Effectiveness of the Sista2Sista programme in improving HIV and other sexual and reproductive health outcomes among vulnerable adolescent girls and young women in Zimbabwe

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Background: In Zimbabwe, adolescent girls and young women (AGYW) experience high rates of HIV and other sexual and reproductive health challenges. In 2013, the Zimbabwe Ministry of Health and Child Care partnered with the United Nations Population Fund to implement the Sista2Sista programme, a structured peer group intervention aimed at improving health outcomes among vulnerable in- and out-of-school AGYW.

Methods: Programme data was analysed for 91 612 AGYW aged 10–24 years old who participated in Sista2Sista from 2013 to 2019. Logistic regression was used to determine odds ratios (OR) and evaluate programme exposure as a factor in a set of defined variables.

Results: 58 471 AGYW (63.82%) graduated from the Sista2Sista programme by completing at least 30 of 40 exercises. Graduates were more likely to take an HIV test (2.78 OR 95% CI 2.52–3.10), less likely to get married (0.63 OR 95% CI 0.55–0.73) and less likely to drop out of school (0.60 OR 95% CI 0.53–0.69). At higher thresholds of programme completion, additional positive outcomes were observed. Participants who completed all 40 exercises were more likely to return to school (1.41 OR 95% CI 1.18–1.69), more likely to use contraception (1.38 OR 95% CI 1.21–1.56), more likely to report sexual abuse (1.76 OR 95% CI 1.17–2.66), and less likely to become pregnant as adolescents (0.41 OR 95% CI 0.24–0.72). Individual counselling improved the likelihood of programme graduation.

Conclusions: The Sista2Sista programme had a positive effect on HIV and other sexual health outcomes among vulnerable AGYW in Zimbabwe. Strategies to improve graduation rates should be explored.

Keywords: child marriage, gender-based violence, teenage pregnancy, school, 90-90-90

Introduction

Adolescent girls and young women (AGYW) in Zimbabwe face disproportionate risk for HIV, sexual and gender-based violence (SGBV) and other sexual and reproductive health and rights issues. They also face increased barriers to accessing health and support services.

AGYW of 15–24 years of age have an HIV incidence nearly four times that of their male peers (0.53% vs 0.14%) (Ministry of Health and Child Care [MOHCC], 2019). Studies show that 48.2%–58.2% of HIV-positive AGYW have accessed HIV testing services and are aware of their positive status (Brown et al., 2018; MOHCC, 2019). 9.5% of adolescent girls 15–19 years old and 13.7% of young women 20–24 years old have experienced sexual violence at some point in their life, yet fewer than one in ten report SGBV to a formal source (Palermo et al., 2013; Zimbabwe National Statistics Agency [ZIMSTAT], 2016). Although child marriage is declining in Zimbabwe, about a third of AGYW are still married before their eighteenth birthday (ZIMSTAT & ICF International, 2016). Just 12.1% of adolescent girls 15–19 years old use a modern method of family planning. As a result, at 19 years of age, nearly half of girls (48.3%) have begun childbearing (ZIMSTAT & ICF International, 2016). These negative health outcomes are driven by gender inequality, intergenerational and transactional sex, poverty, low educational attainment, limited access to contraceptives, among other social, structural and behavioural factors (Sayi & Sibanda, 2018; Schaefer et al., 2017). Zimbabwe’s Reproductive, Maternal, Newborn, Child, Adolescent Health and Nutrition Strategy 2017–2021 acknowledges that the key challenges facing adolescents and young people in Zimbabwe revolve around high rates of unplanned pregnancies, early marriages and childbearing (with the accompanying high maternal mortality), the high prevalence of HIV, and gender-based violence (MOHCC,
2017). It notes that health communication is more effective if it involves dialogue and problem-solving skills and is provided through participatory or empowering approaches where the communities are actively involved in decision-making for their own health. To this end, the strategy states its focus on the use of peer groups — such as women’s groups and adolescent peer groups — as well as other community-based efforts that aim at improving knowledge of vulnerabilities and risk factors and reduction in delays to access health care.

Numerous studies have shown peer education groups or club-based interventions to be an effective mechanism for reducing negative health outcomes and increasing uptake of HIV, SGBV and sexual and reproductive health services among AGYW in a variety of African settings (Speizer et al., 2001; Swartz et al., 2012; Dunbar et al., 2014; Jewkes et al., 2014; Cooper et al., 2017; Johnson et al., 2018; Ziraba et al., 2018). However, few have assessed the efficacy of such interventions in Zimbabwe.

Background to the intervention: The Sista2Sista programme

The Ministry of Health and Child Care, the United Nations Population Fund (UNFPA) and their partners developed the Sista2Sista programme to help respond to key health challenges facing AGYW in Zimbabwe. Officially launched in September 2013, the Sista2Sista girls-only clubs create safe spaces for supporting and mentoring vulnerable AGYW. Clubs are organised by age, grouping girls of 10–14 years, 15–19 years, and 20–24 years. The clubs are led by female mentors called behaviour change facilitators. A total of 130 behaviour change facilitators run the Sista2Sista peer groups in 26 districts throughout Zimbabwe. Vulnerable AGYW are selected for the programme using a door-to-door approach. A risk assessment tool is administered to help determine if girls are at high-risk in five key areas: self-awareness, education, social relationships, sexual knowledge and financial awareness.

Sista2Sista peer groups meet weekly over the course of one year, following a 40-exercise curriculum that is guided by a club mentor manual. The Sista2Sista mentor manual is specifically endorsed and signed by the MOHCC and UNFPA, as part of the Health Development Fund (HDF). The different exercises focus on topics such as self-awareness, communication, gender and power, family planning, sexually transmitted infections, HIV, stigma and discrimination, menstrual health, cancer awareness, SGBV, traditional and cultural practices, consent, and financial awareness, among others. Girls who complete 30 out of the 40 exercises (75% completion) are considered graduates of the programme. The exercises involve different kinds of learning techniques, including group storytelling, debate, song, interactive role play, visual representations, and other age-appropriate methodologies.

The group exercises are complemented by ad hoc individual sessions. The individual sessions are used for a variety of reasons, including catch-up work for missed sessions, additional social support, or trauma counselling. The individual sessions may be initiated by the behaviour change facilitator, or by the participant.

During programme implementation, the behaviour change facilitators track a range of preset health and well-being outcomes, including HIV testing, marriage, school attendance, reporting sexual abuse, family planning and pregnancy. Since 2017, HIV testing has been offered to participants at entry and exit from the programme, through referrals to youth-friendly public health facilities. Behaviour change facilitators track testing uptake with referral slips.

The participant data is recorded by the behaviour change facilitators on reporting forms, which they fill in based on face-to-face communications and interactions with the participants. District officers collect the reporting forms on a monthly basis and enter the information into the master database. A custom SQL database was created for the Sista2Sista project to store and analyse data.

The Sista2Sista programme is part of the UNFPA’s seventh country programme that is signed between UNFPA and the government of Zimbabwe. In 2017, the National AIDS Council also began implementing Sista2Sista in another 30 districts, with funding from the Global Fund to Fight AIDS, Tuberculosis and Malaria.

Methods

This study assessed the effectiveness of the Sista2Sista programme in improving the following participant outcomes, defined a priori: HIV testing (upon programme exit), marriage, school attendance, reporting sexual abuse, family planning and pregnancy. Programme data from 2013 to 2019 was exported from the main SQL database. Basic descriptive statistics, including frequency tests, were performed using Microsoft Excel. Logistic regression was used to determine odds ratios (OR) and 95% confidence intervals (CI) to assess the association between programme graduation and the specified outcomes. This statistical analysis was performed using MedCalc® Statistical Software version 18.11. Since initial regressions showed no relationship between sample characteristic variables (age, marital status, etc.) and programme completion, an unadjusted model was used to collect effect size estimates without any covariates.

Three thresholds of programme completion were tested (at least 30 exercises, at least 35 exercises, and all 40 exercises) to see if there were varying effects on participant outcomes. 4,612 Sista2Sista programme graduates were followed up on one year later to examine the sustainability of programme effects. Ethics approval was received from the Medical Research Council of Zimbabwe to conduct this research.

Limitations

External variables such as household income or caregiver situation may affect the outcomes of participants, but these data are not collected by the programme and can therefore not be controlled for in this particular analysis. Additional multivariate analyses may be useful in future work. Further study limitations include the reliance on self-reported data for the use of family planning methods and experiences of sexual abuse. The data are also subject to social desirability bias resulting from the personal nature of questions, and the use of face-to-face communications to collect this data.
Studies from the region have shown that girls may report sexual abuse in a confidential sealed envelope, but not in a face-to-face interview setting (Barr et al., 2017).

HIV positivity data was not shared by the MOHCC for confidentiality reasons. The effect of the Sista2Sista programme on identifying AGYW living with HIV could therefore not be tracked.

**Results**

**Characteristics of Sista2Sista programme participants**

Table 1 displays the basic characteristics of the AGYW enrolled in the Sista2Sista programme. Between 2013 and 2019, 91,612 AGYW 10–24 years old were enrolled. Two thirds (65.68%) of these participants were reached in 2017, 2018 and 2019. Attrition from the programme was low, with just 384 (0.42%) participants dropping out over the seven-year period.

Three quarters of enrolments were in five provinces: Harare, Mashonaland Central, Mashonaland East, Mashonaland West and Matabeleland South. The greatest number of AGYW were enrolled in Mashonaland Central and the lowest number in Masvingo. At the district level, Harare had the highest number of participants (8,959) and Chivi had the lowest (617).

The mean age of participants was 15 years. The vast majority (91.17%) were adolescent girls (10–19 years old), with fewer (8.84%) young women (20–24 years old). Participants’ education ranged from none to tertiary level. Most (82.41%) were currently in school, while 17.60% were out of school or had never attended.

**Effects of Sista2Sista programme exposure on AGYW health and well-being outcomes**

Table 2 shows the logistic regression analysis that was performed to determine ORs and 95% CIs to assess the association between Sista2Sista programme graduation and the following outcomes, defined a priori: HIV testing, marriage at any age, child marriage, school attendance, family planning, pregnancy at any age, teenage pregnancy, and reporting sexual abuse.

Of the 91,612 AGYW enrolled in the Sista2Sista programme between 2013 and 2019, 58,471 (63.62%) ultimately graduated by completing at least 30 of the 40 prescribed group exercises. There was no relationship between participants’ age, level of schooling, marital status, geographic location, or their year of registration, and the number of exercises they completed.

In addition to the group exercises, one third of participants (22,882) also received at least one individual session. Participants who received more intensive individual support were more likely to graduate from the programme. Among those who received no individual sessions, the graduation rate was 64.58%. Graduation rates rose to 67.82% for those receiving 10 or more individual sessions, 75.86% with 20 or more individual sessions, and 83.14% with 30 or more individual sessions.

Age was a statistically significant predictor of becoming pregnant ($p < 0.001$), getting married ($p < 0.001$), reporting sexual abuse ($p < 0.05$) and reporting the use of a family planning method ($p < 0.001$). Age did not predict dropping out of school, returning to school, or receiving an HIV test. Out-of-school girls were far more likely to get married and become pregnant than girls with some level of schooling.

**HIV testing**

An HIV test was received by 13,706 (15.0%) AGYW after being referred to public health facilities by the Sista2Sista programme. Of these, 10,901 received a test upon entry into the programme, 6,307 upon exit, and 3,504 on both entry and exit. Graduates were nearly three times as likely to receive an HIV test upon programme exit than non-graduates. The likelihood of receiving an HIV test varied slightly by level of programme completion.

**Marriage**

A total of 817 (0.89%) Sista2Sista participants got married between 2013 and 2019. Of these, 307 were child marriages among girls who were under the age of 18 years. Sista2Sista programme graduates of all ages were less likely to get married than non-graduates, but the effect of the programme was particularly pronounced on reducing the likelihood of child marriage. For girls of all ages, the likelihood of getting married did not vary across the three thresholds.

| Table 1: Characteristics of Sista2Sista programme participants |
|---------------------------------------------------------------|
| **Number (per cent)**                                        |
| **Total**                                                   | 91,612 (100%)                             |
| **Age**                                                     |
| 10–14 years                                                 | 44,171 (48.22%)                           |
| 15–19 years                                                 | 39,344 (42.95%)                           |
| 20–24 years                                                 | 8,095 (8.84%)                             |
| **Province**                                                |
| Harare                                                      | 11,335 (12.37%)                           |
| Manicaland                                                  | 5,933 (6.48%)                             |
| Mashonaland Central                                         | 15,121 (16.51%)                           |
| Mashonaland East                                            | 13,268 (14.48%)                           |
| Mashonaland West                                            | 13,631 (14.88%)                           |
| Masvingo                                                    | 5,367 (5.88%)                             |
| Matabeleland North                                          | 7,607 (8.30%)                             |
| Matabeleland South                                          | 13,687 (14.94%)                           |
| Midlands                                                    | 5,665 (6.18%)                             |
| **Year of enrolment**                                       |
| 2013                                                        | 3,679 (4.02%)                             |
| 2014                                                        | 7,718 (8.42%)                             |
| 2015                                                        | 8,557 (9.34%)                             |
| 2016                                                        | 11,491 (12.54%)                           |
| 2017                                                        | 24,022 (26.22%)                           |
| 2018                                                        | 19,192 (20.95%)                           |
| 2019                                                        | 16,953 (18.51%)                           |
| **Education**                                               |
| Never attended school                                       | 243 (0.27%)                               |
| Out of school                                               | 15,876 (17.33%)                           |
| In primary school                                           | 32,675 (35.67%)                           |
| In secondary school                                         | 42,224 (46.09%)                           |
| In tertiary education                                       | 594 (0.65%)                               |
| **Marital status**                                          |
| Cohabitating                                                | 1 (0.00%)                                 |
| Never married                                               | 85,380 (93.20%)                           |
| Married                                                     | 4,849 (5.29%)                             |
| Separated                                                   | 157 (0.17%)                               |
| Divorced                                                    | 1,093 (1.19%)                             |
| Widowed                                                     | 132 (0.14%)                               |
of programme completion. For girls under the age of 18 years, there was incremental benefit of greater programme exposure on reducing child marriages. Completing all 40 Sista2Sista exercises reduced the likelihood of child marriage by nearly 60.0%.

School attendance
A total of 888 (0.97%) Sista2Sista participants dropped out of school between 2013 and 2019. Graduates of the Sista2Sista programme were less likely to drop out of school than non-graduates. The likelihood of school drop-out was about the same across the three thresholds of programme completion. For out-of-school Sista2Sista participants, 1038 (1.1%) returned to school during their time in the programme. Sista2Sista graduates were more likely to return to school than non-graduates. However, this effect was only observable at higher thresholds of programme completion. Girls who completed the entire Sista2Sista curriculum were 40.0% more likely to return to school.

Family planning
Family planning among Sista2Sista participants was low overall, with just 2208 AGYW (2.4%) reporting the use of a modern method. Increased reported use of a family planning method was only observable at the highest threshold of programme completion (all 40 exercises). Completion of all Sista2Sista exercises was associated with a 38.0% increase in the use of a modern family planning method.

Pregnancy
In total, 573 (0.63%) Sista2Sista participants became pregnant between 2013 and 2019, including 379 (0.41%) adolescents. Of all the outcomes assessed, pregnancy rates were the most resistant to change. For AGYW of all ages, no amount of Sista2Sista programme exposure had an effect on reducing the likelihood of falling pregnant. However, a positive effect was observed for teenage pregnancy (defined as pregnancy among Sista2Sista participants who were 10–19 years old), but only for participants who completed all 40 Sista2Sista exercises. Completing all 40 Sista2Sista exercises reduced the likelihood of teenage pregnancy by 62.0%.

Reported sexual abuse
Only 170 (0.19%) Sista2Sista participants reported experiences of sexual abuse to their mentors. Graduates of the Sista2Sista programme were more likely to come forward and report sexual abuse to their mentors, but this effect was only observable for AGYW who completed all 40 exercises.

Sustainability of programme effects
To gauge the sustainability of the outcomes measured in this study, UNFPA and its partners followed up with 4612 Sista2Sista programme graduates (mean age: 15.4 years) between December 2018 and March 2020. The vast majority (4481) of these girls graduated from the programme in 2018. Table 3 shows the occupations, reproductive health status, and educational status of these Sista2Sista graduates.

The majority of Sista2Sista programme graduates were students (73.7%). Some of those who were not studying had formal or informal work; 318 (6.9%) were either a paid employee, vendor, running their own business, or self-employed in a family business. However, 432 (9.4%) were unemployed or looking for work, and a further 423 (9.2%) were homemakers.

Use of a family planning method was 8.7% for a short-term method and 1.6% for a long-term method. Those who were formally employed were far more likely to use a family planning method (27.9%) than others. Eighty-four (1.8%) Sista2Sista graduates had become pregnant since participating in the programme, and 42 (0.9%) had delivered a baby. One-hundred and nine (2.4%) participants had graduated from school or college, while 162 (3.5%) had dropped out.

### Table 3: Sista2Sista programme effects on participants’ health and wellbeing outcomes, by level of programme exposure

| Threshold of programme completion | Outcome indicator | Odds ratio (Confidence interval) |
|-----------------------------------|-------------------|---------------------------------|
| Participants who completed at least 30 Sista2Sista group exercises (75% programme completion) | Received an HIV test | 2.78*** (2.52–3.10) |
|                                   | Got married (girls of all ages) | 0.63*** (0.55–0.73) |
|                                   | Got married as a child before age 18 years | 0.64** (0.51–0.80) |
|                                   | Dropped out of school | 0.60*** (0.53–0.69) |
|                                   | Went back to school | 1.04 (0.91–1.18) |
|                                   | Reported use of a family planning method | 0.95 (0.87–1.04) |
|                                   | Became pregnant (girls of all ages) | 1.05 (0.88–1.24) |
|                                   | Became pregnant as a teenager (girls aged 10–19 years) | 0.88 (0.68–1.13) |
|                                   | Reported being sexually abused | 0.92 (0.67–1.25) |
| Participants who completed at least 35 Sista2Sista group exercises (88% programme completion) | | |
|                                   | Received an HIV test | 3.10*** (2.83–3.30) |
|                                   | Got married (girls of all ages) | 0.75** (0.65–0.87) |
|                                   | Got married as a child before age 18 years | 0.58*** (0.45–0.75) |
|                                   | Dropped out of school | 0.61*** (0.52–0.70) |
|                                   | Went back to school | 1.33*** (1.18–1.51) |
|                                   | Reported use of a family planning method | 1.06 (0.97–1.15) |
|                                   | Became pregnant (girls of all ages) | 1.16 (0.98–1.37) |
|                                   | Became pregnant as a teenager (girls aged 10–19 years) | 1.08 (0.84–1.40) |
|                                   | Reported being sexually abused | 1.1 (0.81–1.49) |
| Participants who completed all 40 Sista2Sista group exercises (100% programme completion) | | |
|                                   | Received an HIV test | 2.41*** (2.20–2.65) |
|                                   | Got married (girls of all ages) | 0.67** (0.51–0.88) |
|                                   | Got married as a child before age 18 years | 0.41** (0.22–0.66) |
|                                   | Dropped out of school | 0.64* (0.49–0.83) |
|                                   | Went back to school | 1.41** (1.18–1.69) |
|                                   | Reported use of a family planning method | 1.38*** (1.21–1.56) |
|                                   | Became pregnant (girls of all ages) | 0.78 (0.57–1.05) |
|                                   | Became pregnant as a teenager (girls aged 10–19 years) | 0.38* (0.24–0.72) |
|                                   | Reported being sexually abused | 1.76* (1.17–2.66) |

*p < 0.01; **p < 0.001; ***p < 0.0001
Table 3: Post-graduation follow-up of former Sista2Sista participants

| Occupation                        | Number (per cent) |
|-----------------------------------|-------------------|
| Graduated from school/college     | 109 (2.4%)        |
| Paid employee                     | 43 (0.93%)        |
| Vendor                            | 99 (2.1%)         |
| Running own business              | 6 (0.13%)         |
| Small business                    | 22 (0.48%)        |
| Homemaker                         | 423 (9.2%)        |
| Contributing family worker        | 110 (2.4%)        |
| Unpaid contributing family worker | 2 (0.04%)         |
| Looking for work/unemployed       | 432 (9.4%)        |
| Own account worker                | 24 (0.52%)        |
| Other (e.g. maid, hairdresser)    | 14 (0.30%)        |
| Out of school                     | 3 (0.07%)         |
| No data                           | 36 (0.78%)        |
| Reproductive health status        |                   |
| Using short-term method           | 403 (8.7%)        |
| Using long-term method            | 74 (1.6%)         |
| Pregnant                          | 84 (1.8%)         |
| Delivered a baby                  | 42 (0.9%)         |
| Educational status                |                   |
| Graduated from school/college     | 109 (2.4%)        |
| Dropped out of school/college     | 162 (3.5%)        |

Discussion

The Sista2Sista programme had positive effects on participants' health and well-being outcomes, with varying results for different indicators. Despite the strong effect of the programme on increased uptake of HIV testing, the overall coverage of HIV testing among Sista2Sista participants was low, at 15.0%. By comparison, national data suggest that 62.7% of AGYW 15–24 years old have ever tested for HIV (ZIMSTAT & ICF International, 2016). Studies show that stigma and unfriendly health services are major barriers to HIV testing for AGYW, and that community, mobile, or home-based testing modalities may increase uptake (Mavedzenge et al., 2016). The Sista2Sista programme relies on referrals to public health facilities for HIV testing services. Provision of on-site testing may increase uptake among Sista2Sista participants.

Evidence suggests that the positive effects of Sista2Sista on keeping girls in school could also be further strengthened by adding structural layers on top of the programme’s behaviour change messages. A randomised control trial of 25 primary schools in Zimbabwe found that providing school fees to orphaned girls led to an 82.0% reduction in school drop-out and marriage rates after two years (Hallfors et al., 2011). A more recent study found that layering school fees with the provision of uniforms, school supplies and a school-based “helper” continued to reduce the likelihood of pregnancy and improve school retention (Hallfors et al., 2015).

Compared to national data, reported use of a family planning method is low among Sista2Sista participants. For all participants, 2.8% of 15–19-year-olds reported the use of a family planning method. By comparison, Zimbabwe’s Demographic and Health Survey (DHS) data show that 12.1% of adolescent girls (15–19 years old) use a modern method of contraception (ZIMSTAT & ICF International, 2016). However, Sista2Sista participants are selected due to their vulnerability and their high scoring on a risk assessment tool, so this may explain lower contraceptive use. Usage of a family planning method in the follow-up sample improved, with 10.3% of these girls using a short- or long-term method.

Although the Sista2Sista programme did not have a strong effect on preventing pregnancy, the overall incidence of pregnancy among participants was very low compared to national data. Zimbabwe’s 2015 DHS found that by the age of 19 years, nearly half of girls (48.3%) have begun childbearing (ZIMSTAT & ICF International, 2016). Among Sista2Sista participants, just 2.2% of girls 19 years or older fell pregnant. In a National Adult Fertility Study in Zimbabwe, 45% of 15–19-year-old respondents said the main reason for their first pregnancy was because they wanted a child (MOHCC, 2016). Another Zimbabwean study suggests that understanding pregnancy — and planning for pregnancy — among AGYW may require consideration of sociocultural views (Tinago et al., 2018). Attitudes of the behaviour change facilitators in the Sista2Sista programme may be an important factor for this outcome. An evaluation of girls’ clubs in Zambia found that those whose mentors had positive attitudes towards contraception were less likely to have ever been pregnant (Austrian et al., 2016).

Given that national data show 9.7% of adolescent girls (15–19 years old) and 13.7% of young women (20–24 years old) have experienced sexual violence at some point in their lives, significant barriers to reporting such violence clearly persist. In the sample of Sista2Sista participants, only 170 (0.19%) reported experiences of sexual abuse to their mentors. Studies have shown that self-reported sexual violence may lead to underreporting because some women may choose to conceal experiences that they perceive as minor or unimportant to report (Pallitto et al., 2013).

Involving parents and caregivers may also catalyse results of the programme. A study among adolescents living with HIV found that having multiple intervention components — including psychosocial support, clinical services, and working with caregivers — acted synergistically to improve the relational context for the young person (Mavhu et al., 2020). Other evidence from the region also suggests that involving caregivers in AGYW health interventions would be beneficial (Visser et al., 2018). The evidence-based Stepping Stones intervention includes separate peer groups for caregivers as part of its methodology (Jewkes et al., 2008).

Ensuring that more girls who are enrolled in the Sista2Sista programme ultimately graduate should be an ongoing focus. A recent review found that AGYW reproductive health programmes are most effective when they incorporate the delivery of curriculum-based learning along with formal one-on-one mentoring (Plourde et al., 2017). In this study, AGYW who benefited from individual sessions were more likely to complete the curriculum. Programme completion was associated with a range of positive health outcomes. The benefit of this one-on-one support was incrementally effective, peaking for those who received 30 individual sessions; these AGYW were nearly 30% more likely to graduate from the programme than those who received no individual sessions.
Conclusions and recommendations

The Sista2Sista programme is an effective behavioural intervention for improving HIV and other sexual and reproductive health outcomes in Zimbabwe. HIV testing uptake, marriage, school attendance, family planning, pregnancy, and reporting sexual abuse were all positively effected as a result of programme exposure. Outcomes related to school attendance and the use of a family planning method were sustainable up to one year post-intervention.

Augmenting the group exercises with individual sessions improves the likelihood of programme completion. Layering the Sista2Sista behavioural intervention with the provision of structural support, engagement of caregivers, and sensitisation of behaviour change facilitators may improve outcomes. To provide further nuance and depth to the outcomes assessed in this article, qualitative research with participants should be explored.

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References

Austrian, K., Hewett, P., Soler-Hampejesek, E., Bozzani, F., Behrman, J. R., & Digilaté, J. (2016). Adolescent Girls Empowerment Programme: Research and evaluation mid-term technical report. Lusaka, Zambia: Population Council. https://www.popcouncil.org/ uploads/pdfs/2016PGY_AGEPMidtermReport.pdf
Barr, A. L., Knight, L., Franca- Junior, I., Allen, E., Naker, D., & Devries, K. M. (2017). Methods to increase reporting of childhood sexual abuse in surveys: The sensitivity and specificity of face-to-face interviews versus a sealed envelope method in Ugandan primary school children. BMC International Health and Human Rights, 17(1), 4. https://doi.org/10.1186/s12914-016-0110-2
Brown, K., Williams, D. B., Kinchen, S., Salto, S., Radin, E., Patel, H., Low, A., Delgado, S., Mugurungi, O., Musuka, G., Tippett Barr, B. A., Nwankwo-Igomo, E. A., Ruangtragool, L., Hakim, A. J., Kalua, T., Nyrenda, R., Chipungu, G., Auld, A., Kim, E., . . . Voetsch, A. C. (2018). Status of HIV epidemic control among adolescent girls and young women aged 15–24 years – Seven African countries, 2015–2017. Morbidity and Mortality Weekly Report, 67(1), 29–32. https://doi.org/10.15585/mmwr.mm6701a6
Cooper, A., Moolman, B., & Matandela, M. (2017). Outcomes evaluation: SKILLZ Street Plus: A grassroots soccer initiative. Human and Social Development (HSD) research programme of the Human Sciences Research Council (HSRC). Cape Town, South Africa. http://repository.hsrc.ac.za/bitstream/ handle/20.500.11910/11278/10034.pdf?sequence=1
Dunbar, M. S., Dufour, M. S. K., Lambdin, B., Mudekunye-Mahaka, I., Nhamo, D., & Padian, N. S. (2014). The SHAZI Project: Results from a pilot randomized trial of a structural intervention to prevent HIV among adolescent women in Zimbabwe. PLoS One, 9(11), e113621.https://doi.org/10.1371/journal.pone.0113621
Halfors, D., Cho, H., Rusankano, S., Iritani, B., Mapfumo, J., & Halpem, C. (2011). Supporting adolescent orphan girls to stay in school as HIV risk prevention: Evidence from a randomized controlled trial in Zimbabwe. American Journal of Public Health, 101(6), 1082–1088. https://doi.org/10.2105/AJPH.2010.300042
Halfors, D. D., Cho, H., Rusankano, S., Mapfumo, J., Iritani, B., Zhang, L., Luxeno, W., & Miller, T. (2015). The impact of school subsidies on HIV-related outcomes among adolescent female orphans. The Journal of Adolescent Health, 56(1), 79–84. https://doi.org/10.1016/j.jadohealth.2014.09.004
Jewkes, R., Gibbs, A., Jama-Shai, N., Willan, S., Misselehorn, A., Mushinga, M., Washington, L., Mbatwa, N., & Shiwuya, Y. (2014). Stepping Stones and Creating Futures intervention: Shortened stepped time series evaluation of a behavioural and structural health promotion and violence prevention intervention for young people in informal settlements in Durban, South Africa. BMC Public Health, 14(1), 1325. https://doi.org/10.1186/1471-2458-14-1325
Jewkes, R., Nduna, M., Levin, J., Jama, N., Dunkle, K., Puren, A., & Duvvury, N. (2008). Impact of Stepping Stones on incidence of HIV and HSV-2 and sexual behaviour in rural South Africa: Cluster randomised controlled trial. BMJ (Clinical Research Ed.), 337, a505. https://doi.org/10.1136/bmj.a506
Johnson, S., Magni, S., Dubé, Z., & Goldstein, S. (2018). Extracurricular school-based social change communication program associated with reduced HIV infection among young women in South Africa. Journal of Health Communication, 23(12), 1044–1050. https://doi.org/10.1080/10810730.2018.1544675
Mavedzenge, S. N., Luecke, E., Lopez, A., Wagner, D., Hartmann, M., Lutnick, A., & Lambdin, B. (2016). HIV testing among key populations, adolescent girls and men in Eastern and Southern Africa: A review of research, policy and programming. RTI International. http://testavive.co.za/wp-content/uploads/2016/08/ HIV-testing-landscape-review_Final.pdf
Mavhu, W., Willis, N., Mufuka, J., Bernays, S., Tshuma, M., Mangenah, C., Maheswaran, H., Mangezi, W., Apollo, T., Araya, R., Weiss, H. A., & Cowan, F. M. (2020). Effect of a differentiated service delivery model on virological failures in adolescents with HIV in Zimbabwe (Zvandiri): A cluster-randomised controlled trial. The Lancet. Global Health, 8, e264–e275. https://doi.org/10.1016/S2214-109X(19)30526-1
Ministry of Health and Child Care (MOHCC). (2016). Zimbabwe National Adolescent Fertility Study, Harare: MOHCC Technical. https://zimbabwe.unfpa.org/sites/default/files/pub-pdf/UNFPA%20 NAFS%20Main%20Report%20%202016%20For%20Web.pdf
Ministry of Health and Child Care (MOHCC). (2017). Zimbabwe Reproductive, Maternal, Newborn, Child, Adolescent Health and Nutrition (RMNCAH&N) Strategy 2017–2021.
Ministry of Health and Child Care (MOHCC). (2019). Zimbabwe population-based HIV impact assessment (ZIMPHIA) 2015–2016: Final report. Harare. https://phia.icap.columbia.edu/wp-content/uploads/2019/08/ZIMPHIA-Final-Report_integrated_Web-1.pdf
Palermo, T., Bleck, J., & Peterman, A. (2013). Tip of the iceberg: Reporting and gender-based violence in developing countries. American Journal of Epidemiology, 179(5), 602–612. https://doi.org/10.1093/aje/kwt295
Pallitto, C. C., García-Moreno, C., Jansen, H. A., Heise, L., Ellsberg, M., & Watts, C. (2013). Intimate partner violence, abortion, and unintended pregnancy: Results from the WHO Multi-country Study on Women’s Health and Domestic Violence. *International Journal of Gynaecology and Obstetrics, 120*(1), 3–9. https://doi.org/10.1016/j.ijo.2012.07.003

Ploourde, K. F., Ippoliti, N. B., Nanda, G., & McCarraher, D. R. (2017). Mentoring Interventions and the Impact of Protective Assets on the Reproductive Health of Adolescent Girls and Young Women. *The Journal of Adolescent Health, 61*(2), 131–139. https://doi.org/10.1016/j.jadohealth.2017.03.002

Sayi, T. S., & Sibanda, A. (2018). Correlates of child marriage in Zimbabwe. *Journal of Family Issues, 39*(8), 2366–2388. https://doi.org/10.1177/0192513X18755198

Schaefer, R., Gregson, S., Eaton, J. W., Mugurungi, O., Rhead, R., Takekuma, A., Maswera, R., & Nyamukapa, C. (2017). Age-disparate relationships and HIV incidence in adolescent girls and young women: Evidence from Zimbabwe. *AIDS (London, England), 31*(10), 1461–1470. https://doi.org/10.1097/QAD.0000000000001506

Speizer, I. S., Tambashe, B. O., & Tegang, S. P. (2001). An evaluation of the “Entre nous jeunes” peer-educator program for adolescents in Cameroon. *Studies in Family Planning, 32*(4), 339–351. https://doi.org/10.1111/j.1728-4465.2001.00339.x

Swartz, S., Deutsch, C., Makoae, M., Michel, B., Harding, J. H., Garzouzie, G., Rozani, A., Runciman, T., & Van der Heijden, I. (2012). Measuring change in vulnerable adolescents: Findings from a peer education evaluation in South Africa. *Journal of Social Aspects of HIV/AIDS Research Alliance, 9*(4), 242–254. https://doi.org/10.1080/17290376.2012.745696

Tinago, C. B., Ingram, L. A., Frongillo, E. A., Blake, C. E., Engelsmann, B., & Simmons, D. (2018). Understanding conceptualizations of pregnancy and planning for pregnancy among adolescent girls and young women in Harare, Zimbabwe. *Qualitative Health Research, 28*(9), 1509–1519. https://doi.org/10.1177/1049732318768231

Visser, M., Thurman, T. R., Spyrelis, A., Taylor, T. M., Nice, J. K., & Finestone, M. (2018). Development and formative evaluation of a family-centred adolescent HIV prevention programme in South Africa. *Evaluation and Program Planning, 68*, 124–134. https://doi.org/10.1016/j.evalprogplan.2018.03.002

Zimbabwe National Statistics Agency (ZIMSTAT). (2016). Understanding Equality in Zimbabwe: Women and Men Report 2016. ZIMSTAT.

Zimbabwe National Statistics Agency (ZIMSTAT) & ICF International. (2016). Zimbabwe Demographic and Health Survey 2015: Key Indicators. ZIMSTAT and ICF International.

Ziraba, A., Orindi, B., Muuo, S., Floyd, S., Birdthistle, I. J., Mumah, J., Osindo, J., Njoroge, P., & Kabiru, C. W. (2018). Understanding HIV risks among adolescent girls and young women in informal settlements of Nairobi, Kenya: Lessons for DREAMS. *PLoS One, 13*(5), e0197479. https://doi.org/10.1371/journal.pone.0197479