Characterizing Male Sexual Partners of Adolescent Girls and Young Women in Mozambique

Key Findings

August 2018

USAID FROM THE AMERICAN PEOPLE

PEPFAR

CNCS

MEASURE Evaluation

Characterizing Male Sexual Partners of Adolescent Girls and Young Women in Mozambique

Key Findings

Jenifer Chapman, PhD
Nena do Nascimento, MPP
Mahua Mandal, PhD
Sarah Treves-Kagan, PhD (ABD)
Ariane Dinis, Verde Azul
Ana Costa, Verde Azul

August 2018

MEASURE Evaluation
University of North Carolina at Chapel Hill
123 West Franklin Street, Suite 330
Chapel Hill, North Carolina 27516
Phone: +1 919-445-9350
measure@unc.edu
www.measureevaluation.org

This publication was produced with the support of the United States Agency for International Development (USAID) under the terms of the MEASURE Evaluation cooperative agreement AID-OAA-L-14-00004. MEASURE Evaluation is implemented by the Carolina Population Center, University of North Carolina at Chapel Hill in partnership with ICF International; John Snow, Inc.; Management Sciences for Health; Palladium; and Tulane University. Views expressed are not necessarily those of USAID or the United States government. TR-18-259

ISBN: 978-1-64232-036-7

USAID FROM THE AMERICAN PEOPLE PEPFAR CNCS MEASURE Evaluation

ACKNOWLEDGMENTS

We thank the United States Agency for International Development (USAID) and the United States President's Emergency Plan for AIDS Relief (PEPFAR) for their support of this work, and we thank MEASURE Evaluation, which is funded by USAID and PEPFAR, for supporting the work of the following authors: Jenifer Chapman, Nena do Nascimento, and Mahua Mandal.

We thank Nathaniel Lohman, Celio Vilichane, and Tracy Hawry, of USAID/Mozambique; Mary Ellen Duke (formerly USAID/Mozambique); and Susan Lorente, of the PEPFAR Coordination Office, in Mozambique, for helping to conceptualize this study, guiding the implementation, and reviewing the report. We appreciate Lourena Manembe and Ema Chuva, at the Conselho Nacional de Combate ao HIV/SIDA (CNCS), in Mozambique, for their leadership and commitment to this study and to the use of the findings in government policy.

We are grateful to colleagues at Verde Azul, in Mozambique, for their support during implementation of the project, especially Kemal Vaz and Aissa Mamade, as well as the field team that collected the data. We thank a number of government and nongovernment partners that participated in district-level steering committees and supported recruitment: the provincial departments of health and HIV control (DPSs and NPCs, respectively); World Education/Bantwana; the Elizabeth Glaser Pediatric AIDS Foundation; FHI 360; World Vision; Jhpiego; Associação Moçambicana Mulher e Educação; Núcleo das Associações Femininas da Zambézia; and Doctors with Africa CUAMM. We also thank Lily Bunker for her support in setting up the stakeholder reference groups.

We thank Susan Settergren, of MEASURE Evaluation, Palladium, for contributions to the protocol and data collection tools, and for helping us think through the analysis plan; Andrew duBois, of Palladium, for developing the electronic versions of the data collection tools; and William Meihak Miller, of MEASURE Evaluation, University of North Carolina at Chapel Hill (UNC), for guiding us through data collection. We appreciate Jessica Fehringer, of MEASURE Evaluation, UNC, for reviewing versions of this report. We also thank the knowledge management team at MEASURE Evaluation, UNC, for editorial and production services.

Finally, we extend special thanks to the adolescent girls and young women and men who participated in the study for their time and the valuable information they provided.

Cover photo: Robert Harding, Flickr Creative Commons

CONTENTS

FIGURES

TABLES

ABBREVIATIONS

AGYW	adolescent girls and young women
AOR	adjusted odds ratio
DREAMS	Determined, Resilient, Empowered, AIDS-free, Mentored, and Safe
FGD	focus group discussion
IMASIDA	Immunization, Malaria and HIV/AIDS Indicator Survey
PEPFAR	United States President's Emergency Plan for AIDS Relief
PrEP	pre-exposure prophylaxis
SAAJ	Serviço Amigo do Adolescente e Jovem
UNAIDS	Joint United Nations Programme on HIV/AIDS
USAID	United States Agency for International Development

EXECUTIVE SUMMARY

Background

Adolescent girls and young women (AGYW) ages 15–24 have been identified as a population extremely vulnerable to HIV. Less than half of AGYW living with HIV know their HIV status, and treatment uptake and viral suppression rates among adolescents and young people, especially females, are extremely low globally. AGYW are at risk of acquiring HIV predominantly through sexual transmission from HIV-positive male partners. To stop AGYW from acquiring HIV, one strategy is to prevent HIV among their male sexual partners and reduce the infectiousness of those partners who are HIV-positive. However, little is known globally about the characteristics of AGYW's sexual partners, which constrains efforts to reach them with HIV services and thus limits efforts to ultimately reduce HIV prevalence among them. The United States President's Emergency Fund for AIDS Relief (PEPFAR), through the Determined, Resilient, Empowered, AIDS-free, Mentored, and Safe (DREAMS) Initiative, has called on U.S. Government missions overseas to address this knowledge gap, through studies to characterize male sexual partners.

USAID/Mozambique asked MEASURE Evaluation to undertake a study that would provide insights into the characteristics of men who have recently engaged in sexual activity with AGYW, the relationship dynamics, and factors that influence men's engagement with HIV and AIDS prevention and care services.

Research Questions

This study had three research questions:

1. Who are the sexual partners of AGYW?
2. Is sexual risk-taking behavior (i.e., multiple recent sexual partners and unprotected sex) among AGYW and their male partners associated with certain sexual partner characteristics (e.g., age, education, employment, income, or other factors)?
3. To what extent are male sexual partners of AGYW using/willing to use different types of HIV and AIDS services?

Methods

MEASURE Evaluation conducted a two-part study: the first part involved focus groups with five subgroups of AGYW; the second part consisted of a venue-based intercept survey of men.

Focus Groups

We conducted 15 focus group discussions (FGDs) with 102 AGWY ages 15–24 in three Mozambique locations: Quelimane, Beira, and Xai-Xai Districts. We sampled AGYW with diverse demographic characteristics (such as in school/out of school, married/single, and mother/childless). Our study team convened a committee in each district to devise a recruitment strategy for each location. Local implementing partner organizations of the United States President's Emergency Plan for AIDS Relief (PEPFAR) recruited study participants from health clinics, schools, and other locations in the community.

Survey

We conducted anonymous, face-to-face, one-on-one interviews with males ages 18 and above, using a short, electronic survey instrument with close-ended questions that asked about their sexual partnerships, demographics (theirs and those of their most recent AGYW sexual partner[1]), HIV testing and knowledge of HIV status, male circumcision, condom use, participation in HIV services, and preferences for and barriers to HIV services. We recruited the men from a diversity of venues (bars, restaurants, schools, beaches, and so forth.). We selected venues for the survey from a list generated from AGYW during focus group discussions as places where their male sexual partners spent time, with input from a stakeholder reference group in each study district. We aimed to survey 930 men who reported recently having had sex with an AGYW across three districts: Quelimane, Beira, and Xai-Xai District.

Findings

The 15 focus groups included 102 AGYW. The survey reached 1,140 men recruited from 38 venues. Eighty-six percent (n = 981) of the men surveyed reported having had sex with an AGYW in the 12 months before the survey.

Who are the sexual partners of AGYW?

FGD participants reported that AGYW engage in sexual relationships with men of different ages, education levels, and socioeconomic statuses. Participants spoke of casual and serious relationships with a boyfriend or older male, and relationships with husbands living at home or far away. However, FGDs with school-age respondents consistently mentioned secondary school teachers as sexual partners. Also, participants outlined that some AGYW prefer older men as boyfriends, perceiving them as being better off financially, having the economic means to support them if they become pregnant, and more able to provide other material benefits.

Men reporting an AGYW as a sexual partner in the 12 months before the survey were younger and more likely to have a steady girlfriend. Using multivariate analysis, we identified male characteristics associated with subgroups of AGYW. Men who reported younger sexual partners (under age 19) were younger themselves, more likely to be students, and had low educational attainment. Men who reported that their most recent AGYW sexual partner was of school age but out of school were more likely to be mobile and less likely to have completed secondary school. Men reporting that their most recent AGYW sexual partner was pregnant or already a mother are more likely to be married.

Is sexual risk-taking behavior among AGYW and their male partners associated with certain sexual partner characteristics?

In all FGDs, participants commonly described both AGYW and their male sexual partners as having relationships with multiple partners, whether married or single. Married women agreed that condom use with their husbands is rare; condom use with boyfriends or casual partners is more common, but not consistent. Single AGYW described using condoms, but not necessarily consistently. Condom use practices differ somewhat, depending on the male partner's age; FGD participants said condom use is more common with boyfriends of their own age than with older or married sexual partners.

Respondents agreed that generally men—regardless of age, economic status, and other characteristics—have more power and authority to decide whether to have sex and use a condom. The role of male sexual partners as breadwinners and economic providers appears to transcend sexual relationships. AGYW described male sexual partners as "bosses" or "masters" in charge of their households and the women in

[1] In the interests of grammatical simplicity, we'll refer to AGYW in this report in the singular (e.g., "an AGYW") as well as in the plural (e.g., "some AGYW").

their lives. Married AGYW highlighted their inability to insist on condom use with their husbands or control their husbands' extramarital relationships.

Sixty percent (60%) of men reported condom use at last sex; 41 percent reported consistent condom use (always using condoms). Men with younger AGYW partners were more likely to report consistent condom use, whereas men with AGYW partners who were mothers or pregnant were less likely to do so. Similarly, men who were married to or living with AGYW partners were significantly less likely to report consistent condom use.

To what extent are male sexual partners of AGYW using/willing to use different types of HIV and AIDS services?

Male participants reported extremely high rates of HIV testing—83 percent reported ever being tested for HIV. The majority of men preferred to be tested at a public hospital, and most were interested in workplace testing. About three-quarters of the sample (76%) reported being circumcised. Of those not circumcised, most were interested in circumcision and listed a public hospital as their preferred venue for circumcision.

We asked men about their preferences on when to access services. The highest-scoring time was Sunday evening; however, a majority of respondents indicated that weekend mornings and evenings are convenient times to access HIV services.

Recommendations

- To reach sexual partners of AGYW, we recommend that **HIV programs should target men who are younger** (under age 30), encouraging them to use condoms consistently with their girlfriends and wives, get circumcised, and get tested and discuss their HIV status with their partners. We also encourage behavior change campaigns targeting males of all ages and characteristics with positive messages about being faithful to their partners.
- We recommend **in-school HIV prevention and testing programming** to reach school-age male sexual partners of AGYW with messaging about condom use, limiting the number of their sexual partners, HIV testing, and voluntary male medical circumcision, as well as a mechanism for sensitizing boys and girls alike on gender issues.
- We recommend encouraging the **expansion of youth-friendly, integrated family planning/HIV health services both inside and outside of health facilities.** Specific efforts should be made to attract male clients, who are much less likely to participate in sexual health and HIV services than women.
- We recommend **trial workplace testing and behavior change campaigns**, particularly within sectors employing men with less education—for example, mining and fishing.
- We recommend that programs **increase the availability and promotion of condoms at child clinics, routine vaccination sites, and antenatal clinics**. Programs should also educate males on the importance of condom use with their partners.
- We recommend that programs **target AGYW with school- and community-based self-efficacy/empowerment/life skills trainings**, **using an evidence-based curriculum.** These trainings should support AGYW to reduce their HIV risk, by building sexual and condom use negotiation skills.
- We recommend **prioritizing male secondary school teachers for HIV prevention programming.** We also recommend that the Ministries of Health, Education, and Justice work closely together to develop a plan to combat sex and sexual harassment between teachers and students at a national level by addressing prevention, support and protection, and investigation and

justice. We encourage the **use of anonymous or protected reporting mechanisms**, through which students can report sexual harassment and abuse occurring in their schools.

- We recommend **extending programming, such as savings groups and cash transfers, to improve the economic situations of AGYW**, particularly single and pregnant AGYW or young mothers, so they do not have to rely financially on male partners or feel pressure to engage in sex because of economic necessity. This approach is an important means of shifting the power imbalance AGYW experience in beginning sexual relationships with men.
- Given the preponderance of unprotected sex among married couples and the lack of power to negotiate sex within marriage, we recommend **better engagement leading to efforts to reduce early childhood marriage, improve uptake of family planning methods, and HIV interventions** targeting families and communities.
- We recommend **integrating oral pre-exposure prophylaxis (PrEP) in HIV prevention strategies**. This HIV prevention strategy is not predicated on longer-term behavioral change in partner concurrency or condom use, and therefore can have an immediate impact on HIV transmission

INTRODUCTION

AGYW ages 15–24 have been identified as a population extremely vulnerable to HIV (Karim, Baxter, & Birx, 2017; Dellar, Dlamini, & Karim, 2015). Globally, in 2016, approximately 400,000 AGYW in this age group were newly HIV-positive (Joint United Nations Programme on HIV/AIDS [UNAIDS], 2017). In those countries in sub-Saharan Africa with generalized HIV epidemics, adolescence marks an increase in HIV prevalence, and gender disparities in that prevalence emerge and expand dramatically (Idele, et al., 2014). Recent estimates from seven African countries indicate that the prevalence of HIV among women ages 15–25 is more than twice that among their male counterparts (Brown, et al., 2018).

Despite the epidemiological and human rights imperative to support AGYW in remaining free of AIDS, programming to date has had limited success compared to other prevention initiatives (Karim, et al., 2017). Fewer than half of AGYW living with HIV know their HIV status (Brown, et al., 2018), and treatment uptake and viral suppression rates among adolescents and young people, especially females, are extremely low globally (Lamb, et al., 2014; Auld, et al., 2014; Denison, et al., 2015). Furthermore, although other age groups have experienced declines in AIDS-related deaths, adolescent AIDS-related deaths increased by about 50 percent between 2005 and 2012 (Idele, et al., 2014).

In Mozambique, the epidemiological challenges are vast, even compared with the global statistics. Whereas other countries in the region are experiencing a decline in HIV prevalence, Mozambique is facing high and sustained prevalence. Thirteen percent of men and women ages 15–49 are living with HIV, compared to 11.5 percent in 2011 (MISAU, INE, & ICF International, 2015). A higher prevalence of HIV exists among women (15.4%) compared to men (10.1%). The difference between sexes is much starker among youth ages 15–24: the prevalence of HIV among females is more than three times that of males (females: 9.8%; males: 3.2%) (MISAU, et al., 2015).

PEPFAR, through the Determined, Resilient, Empowered, AIDS-free, Mentored, and Safe (DREAMS) initiative (www.dreamspartnership.org), has recognized the importance of reaching AGYW (PEPFAR, 2016). In Mozambique, comprehensive AGYW programs under the DREAMS initiative are under way in five districts: Xai-Xai, Cidade de Xai-Xai, Chokwe, Cidade de Quelimane, and Cidade da Beira.

One of the programming strategies of DREAMS is to prevent HIV among male sexual partners of AGYW and reduce the infectiousness of those partners who are HIV-positive (by controlling their viral load), thereby reducing HIV incidence among AGYW. This approach requires information about the characteristics of AGYW's sexual partners—who they are and how they can be reached. This information is lacking in Mozambique. To fill this knowledge gap, the United States Agency for International Development (USAID) in Mozambique asked MEASURE Evaluation to undertake a study that would characterize men who have recently engaged in sexual activity with AGYW, the relationship dynamics, and factors that influence men's engagement with HIV and AIDS prevention and care services.

This study consisted of two parts. Part I was a qualitative study of AGYW using FGDs to obtain information on their male sexual partners. Part II was a brief, anonymous intercept survey of boys and men ages 18 and above, conducted at venues identified by AGYW as places where their sexual partners might be found. In-depth findings from both parts have been reported previously (do Nascimento, Costa, & Chapman, 2018; Chapman, Trevis-Kagan, Mandal, & Dinis, 2018). This report presents a brief synthesis of the findings across both parts of the study.

Research Questions

The survey component of this study was guided by three primary research questions:

1. Who are the sexual partners of AGYW?
    a. How do AGYW characterize their sexual partners by such factors as demographics, location of residence, occupation, and so forth?
    b. How do male sexual partners of AGYW characterize themselves regarding these factors?
    c. Do male partner profiles differ among different subgroups of AGYW? If so, how?

2. Is sexual risk-taking behavior among AGYW and their male partners associated with certain sexual partner characteristics?
    a. Does the type of relationship affect sexual risk taking?
    b. Is sexual risk taking associated with power imbalances within relationships, measured in terms of partner differences in age, education, employment, and other factors?

3. To what extent are male sexual partners of AGYW using or willing to use different types of HIV and AIDS services?
    a. What service factors affect willingness to use by type of service?
    b. What are the barriers to uptake of services?

METHODS

Focus group and survey methodology is summarized here. For detailed methods, please see the full reports of findings (do Nascimento, et al., 2018 and Chapman, et al., 2018). We obtained ethical clearance from Health Media Labs, Inc. in the United States and the Comitê Nacional de Bioética para a Sáude in Mozambique.

Study Setting

The study took place in three districts in Mozambique: Cidade de Quelimane (Zambézia province), Cidade de Beira (Sofala province), and Xai (Gaza province). See Figure 1.

USAID selected and determined these districts to reflect the HIV context in all DREAMS districts. Information about the study districts is presented in Table 1 below.

Figure 1. Map of Mozambique

Table 1. Characteristics of study settings (MISAU, et al., 2015)

Characteristics	Quelimane, Zambézia	Beira, Sofala	Xai-Xai District, Gaza
Location	Urban	Urban	Peri-urban
HIV prevalence*	15.1%	16.3%	24.4%
Female (15–49 years)	16.8%	18.8%	28.2%
Male (15–49 years)	12.5%	13.0%	17.6%
Female (15–24 years)	14.3%	11.6%	15.9%
Male (15–24 years)	4.1%	1.0%	2.1%
% of males 15–49 years circumcised*	47.6%	20.1%	47.5%
Males (15–24 years)**	66.0%		
% tested for HIV in last 12 months and received results*	26%	24%	48%
Female (15–49 years)	25.7%	23.6%	48.0%
Male (15–49 years)	15.9%	31.8%	26.1%
Female (15–24 years)**	32.2%		
Male (15–24 years)**	15.5%		

*Provincial data; **National data.

Focus Groups

In each study district, we conducted five FGDs averaging six to eight[2] AGYW. The groups included specific segments of the target population selected by USAID/Mozambique for DREAMS programming:[3]

1. In school, ages 15–17 years
2. Out of school, ages 18–19 and not pregnant, postpartum, or breastfeeding
3. Out of school, ages 15–19, married and pregnant, postpartum, or breastfeeding
4. Ages 20–24 and not pregnant, postpartum, or breastfeeding
5. Ages 20–24 and pregnant, postpartum, or breastfeeding

We developed a topic guide to elicit information on the types and characteristics of male sexual partners, how risk taking varies by types and characteristics of sexual partners, and gender dynamics in sexual relationships between AGYW and their sexual partners.

The study team recruited participants with the support of DREAMS partners in study districts. Before collecting any information, the data collectors sought and documented informed consent/assent from each participant (and the caregivers of minors). The team audio recorded all discussions.

The study team qualitative specialist and note takers transcribed and expanded the FGD recordings in Portuguese and expanded the transcripts with field notes. They redacted all identifying information and kept it confidential to protect participants' privacy. The qualitative analysts followed the five interrelated steps for data analysis: reading, coding, displaying, reducing, and interpreting (Miles & Huberman, 1994; Ulin, Robinson, & Tolley, 2005).

We conducted anonymous, face-to-face, one-on-one interviews in public venues with men ages 18 and above, using a short survey instrument of close-ended questions. Outcomes measures were as follows:

- Percentage who report three or more female sexual partners in the last 12 months
- Percentage who reported condom use at last sex with their recent AGYW sexual partner
- Percentage who reported consistent condom use (always using condoms) with their most recent AGYW sexual partner
- Percentage who reported giving gifts or money to their most recent AGYW sexual partner in exchange for continued sex
- Percentage who reported having tested for HIV
- Percentage who reported various barriers to HIV testing
- Percentage who reported being circumcised
- Percentage who were considering becoming circumcised
- Percentage who reported various HIV prevention and care service preferences
- Percentage who reported having sex with men
- Percentage who reported heavy alcohol use

Because voluntary male medical circumcision for HIV-negative male partners of AGWY is a key intervention of DREAMS, our indicator for sample size calculations was the prevalence of men who had been circumcised. Using a conservative estimate of 51 percent for this indicator, with a 5 percent margin of error, an estimated design effect of 2.0, and an estimated response rate of 80 percent, we calculated a required study sample size of 930 men. We aimed to recruit men from at least 10 different venues in each of the three study districts.

[2] One FGD had only four participants.
[3] These divisions were determined by USAID and are based on Mozambique-specific DREAMS guidance.

We selected venues as follows: during focus groups with young women, we elicited information on where we might find different types of sexual partners of AGYW, thus creating a list of venues in each district. We then discussed this list with stakeholder reference groups, composed of members of the government and PEPFAR implementing partners, which we had formed in each district to advise on data collection. We then worked with establishment owners/staff and local government to gather permissions to recruit at the venues listed. Venues included bars, barracas, schools, markets and beaches.

Data collectors approached men to participate in a 15-minute interview at the venues. Both the respondent and data collector documented their consent. The data collectors conducted the interviews using electronic data capture on tablets. They did not capture any personal identification information.

We analyzed the data in STATA 15. We ran frequency distributions for all variables and then conducted bivariate and multivariate logistic regression for each research question.

Study Limitations

This study has some limitations. First, study findings have limited generalizability beyond study settings. Even within study settings, study participants may not be representative of all AGYW and all male sexual partners of AGYW because of how both study populations were recruited (although a representative sample is not the goal of qualitative research). AGYW were selected to participate in the study with support from partners implementing USAID-funded projects. A large proportion of the selected participants came from registries of these projects in the study locations. As a result, they may not reflect the typical AGYW in their communities. Selection bias was introduced into the survey during venue selection.

Findings are also subject to various response biases. This study elicited personal information from men on their sexual risk behaviors, which is subject to self-report bias. Additionally, we asked men about their sexual history over the 12 months previous to the survey, which may be subject to recall bias. Furthermore, the study asked men to discuss their relationships with AGYW ages 15–24, but participants may not have been an accurate judge of girls' ages. It is possible that some of the data captured relationships with girls younger than 15 and women older than 24. In addition to age, men might not have reported accurate information regarding other AGYW characteristics, especially if their most recent sexual partner was someone they had just met (approximately 5% of the sample). Likewise, AGYW were asked to characterize male sexual partners of AGYW "like them" rather than share their own stories. This method has limitations, in that AGYW may have misrepresented both what their friends were doing and the typicality of various relationships and behaviors. It is possible that the focus group participants were anticipating the types of responses he facilitator anticipated. Thus, these participants' perceptions could have led them to exaggerate the riskiness of the sexual behavior of AGYW their age. For example, although our study participants described a widespread culture of AGYW having multiple sexual partners, the most recent Demographic Health Survey in Mozambique found that only 3 percent of AGYW ages 15–24 had two or more sexual partners in the previous year (MISAU, et al., 2015).

Finally, bias may have been introduced into the analysis because of the need for translations—particularly of the focus group transcripts. Topic guides were in Portuguese and discussions were held in both Portuguese and the local languages. However, it is possible that some terms or concepts were not adequately translated or understood by the participants or the facilitator, even with an interpreter on hand to support them.

RESULTS

A total of 102 AGYW participated in 15 FGDs across three study locations. In total, 1,176 men from among the 1,520 we approached were eligible and consented to participate in the survey. We recruited men from 38 venues (11 in Beira, 13 in Xai-Xai District, and 14 in Quelimane).

Participant demographics are outlined in the full reports (do Nascimento, et al., 2018 and Chapman, et al., 2018) and are not repeated here.

Who are the sexual partners of AGYW?

How do AGYW characterize their sexual partners?

Participants noted that AGYW have sexual relationships with men of all ages. Few commonalities or trends emerged. A respondent in Beira explained it this way:

> "It is all mixed … there are those who like to date boys younger than them … and there are girls who are 18 but date men who are 23, 25, 30 years old."

However, dating older men was discussed in all FGDs.

Although age was not raised by AGYW as a factor in selecting sexual partners, participants in all groups expressed a strong preference for men who could offer material and economic security, and take responsibility for pregnancy. Respondents typically associated these traits with older men. An 18- to 19-year-old out-of-school adolescent in Quelimane described that she ultimately prefers being with an older man because of the monetary support he can provide to her, as opposed to a boyfriend of her own age:

> "I am with my boyfriend and I find an older man who can give me everything—he buys me hair pieces, clothes, you do not even know how much. So I am with that man because he is able to satisfy all of my wants, because I am with him for his money …. He will always be buying me expensive phones. So, when you see that [this man can provide for you], and the fact that your boyfriend cannot give you any money at all, pretty soon you are running to the older man."

Respondents explained that AGYW have sexual relationships with both married and single men. Younger and single AGYW participants noted a preference for dating married men because this relationship would provide them with material goods and not lead to a long-term commitment. Single AGYW also said that they dated single boys and young men of their own age. On the other hand, participants noted that single women ages 20–24 years are more often looking for a serious relationship that could lead to marriage; therefore, they are less interested in married men. A few married respondents described monogamous, loyal relationships, but it was more common for married participants to explain that they and their married friends have both a boyfriend and a husband. Married women also noted that their husbands tend to have relationships with other women as well.

Respondents said that AGYW have male sexual partners at all levels of education, ranging from no education to primary, secondary, and university education. Almost all participants, regardless of age, marital, or motherhood status, reported that the educational levels of male sexual partners of AGYW are mixed. The only exception was in FGDs with young women ages 20–24 years who were pregnant, postpartum, or breastfeeding. Across the three regions, this group described sexual partners with either no education, minimal education, or no more than secondary education.

FGD participants said their AGYW peers have male sexual partners who do both skilled and low-skilled work. AGYW indicated they value male sexual partners with high-skilled employment. One 18- to 19-year-

old out-of-school adolescent in Xai-Xai explained the high value she and her peers place on men who work for the state. She recalled hearing a girl her age bragging about her boyfriend's employment:

> "I know a girl [who dates a professor], and so when she is out with friends she says, 'I go out with someone who works for the State'. I don't know if she is really mostly interested in dating someone who works for the State, I don't know if that man says that he wants nothing to do with her when he goes out with friends. That would make her more humble, since she says she dates someone who works for the State. I really want nothing to do with her."

A 20- to 24-year-old respondent from Beira explained what she thinks about men working in low-skilled jobs, which she does not value: "[Some men are employed] carrying bags [stevedores]; other men work for China [in Chinese companies], so what? That is not work!"

Younger FGD participants (students and nonstudents) across all regions said that sexual relationships between girls and school teachers are very common. These relationships were described as coercive—because teachers typically promise good grades or other benefits in exchange for sex. One participant in the 15- to 17-year-old range in Quelimane made the following statement:

> "Other girls here, even in this school, go out with teachers. They even say, 'If you want to pass you have to go out with him.' So why spend the whole school year working hard to get good grades, if he will fail you at the end of the year? ... This school is full of teachers who hook up with their students."

Though many AGYW mentioned sexual partners living in their neighborhoods, they also said they know of peers with husbands or boyfriends living in South Africa or other regions of Mozambique. For example, male truck drivers or bus drivers may spend long periods of time away from their partners' districts. A few also noted that some AGYW have partners who are foreign nationals (from China, Malawi, or Zimbabwe) living in Mozambique.

In all FGDs, participants commonly described both AGYW and their male sexual partners as having relationships with multiple partners, whether married or single. A specific profile of male sexual partners of AGYW defined by partner concurrency did not emerge. One young woman in Quelimane, in the categories of 20–24 years and pregnant, postpartum, and/or breastfeeding, described her husband's extramarital relationships: "My husband has lots of women. Each woman has her own home, and they are boyfriend and girlfriend."

How do male sexual partners of AGYW characterize themselves?

Eighty-six percent (n = 981) of men surveyed reported recently having had sex with an AGYW—that is, within the 12 months before the survey. Men reporting recent sex with AGYW were, on average, 27 years old (range 18–58 years). Twenty-five percent (25.1%) reported traveling for more than one month during the past year and 11 percent reported traveling internationally at least once in the past year. One-quarter of men surveyed had at least some primary education, one-quarter had some secondary education, one-quarter had completed secondary education, and one-quarter had at least some tertiary education. One-third (31.7%) were studying at the time of the survey. Eighty-four percent of men reporting an AGYW sexual partner had worked in the seven days prior to the survey (90.5% during the 12 months prior). Respondents reported various occupations: one-third (31.3%) reported working in sales and services, 18.7 percent reported doing specialized labor, and 8 percent reported doing nonspecialized labor and professional work. Three-quarters of the men reporting work said they worked throughout the year, and almost all reported payment in cash. Reported monthly incomes varied from zero to more than 40,000 meticals per month (US$667), with 56.3 percent of the men reporting earning between 1,000 and 9,999 meticals per month (US$16.67–166.65). Approximately half (50.9%) were married or cohabiting and 38.1 percent of those not married or cohabiting reported having a steady girlfriend. Half (50.1%) of

the male partners of AGYW reported having three or more sex partners in the previous 12 months. Less than 1 percent of men reported having sex with men in the last 12 months (n = 9). More than 40 percent (41.4%) of men who reported having an AGYW partner reported drinking alcohol to the point of being drunk either often (a few times per week) or sometimes (a few times per month) (see Table 2).

In a bivariate analysis, men reporting recently having had sex with an AGYW were younger (27 years vs. 43 years, $p<0.001$), less likely to be married (50.9% vs. 82.0%, $p<0.001$), uneducated (6.1% vs. 13.0%, $p<0.001$), and to have worked in the 12 months before the survey (90.5% vs. 99.6%, $p<0.01$), and more likely to be currently studying (31.7% vs. 12.2%, $p<0.001$) than men not reporting a recent AGYW sexual partner. In a multivariate analysis, only age, having a steady partner, and education were significantly associated with recent sex with an AGYW. After controlling for all other demographics (except profession),[4] younger men (adjusted odds ratio [AOR]: 0.84, $p<0.001$) were more likely to report a recent AGYW sexual partner and men with low educational attainment (less than primary) were less likely to report a recent AGYW sexual partner (AOR: 0.37, $p<0.05$) (see Table 2).

Do male partner profiles differ among different subgroups of AGYW?

We ran analyses to better understand the link between the characteristics of men and those of their sexual partners, particularly to determine whether men reporting recent sex with an AGYW who was younger, out of school (but school age), or pregnant/postpartum/breastfeeding/a mother (subgroups of AGYW defined by PEPFAR/DREAMS),[5] exhibited specific characteristics. Data in Table 3 highlight the characteristics of men who reported sex with different subgroups of AGYW (those under 20 years of age; out of school; and mothers/pregnant); AGYW characteristics were reported by men in reference to their most recent AGYW sexual partner.

Men reporting that their most recent AGYW sexual partner was younger (i.e., no more than 19 years of age) compared to those reporting that their most recent AGYW sexual partner was 20–24 years of age, were more likely to be young themselves (23 years versus 30 years, $p<0.001$), currently studying (48.2% versus 23.2%, $p<0.001$), single (74.1% vs. 34.5%, $p<0.001$), to have had three or more sexual partners in 12 months prior to survey (55.1% vs. 47.5%, $p<0.05$), and less likely to be internationally mobile (5.7% versus 13.9%, $p<0.001$) and working (71.4% versus 90.7%, $p<0.001$). In multivariable analysis, younger men (AOR: 0.82, $p<0.001$), men currently studying (AOR: 1.92, $p<0.01$), and men with only primary education (compared to the highest education level) (AOR: 1.85, $p<0.05$) were more likely to have young partners, after controlling for mobility, travel outside the country, and employment status.

Men whose most recent AGYW sexual partner was school age (i.e., 19 years old or younger) but not attending school at the time of survey, compared to those reporting a sexual partner who was school age and in-school, were more likely to be mobile (39.8% versus 23.6%, $p<0.001$), less likely to be currently studying (26.5% versus 56.6%, $p<0.001$), and using a related concept, to have completed secondary and tertiary education (15.7% versus 26.5%, $p<0.05$ and 6.0% versus 21.5%, $p<0.01$, respectively). Also, men reporting a school-age but out-of-school partner were more likely to be working (89.2% versus 78.5%, $p<0.05$), and less likely to be single (63.9% versus 78.5%, $p<0.01$), and to have had three or more sexual partners in the 12 months prior to survey (53.3% versus 60.2%, $p<0.05$). Similarly, the multivariable analysis controlling for male demographic variables showed that mobile men (AOR: 3.1, $p<0.01$), men with less than secondary education (compared to the highest level of education; AOR: 4.8, $p<0.05$) had higher odds of reporting a school-age AGYW sexual partner not attending school; whereas those

[4] There were 14 response categories for "profession," and responses were scattered; thus, including profession in the analysis would have been prohibitively complex.

[5] Of note, the subgroup of interest to PEPFAR is AGYW who are pregnant/postpartum or breastfeeding. We included "mother" in the latter subgroup as there were an insufficient number of reports of sexual partnerships with pregnant/postpartum and breastfeeding women for meaningful analysis.

currently studying had lower odds (AOR: 0.49, $p<0.05$) of reporting an AGYW partner not attending school.

Men reporting that their most recent AGYW sexual partner was pregnant or a mother, compared to those reporting a sexual partner who was not pregnant or a mother, were older (29.5 versus 25.9 years, $p<0.001$), less likely to be single (24.8% vs. 64.0%, $p<0.001$), less likely to be currently studying (18.5% versus 40.7%, $p<0.001$), and to have had three or more sexual partners in the past twelve months (45.8% vs. 52.8%, $p<0.05$), and more likely to have worked in the seven days prior to survey (92.3% versus 78.1%, $p<0.001$). In the multivariable analysis, we saw that married men (compared to single men, AOR: 7.06, $p<0.01$) had a significantly higher odds of reporting an AGYW partner who is pregnant or a mother, while men that are currently studying had a lower odds of reporting a AGYW partner who is pregnant or a mother (0.59, $p<0.01$).

Is sexual risk-taking behavior among AGYW and their male partners associated with certain sexual partner characteristics?

We assessed whether condom use at last sex and consistent condom use were associated with certain sexual partner characteristics. Consistent condom use was defined as "always" using condoms. Sixty percent (60.3%) of men reported condom use at last sex, and 41 percent reported consistent (i.e., always) condom use. In Table 4, we present data on condom use behavior, as reported by men, by the characteristics of their most recent AGYW sexual partner.

Men reporting that their most recent AGYW sexual partner was less than 20 years of age, compared to those who reported AGYW sexual partners ages 20–24 years, were more likely to report condom use at last sex (64.8% versus 58.1%, $p<0.05$) and consistent condom use (51.9% versus 35.6%, $p<0.001$). Similarly, men reporting that their most recent AGYW sexual partner was employed, compared to those who reported an unemployed AGYW sexual partner were more likely to report condom use at last sex (66.8% versus 58.2%, $p<0.05$); however, we did not detect a difference in consistent condom use between these groups. Men reporting that their most recent AGYW sexual partner was a mother and/or pregnant were less likely to report condom use at last sex, compared to those reporting sex with AGYW who were not mothers or pregnant at the time (45.8% versus 69.7%, $p<0.001$), and less likely to report consistent condom use (24.7% versus 52.1%, $p<0.001$). Men reporting that their most recent AGYW sexual partner was school-age but not attending school, or attending primary school, were less likely to report condom use at last sex and consistent condom use compared to men reporting that their most recent AGYW sexual partner was attending secondary or tertiary school.

FGD participants said that determining whether to use a condom was almost always driven by the male partner, regardless of age, education, employment, or income.

Does the type of relationship affect sexual risk taking?

Survey data indicates that risk behavior, as defined here as condom use at last sex and consistent condom use, varies by type of relationship. In Table 5, we present data on men's reported risk-taking behavior by the type of relationship they had with their most recent AGYW sexual partner. Men were more likely to report condom use at last sex with AGYW sexual partners that they just met (79.5%), and AGYW to whom they reported giving money for sex (67.5%), compared to their wives (24.2%, $p<0.01$). Men whose AGYW partners were not their wives also had a significantly higher odds of consistent condom use, for example, men whose AGYW partners were steady (but not live-in) partners had five times the odds of always using a condom (AOR: 5.13, $p<0.001$). Men whose AGYW partners were sex workers had 15 times the odds (AOR:15.59, $p<0.05$) of always using a condom compared to men who were married or living with their AGYW partners.

Married women agreed that condom use with their husbands is rare. Some younger girls in each region said that condom use is more common among boyfriends in their age group and that they themselves use condoms. Younger participants in Xai-Xai said that younger men (often their serious boyfriends) were much more open to the idea of using condoms and much better informed. One out-of-school adolescent in the 18- to 19-year-old category said: "…at school there are always lectures [on condoms] …. So they [men their age] pay attention."

Is sexual risk taking associated with power imbalances within relationships?

FGD participants agreed that men (regardless of age and socioeconomic status) have more power and authority in deciding whether to have sex. Participants also mentioned men using physical coercion to have sex. An out-of-school girl in Beira (aged 18- to 19-years) said: "[Men decide], they give you the date, and the time, too! At the time that works for him, that's how it is. Some use force. If you say no, they will start to have sex with you by force."

This unequal power dynamic was echoed in many comments from participants who described older men as pressuring AGYW for sex by promising material goods and marriage, and claiming they will take responsibility in case of pregnancy. Some AGYW called this approach being "tricked" into having sex.

Study participants of all ages described economic factors as influencing their decisions to engage in sex, especially with older, married men. Older AGYW (ages 18–24 years) acknowledged that choosing male sexual partners who can provide economic support for women and their children gives the men more power in the relationship. In Xai-Xai, a pregnant/postpartum/breastfeeding woman in the 20- to 24-year-old category said: "It's the men [who decide when to have sex], because they bankroll the women; therefore, they think they are in power, that they can do whatever they want."

Young women interested in serious relationships described how the promise of material goods (a sign of commitment) influenced their decision to have sex with a potential partner. An out-of-school adolescent in the 18- to 19-year-old category in Xai-Xai said that one man gained her trust by giving her a smartphone:

> "Yes, there are those men who come back from South Africa and when they arrive here they say to you, 'I love you, I love you…Do you like me or not?' So, I say, 'I like you. But I need a man who will marry me ....' He says, 'OK, I accept that, I will marry you, here is a smartphone.' When … he gives you the smartphone, you believe what he says. Then he goes back to South Africa … and he stops calling, because he's not interested in me anymore. Yes, he gave me this phone but then he left, and he doesn't call me anymore."

FGD participants also noted how economic factors affect their ability to negotiate condom use. Some participants described how older boyfriends with means offer gifts to encourage AGYW not to use condoms. One AGYW in the 15- to 17-year-old category in Xai-Xai described the coercive dimension of not using condoms when men, particularly older men, have sex with younger girls and exchange material goods:

> "Us girls ... we have sex without prevention, we forget about condoms, we only have sex in the way the man wants it, a man who is the age of our fathers, or even with boys our age … [and] they could be infected with HIV. But we want the material goods he has, we don't want love, and we hurry to date him. Afterwards we have sex without a condom, we don't use prevention methods. And then we get HIV without realizing it, and girls die without knowing what's killing them."

Older FGD participants, particularly married women, described their male partner as the "boss" at home, including regarding when to have sex and whether to use a condom. A 20- to 24-year-old woman in Quelimane said of her husband: "He'll leave me at home suffering and will go find another woman [if I

insist on using a condom]… I will offend him [if I insist on using a condom] because he's in charge. The men of today don't want to be bossed around."

To what extent are male sexual partners of AGYW using/willing to use different types of HIV and AIDS services?

Participants reported high rates of HIV testing—82.8% reported ever being tested for HIV, and more than 99% of those received the results. The most commonly cited reasons for not testing for HIV (among those not tested) included the following: not wanting to know one's HIV status (22.5%), concern that results would not be kept confidential (15%), and concern that someone would see them at the testing site (13.8%). See Table 6.

Table 7 documents the differences in characteristics between men who report having tested and those who have not tested. Men who reported HIV testing are more likely to be currently studying (34.2% vs. 23.8%, $p<0.05$), to have completed more education ($p<0.001$), to be paid in cash for their work (99.6% vs. 97.3%, $p<0.01$), and trend toward higher incomes ($p<0.1$) compared to men who did not report HIV testing. In multivariate analysis, education and payment in cash are significantly related to testing. After controlling for other demographics, men with primary school education or less are less likely to be tested than those with the highest level of education; men paid fully or partially in cash are more likely to be tested compared to those not paid in cash, after controlling for other demographics.

About three-quarters of men surveyed (n=746; 76%) said they had been circumcised (data not shown in table). Table 8 outlines participants' reports of their circumcision status and, among those not circumcised, interest in circumcision by demographic characteristics. Men who reported being circumcised are younger (27 years vs. 28 years, $p<0.05$), more likely to be currently studying (36.2% vs. 17.5%, $p<0.001$), have completed more education ($p<0.001$), have higher incomes ($p<0.001$), are more likely to be single (51.1% vs. 37.9%, $p<0.01$), and are more likely to have had three or more sexual partners in the 12 months prior to survey (52.4% versus 42.6%, $p<0.01$), compared to those not circumcised. In multivariate analysis, only education was correlated with circumcision: men with primary school education or less are less likely to be circumcised compared to those with the highest level of education.

Nearly 9 in 10 (88.1%) uncircumcised men reported an interest in circumcision.[6] Uncircumcised men interested in becoming circumcised are younger (27 years vs. 35 years, $p<0.001$), more likely to be have traveled away from home for more than 1 month over the 12 months before the survey (28.5% vs. 10.7%, $p<0.05$), and more likely to have some secondary education (29.5% vs. 7.1%, $p<0.05$), compared to uncircumcised men not interested in being circumcised. Men in higher income categories are less likely to report interest in circumcision ($p<0.05$). In multivariate analysis, only younger age correlates with interest in circumcision.

[6] Out of the 981 men surveyed, 235 were uncircumscribed (981-746), and 207 of these 235 men (207/235, or 88%) expressed an interest in circumcision.

What factors affect men's willingness to use health services?

Men's health service preferences are documented in Table 9. The majority of men reported that their preferred HIV testing site is a public hospital (91.4%), with 8.6% citing Serviços Amigos do Adolescente e Jovem (SAAJs)—the adolescent health clinics—and 3% citing their workplace as their preferred testing site. The survey specifically inquired about interest in workplace testing; 84.7 percent of men indicated an interest, even though few mentioned it as their preferred site for testing.

Men were asked to describe their preferences on when to access services. The highest scoring time was Sunday evening (67.3% indicated this as a good time); however, a majority of respondents indicated that weekend mornings and evenings are convenient times to access HIV services.

DISCUSSION

HIV prevention, testing, and care among AGYW is critical for curbing the HIV epidemic in sub-Saharan Africa, including Mozambique. To date, prevention efforts among adolescents have been far less successful than with other groups. One strategy for reducing HIV incidence among AGYW is to provide their male sexual partners both with prevention programming (for HIV-negative sexual partners) and care and treatment (for HIV-positive sexual partners). A better understanding of the characteristics of male sexual partners of AGYW and the risk dynamics in various types of sexual partnerships can inform programming. Our study adds to the evidence base, by characterizing male partners of AGYW in Mozambique.

Characterizing the Male Sexual Partners of AGYW

Focus group participants across the three study districts and demographic groups described a diversity of male sexual partners: young and old, rich and poor, employed and unemployed, educated and uneducated, married and single, circumcised and uncircumcised. They described having boyfriends (both casual and serious), husbands who live with them and those who are far away, and casual sexual relationships with other men. No specific profile of male sexual partners of AGYW emerged from the qualitative data. However, focus group participants expressed a strong preference for men who could offer material and economic security for them and any children, and for men who would take responsibility for pregnancy.

One group of men—school teachers—was described across FGDs with school-age girls as sexual partners of AGYW. This is not a new finding; it has been documented previously in other sub-Saharan African contexts (e.g., Dedy, 2010; Burton & Leoschut, 2013: Nyanzi, et al., 2000; Mpangile, Leshabari, Kihwele, 1993). This commonly reported sex with school teachers underscores the importance of targeting male teachers, especially in secondary schools, with HIV prevention messages and interventions. This issue is particularly crucial because much previous research has emphasized that preventing AGYW from dropping out of school has been found to protect them from HIV (De Neve, Fink, Subramanian, Moyo, & Bor, 2015; Bärnighausen, Hosegood, Timaeus, & Newell, 2007; Fylkesnes, et al., 2001; Hargreaves, et al., 2008).

Results from the survey data show that male sexual partners of AGYW may be characterized as young (under 30 years), moderately mobile, and employed. Male sexual partners of AGYW vary sharply in terms of educational attainment (linked to age) and marital status.

Overall, we found that male partners of AGYW reported high levels of risk behavior (e.g., multiple sexual partners, low condom use, and high alcohol consumption). Half of male sexual partners of AGYW reported three or more female sexual partners in the past 12 months. Furthermore, although 60 percent of men reported condom use at last sex, only 41 percent reported consistent (i.e., always) condom use. More than 40 percent (41.4%) of men who reported having an AGYW partner reported drinking alcohol to the point of being drunk regularly.

USAID, through the DREAMS Initiative in Mozambique, has outlined several subgroups of AGYW at particular risk of acquiring HIV: younger, out-of-school, and pregnant/postpartum/breastfeeding AGYW. We explored the linkages between men's demographic characteristics and whether their most recent AGYW sexual partner falls into any of these subgroups,[7] using survey data. Men who reported that their most recent AGYW partner is younger (19 years or under) are likely to be younger themselves, and currently studying. Men who reported out-of-school sexual partners are characterized by higher mobility, less education, and

[7] We included "mother" in the latter subgroup because there were an insufficient number of reports of sexual partnerships with pregnant/postpartum and breastfeeding women for meaningful analysis.

being widowed or divorced. With reference to the third subgroup, mobile and married men had significantly higher odds of reporting an AGYW partner who is pregnant or a mother.

Associations between Condom Use Behavior and Sexual Partner Characteristics

Focusing on the characteristics of survey participants' most recent AGYW sexual partner, condom use was more commonly reported in sexual partnerships with younger rather than older (ages 20–24 years) AGYW. Also, condom use within sexual partnerships with out-of-school AGYW, as well as those with low educational attainment, was less commonly reported than within sexual partnerships with AGYW attending school or with higher educational attainment. A study conducted by Patrão and McIntyre (2017) in Mozambique reported similar findings on the correlation between the education of AGYW and condom use self-efficacy. Finally, condom use at last sex was less commonly reported in sexual relationships with mothers/pregnant women, than in relationships with AGYW who were not pregnant/mothers. This finding is likely confounded by relationship type—when mothers and pregnant women are more likely to be wives or co-habiting partners.

Risk behaviors are also associated with relationship type. AGYW noted that condom use is more common with boyfriends of their own their age than with older—often married—boyfriends. Likewise, men who reported their most recent sexual partnership with an AGYW as casual or transactional were more likely to report condom use in that partnership than those reporting longer-term relationships. Our findings mirror some qualitative research conducted in Mozambique. For example, Bandali's work with married couples found that condom use was difficult to negotiate in the context of marriage, gender norms, and fear of acquiring HIV (Bandali, 2011). We also found that condom use among men married to AGYW is low.

Focus group participants said that condom use (and even the decision to have sex) is generally determined by their male partners, and that their ability to negotiate safer sex is extremely limited. This narrative is not a new one in southern Africa (Hendricks, Swartz, & Bhana, 2010; Mfecane, 2008; Morrell, 2007). AGYW have less power to negotiate condom use in relationships in which the male partner provides money or other benefits to them or their families.

HIV Service Uptake, Preferences, and Barriers

Despite reporting high levels of risk behaviors, participants also reported extremely high rates of HIV testing: 82.8 percent reported ever being tested for HIV. This percentage is significantly higher than nationally representative surveys have found (MISAU, et al., 2015).[8] This finding may demonstrate early progress in DREAMS districts: possibly HIV testing uptake is increasing owing to sustained intervention, and/or this may indicate social desirability bias. That is, men answered that they had tested because they thought that is what interviewers want to hear.

About three-quarters of the sample (76%) reported being circumcised. Again, this percentage is much higher than rates found in national surveys.[9] Of those not circumcised, most reported interest in circumcision.

[8] The proportion of men ages 15–49 who report an HIV test in the last 12 months and have received the results of that test varies between 15.9 percent and 31.8 percent in study provinces, per the Immunization, Malaria and HIV/AIDS Indicator Survey (IMASIDA) study: see Table 1.

[9] The proportion of men ages 15–49 who report being circumcised varies between 20.1 percent and 47.6 percent in study provinces, per the IMASIDA study: see Table 1.

The majority of respondents indicated that their preferred location for accessing HIV-related services is a public hospital, though when asked, nearly 85 percent indicated that they are open to workplace HIV testing. Men indicated that weekends were the most convenient time for them to access HIV services.

Barriers to testing are related to stigma and discrimination—men reported not wanting to know their status and concerns about confidentiality and privacy. The latter factor—concerns about confidentiality and privacy in the health sector—has been reported by others to be a barrier to HIV testing in Mozambique (Audet, et al., 2012). Barriers to workplace testing described by survey respondents, such as confidentiality and privacy, echo the wider literature (e.g., Weihs & Meyer-Weitz, 2016).

RECOMMENDATIONS

This research can inform future programming. Based on our findings, we recommend the following programming strategies:

To reach sexual partners of AGYW, HIV **programs should target men who are younger** (under 30 years old), encouraging them to use condoms consistently with girlfriends, wives and casual partners, get circumcised, and get tested and discuss their HIV status with their partners. We also recommend **encouraging behavior change campaigns targeting males of all ages and characteristics** with positive messages about being faithful to their partners.

In-school HIV prevention and testing programming has been studied and shown to be effective in improving knowledge and attitudes around HIV and increased HIV testing (Michielsen, et al., 2010; Harrison, Newell, Imrie, & Hoddinott, 2010; Napierala, Doyle, & Ross, 2011; Gallant & Maticka-Tyndale, 2004; Paul-Ebhohimhen, Poobalan, & van Teijlingen, 2008). Such programming could be an effective strategy to reach school-age male sexual partners of AGYW with messaging about condom use, limiting numbers of sexual partners, HIV testing, voluntary male medical circumcision, as well as a mechanism for sensitizing boys and girls alike on gender issues. We recommend extending in-school HIV prevention and testing programming to include teachers and other school administrators, as well as parents. We also recommend including discussions of school-based sexual harassment and abuse in the school community as part of these curricula.

Male secondary school teachers should be urgently prioritized for HIV prevention programming. Teachers must be appropriately trained and screened, and a widespread information campaign should be conducted in schools to discourage teachers from engaging in sexual relationships with students. Mechanisms must be created through school and government authorities to punish teachers for having sex with students, especially minors. We recommend that the Ministries of Health, Education, and Justice work closely together to develop a plan to combat sex and sexual harassment between teachers and students at a national level by addressing prevention, support and protection, and investigation and justice. This plan could be localized to specific districts, including the development of local task forces to respond to cases of sexual harassment and abuse, and other sexual relationships between teachers and students. We encourage the **use of anonymous or protected reporting mechanisms**, such as *Linha Fala Criança*—a helpline already in place in Mozambique for children experiencing abuse—through which students can report sexual harassment and abuse occurring in their schools. Cases reported via *Linha Fala Criança* and other reporting channels could be addressed through the independent bodies described above.

Condom use and HIV testing uptake is positively associated with education (currently studying and higher levels of education); thus, condoms and HIV testing need to be promoted among men who are less educated or not in school. To reach out-of-school youth and men beyond school age, and reduce the vulnerability of AGYW—in particular those married or in a serious relationship—we recommend encouraging the **expansion of youth-friendly, integrated family planning/HIV health services both inside and outside of health facilities.** Mozambique already has youth-friendly sections of health facilities, referred to as *Serviço Amigo do Adolescente e Jovem*, or SAAJs. There is evidence that clinics can become "friendlier" through training clinicians and making minor infrastructure improvements services (Dick, et al., 2006), and that youth may be better served by family planning/HIV services outside of the health facility (Denno, Chandra-Mouli, & Osman, 2012). Specific efforts should be made to attract male clients, who are much less likely to participate in sexual health and HIV services compared to women (Cornell & McIntyre, 2011).

Data also indicate that workplace testing initiatives may be popular if confidentiality and privacy issues can be surmounted. We recommend conducting **trial workplace testing and behavior change campaigns**, particularly within those sectors employing men with less education—for example, mining and fishing—in part to address the machismo culture that disempowers women. Workplace testing, although not without its challenges, has been shown effective in other settings (e.g., Corbett, et al., 2006).

Men were less likely to report condom use with older AGYW, wives/live-in partners, and AGYW who are mothers, pregnant, and/or postpartum (these subgroups are likely all related). Programs should **increase the availability and promotion of condoms at child clinics/routine vaccination sites and antenatal clinics**. Programs should also educate males on the importance of condom use with their partners.

Targeting AGYW with HIV prevention programming is also critical. We recommend school- and community-based self-efficacy/empowerment/life skills trainings, applying evidence-based curricula. The Go Girls Toolkit (https://www.k4health.org/toolkits/go-girls) is being widely promoted as an essential component to AGYW empowerment related to HIV. These trainings should support AGYW to reduce their HIV risk, by building sexual and condom use negotiation skills.

Furthermore, although not a solution to changing widespread gender norms, we recommend **improving the economic situation of AGYW** so they do not have to rely financially on male partners or feel pressure to engage in sex because of economic necessity—an important means of shifting the power imbalance AGYW experience in commencing sexual relationships with men. Savings groups targeting AGYW are under way in Mozambique. We recommend expanding these groups and creating conditional cash transfers for AGYW to incentivize safe sexual practices. AGYWs who are pregnant and/or mothers should be specifically targeted. Evidence has shown that these transfers are effective in reducing HIV infection, sexually risky behavior, and women's choices around marriage and fertility (Bastagli, et al., 2016; Björkman-Nyqvist, Corno, de Walque, & Svensson, 2013; Baird, Garfein, McIntosh, & Ozler, 2012). Such social protection initiatives should seek to reach single, pregnant women/young mothers as a particularly vulnerable group.

We further recommend more **joint discussion and programming between HIV prevention efforts and family planning programs to reduce early childhood marriage**—also part of Mozambique's National Strategy for the Prevention and Combating of Early Marriage (2015–2019). Given the preponderance of unprotected sex among married couples and the lack of power to negotiate sex within marriage, we recommend better engagement between efforts that focus on reducing early childhood marriage and family planning, and HIV testing interventions targeting families and communities, so that AGYW get married later and can be better equipped to negotiate family planning and condom use with their husbands.

Finally, we recognize that an oral PrEP policy is still in development by the Government of Mozambique. However, we strongly advocate for the **integration of PrEP in HIV prevention strategies** because of its demonstrated efficacy in preventing HIV among men and women (Murnane, et al., 2013). This HIV prevention strategy is not predicated on longer-term behavioral change in partner concurrency or condom use, and therefore can have an immediate impact on HIV transmission. PrEP is a tool that AGYW can employ right now to reduce their risks in sexual relationships.

Table 2. Characteristics of men reporting sex with AGYW, by AGYW partner status

	AGYW partner (n = 981)		No AGYW partner (n = 159)	
	n	years	n	years
Age (mean [standard error])***		27.33 [.22]		41.5 [.76]
Age range		(18, 58)		(26, 64)
	n	%	n	%
Mobility				
Traveled for more than 1 month of past 12 months	246	25.08	30	21.58
Traveled outside of Mozambique in past 12 months†	109	11.11	23	16.55
Currently studying***	311	31.70	17	12.23
Highest level of completed education				
Less than primary***	60	6.12	18	12.95
Completed primary	174	17.74	24	17.27
Some secondary	251	25.59	29	20.86
Completed secondary*	256	26.10	24	17.27
Completed more than secondary	240	24.46	44	31.65
Employment				
Worked in the past 7 days†	824	84.00	131	94.24
Worked in the past 12 months**	888	90.52	137	99.56
Worked throughout the year* **				
Yes	735	74.92	129	92.81
No	151	15.39	8	5.76
Missing	95	9.68	2	1.44
Income				
<1,000	41	4.18	4	2.88
1,000–4,999**	295	30.07	21	15.11
5,000–9,999	257	26.20	36	25.90
10,000–19,999	170	17.33	31	22.30
20,000-39,999*	78	7.95	22	15.83
>40,000***	28	2.85	17	12.23
Missing	112	11.42	8	5.76
Marital status				
Single***	470	47.91	10	7.19
Married or living together***	499	50.87	114	82.01
Widowed/divorced***	12	1.22	15	10.79
Three or more sexual partners in past 12 months***	491	50.05	39	24.53
Sex with male partner in past 12 months	9	0.92		
Ever drank alcohol in the past 3 months[1]	713	62.54	--	--
Frequency of drunkeness[1]				
Several times per week	87	8.87	--	--
A few times per month	319	32.52	--	--
Rarely	228	23.24	--	--
Never	79	8.05	--	--
N/A	268	27.32	--	--

AGYW vs. no AGYW: † p<0.10; *p<0.05; **p<0.01; ***p<0.001; [1]This question was asked only of men who reported an AGYW partner (n = 981).

Table 3. Characteristics of men reporting sex with AGYW, by characteristics of AGYW[1]

	Current AGYW age			Attending school (≤19 years)			Pregnant or mother		
	13–19 (n=332)	20–25 (n=647)	p-value	Yes (n=242)	No (n=83)	p-value	Yes (n=395)	No (n=575)	p-value
Age (mean [standard error])	22.82 [.26]	29.66 [.27]	***	22.71 [.31]	23.08 [.51]		29.49 [.33]	25.87 [.29]	****
Age range	(18,52)	(18,58)		(18, 52)	(18, 47)		(18, 58)	(18, 56)	
Mobility (%)									
Traveled for more than 1 month of the past 12	27.41	23.96		23.55	39.76	**	26.33	24.70	
Traveled outside of Mozambique in past 12 months	5.72	13.91	***	5.79	6.02		12.91	9.74	
Currently studying (%)	48.19	23.18	***	56.61	26.51	***	18.48	40.70	***
Education (%)									
Less than primary	5.12	6.65	***	3.31	10.84	**	9.11	4.17	**
Completed primary	19.58	16.85		12.81	39.76	***	21.52	15.30	*
Some secondary	34.34	21.17	***	35.95	27.71		23.80	26.61	
Completed secondary	23.49	27.36		26.45	15.66	*	22.28	29.22	*
Completed more than secondary	17.47	27.98	***	21.49	6.02	**	23.29	24.70	
Employment (%)									
Worked in the past 7 days	71.39	90.73	***	66.12	84.34	**	92.66	78.09	***
Worked in the past 12 months	81.63	95.05	***	78.51	89.16	*	97.22	85.91	***
Worked throughout the year (%)									
Yes	62.95	81.14	***	58.26	75.90	**	84.30	68.87	***
No	18.37	13.76		19.83	13.25		12.41	17.04	
Missing	18.67	5.10		21.90	10.84		3.29	14.09	
Marital status (%)									
Single	74.10	34.47	***	78.51	63.86	**	24.81	64.00	***
Married or living together	25.90	63.68	***	21.49	36.14	**	73.42	35.13	***
Widowed/divorced	0.00	1.85	*	0.00	0.00		1.77	0.87	
3+ sexual partners in past 12 months (%)	55.12	47.46	*	53.31	60.24	*	45.82	52.83	*

† p<0.10; *p<0.05; **p<0.01; ***p<0.001; [1]p-values are based on chi-square statistics from bivariate analysis.

Table 4. Men's risk-taking behaviors, by AGYW demographic characteristics, among those who had sex with AGYW[1]

Behavior	Current age			Employment			Pregnant/mother			Education			
	13–19 years (n = 332)	20–25 years (n = 646)	p-Value	Employed (n = 226)	Not employed (n = 750)	p-Value	Pregnant/mother (n = 395)	Not pregnant/not mother (n = 575)	p-Value	Attending primary (n = 104)	Attending secondary (n = 524)	Attending higher education (n =107)	School age but not attending school (n = 82)
Condom use at last sex													
Yes (n = 591)	64.8	58.1	*	66.8	58.2	*	45.8	69.7	***	47.1**	66.8***	69.2*	54.2*
No (n = 388)	35.2	41.9		33.2	41.8		54.2	30.3		52.9	33.2	30.8	45.8
Condom use frequency													
Always (n = 389)	51.9	35.6	***	41.4	41.1		24.7	52.1	***	29.8*	47.8***	43.7	26.2**
Inconsistent (n = 557)	48.2	64.3		58.6	58.9		75.3	47.9		70.2	52.1	56.3	61.0

† p<0.10; *p<0.05; ** p<0.01; ***p<0.001; [1]p-values are based on chi-square statistics from bivariate analysis.

Table 5. Male risk-taking behaviors, by type of relationship with AGYW, among those who had sex with AGYW[1]

Behavior	Relationship type								Given money for sex		
	Wife/live-in partner (n = 190)	Steady partner (n = 379)	Irregular partner (n = 120)	Ex-partner (n = 17)	Friend (n = 209)	Colleague/ student (n = 12)	Just met (n = 44)	Sex worker (n = 7)	Yes (n = 270)	No (n = 708)	p-Value
Condom use at last sex											
Yes (n = 591)	24.2***	64.9*	72.5*	64.7	71.9***	83.3	79.5**	85.7	67.5	57.7	**
No (n = 388)	75.8	35.1	27.5	35.3	28.1	16.7	20.5	14.3	32.5	42.3	
Condom use frequency											
Always (n = 389)	8.4***	43.4	55.2**	41.2	54.6***	58.3	64.7**	75.0	47.9	38.6	*
Inconsistent (n = 557)	91.6	56.7	44.8	58.9	45.4	41.7	35.3	25	52.2	61.4	

† p<0.10; *p<0.05; ** p<0.01; ***p<0.001; [1]p-values are based on chi-square statistics from bivariate analysis.

Table 6. Reported HIV testing, and barriers to HIV testing, among those who had sex with AGYW

	Total	
	n	%
HIV testing (N=981)		
Tested for HIV and received results	764	82.15
Tested for HIV but did not receive results	6	0.65
Never tested for HIV	160	17.2
Reason for not testing (N=160)		
Do not know where to go	5	3.13
Getting tested is too costly	1	0.63
Testing site is too far	4	2.50
I am worried my results will not be kept confidential	24	15.00
I am worried that someone will see me	22	13.75
I am not at risk for HIV	18	11.25
I do not want to know my status	36	22.50
Lack of time	33	3.36
Fear of needles/results	14	1.43
I am not sick or have signs of HIV	9	0.92
No interest	9	0.92
Don't know	8	5.00
No response	1	0.63

Table 7. HIV testing uptake, by male characteristics, among those who had sex with AGYW (n=981)[1]

	Ever been tested for HIV		
	Yes (n = 770)[10]	No (n = 160)	p-value
Age (mean [standard error])	27.59 [.25]	26.79 [.56]	
Age range	(18, 56)	(18, 54)	
Mobility (%)			
Traveled for more than 1 month of the past 12	24.94	21.25	
Traveled outside Mozambique in past 12 months	12.21	8.13	
Currently studying (%)	34.16	23.75	*
Education (%)			
Less than primary	4.42	11.25	***
Completed primary	13.51	29.38	***
Some secondary	24.94	26.88	
Completed secondary	29.09	18.13	**
Completed more than secondary	28.05	14.38	***
Employment (%)			
Worked in the past 7 days	84.16	85.00	
Worked in the past 12 months	90.52	91.25	
Worked throughout the year (%)			
Yes	74.94	75.63	
No	15.32	15.63	
Missing	9.74	8.75	
Paid fully or partially with money (%)	99.71	97.26	**
Income (%)			
<1,000	3.51	5.63	
1,000–4,999	27.40	37.50	*
5,000–9999	26.62	25.00	
10000–19,999	18.83	14.38	
20,000–39,999	8.96	5.00	†
>40,000	3.51	0.63	†
Missing	11.17	11.88	
Marital status (%)			
Single	46.23	53.75	†
Married or living together	52.47	45.63	
Widowed/divorced	1.30	0.63	
3+ sexual partners in last 12 months	50.13	50.63	

† p<0.10; *p<0.05; ** p<0.01; ***p<0.001; [1]p-values are based on chi-square statistics from bivariate analysis.

[10] Includes six participants who did not receive their results.

Table 8. Circumcision status, by male characteristics, among those who had sex with AGYW (n = 981)[1]

	Circumcised			Interested in circumcision		
	Yes (n = 746)	No (n = 235)	p-value	Yes (n = 207)	No (n = 28)	p-value
Age (mean [standard error])	27.04 [.25]	28.27 [.48]	*	27.36 [.45]	35.00 [1.98]	***
Age range	(18, 58)	(18, 54)		(18, 54)	(18, 54)	
Mobility (%)						
Traveled for more than 1 month of the past 12	24.66	26.38		28.50	10.71	*
Traveled outside of Mozambique in past 12 months	11.93	8.51		8.21	10.71	
Currently studying (%)	36.19	17.45	***	18.36	10.71	
Education (%)						
Less than primary	3.89	13.19	***	10.63	32.14	**
Completed primary	13.54	31.06	***	31.88	25.00	
Some secondary	25.20	26.81		29.47	7.14	*
Completed secondary	29.36	15.74	***	15.46	17.86	
Completed more than secondary	28.02	13.19	***	12.56	17.86	
Employment (%)						
Worked in the past 7 days	82.98	87.23		86.47	92.86	
Worked in the past 12 months	89.54	93.62	†	92.75	100.00	
Worked throughout the year (%)						
Yes	73.46	79.57	†	78.74	85.71	
No	15.82	14.04		14.01	14.29	
Missing	10.72	6.38		7.25	0.00	
Paid fully/partially with money (%)	99.25	98.64		98.44	100.00	
Income						
<1,000	3.89	5.11		5.31	3.57	
1,000–4,999	28.28	35.74	*	34.78	42.86	
5,000–9,999	23.46	34.89	**	34.78	35.71	
10,000–19,999	18.90	12.34	*	13.04	7.14	
20,000–39,999	9.65	2.55	***	1.45	10.71	**
>40,000	3.49	0.85	*	0.97	0.00	
Missing	12.33	8.51		9.66	0.00	†
Marital status (%)						
Single	51.07	37.87	***	39.61	25.00	
Married or living together	47.99	60.00	**	57.97	75.00	†
Widowed/divorced	0.94	2.13		2.42	0.00	
3+ sexual partners in last 12 months	52.41	42.55	**	42.03	46.03	

† p<0.10; *p<0.05; ** p<0.01; ***p<0.001; [1]p-values are based on chi-square statistics from bivariate analysis.

Table 9. Health service preferences, among those who had sex with AGYW (n = 981)[1]

		Total	
		n	%
Preferred testing site (up to 2 responses possible)			
Public hospital		897	91.44
Private hospital		122	12.44
SAAJ		84	8.56
Mobile clinic		35	3.57
Pharmacy		33	3.36
Workplace		29	2.96
Home testing		57	5.81
Other		35	3.57
No preference		24	2.45
Interested in workplace HIV testing		827	84.73
Reason not interested in workplace testing			
Have another preferred location		27	18.49
Don't want health services at work		45	30.82
Don't trust results would be kept secret		74	50.68
Preferred place for circumcision (up to 2 responses possible)			
Public hospital		212	90.21
Private hospital		25	10.64
SAAJ/ATS		15	6.38
Traditional healer/provider		2	0.85
Other		18	7.66
Don't know/No response		8	3.41
Preferred day and time to go to health facility (respondents answered yes or no)			
Sunday	morning	249	59.00
	afternoon	104	24.64
	evening	284	67.30
Monday	morning	208	63.61
	afternoon	74	22.63
	evening	133	40.67
Tuesday	morning	162	56.84
	afternoon	68	23.86
	evening	135	47.37
Wednesday	morning	196	60.68
	afternoon	64	19.81
	evening	137	42.41
Thursday	morning	171	61.51
	afternoon	67	24.10
	evening	124	44.60
Friday	morning	169	54.52
	afternoon	78	25.16
	evening	158	50.97
Saturday	morning	286	63.56
	afternoon	96	21.33
	evening	261	58.00

REFERENCES

Audet, C. M., Groh, K., Moon, T. D., Vermund, S. H., & Sidat, M. (2012). Poor-quality health services and lack of programme support leads to low uptake of HIV testing in rural Mozambique. *African Journal of AIDS Research*, 11(4), 327–335. Retrieved from https://www.tandfonline.com/doi/pdf/10.2989/16085906.2012.754832?needAccess=true.

Auld, A. F., Agolory, S. G., Shiraishi, R. W., Wabwire-Mangen, F., Kwesigabo, G., Mulenga, M., … Ellerbrock, T. V. (2014). Antiretroviral therapy enrolment characteristics and outcomes among HIV-infected adolescents and young adults compared with older adults – seven African countries, 2004–2013. *MMWR Morbidity and Mortality Weekly Report,* 63, 1097–1103.

Baird, S. J., Garfein, R. S., McIntosh, C. T., & Ozler, B. (2012). Effect of a cash transfer programme for schooling on prevalence of HIV and herpes simplex type 2 in Malawi: A cluster randomised trial. *The Lancet,* 3729(9823), 1320–1329. Retrieved from https://www.ncbi.nlm.nih.gov/pubmed/22341825.

Bandali, S. (2011). Norms and practices within marriage which shape gender roles, HIV/AIDS risk and risk reduction strategies in Cabo Delgado, Mozambique. *AIDS Care,* 23(9), 1171–1176.

Bärnighausen, T., Hosegood, V., Timaeus, I. M., & Newell, M. L. (2007). The socioeconomic determinants of HIV incidence: Evidence from a longitudinal, population-based study in rural South Africa. *AIDS,* 21 (7), S29–S38. Retrieved from https://www.ncbi.nlm.nih.gov/pubmed/18040162.

Bastagli, F., Hagen-Zanker, J., Harman, L., Sturge, G., Barca, V., Schmidt, T., & Pellerano, L. (2016). *Cash transfers: What does the evidence say? A rigorous review of impacts and the role of design and implementation features*. London, UK: Overseas Development Institute. Retrieved from https://www.odi.org/sites/odi.org.uk/files/resource-documents/10747.pdf.

Björkman-Nyqvist, M., Corno, L., de Walque, D., & Svensson, J. (2013). Evaluating the impact of short-term financial incentives on HIV and STI incidence among youth in Lesotho: A randomised trial. *Sexually Transmitted Infections,* 89(1). Retrieved from http://sti.bmj.com/content/89/Suppl_1/A325.1.

Brown, K., Williams, D. B., Kinchen, S., Saito, S., Radin, E., Patel, … Barr, B.A.T. (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.

Burton, P., & Leoschut, L. (2013). *School violence in South Africa: Results of the 2012 National School Violence Study*. Cape Town, South Africa: Center for Justice and Crime Prevention. Retrieved from http://www.cjcp.org.za/uploads/2/7/8/4/27845461/monograph12-school-violence-in-south_africa.pdf.

Chapman, J., Treves-Kagan, S., Mandal, M., & Dinis, A. (2018). *Characterizing male sexual partners of adolescents and young girls in Mozambique: Findings from a survey of men in Xai-Xai, Beira and Quelimane Districts*. Chapel Hill, NC, USA: MEASURE Evaluation, University of North Carolina.

Corbett, E. L., Dauya, E., Matambo, R., Cheung, Y. B., Makamure, B., Bassett, M.T., … Hayes, R.J. (2006). Uptake of workplace HIV counselling and testing: A cluster-randomised trial in Zimbabwe. *PLOS One,* 3(7): e238.

Cornell, M., McIntyre, J., & Myer, L. (2011). Men and antiretroviral therapy in Africa: Our blind spot. *Tropical Medicine and International Health,* 16(7), 828–829. Retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3749374.

De Neve, J.-W., Fink, G., Subramanian, S. V., Moyo, S. M., & Bor, J. (2015). Length of secondary schooling and risk of HIV infection in Botswana: Evidence from a natural experiment. *The Lancet Global Health,* 3(8), e470–e477. Retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4676715.

Dedy, S. (2010). *Analyse situationnelle des OEV et enquête des Connaissances, Attitudes et Pratiques des élèves et enseignants sur les IST, le VIH/Sida, et les grossesses en milieu scolaire.* Abidjan, Côte d'Ivoire: Ministère de L'éducation Nationale.

Dellar, R. C., Dlamini, S., & Karim, Q.A. (2015). Adolescent girls and young women: Key populations for HIV epidemic control. *Journal of the International AIDS Society,* 18(2), 19408. Retrieved from https://www.ncbi.nlm.nih.gov/pubmed/25724504.

Denison J., Banda H., Dennis A., Parker C., Nyambe N., Stalter R. M., … McCarraher, D. R. (2015). "The sky is the limit": Adhering to antiretroviral therapy and HIV self-management from the perspectives of adolescents living with HIV and their adult caregivers. *Journal of the International AIDS Society,* 18(1), 19358. Retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4296051.

Denno, D. M., Chandra-Mouli, V., & Osman, M. (2012). Reaching youth with out of-facility HIV and reproductive health services: A systematic review. *Journal of Adolescent Health,* 51(2), 106–121. Retrieved from https://www.ncbi.nlm.nih.gov/pubmed/22824440.

Dick, B., Ferguson, J., Chandra-Mouli, V., Brabin, L., Chatterjee, S., & Ross, D. A. (2006). Review of the evidence for interventions to increase young people's use of health services in developing countries. *World Health Organization Technical Report Series,* (938), 151-204, discussion 317–341. Retrieved from https://www.ncbi.nlm.nih.gov/pubmed/16921920.

Do Nascimento, N., Costa A., & Chapman, J. (2018). *Characterizing male sexual partners of adolescents and young girls in Mozambique: Findings from focus group discussions in Xai-Xai, Beira and Quelimane Districts.* Chapel Hill, NC, USA: MEASURE Evaluation, University of North Carolina.

Fylkesnes, K., Musonda, R. M., Sichone, M., Ndhlovu, Z., Tembo, F., & Monze, M. (2001). Declining HIV prevalence and risk behaviours in Zambia: Evidence from surveillance and population-based surveys. *AIDS,* 15(7), 907–916. Retrieved from https://www.ncbi.nlm.nih.gov/pubmed/11399963.

Gallant, M., & Maticka-Tyndale, E. (2004). School-based HIV prevention programmes for African youth. *Social Science and Medicine,* 58(7), 1337–1351. Retrieved from https://www.ncbi.nlm.nih.gov/pubmed/14759680.

Gorgen, R., Yansane, M. L., Marx, M., & Millimounou, D. (1998). Sexual behavior and attitudes among unmarried urban youths in Guinea. *International Family Planning Perspectives,* 24(2), 65–71. Retrieved from https://www.jstor.org/stable/2991927?seq=1#page_scan_tab_contents.

Hargreaves, J. R., Morison, L. A., Kim, J. C, Bonell, C. P., Porter, J. D., Watts, C., & Pronyk, P. M. (2008). The association between school attendance, HIV infection, and sexual behaviour among young people in rural South Africa. *Journal of Epidemiology and Community Health,* 62(2), 113–119. Retrieved from https://www.ncbi.nlm.nih.gov/pubmed/18192598.

Harrison A., Newell, M. L., Imrie, J., & Hoddinott, G. (2010). HIV prevention for South African youth: Which interventions work? A systematic review of current evidence. *BMC Public Health*, 10, 102. Retrieved from https://bmcpublichealth.biomedcentral.com/articles/10.1186/1471-2458-10-102.

Hendricks, L., Swartz, S., & Bhana, A. (2010). Why young men in South Africa plan to become teenage fathers: Implications for the development of masculinities within contexts of poverty. *Journal of Psychology in Africa*, 20(4), 527–536. Retrieved from http://www.sharleneswartz.com/wp-content/uploads/2016/07/17-Hendricks-et-al-2010-Young-fathers-on-purpose.pdf.

Idele, P., Gillespie, A., Porth, T., Suzuki, C., Mahy, M., Kasedde, S., & Luo, C. (2014). Epidemiology of HIV and AIDS among adolescents: Current status, inequities, and data gaps. *Journal of Acquired Immune Deficiency Syndromes*, 66 Supplement 2, S144–S153.

Joint United Nations Programme on HIV/AIDS (UNAIDS). (2017). *Core epidemiology slides*. Geneva, Switzerland: UNAIDS. http://www.unaids.org/sites/default/files/media_asset/UNAIDS_2017_core-epidemiology-slides_en.pdf.

Karim, Q. A., Baxter, C., & Birx, D. (2017). Prevention of HIV in adolescent girls and young women: Key to an AIDS-free generation. *Journal of Acquired Immune Deficiency Syndromes*, 75, S17–S26.

Lamb M. R., Fayorsey R., Nuwagaba-Biribonwoha H., Viola V., Mutabazi V., Alwar T., … Elul B. (2014). High attrition before and after ART initiation among youth (15–24 years of age) enrolled in HIV care. *AIDS,* 28, 559–68.

Martins-Fonteyn, E., Loquiha, O., Baltazar, C., Thapa, S., Boothe, M., Raimundo, I., …Wouters, E. (2017). Factors influencing risky sexual behavior among Mozambican miners: A socioepidemiological contribution for HIV prevention framework in Mozambique. *International Journal for Equity in Health,* 16, 179.

Meekers, D., & Calves, A.-E. (1999). Gender differentials in adolescent sexual activity and reproductive health risks in Cameroon. *African Journal of Reproductive Health*, 3(2), 51–67. Retrieved from http://www.jstor.org/stable/3583361?origin=crossref&seq=1#page_scan_tab_contents.

Mfecane, S. (2008). Living with HIV as a man: Implications for masculinity. *Psychology in Society*, 36, 45-59. Retrieved from http://www.scielo.org.za/scielo.php?script=sci_arttext&pid=S1015-60462008000100004.

Michielsen, K., Chersich, M. F., Luchters, S., De Koker, P., Van Rossem, R., & Temmerman, M. (2010). Effectiveness of HIV prevention for youth in sub-Saharan Africa: Systematic review and meta-analysis of randomized and nonrandomized trials. *AIDS*, 24(8), 1193–1202. Retrieved from https://www.ncbi.nlm.nih.gov/pubmed/20375876.

Miles, M. B., & Huberman, A. M. (1994). *Qualitative data analysis: An expanded sourcebook*. Thousand Oaks, California, USA: Sage Publishing. Retrieved from https://us.sagepub.com/en-us/nam/qualitative-data-analysis/book239534.

Ministério da Saúde (MISAU), Instituto Nacional de Estatística (INE), & ICF International (2015). *Inquérito de 2015 Indicadores de imunização, malária e HIV/SIDA em Moçambique 2015: Relatório de indicatores básicos (IMASIDA)*. Maputo, Mozambique & Rockville, Maryland, USA: INS, INE, & ICF International. Retrieved from https://dhsprogram.com/pubs/pdf/PR75/PR75.pdf.

Morrell, R. (2007). Do you want to be a father? School-going youth in Durban schools at the turn of the 21st century. In Shefer, T., Ratele, K., Strebel, A., Shabalala, N., & Buikema, R. (Eds.), *From boys to men: Social constructions of masculinity in contemporary society* (pp. 75–92). Cape Town, South Africa: UCT Press.

Mpangile, G. S., Leshabari, M. T., & Kihwele, D. J. (1993). Factors associated with induced abortion in public hospitals in Dar es Salaam, Tanzania. *Reproductive Health Matters*, 1(2), 21–31. Retrieved from https://www.jstor.org/stable/3775006?seq=1#page_scan_tab_contents.

Murnane, P. M., Celum, C., Mugo, N., Campbell, J. D., Donnell, D., Bukusi, E., …Baeden, J. M. (2013). Efficacy of pre-exposure prophylaxis for HIV-1 prevention among high-risk heterosexuals: Subgroup analyses from a randomized trial. *AIDS,* 27(13), 2155–2160. Retrieved from https://www.ncbi.nlm.nih.gov/pubmed/24384592.

Napierala, M. S. M., Doyle, A. M., & Ross, D. A. (2011). HIV prevention in young people in sub-Saharan Africa: A systematic review. *Journal of Adolescent Health*, 49(6), 568–586. Retrieved from https://www.ncbi.nlm.nih.gov/pubmed/22098767.

Nnko, S., & Pool, R. (1997). Sexual discourse in the context of AIDS: Dominant themes on adolescent sexuality among primary school pupils in Magu district, Tanzania. *Health Transition Review*, 7(3), 85–90. Retrieved from https://www.popline.org/node/274507.

Nyanzi, S., Pool, R., & Kinsman, J. (2000). The negotiation of sexual relationships among school pupils in south-western Uganda. *AIDS Care,* 13(1), 83–98. Retrieved from https://www.ncbi.nlm.nih.gov/pubmed/11177467.

Patrão A. L., & McIntyre T. M. (2017). Socio-demographic, marital, and psychosocial factors associated with condom use negotiation self-efficacy among Mozambican women at risk for HIV infection. *International Journal of Behavioral Medicine,* 24(6), 846–855.

Paul-Ebhohimhen, V. A., Poobalan, A., & van Teijlingen, E. R. (2008). A systematic review of school-based sexual health interventions to prevent STI/HIV in sub-Saharan Africa. *BMC Public Health*, 8, 4. Retrieved from https://bmcpublichealth.biomedcentral.com/articles/10.1186/1471-2458-8-4.

Ulin, P., Robinson, E., & Tolley, E. (2005). *Qualitative methods in public health: A field guide for public health research.* San Francisco, CA, USA: Jossey-Bass.

United States President's Emergency Fund for AIDS Relief (PEPFAR) (2016). *Working together for an AIDS-free future for girls and women.* Retrieved from http://www.pepfar.gov/partnerships/ppp/dreams/.

Weihs, M., & Meyer-Weitz, A. (2016). Barriers to workplace HIV testing in South Africa: A systematic review of the literature. *AIDS Care*, 28(4), 495–499.

MEASURE Evaluation
University of North Carolina at Chapel Hill
123 West Franklin Street, Suite 330
Chapel Hill, North Carolina 27516
Phone: +1 919-445-9350
measure@unc.edu
www.measureevaluation.org

This publication was produced with the support of the United States Agency for International Development (USAID) under the terms of the MEASURE Evaluation cooperative agreement AID-OAA-L-14-00004. MEASURE Evaluation is implemented by the Carolina Population Center, University of North Carolina at Chapel Hill in partnership with ICF International; John Snow, Inc.; Management Sciences for Health; Palladium; and Tulane University. Views expressed are not necessarily those of USAID or the United States government. TR-18-259

ISBN: 978-1-64232-036-7

USAID FROM THE AMERICAN PEOPLE

PEPFAR

CNCS

MEASURE Evaluation