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ADOLESCENT FEMALE SCHOOL DROPOUTS WHO USE DRUGS AND ENGAGE IN RISKY SEX: EFFECTS OF A BRIEF PILOT INTERVENTION IN CAPE TOWN, SOUTH AFRICA

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Abstract

Female adolescents from socioeconomically underserved communities in Cape Town, South Africa, who have dropped out of school, use substances, and engage in risky sex behaviour are at risk of HIV. Tailored gender-focused HIV behavioural interventions for this key population are needed to mitigate these risk factors. A pilot trial of a woman-focused risk-reduction intervention for adolescents was conducted (N = 100), with a one-month follow-up appointment. Participants in the intervention group attended two group workshops. Data were examined for significant differences within and between the groups. At baseline, 94% of participants tested positive for cannabis, 17% were HIV-positive and 11% were pregnant. Ninety-two participants returned for 1-month follow-up. At follow-up, the proportion who tested positive for cannabis use decreased significantly in both the intervention ($p = 0.07$) and control groups ($p = 0.04$). Impaired sex with any partner ($p = 0.02$), or with main partner ($p = 0.06$) decreased among the intervention group. Impaired sex with a main partner was less likely in the intervention group ($p = 0.07$) in the regression model. In conclusion, findings indicate a need for HIV prevention interventions among out-of-school female adolescents. Intervention acceptability was high, and there were some decreases in sexual risk behaviour among intervention participants which is promising. Future intervention research with this key population involving larger sample sizes and longer follow-up periods will help to determine intervention efficacy.

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Disclosure Statement

No conflicts were found among the authors.

Keywords

gender; alcohol and drug use; adolescents; HIV; brief intervention

Introduction

In South Africa, school noncompletion remains a widespread problem, with between 50% to 60% of adolescents not completing high school (Department of Basic Education, 2016; Swartz et al., 2012; Townsend, Flisher, Chikobvu, Lombard, & King, 2008). These high dropout rates are attributable to multiple factors, including poverty and the need to pay school fees, violence, substance use and dysfunctional learning or home environments (Inglis, 2009). Adolescents residing in low-resource communities in the Western Cape are particularly at risk of dropping out of school (Inglis & Lewis, 2013; Raiford et al., 2014).

Female adolescents may be disproportionately at risk of dropping out of school, and account for less than 50% of learners in South Africa up to Grade 9 (Department of Basic Education, 2016). They face a range of gender-specific barriers to continued education including high rates of teenage pregnancy, having to care of younger siblings, peer and relationship pressure, and gender-based violence that make it more difficult for them to remain in school (Inglis, 2009; Myers, Carney, & Wechsberg, 2016; Sawyer-Kurian, Browne, Carney, Petersen, & Wechsberg, 2011).

Another contributory factors to school dropout is alcohol and other drug (AOD) use, which is common among young women in the Western Cape (Reddy et al., 2013). Recent studies have found high rates of alcohol (Kaufman et al. 2014), methamphetamine, and cannabis use (Sawyer-Kurian et al., 2011; Wechsberg, Jones, et al., 2010) among young women who have dropped out of school in this province.

When female adolescents who use AODs drop out of school, they often face gender-specific consequences related to their AOD use. For example, they are more likely to engage in risky sex behaviours such as concurrent sex partners, condomless or transactional sex (Sawyer-Kurian et al., 2011) which increases their risk for HIV. AOD use also increases their risk of exposure to violence, which further decreases the likelihood of protected sex (Rosenberg et al., 2015; Wechsberg, Jones, et al., 2010).

Cultural barriers, such as stereotypical gender roles, which fuel women's social, legal, and economic disempowerment, also increase female adolescents' vulnerability to dropping out of school and acquiring HIV (Wechsberg et al., 2008). As a consequence of their lower educational attainment, female adolescents have limited opportunities for employment and income generation (Sawyer-Kurian et al., 2011). Many resort to having sexual relationships with older men who provide for them financially, but may have multiple sex partners and engage in other risk behaviours (Pettifor, Macphail, Anderson, & Maman, 2012; Sawyer-Kurian et al., 2011). Financial dependence on male partners and sex trading as a form of financial survival greatly increases their risk of victimisation and reduces the likelihood of safer sex practices.

Given these intersecting risks, female adolescents in South Africa who have dropped out of school and who use AODs are a key population at risk for HIV (Wechsberg, Jones, et al., 2010). Addressing risks for HIV among this key population is critical given findings that the majority of new HIV cases are among adolescent girls and young women (UNAIDS, 2013). Yet many adolescents remain underserved by current HIV and AOD treatment programmes (Flisher et al., 2012), with few woman-focused risk-reduction programmes available (Myers et al., 2016). To date, no comprehensive, evidence-based HIV behavioural intervention programmes have addressed the intersecting HIV risk of risky sex behaviours and violence among out-of-school adolescents who use AODs. Programmes that have been developed for female school dropouts and tested do not address AOD use (Pettifor et al., 2008). The only evidence-based intervention in South Africa that explicitly addresses the intersecting HIV risks of AOD use, victimisation, and sexual behaviours is the Women's Health CoOp (WHC), which has demonstrated efficacy in AOD-using populations (Wechsberg et al., 2013; Wechsberg, Luseno, Kline, Browne, & Zule, 2010; Wechsberg et al., 2011). However, almost all of the adaptations of this intervention have targeted adult women aged 18 and older (Wechsberg et al., 2013; Wechsberg, Luseno, et al., 2010; Wechsberg et al., 2011). In the United States, this intervention was adapted for female adolescents (Young Women's CoOp), and has demonstrated reductions in sexual risk (Wechsberg et al., 2017).

This study piloted an adapted version of the Young Women's CoOp and the WHC intervention for this population of young women, known as the Young Women's Health CoOp (YWHC). Specific aims are to explore the feasibility, acceptability, and preliminary efficacy of the adapted intervention on AOD use and sexual risk for HIV.

Methods

Study Design and Participants

From April 2015 to April 2016, female adolescents were recruited from eight economically-underserved township communities in Cape Town, South Africa, for a community-based cluster randomised trial. To be eligible, individuals had to self-identify as women, be 16 to 21 years of age and report AOD use at least once a week during the past 90 days, drop out from school, and condomless sex with a male partner in the past 90 days. Using a computer-generated randomisation sequence, we matched communities on size, and randomised four to the intervention and four to the control arm. There was a distance of at least a mile (more than 5 kilometres) between the intervention and control communities.

Data collection

To identify potential study participants, young female outreach workers conducted street outreach that consisted of marketing in areas frequented by the study population. Outreach workers approached potential participants and asked permission to screen them for study eligibility. Interested eligible women were given an appointment for an intake where they were rescreened and enrolled in the trial after providing written informed consent. In addition, we obtained written consent from an older female adult in the community for participants who were younger than 18 years of age who acted in loco parentis if young

women were not comfortable with their parents or legal guardians providing informed consent.

Once enrolled, an interviewer administered a brief risk behaviour questionnaire, followed by biological testing for pregnancy, HIV, and the recent use of alcohol, cocaine, methamphetamine, cannabis, opiates, and methaqualone. HIV was tested through a finger stick blood sample using Unigold and Determine Rapid Tests. If either test was reactive (positive) or indeterminate, a confirmatory Tri-line HIV-1/2 Rapid Test was performed.

Participants from communities assigned to the intervention arm were asked to attend two intervention workshops. Participants in the communities assigned to the control arm did not receive an intervention (Figure 1). As this was a proof-of-concept trial, the follow-up appointment was approximately one month after the intake interview. At the end of each assessment, participants were provided with refreshments and a grocery voucher valued at ZAR 100 (USD 5.71) for their time. Ethics approval was granted by the Institutional Review Boards of RTI International and the South African Medical Research Council (Trial Registration Number: NCT02677025).

We asked a subset of the intervention participants (n= 21) to participate in one of four focus group discussions (FGDs) to assess project acceptability and the extent to which they sustained any behaviour change. Participants were grouped by the community in which they lived. Eligibility criteria included intervention completion, indicating they were interested in future contact, and being able to speak English. These discussions explored their experience with study recruitment and the intervention workshops, as well as suggestions for future studies. FGDs lasted up to 90 minutes.

Intervention Condition (Young Women's Health CoOp)

The intervention comprised two group workshops, each lasting approximately two hours, and delivered one week apart by trained female interventionists. The original US intervention's core elements are based in feminist and empowerment theories and have been evaluated as a "best-evidence" HIV behavioural intervention programmes (Lyles et al., 2007).

Workshop 1 provided participants with information about HIV/AIDS, STIs, pregnancy, and sexual risk behaviours. This workshop also taught sexual negotiation skills and correct condom use. Workshop 2 covered AOD use, gender power and violence, and education. Participants were also taught communication skills, specifically around conflict resolution. We incorporated formative FGD participants' voices from the targeted communities within the body of the intervention and added more practical activities around types of AODs and sexual risk activity as suggested by adolescents. Finally, we included information on teenage pregnancy, breastfeeding, and reproductive health.

Measures

We used the youth-specific modification (Wechsberg et al., 2017) of the Revised Risk Behaviour Assessment (RRBA) (Wechsberg, 1998) that has been used in multiple studies with South African women who use AODs (Wechsberg et al., 2013; Wechsberg, Luseno, et

al., 2010). It includes questions about demographics and social characteristics, physical and mental health, health knowledge, AOD use, sexual risk, empowerment, conflict, and victimisation.

Sociodemographic variables

These included ethnicity (Black African or Coloured) and education (completion of Grade 9 or higher vs. lower than Grade 9), given research in the Western Cape that reports over half of school dropout occurs around 9 years of schooling (Flisher & Chalton, 1995).

Primary Outcomes

The primary AOD outcomes were urine drug testing results for cannabis, methamphetamine, methaqualone, and self-reported heavy drinking. The biological drug screening results were coded as positive or negative. For frequent heavy drinking, we examined a self-report item that asked about the number of days that participants consumed four or more drinks in the past 30 days, which was dichotomised as present or absent. The primary sexual risk behaviour outcomes were sex without a condom in the past 30 days and AOD-impaired sex with any partner or with main partner respectively (yes/no).

Analysis

First, we examined baseline differences between study arms using t-tests (continuous variables) or chi-square tests (categorical variables). To examine the intervention efficacy on the substance use and sexual risk behaviour outcomes, we conducted an intent-to-treat analysis. To examine within-group differences of the outcomes, we used McNemar's tests (or exact tests statistical significance if discordant pairs were less than 20). We performed multivariate logistic regression analyses to examine whether the groups differed at follow-up on the primary outcomes, while adjusting for intervention assignment and the potentially confounding effects of education. Stata MP (Version 14, StataCorp, College Station, TX) was used for the analyses. Thematic analysis was used to analyse the FGDs. Two researchers independently coded the group transcripts and found no discrepancies in identified themes.

Results

In total, 206 young women were screened for study eligibility. Of these, 102 were ineligible often for multiple reasons (see Figure 1). Of the 105 potentially eligible young women, four declined to participate because of a lack of interest and one was part of a previous study with a similar intervention and thus could not participate.

Intervention Dose and Study Retention

Intervention completion rates were high, with 96% ($n = 48$) of participants in the YWHC arm completing Workshop 1 and 92% ($n = 46$) completing Workshop 2. We achieved 92% retention at 1-month follow-up (YWHC: 88% [$n = 44$]), Control: 96% [$n = 48$]) and attrition did not significantly differ by arm.

Baseline Characteristics of Study Participants

Table 1 presents baseline sociodemographic, AOD, and sexual risk information on the 100 enrolled participants. Except for education, there were no statistically significant differences between the arms. On average, participants were 19 years old ($SD = 1.55$). Almost all participants were unemployed (96%) and had a boyfriend (90%). A high proportion of participants reported gang members being present in their community (70%). More than half reported a previous pregnancy (56%).

In terms of AOD use, at baseline almost all participants tested positive for cannabis (94%), 46% for methamphetamine, 27% for methaqualone, and a small proportion tested positive for opiates (5%). On average, participants reported 7.74 days of heavy drinking ($SD = 7.36$) in the past month. At baseline, 17% of participants tested positive for HIV, and 11% had a positive pregnancy test; none of the participants who tested positive for HIV were pregnant. Most participants reported no condom use in the past 30 days (79%). In addition, 45% reported impaired sex with any partner and 35% reported impaired sex with their main partner in the past 30 days.

Outcomes—Table 2 presents the within-group changes in the proportions from baseline to 1-month follow-up. Associations that were statistically significant at the $p < 0.1$ level are noted (because of the small sample size). Among participants in the intervention group, there was a statistically significant increase in the proportion of participants testing positive for methaqualone at 1-month follow-up ($p < 0.01$). For participants in the control group ($p=0.04$) and the intervention group ($p=0.07$), statistically significant reductions in marijuana were detected. In addition, for participants in the intervention group, there was a statistically significant reduction in impaired sex with any partner ($p = 0.02$) and with main partner ($p = 0.06$). For the logistic regression analyses controlling for intervention assignment and education, we found statistically significant differences between the intervention and control arms for two of the outcomes (analyses not shown). Participants in the intervention group were more likely to test positive for methaqualone (adjusted odds ratio [AOR]: 2.32; $p = 0.07$) and less likely to report having engaged in impaired sex with a main partner (AOR: 0.40; $p = 0.07$) at follow-up than those in the comparison group.

Acceptability of the Intervention—Most FGD participants endorsed the intervention as being helpful. They discussed that they had increased knowledge about AODs, STIs, and HIV. Participants felt they learned how to use condoms effectively and to negotiate with sex partners to use condoms.

“I learned how to protect myself.”

“I [now] know everything I must know.”

Participants also commented that the intervention motivated them to reduce or stop engaging in HIV risk behaviours because it empowered them and provided them with future goals to work toward.

“It empowered me—you are able to say, no I don’t want to.”

“I want to become something in life.”

However, some participants reported difficulty making these changes because of persistent surrounding stressors, such as friends or boyfriends, lack of alternative recreational activities, limited resources, and lack of access to health and social services. In addition, participants provided feedback that they needed more time to implement change and practice specific skills, such as using female condoms, before they become viable for them.

“I want to change, go back to school [and quit drug use]. But I can’t help myself. I tried and tried.”

“I actually want to try to it, but [the female condom] still felt unusable.”

Discussion

This study was designed as a small, pilot trial to test the feasibility, acceptability, and initial efficacy of an adapted intervention for female adolescents who used AODs, had dropped out of school, and reported recent sexual risk behaviour. At baseline, findings indicate a need for interventions among such young women. Of particular concern was the HIV prevalence found among this sample of 16- to 21-year-old women (17%), which was higher than expected based on national surveillance data that estimate a prevalence of 11.4% among 15- to 24-year-old women in South Africa (Shisana et al., 2014).

Despite the FGD findings indicating acceptability of the intervention, few statistically significant differences were observed by study arm at 1-month follow-up. However, certain within-group changes were observed among participants assigned to the intervention group; specifically, reductions in cannabis use, impaired sex with any partner and impaired sex with a main partner, compared with participants in the control group which only reduced cannabis use. The reduction in cannabis use within both groups could indicate that the questionnaire or biological testing served as an intervention in itself. Receiving their drug test results may have motivated some participants to stop using drugs (Browne, 2016). The increase in methaqualone use among participants in the intervention arm was surprising and warrants further study, especially because methaqualone is commonly used with cannabis.

This study has some limitations. One issue was that with such a small sample size, it may not have been sufficiently powered to detect a main effect of the intervention, which is why within-group differences were examined. Additionally, the study was not powered for any mediation analysis; consequently, if any changes in skills and knowledge occurred, and mediated the relationship between the intervention and outcomes, this was not measured. Similarly, the short follow-up period may not have allowed sufficient time for participants to make changes to their AOD use. Behavior change is challenging and may take time to occur, as emphasised by the qualitative findings. Participants did not always engage in support services to assist these changes offered as referrals, similarly to previous literature (Myers et al., 2016).

This study also has several strengths. First, a key population at risk for HIV was reached for this pilot trial, enrolled and successfully retained at 1-month follow-up, and also offered referrals to additional services. This highlights the feasibility of reaching and intervening with young AOD-using women. Second, there was limited attrition at follow-up. Together

with the qualitative data, this shows that the intervention was largely acceptable to participants who remained engaged in the study. Third, the study demonstrated some promising changes in AOD use and sexual risk behaviour, although the durability of these changes is yet to be determined.

Implications and Future Directions

While the intervention did not have positive outcomes for most of the AOD use and sexual risk behaviours, it showed promise regarding reducing impaired sex overall and specifically with young women's main partners. It is evident that South African female adolescents who are out of school and report AOD use and sexual risk behaviour are at risk for HIV. To determine intervention efficacy, future research is needed with larger sample sizes that are powered to detect main effects, and that include multiple and longer follow-up periods.

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Figure 1:
Young Women's Health CoOp CONSORT Diagram

Table 1.**Study Sample by Condition at Baseline**

<i>Sociodemographic Factors</i>	Overall	Intervention (n=50)	Control (n=50)	p-value
Age (Mean, SD)	19.08 (1.55)	18.90 (1.72)	19.26 (1.38)	0.25
Education (n, %) Grade 9 and lower	52 (52%)	31 (62%)	21 (42%)	0.05*
Unemployed (n, %)	96 (96%)	50 (100%)	46 (92%)	0.12
Ethnicity (n, %)Black AfricanColoured	51 (51%)49 (49%)	25 (25%)25 (25%)	26 (26%)24 (24%)	0.84
Mean Income (ZAR, SD)	508.22 (1040.90)	517.50 (1303.99)	498.94 (777.81)	0.93
Mean Income (USD)	40.06	40.80	39.33	
Current Boyfriend (n, %)	90 (90%)	45 (90%)	45 (90%)	1.00
Gang members in community (n, %)	70 (70%)	36 (72%)	34 (68%)	0.66
Ever pregnant (n, %)	56 (56%)	29 (58%)	27 (54%)	0.69
<i>Alcohol and Other Drug Use and Other Biologicals (n, %)</i>				
Frequency Heavy drinking ^a	7.74 (7.36)	7.47 (6.85)	8.00 (7.87)	0.09
Methamphetamine	46 (46%)	24 (48%)	22 (44%)	0.30
Cannabis	94 (94%)	48 (96%)	46 (92%)	0.99
Mandrax	27 (27%)	14 (28%)	13 (2%)	0.82
Opiates ^b	5 (5%)	3 (6%)	2 (4%)	1.00
HIV positive	17 (17%)	8 (16%)	9 (18%)	0.79
Pregnant	11 (11%)	6 (12%)	5 (10%)	0.75
<i>Sexual Risk Behaviour (last sex)</i>				
No condom used	79 (79%)	40 (80%)	39 (78%)	0.81
Impaired sex with any partner ^c	45 (45%)	24 (48%)	21 (42%)	0.55
Impaired sex with main partner	35 (35%)	20 (47%)	18 (43%)	0.74

^aThis was a self-report variable.

^bParticipants' urine was tested for cocaine, but none of the participants tested positive for cocaine at baseline.

^c85/100 participants self-reported that their last sex episode was with their main partner/boyfriend

Table 2.

Baseline to 1-Month Follow-Up Changes in Substance Use and Sexual Risk Outcomes.

	BL (%)	1M-FU (%)	McNemar's χ^2	<i>p</i>
Binge drinking				
Intervention	54.5	59.1	0.33	0.77
Control	75.0	64.6	2.27	0.23
Methamphetamine				
Intervention	50.0	54.6	0.67	0.69
Control	41.7	37.5	0.50	0.73
Methaqualone				
Intervention***	27.3	50.0	8.33	< 0.01
Control	25.0	31.3	1.00	0.51
Marijuana				
Intervention*	95.5	79.5	4.45	0.07
Control**	95.8	81.3	5.44	0.04
Condomless Sex				
Intervention	77.8	61.1	3.00	0.15
Control	76.3	63.2	2.78	0.18
Impaired Sex				
Intervention**	44.4	22.2	6.40	0.02
Control	39.5	34.2	0.29	0.79
Impaired Sex with MP				
Intervention*	57.9	34.2	4.26	0.06
Control	66.7	55.6	1.14	0.42

*
p < 0.10,**
p < 0.05,***
p < 0.01