one of the headmasters, students who were invited to participate in the JIC were reluctant, because they either thought it happened because of their condition or were concerned about being seen as someone who is sexually active or HIV positive among their peers. In the words of our respondent: *"But when they [students] are assembled outside and put in an open space, it is like maybe they have some special condition or maybe they have been found wanted [for other reasons]."* Students also voiced discontent about the selection process as the selection process did not take into account existing interest among students. As one of them put it: *"most people on the list were not really willing to come, it's the people who were not called that wanted to join."*

Table 5: Direct impacts on key indicators and indices by grade

Outcome	Obs.	Grade 6		Grade 11		p-value test of (1)=(2)
		Pre-program mean	Overall Impacts (s.e) (1)	Pre-program mean	Overall Impacts (s.e) (2)	
Panel A: Key Indicators						
Aware of family planning methods	7,764	0.613	0.061 ** (0.027)	0.924	0.066 ** (0.027)	0.86
Has tested for HIV	7,541	0.361	0.078 ** (0.037)	0.654	0.153 *** (0.052)	0.15
Family planning health facility visit in last six months	7,456	0.28	0.061 ** (0.024)	0.247	0.202 *** (0.043)	0.00
Used condom during last sex	1,421	0.45	-0.045 (0.047)	0.738	0.077 (0.070)	0.06
Comprehensive knowledge of HIV	8,059	0.168	0.022 (0.017)	0.637	0.008 (0.000)	0.69
Panel B: Indices						
Knowledge Index: Overall	8,059	-0.363	0.143 ** (0.054)	1.064	0.238 *** (0.083)	0.26
Behavior Index: Overall	8,059	-0.145	0.125 * (0.068)	0.407	0.563 *** (0.000)	0.00

Notes: Clustered standard errors in parentheses. Wild cluster bootstrap standard errors reported for grade 11. *, **, and *** indicate significance at the 90, 95, and 99 percent confidence levels, respectively. OLS regressions reported. All regressions include controls for learner gender, religion, whether the respondent's parents are alive, and stratum fixed effects.

Impacts by treatment arm

We find that the JIC had comparable impacts for each of the different treatment arms of the evaluation. The estimated impact of the JIC is generally largest for the change-maker plus friend group, followed by the change-maker group, followed by the random group (Table 6). However, none of the differences in outcomes are statistically significant, even at the marginal, 10%, level. This result indicates that we cannot reject the hypothesis that student social network status is unrelated with the effectiveness of the JIC.

Table 6: Impacts of the JIC by treatment arm

Outcome	Obs.	Pre-program mean	Change Maker +			Equivalency Test (p-values)		
			Change Maker (s.e) (1)	Friend (s.e) (2)	Random Group (s.e) (3)	(1) = (2)	(2) = (3)	(1) = (3)
Comprehensive knowledge of HIV	6,588	0.245	0.02 (0.021)	0.034 (0.025)	-0.012 (0.020)	0.62	0.10	0.18
Aware of family planning methods	6,350	0.665	0.049 (0.030)	0.081 *** (0.030)	0.045 (0.029)	0.29	0.22	0.90
Used condom during last sex	1,201	0.525	0.002 (0.059)	-0.004 (0.061)	-0.015 (0.066)	0.92	0.86	0.80
Has tested for HIV	6,180	0.412	0.049 (0.041)	0.103 ** (0.041)	0.089 ** (0.043)	0.19	0.76	0.34
Family planning health facility visit in last six months	6,101	0.274	0.071 ** (0.029)	0.09 *** (0.031)	0.063 * (0.033)	0.53	0.43	0.78
Overall Index	6,588	19.167	1.962 *** (0.537)	1.97 *** (0.682)	1.32 ** (0.578)	0.99	0.37	0.29
Knowledge Index: Overall	6,588	16.943	1.619 *** (0.462)	1.431 ** (0.607)	1.036 * (0.558)	0.75	0.56	0.29
Behavior Index: Overall	6,588	2.224	0.343 * (0.206)	0.539 *** (0.191)	0.285 (0.178)	0.33	0.18	0.76

Notes: Clustered standard errors in parentheses. *, **, and *** indicate significance at the 90, 95, and 99 percent confidence levels, respectively. OLS regressions reported. All regressions include controls for learner gender, religion, whether the respondent's parents are alive, and stratum fixed effects.

Spillover impacts of the JIC

Measuring the full effect of the program requires measuring the impacts of the program on learners who receive the program as well as the impact of the learners who receive the program on their classmates who do not receive the program. Our results provide evidence in support of this second form of impacts: some outcomes improve for students at treatment schools who were randomly selected *not* to receive the JIC relative to comparable students at control schools (Table 7). Our results suggest that students attending JIC schools but who did not attend the JIC were more likely than their counterparts to visit a family planning health facility in the last six months although students had comparable HIV testing rates, awareness of family planning practices, and condom usage patterns. All of the coefficients are positive and, while insignificant, represent increases that are about half the size of those observed for the JIC students. Our analysis suggests that the program had slightly negative impacts on comprehensive knowledge of HIV of non-JIC students at JIC schools indicating that some program components might be relayed incorrectly to non-JIC students.

Table 7: Spillover impacts of the JIC on key indicators

Outcome	Obs.	Pre-program mean	Treatment Effect (s.e) (1)
Has tested for HIV	11,241	0.413	0.039 (0.035)
Family planning health facility visit in last six months	11,018	0.293	0.045 ** (0.021)
Aware of family planning methods	11,435	0.682	0.025 (0.020)
Used condom during last sex	2,240	0.569	0.02 (0.037)
Comprehensive knowledge of HIV	11,894	0.273	-0.033 ** (0.015)

Notes: Clustered standard errors in parentheses. *, **, and *** indicate significance at the 90, 95, and 99 percent confidence levels, respectively. OLS regressions reported. All regressions include controls for learner gender, religion, whether the respondent's parents are alive, and stratum fixed effects.

The qualitative data shed light on our impact estimates as some participants reported talking to their friends about sex and HIV, but many expressed reservations about relying on friends for such information. For instance, a female student said she would not go to her friends for SRH information because “*some of them also don't know these issues very well.*” Another female participant reported that she compares information received from different friends to assess its

reliability. Other participants expressed worries about the social repercussions of sharing such sensitive information with friends. As one male participant put it, “*if you tell a friend about certain issues like you have impregnated a girl or you have STI’s, they may end up telling other friends.*”

The component indices present an encouraging story: we find evidence that the JIC had broad positive spillover impacts on behavior and knowledge subcomponents. The improvements in behavior are fairly broad with positive and weakly significant impacts across two of the three subcomponents. There are positive impacts on two of the knowledge subcomponents—family planning and condom knowledge—despite no impact on the broader index (Table 8). Within the overall indices, the gains for family planning and condom knowledge are offset by statistically insignificant decreases in STI knowledge, together yielding no overall knowledge change.

Table 8: Spillover impacts of the JIC on composite knowledge and behavior indices

Outcome	Obs.	Pre-program mean	Treatment Effect (s.e) (1)
Panel A: Overall			
Overall Index	11,894	20.251	0.611 (0.431)
Panel B: Knowledge			
Knowledge Index: Overall	11,894	17.948	0.319 (0.393)
Knowledge Index: Family planning	11,894	3.556	0.362 ** (0.163)
Knowledge Index: Condoms	11,894	3.364	0.097 * (0.055)
Knowledge Index: HIV	11,894	8.265	-0.013 (0.141)
Knowledge Index: STIs	11,894	2.763	-0.127 (0.112)
Panel C: Behavior			
Behavior Index: Overall	11,894	2.303	0.292 * (0.151)
Behavior Index: Sexuality	11,894	1.135	0.122 * (0.062)
Behavior Index: Testing	11,894	0.787	0.118 (0.091)
Behavior Index: Youth friendly corners	11,894	0.382	0.052 * (0.028)

Notes: Clustered standard errors in parentheses. *, **, and *** indicate significance at the 90, 95, and 99 percent confidence levels, respectively. OLS regressions reported. All regressions include controls for learner gender, religion, whether the respondent's parents are alive, and stratum fixed effects.

We designed the evaluation to test whether the different targeting approaches had different spillover impacts. Each of the targeting approaches provides information to students at different points within the school social network. It is unclear whether it would be more beneficial to target changemaker students who have lots of connections or target different points of the network through a random selection approach. We present estimated spillover effects for each of the different targeting approaches to explore whether any of the different approaches are more impactful than others (Table 9). While only 3 of the 9 coefficients are statistically significant, there is a notable trend: the estimated coefficients are largest for the change maker arm. One possible explanation is that more students are being exposed to the program through spillovers than in the other arms as the change maker plus friend arm selects half the number of potential change makers potentially affecting half the number of friend groups. Similarly, a small number of students may be exposed to the spillovers from the random arm if students with few friends are selected to receive the JIC.

Table 9: Spillovers by treatment arm

Outcome	Obs.	Pre-program mean	Treatment Effect (s.e)
Panel A: Change maker			
Overall Index	6,470	20.213	0.992 ** (0.467)
Knowledge Index: Overall	6,470	17.854	0.588 (0.428)
Behavior Index: Overall	6,470	2.359	0.404 ** (0.191)
Panel B: Change maker + friend			
Overall Index	4,950	21.04	0.438 (0.690)
Knowledge Index: Overall	4,950	18.681	0.058 (0.654)
Behavior Index: Overall	4,950	2.359	0.38 ** (0.176)
Panel C: Random			
Overall Index	5,058	19.505	0.326 (0.554)
Knowledge Index: Overall	5,058	17.344	0.362 (0.476)
Behavior Index: Overall	5,058	2.161	-0.037 (0.154)

Notes: Clustered standard errors in parentheses. *, **, and *** indicate significance at the 90, 95, and 99 percent confidence levels, respectively. OLS regressions reported. All regressions include controls for learner gender, religion, whether the respondent's parents are alive, and stratum fixed effects.

Impacts of the JIC on all students at JIC schools

We also examine the impacts of the JIC by comparing all students in 6th and 11th grades at JIC schools against all students in the same grades at the control schools. This analysis represents the broader impacts of the JIC in an implementation where fewer than half of the students receive the JIC due to logistical or capacity constraints. The results of this analysis can be anticipated from the study design and the results presented above: approximately 30% of students were treated at the treatment schools and we find evidence of smaller spillover impacts on non-treated students in the treated schools. The results should be a combination of the impacts on treated students and spillover impacts on non-treated students. The results from this analysis, which confirm the above interpretation, are presented in Table 10.

Table 10: Estimated impacts of the JIC on treatment schools

Outcome	Obs.	Pre-program mean	Treatment Effect (s.e)
Key Indicators			
Has tested for HIV	15,356	0.412	0.061 * (0.035)
Family planning health facility visit in last six months	15,090	0.286	0.06 *** (0.020)
Aware of family planning methods	15,680	0.675	0.039 * (0.020)
Used condom during last sex	3,088	0.555	0.017 (0.037)
Comprehensive knowledge of HIV	16,298	0.262	-0.014 (0.015)
Overall indices			
Overall Index	16,298	19.839	1.049 ** (0.413)
Knowledge Index: Overall	16,298	17.568	0.686 * (0.395)
Behavior Index: Overall	16,298	2.271	0.363 ** (0.159)

Notes: Clustered standard errors in parentheses. *, **, and *** indicate significance at the 90, 95, and 99 percent confidence levels, respectively. OLS regressions reported. All regressions include controls for learner gender, religion, whether the respondent's parents are alive, and stratum fixed effects.

Student and headteacher perceptions of the JIC

Students (includes adolescent girls semistructured interviews)

Appropriate content presented in an interactive manner. Students reported that the information delivered in JIC was *accessible* and *new* and that they found the teaching methodology beneficial. Particularly students of 6th grade shared that the information was new to them because in their regular classes they learn more about diseases, but not necessarily about contraception and protected sex. In the words of one 6th grade male students, *“in class they don’t talk about protection, they just talk about the movement of the sperms”*

The general body of students found small-group learning and interactive approach stimulating as they could ask questions freely and move around. As one of the 6th grade male students put it: *“In the groups it’s nice, cause where you might not be clear you can ask [questions], but if you are in class and maybe you want to ask a question you can be shy because you are scared that people may laugh at you so you don’t do it.”* This was echoed by 11th grade female students who noted that relative to their regular classroom size of 60 students – *“the smaller groups were more fun and more effective.”* Moreover, station-based learning was reported to resemble a game, more than a traditional lecture-based class: *“It was more like a game so we were interested.”*

When facilitators asked 6th grade students if they found the JIC-delivered information relevant for them, the students generally agreed that it is age-appropriate and crucial as they reach puberty. Although most of them reported that they are not yet having sex, the students of this age-cohort shared that they *“learnt that having unprotected sex is something that can cause a negative effect.”*

Adolescent female students at one JIC school shared that they appreciated the new information. One of them commented:

“I was happy because I didn’t know about that. That there are pills that you can take before having sex, like maybe 2 hours before having sex then they will prevent you from getting pregnant. And they even talked about the one that you can take after having sex, and they also talked about condoms. So I was happy because I didn’t know.”

Short intervention may have limited learning. While students from both age-groups found information relevant and useful, they did however comment on the time-limitations of JIC, stating that they wished they had more time at each station. For example, 6th grade female students shared that they did not get enough exposure and 11th grade female students brought up two specific topics, “The Ways of Transmission” and “HIV prevention”, that they would have liked to learn more about if it was not for the time constraints of JIC stations. Male student focus groups in Livingstone reiterated this point as well: *“At some tables we were able to finish the topic so it was okay, but then at some tables we were not able to finish learning, so we did not feel good about that.”*

Concerns it promotes risky behaviors. Student perceptions of the JIC were not unambiguously positive: some students shared negative perceptions on the JICs. Female students in Livingstone shared that although they appreciated information on what steps to undertake in cases of sexual assault, they also felt like JIC implicitly legitimated pre-marital or unprotected sex. One student stated, that “*it was like an encouragement...yeah, I can go have sex using a condom*” or if the partners know that they don’t have HIV then they are free to have sex with no protection since they can get an emergency pill to prevent pregnancy.

Headteachers

Learner-centered pedagogical approach. Headmasters were generally appreciative of the learner-centered and participatory methods used in JIC. One of the headmasters, recounting her experience participating in a teacher-focused JIC in Livingstone, expressed her appreciation of the methods, noting that such methods could be beneficial even in regular classroom settings - “*The regular class setting of teaching is teacher-centered but the JIC methodology is learner-centered because you can even identify how capable a learner is at any given point.*”

One headmaster at a JIC school noted that the station-based learning of the JIC facilitated more active participation among students. She mentioned that students typically participate less if it is a 40-minute class devoted for CSE, but “*in the process of changing stations they become excited then at one station they will become more participatory.*” Based on her observations of how students responded to JIC trainings, this headmaster noted:

The way I observed it when they came, I think it was more effective. At that time, most of the learners were able to listen, to acquire some knowledge of certain things which they didn’t know, and they were able to participate freely. They were actually behind that classroom where they mounted charts for the different types of contraceptives. And apart from charts, they also had the types of contraceptives like condoms and so forth. It was actually more effective because within that time, they were able to learn those different subject areas.

Another headmaster found the visual JIC materials to be an effective tool in teaching: “*Children are able to see physically what happens. In my case, I would just mention ‘this is gonorrhoea’ and I write it down on the board, they don’t see it. The way the JIC instructors were doing it, they were even showing the pictures to the pupils, demonstrating what gonorrhoea looks like. I think that is the best way.*”

Outside facilitators encourage discussion. Teaching methodology aside, headmasters shared that the fact that JIC were taught by outside instructors enabled an atmosphere of openness. Students who may want to share their experiences or ask sensitive questions were free to do so with the JIC instructors. Otherwise, they may be too cognizant and self-censoring their answers

if the JIC were delivered by their regular teachers or someone much older than them. For example, one headmaster noted:

“With [outside people], the pupils were able to be open but I think the scenario would be different in a class where you have the teacher teaching you and the pupils listening to what you have to say.”

The same respondent added:

We may have questions regarding sexuality education but the way I see it, when it is other people coming from outside of the school taking this up, I think there is no problem, as long as it is other people from somewhere...even when the children as the grade 6s go home and said [they were taught] about HIV, even the parents were happy. Because it is a different group and has nothing to do with us. But if it is the teachers, they will have that notion to say ‘but why not teach the academic subject, why are they diverting to teach about sexuality education, is it their job?’. They might not understand.

Current implementation disruptive to classes. However, headmasters also shared that JICs have also been disruptive to their regular classes due to time and space limitations at school. They generally emphasized that they *“have very limited teaching time.”* One of the headmasters shared:

I remember when the first group [of JIC] came... initially they said they would not take long but they took over two hours. And we were concerned as administrators on the loss of teaching time. Also we do not have infrastructure.

Implementing Partners

Implementers generally reported that they enjoyed working on the JIC and observed that the teaching methods are received well by students: *“For the young people, they feel they are participating. You know with a child, you can’t keep talking and talking, but let them do the practical thing and you just summarize.”* This same respondent did however also share that targeting as implementers they wanted to see the JIC being implemented with all school middle and high school students, instead of targeting only two grades.

One implementing partner reported that students and school administrators appreciated having facilitators from among the students. According to the respondent:

“The senior headman said – I am very surprised to see my boys facilitating in a special way as if they are from the University of Zambia. He said ‘this is a very good way of teaching people.’ He was very happy. He has been hearing and attending the HIV/AIDS trainings for a very long time but that day was a special day for him.”

Other stakeholders (parents, community)

Need for better outreach. According to one JIC coordinator, JIC participation in some schools was very low with some parents suspecting that “*..the program to be related to Satanism or Satanist activities.*” In such schools parents came to see what the JIC was about and shared their concerns - “*they said some of our children have not come because we were suspecting this program, we are not sure of the program, because our children were asked questions using phones and so on.*”

Given these misunderstandings, implementers shared that they should have contacted parents prior to the implementation stage. Implementers shared that the JIC were generally received well by school administrators and teachers and attributed these positive attitudes to the fact that the implementers had contacted schools much in advance and involved head masters at every school. However, not involving parents in the pre-implementation stage entailed misunderstandings and resistance on their part. According to one JIC coordinator:

GIZ did well in informing the Head Masters in advance. But the part to inform the community, the traditional leadership structure, that there is this program that is coming. So the selection of the pupils from one class [Grade 6s or Grade 11s] that you are going to participate, and then you others will not participate. That raised suspicion with the parents. The parents didn't know why is it like this? They didn't know the program. So it would have been better to inform the parents as well about the program than just going directly to teachers and then students, minus their parents.

Furthermore, implementers mentioned that for school administrators and communities to be more receptive of such programs as the JIC, there needs to be venues for discussion. As one of the JIC coordinators put it: “*there was no feedback communication from the school to the implementing partners*” and this is because “*from the top it's like they are willing to have the JIC run but on the ground when you go, we receive such resistance.*” Although school administrators may not have resisted the JIC, they were sometimes reluctant to provide facilities or to coordinate teachers and students in a timely fashion. This respondent suggests that such issues could be resolved “*if the Ministry of General Education had a meeting with probably the guidance teachers and Head teachers and tell them about the JIC.*”

Perceptions of JIC integration into CSE provision

Mainstreaming the JIC. Headmasters shared their reservations about incorporating JIC methodology into regular classrooms. One of them mentioned that given the 40-minute duration of classes, it may be challenging for them to cover the variety of topics covered typically covered in JIC— “*we may try to rush it through, to cut down the 20 minutes per station say by 5 minutes,*” but it may not allow more substantive teaching of the relevant material.

Additionally, it was by some headmasters that incorporating JICs into classrooms could be challenging for teachers. Teachers are already responsible for grading, proctoring exams, and incorporating CSE into their existing classes so that their energy and time may be stretched too thin if they were also required to run JICs. One headmaster shared:

“...we just have to work on the challenges [of the JIC] because it is time consuming and laborious, and then teachers are also involved in many other activities i.e. marking, invigilating of exams, so we also have to look at the plight of the teacher if this were to be introduced in schools. You know, would the teacher cope, and be appreciated, with the number of pupils we have in classes, say 70 pupils and so on, we also have to take care of the teacher.”

It was also mentioned that the benefit of the JIC were that they were taught by people from outside - *“the moment I reached a certain group, the pupils would just look at me and they would feel shy. It’s a good method and helps some pupils to open up especially if you have different people coming from outside.”* Such comments indicate that although the JIC could be extended to complement the CSE and taught by regular teachers, they may not be as successful in eliciting as much enthusiasm and participation among students.

Implementation suggestions

Program Timing. Multiple headteachers highlighted the challenge of incorporating the JIC into the school day and the potential conflict with ongoing classes. Headmasters generally recommend conducting the JICs after school when students are done with their classes noting that this would be less disruptive to the flow of class work. One of the headmasters suggested that the JIC method could be particularly effective if incorporated in afternoon clubs and student assemblies.

“The smaller groups will encourage more pupils to participate, unlike when they are in a big group, a number of them will not talk as big groups tend to encourage docility, and it will be difficult for the teacher to control. I think this requires different facilitators in each station, perhaps even 2 or so teachers.”

Students also brought up the possibility of extending the JIC into clubs after school and added that it was important that the JICs need to be open to all students at schools.

Supplementary Materials. Both headteachers and students noted that supplementary resources would enable them to continue their studies after the program was over with students stating that they would have appreciated getting additional resources at each station so that they could follow-up on each topic in their spare time later.

Participant-specific Adaptation. Some implementers recommended employing a different implementation strategy for different age groups. They found that the 11th graders could absorb information quickly and only one round of the JIC could be sufficient. This contrasts with the 6th

graders, who they believed would need to be exposed to the JIC more than once, to be more confident about participating and to be able to retain information.

The need for repeat exposure was reiterated among multiple respondents: One of the adolescent female students in Chuundu shared her experience and the value of the JIC for her: *“Like for me I live with my brother, he doesn't have time for that so when people like those from the JIC come and teach us it is good. He has never sat down to talk to me about such issues, so this was my chance to learn what I need to know.”*

Cost-effectiveness of the JIC

We use administrative data on the costs of administering the JIC to assess the cost-effectiveness of the program. We received the costs of administering the program from GIZ and other implementing partners. There are three main sets of costs for the JIC: a per-session cost, administrative support costs, and quality assurance costs. The per-session cost comprises a single 180€ flat fee. Administrative tasks supporting the sessions included recruitment and screening of partner organizations, training program facilitators, and producing the JIC toolkit. These administrative tasks totaled roughly 195€ per administered-JIC session. The most significant expense was the quality assurance component which totaled approximately 1835€ per session. Thus, the aggregate cost of administering the JIC was 2213€ per session (Table 11).

Table 11. Calculating average cost per session

Activity	Cost (€)
1: One-time fees	
Administrative costs	
Partner assessment and selection of 6 organizations	8650
Cost of training facilitators	6730
Cost of JIC materials	3810
Quality Assurance	
Single contract awarded	<u>180,000</u>
Total one-time fees	199,190
2: Session fees	
Per-session	
Implementation fee paid to partner organizations	180
3: Average cost per session at scale	
98 sessions (as implemented)	2,213
810 sessions (Southern Province)	584
6400 sessions (Zambia-wide implementation)	391

When assessing the cost effectiveness, it is important to recognize that the JIC program is a multidimensional program that affects a range of outcomes: measuring the cost effectiveness of the program on any single outcome can be misleading because it is not possible to disaggregate the costs to portions responsible for each improvement. For example, we do not know the portion of the 2,213€ that is responsible for improved HIV testing or young people going to health facilities to seek family planning services or the portion that is responsible for increased knowledge of contraceptives. Because the program is bundled, we must compare the full cost against any the benefits of individual outcome: this is particularly important when comparing costs to single-component programs that are often less expensive but may only impact a single outcome.

The cost-effectiveness compares the costs of administering the JIC against the impacts it achieved on participants for three main outcomes: HIV testing (9-percentage point increase), family planning visits to health facilities (8-percentage point increase), and awareness of family planning methods (6-percentage point increase). As participation in the program increased HIV testing by 9-percentage points and each JIC session could accommodate 35 participants, the program induced about 3.15 additional people to get tested. As each JIC session cost 2,213€, this implies a cost per additional person tested of 702€. Similar calculations yield a cost per

additional health facility visit and cost per additional person aware of family planning methods of 790€ and 1053€ (Column 2 of Table 12).

For cost-effectiveness, it is important to not only consider the impacts the program has on students who participated but also the spillover impacts on students who did not participate. We present cost effectiveness estimates for the same three main outcomes for the overall impacts: HIV testing (6-percentage point increase), family planning visits to health facilities (6-percentage point increase), and awareness of family planning methods (4-percentage point increase). As average grade attendance is 91 students, each session induced about 5.46 additional people to get tested which implies a cost per additional person tested of 405€. This highlights the importance of accounting for the spillover effects in the cost-effectiveness analysis. Similar calculations yield a cost per additional health facility visit and cost per additional person aware of family planning methods of 405€ and 608€ (Column 2 of Table 12).

Implications for scaling: As discussed above, the bulk of the costs incurred were attributable to the quality assurance of the program, some of which were one-off costs. In considering the cost implications of scaling, it is important to distinguish between the one-time fixed costs such as screening potential partners and developing the quality assurance approach, and the actual per-session costs such as implementing the quality assurance protocol and administering the JIC.

We consider the cost implications of scaling the program to the 810 schools in Southern Province. In this case, the fixed costs would be divided among a larger number of JIC sessions. We assume that ongoing quality assurance of the JIC has the same cost as the cost of administering the JIC itself and assume that the rest of the quality assurance is attributable to one-time setup costs. In this case, the cost per JIC would be 360€ per session in implementation costs and 224€ in one-off costs for a total of 584€. If the program was implemented similarly and yielded comparable impacts, this would imply a cost per additional person tested of 185€. The cost effectiveness for other outcomes are presented in Column 3 of Table 12.

At the extreme, if we consider the cost implications of scaling the program to the approximately 6400 schools in Zambia and assume that some of the one-time costs would need to be repeated in each province, such as screening and selecting potential partners, we estimate that the total cost per session would be 418€. This would imply a cost per additional person tested of 133€ when taking only JIC participants into account or 77€ when we account for spillovers. As approximately 4.5% of youth aged 15-19 are living with HIV, this would suggest a cost of 1711€ to identify a new person living with HIV. The cost effectiveness for other outcomes under these assumptions are presented in Column 4 of Table 12.

It is important to highlight that alternative scaling models may be more cost effective but that it would be important to test the relative efficacy of alternative approaches since both the cost and the impact may change with alternative approaches. Incorporating the JIC into pre-service teacher training may be the lowest cost approach to developing a cadre of JIC-trained teachers

who could serve as facilitators during JIC sessions. The qualitative data suggest that the impacts from the JIC if it were implemented in this fashion would likely also change: students and teachers emphasized the benefit of bringing in external facilitators with whom students are more comfortable asking sexual and reproductive health questions. Thus, the impacts measured in this study may not persist if the JIC were to be scaled through a less-costly pre-service or in-service training of teachers to administer the JIC. If this approach is selected, it will be important to test whether this alternative implementation approach has different impacts on student sexual and reproductive health knowledge and practices.

Table 12. Cost effectiveness at various implementation scales

Outcome	Impact Observed (percentage point) (1)	Cost per outcome (€)		
		As implemented in 98 schools (2)	Scaled to 810 schools in Southern Province (3)	Scaled to 6400 schools nationally (4)
Direct Impacts: JIC Participants				
Additional individual tested for HIV	0.09	702	185	133
Additional family planning visits to health facility	0.08	790	209	149
Additional individual with knowledge of family planning methods	0.06	1,054	278	199
All students (JIC + Spillover)				
Additional individual tested for HIV	0.06	405	107	77
Additional family planning visits to health facility	0.06	405	107	77
Additional individual with knowledge of family planning methods	0.04	608	160	115

Benchmarking: As mentioned above, it is challenging to compare the cost effectiveness of multifaceted programs against the cost effectiveness of programs with a single goal or output. We benchmark the cost-effectiveness of the JIC on HIV testing against a recent home-based HIV testing program but note that the JIC aims to improve a wide-range of outcomes in addition to HIV testing while the home-based program had a narrower focus.

The cluster randomized controlled trial in rural South Africa of a home-based HIV testing program increased testing rates relative to facility-based testing at a cost per test of 19€ (Tabana et al., 2015). The direct comparison may not be entirely appropriate since the program in South Africa took a village-level approach rather than focusing on youth, who may be a more difficult (and expensive) population to reach. While the scaled JIC cost of 77€ is larger, it is important to reiterate that the JIC has broad impacts beyond increased HIV testing: the program also increases knowledge and practices related to family planning, and these benefits are not accounted for in standard cost effectiveness analysis. This is important to highlight because increased clinic visits and contraception knowledge are benefits that are unlikely to come from the home-based HIV testing, which does not aim to change any ancillary behaviors or outcomes.

Conclusions and Recommendations

The primary aim of the JIC is to decrease HIV prevalence and teenage pregnancies among young people in Zambia. This report identifies positive and significant impacts of the JIC across a range of key outcomes including increased HIV testing, increased family-planning related clinic visits, and increased awareness of family planning methods. These are encouraging impacts along the program's conceptual framework indicating positive steps towards the ultimate impacts on HIV prevalence and teenage pregnancies. The impacts of the JIC on these outcomes are significantly larger for girls indicating that the current implementation is more effective at increasing the knowledge and improving behaviours of girls than boys: we suggest exploring this in more detail and potentially adapting the program to better reach boys. We find minimal evidence of impacts of the JIC on other behaviours including condom usage and HIV knowledge. Qualitatively, we found broad support for the JIC from both students and headteachers who valued it for providing useful SRH information in an engaging manner.

These impacts are encouraging for three reasons: first, some of the impacts are sizeable with a 20% increase in HIV testing and a 30% increase in family-planning related health facility visits indicating that certain components of the JIC seem to be particularly effective. Second, the program is short as each JIC session consisted of only a single 2-hour intervention. Behaviour change typically requires intensive, repeated interactions: the fact that the JIC yielded positive impacts after only a few hours is impressive. It is unclear what the impacts of a modified intervention that increased the frequency or duration of the program but it may help increase knowledge and improve behaviours. Finally, the results of this intervention were measured after only 3 months. Some behaviours may take longer to change or the improvement in behaviours may take longer to manifest and measure. A follow-up study could provide interesting insights into the longer-term impacts of the JIC.

Interviews with educators and students identified three key adaptations that should be considered in any future implementations of the JIC protocol:

- First, implementing organizations should consider whether redesigning the JIC as an after-school club or after school activity is possible and what the possible implications would be for the efficacy of the program. This recommendation stems from the fact that headteachers identified the current implementation of the JIC, which occurs during the school day, as disruptive.
- Second, if feasible, implementing organizations should consider providing the JIC to all students at each program school. While targeting the program to specific individuals may be valuable in resource constrained environments, explicitly selecting who will participate can lead to jealousy and lead to students ostracizing each other based on speculation over the selection criteria.

- Finally, MoGE should consider how to adapt the JIC implementation to effectively target different grades; implementing organizations highlighted that students of different ages are able to absorb different content and that the program could be adjusted to better suit each grade.

Limitations. This mixed-methods evaluation provides a wide range of information on the impacts and implementation of the JIC program. In this section, we highlight some of the limitations of the study. First, the evaluation only measures the short-term impacts of the study as, due to time constraints, we conducted the endline survey 3 months after the treatment schools received the JIC. We have limited evidence on the longer-term impacts of the intervention and whether the impacts persist over time. This is an important question from a cost-effectiveness perspective: if the impacts fade then the intervention becomes less cost effective. Another important limitation stems from the fact that only a fraction of the students at each treatment school received the intervention. An intervention that treats all students may have different impacts: our best estimate of the impact stems from the changemaker plus friend arm as we view that as most similar to what would happen if everyone was treated – all students and their friends would receive the program. Finally, we estimated the impacts of an externally facilitated program and are unable to comment on the impacts of a comparable program if it were implemented by the learners’ normal teachers. Many of the students noted that the external facilitator promoted free and open discussion and that the learners’ regular teachers do not feel comfortable teaching the JIC content: it seems unlikely that a modified JIC implemented by regular teachers would maintain the impacts found here. One possible approach would use the zonal in-service coordinators to run the JICs for the schools in their region: this has the advantage of maintaining the external facilitator while also providing cost savings by utilizing someone who already needs to travel to each of the schools.

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