External Evaluation of the Southern African Regional Social and Behavior Change Communication Program, as Implemented in Namibia

Paul Hutchinson, Dominique Meekers, Jennifer Wheeler

John Hembling, Philip Anglewicz, Eva Silvestre, and Joe Keating

Department of Global Health Systems and Development

Tulane University School of Public Health and Tropical Medicine

New Orleans, Louisiana, USA

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Acronyms

ART	Antiretroviral Therapy
ARVs	Antiretroviral Drugs
AV	Audio-Visual
CBO	Community Based Organization
CBV	Community Based Volunteer
DfID	British Department for International Development
EA	Enumeration Area
GBV	Gender-based Violence
IKI	Invest in Knowledge
IV	Instrumental Variable
PHC	Population and Housing Census
PLHIV	People Living with HIV
PLWHA	People Living With HIV and AIDS
PSM	Propensity Score Matching
SADC	Southern African Development Community
SAfAIDS	Southern African HIV and AIDS Information and Dissemination Service
SBCC	Social and Behavioral Change Communication
SC IHDC	Soul City Institute for Health and Development Communication
SEM	Structural Equation Modeling

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EXECUTIVE SUMMARY

This report describes the findings from the external evaluation of the Namibia component of the Southern African Regional Social and Behavior Change Communication Program. The program, which has been implemented in eight countries in Southern Africa with funding from the British Department for International Development (DfID) aims to reduce HIV infection by increasing health awareness and by facilitating social and behavioral change through the use of both mass media and community-based activities. In Namibia, the program is implemented by Desert Soul/Soul City and the Southern African HIV and AIDS Dissemination Service (SAfAIDS).

EVALUATION OBJECTIVES

The main objective of the evaluation is to assess the net effect of exposure to various components of the program on key indicators of HIV knowledge, attitudes, and behaviors, after controlling for other factors. In addition, the results of the study will be used for a separate analysis of the cost-effectiveness of the program.

DATA SOURCE

The evaluation is based on a nationally representative survey of male and females aged 15-49, which was implemented by the Social Impact and Policy Analysis Corporation (SIAPAC) with technical support from Tulane University. The survey sample was drawn by the Central Bureau of Statistics, using a three-stage sampling design. All analyses are weighted to account for the use of a multi-stage sampling design. The data collection instrument was developed from the questionnaire used for a similar evaluation in Malawi and adapted to the Namibian context by Tulane, SIAPAC, Soul City, and SAfAIDS. The instrument covers the seven health areas targeted by the program (multiple/concurrent sexual partnerships, other HIV risk factors, condom use, HIV testing, HIV treatment, HIV stigma, and gender-based violence). The final version of the instrument was reviewed and approved by Soul City, Desert Soul, and SAfAIDS/Namibia. Approval for the study was granted by the Office of the Permanent Secretary, Ministry of Health and Social Services, and by the Institutional Review Board of the Tulane Human Research Protection Program. Data collection took place from December 2011 through March 2012. In total, 4,326 interviews were successfully completed.

METHODS

This evaluation uses a post-only cross-sectional research design, given the national scope of the program. Multivariate statistical methods are used to control for differences between individuals who are exposed to the intervention and those individuals who are not exposed. Two different estimation methods are used to determine the existence of program effects: 1) multivariate regression analyses, and 2) propensity score matching (PSM).

KEY FINDINGS

ONELOVE

The OneLove campaign achieved a high level of reach among the Namibian population. Just over half of respondents were reached with radio, television or print materials. The highest exposure was with print materials (40%), followed by radio (25%) and television (21%). One in five persons were exposed to OneLove through more than one media channel. Gender differences in exposure are not significant. However, exposure to radio and television interventions is significantly higher in urban areas than in rural areas or border areas.

EFFECT OF ONELOVE PROGRAM EXPOSURE ON HEALTH-RELATED OUTCOMES

The analysis of effects of the OneLove program was conducted with four key exposure measures: exposure to any OneLove radio program, exposure to any OneLove television program, intensity of exposure to OneLove booklets (one booklet; two to five booklets) and overall exposure to the program by number of media channels (one channel; two or more channels). The evaluation results discussed below demonstrate the varied and often inconsistent effects observed across the different exposure measures.

The effects on self-reported multiple and concurrent partnerships are inconsistent across exposure measures. While exposure to one booklet has a significant negative effect on multiple partners in the past year (particularly among women), exposure to television presents a positive effect on this outcome. Exposure to radio and television have significant and positive effects on the perception that leaders discourage multiple partnerships. A dose-response relationship for exposure to OneLove on this variable is also observed, with an increasing proportion of respondents agreeing with this statement (33% among unexposed, 36% among exposed to one media channel, and 44% among exposed to two or more channels). Exposed participants are less likely to have received gifts or money in exchange for sex with their next to last and third-last partner (but not with their last partner). Although intuitively receiving gifts or money in exchange for sex would appear most relevant for females, the effects for females are not significant. Males who were exposed a OneLove radio intervention or to booklets are less likely to have provided gifts or money in exchange for sex, but exposure to a OneLove television intervention had no effect.

Exposure to the OneLove program had a significant effect on several indicators of condom use. For example, radio exposure has a significant effect on condom use at last sex with a regular partner for the total population, men, and women. Exposure to two or more media channels is significant on condom use at last sex among people sexually active in the last year. Both analytical methods (PSM and multivariate regression) suggest that exposure to all forms of media channels had an effect on agreement that condom use in marriage is becoming more widely accepted within the community. These effects are greatest with exposure to radio and to two or more media channels.

Exposure to radio, television and two or more media channels had a significant and positive effect on the mean number of HIV tests among men (the magnitude of the effect for all exposure measures was

approximately 0.4 for all channels). Exposure to the any OneLove radio program had a significant effect on ever receiving and HIV test, and on receiving an HIV test in the past 12 months (among men). Program exposure had little effect on knowledge and attitudes toward HIV testing, and some of the effects are in the wrong direction.

OneLove exposure had a limited impact on – and in some cases a negative association with - indicators of knowledge of HIV treatment, with the exception of a positive association between exposure to two or more booklets and knowing that ARVs prevent MCT during pregnancy (82% versus 73%) and during breastfeeding (79% versus 65%).

Exposure to the mass media components of the OneLove program (particularly men's exposure to TV) showed a significant effect on the belief that community members are joining together to help people with HIV. These effects are inconsistent across gender and media channels (where a negative effect was observed). Exposure to booklets was found to be significantly and positively associated with disagreement that HIV is a punishment for sinning. A dose-response relationship is seen for this variable with disagreement with the statement increasing as exposure increases: 52% among unexposed to 63% and 71% among those exposed to one and two or more booklets, respectively.

Exposure to the OneLove campaign had mixed effects on gender-based violence. However, exposure to the campaign is associated with an increase in the reporting of such incidents.

SAfAIDS

Nearly one in five persons has been exposed to the SAfAIDS campaign. Exposure does not vary by gender, but exposure is much lower in areas near border posts than in either rural or urban areas. Levels of exposure in rural areas are similar to those in urban areas.

EFFECT OF SAFAIDS PROGRAM EXPOSURE ON HEALTH-RELATED OUTCOMES

For most of the indicators examined, exposure to the SAfAIDS program was much more effective among women than among men.

Exposure to any SAfAIDS intervention has inconsistent effects on indicators measuring multiple partnerships. While a negative effect on lifetime number of partners is observed among exposed women, a positive effect on multiple partners in the past year is observed among men. Other indicators relating to attitudes and social norms regarding multiple partners show significant effects with exposure; the perception that people in the community are discussing multiple partnerships and the risk of HIV is higher with exposure to SAfAIDS, as are perceptions that people need to have someone to fill the sexual gap in case they break up with their partner (77% versus 62% among men; 73% versus 59% among women).

SAfAIDS exposure is associated with an increase in the belief that community leaders are discouraging men from having sexual partners much younger than themselves, although this effect is observed only among female respondents. Likewise, among females program exposure is associated with a decreased likelihood of having a partner with a large age gap among women, but among men there is no effect.

The results do show that SAfAIDS program exposure is associated with increased levels of condom use at last sex. This effect is observed among men with casual partners and among women with regular partners. However, exposure to the SAfAIDS program does not have a consistent effect on HIV communication, and the effects tend to go in different directions for men and women.

No significant effects of exposure to SAfAIDS on uptake of HIV testing are observed in this evaluation. Variables associated with risk perception are higher among those exposed. Men are more likely to report being worried about HIV infection (76% versus 57%), while women are more likely to report that they are likely to be HIV positive (47% versus 30%). The effects of the program on measures of knowledge and adherence to treatment are inconsistent. Exposure to the program is however associated with having ever taken ARVs, willingness to care for someone in ART, and having previously cared for someone on ART.

The SAfAIDS program is not associated with changes in the prevalence of gender-based violence. However, there are indications that exposure to the program is associated with increased reporting of such incidents.

CONCLUSION

Overall, the mass communication and community-based interventions of OneLove/Desert Soul and SAfAIDS have demonstrated impacts upon many of the key knowledge, attitude and behavioral outcomes that are the targets of their programmatic efforts. However, these effects of the program are highly dependent on the type of intervention (radio, television or print), and this evaluation noted considerable inconsistencies in measured effects across the range of exposure measures. In several cases, the intensity of exposure (mainly, the number of channels of exposure) is found to have a dose-response relationship with outcome variables, thus substantiating the relationship between exposure and the outcomes.

CHAPTER 1. INTRODUCTION

1.1 BACKGROUND

In 2007, a partnership was formed between the Soul City Institute for Health and Development Communication (IHDC), the Southern Africa HIV and AIDS Dissemination Information Services (SAfAIDS), and the Community Media Trust (CMT) to implement the Southern Africa Regional Behavior Change Communication Program in eight countries of Sub-Saharan Africa (Malawi, Zambia, Zimbabwe, South Africa, Mozambique, Lesotho, Namibia and Swaziland). This program, funded by the British Department for International Development (DfID), seeks to reduce HIV infection and related morbidity by enabling individuals and their communities to address the determinants of behavior, to promote individual behavior change, and to improve access to essential health commodities and services. A regional approach was developed to ensure consistent, coherent messaging given high inter-regional mobility. The focus of this report is on the activities of the two partners who are active in Namibia: Desert Soul/Soul City and SAfAIDS.

The program's goal is to increase health awareness and facilitate social and behavior change through mass media, community and social mobilization, and face-to-face interactions surrounding priority themes and messaging. The activities were developed to strengthen community and organizational capacity in the areas of sexual and reproductive health, HIV prevention, gender-based violence, and HIV treatment literacy. As a whole, the regional program has multiple target groups: community-based organizations (CBOs), nongovernmental organizations (NGOs), social institutions, the general population, and specific vulnerable populations (including mobile populations, communities near border posts and along transport corridors, people living with HIV, hard to reach communities and young women).

In Namibia, Desert Soul seeks to build local capacity for effective health communication; to adapt South African Soul City media for use in the local context; and to expand a regional network across Southern Africa for sharing best practices. In partnership with the Soul City Institute of Health and Development Communication, Desert Soul uses radio, newspapers and pamphlets and television to disseminate information on topics related to women's health, HIV, and gender violence. This program has developed numerous mass media products: a booklet on HIV prevention that emphasizes the importance of consistent condom use, HIV testing, and couple communication, as well as the risks of having multiple

partners (translated into five languages, with a total distribution of 1.1 million copies); a radio drama in two languages (focusing on HIV prevention, as well as care and support, TB, and smoking); a booklet on domestic violence, printed in five languages (600,000 copies distributed); and a TV series for children (26 episodes). Additional HIV prevention information is being disseminated via messages aimed at reducing multiple concurrent sexual partnerships and increasing the consistent use of condoms, as well as mass media forums on HIV prevention messages focusing on MCP, but within the context of migration, communication, and gender inequality.

Comment [PH1]: Need more on the specific messages, as per Renay's comment

In the Namibian context, Desert Soul has focused on the production and distribution of mass communication materials based on OneLove branding. However, unlike the case in other countries where OneLove was implemented, in Namibia OneLove was not adopted as a national campaign by other stakeholders. In Namibia, Desert Soul was part of the "Break the Chain Campaign." As such, some of the media programs that Desert Soul produced as part of the Break the Chain campaign were labeled OneLove. Desert Soul's efforts have focused on improving communication within relationships and reducing multiple concurrent partnerships as vital tools in the fight against HIV and AIDS. A series of ten short films, entitled *Love Stories in a Time of HIV and AIDS*, focuses on creating awareness around multiple concurrent partners, and encouraging individuals to take control of their lives. Formative research was used to identify the themes for the film series. The films address different aspects of love, including betrayal, communication, and issues of culture and personal choice in a time of HIV & AIDS. The series airs on national television in Namibia. An earlier film series, *Untold Stories*, consists of nine films that focus on creating awareness around the severity of the HIV epidemic in southern Africa. The *Meet Joe* campaign consists of a pamphlet series focusing on the dangers of multiple concurrent partnerships and encourages individuals to make healthy sexual decisions. It targets mobile populations along the major transport corridors. The *Meet Joe* booklet was not distributed nationally; it was only distributed at exhibitions and special events (Kaunatjike, personal communication). A radio and TV public service announcement (PSA) series titled *Champion for an HIV-free Generation* produces conversations with African leaders to promote HIV awareness. The Champions series is based on the premise that strong visionary leadership is an important element for achieving change, particularly at the policy level. The series highlights that multiple concurrent partnerships are one of the top drivers of the HIV epidemic. The series is currently airing across the region.

The SAfAIDS approach to behavior change communication centers on the Cascade Model for targeted HIV, TB, and gender based violence prevention and information. This model uses community-based

information, capacity building of national HIV trainers, and community-based volunteers to disseminate information. Pamphlets, toolkits, and training packs are used by volunteers as informational tools in face-to-face meetings with community members. A key component of this approach is the use of community volunteers. A second program titled *Changing the River's Flow* is designed to scale up health service delivery, by using the inter-linkages between HIV, gender violence, and culture to create programs that target women, girls, boys, and men affected by HIV. A key component is the use of home-based care to address these inter-linkages. SAfAIDS uses "cultural dialogue" to engage community members and leaders to identify practices that contribute to increased gender based violence and transmission of HIV, as well as ways to eliminate these cultural practices from the community.

1.2 OBJECTIVES OF THE EVALUATION

This evaluation seeks to measure the effectiveness of these programs in affecting change in key indicators of HIV knowledge, attitudes, and individual HIV risk behaviors. Specific objectives of the evaluation in Namibia include the following:

- To measure program reach and outcomes (in the general population and in high risk populations;
- To assess the value-added of the combined interventions of the three partners;
- To investigate the extent to which relevant aspects of the intervention built the skills and resources of communities to respond to the HIV epidemic.

Importantly, the data collected as part of this evaluation are intended to serve as inputs into the assessment of the cost-effectiveness of the program activities of the regional partners. That analysis is described in a separate (forthcoming) document.

Comment [EAS2]: is it now separate?

CHAPTER 2. METHODS

The methods used for the selection of the survey and the quantitative analysis of the survey data are described in detail below.

2.1 STUDY DESIGN

This evaluation relies upon a post-only, cross-sectional design in which individuals who self-report exposure to program interventions are compared with individuals who do not report such exposure. The fundamental evaluation issue to be addressed is whether or not differences in outcomes between these two groups can be attributed to program activities or instead reflect differences in the characteristics of exposed and unexposed individuals or differential history. Randomization of individuals to treatment (exposed) and control (unexposed) groups removes this issue by creating a counterfactual group of unexposed individuals who are statistically equivalent on average to exposed individuals in all respects except program exposure. Such a design was not feasible in this case because the intervention areas had not been randomly selected by the partners (and in the case of the national media programs, could not be randomly selected), the program interventions had already been ongoing for several years at the time of this evaluation, and program specific baseline data – from which assessments of change across time could be made were not collected. [1]

The post-only cross sectional design has several inherent limitations that we attempt to address through the quantitative methods described in greater detail below.

2.2 SAMPLING

2.2.1 SAMPLE DESIGN

The SC evaluation survey called for a nationally representative sample of adults aged 15-49 years. The overall objective was to draw a nationally representative stratified random sample, based on the enumeration areas (EAs) of the 2001 Namibia Census sampling frame, which is the most recent census available. The survey was designed to provide information on sexual behaviors, norms and attitudes towards HIV/AIDS and exposure to HIV prevention messages as diffused by 1) the three implementing partners of the regional program and 2) other implementing organizations (to control for these exposures in a multivariate framework).

[1] A potential baseline was a survey conducted in 2007 by CIET. After examining the raw data, it was decided that this survey would not support the present evaluation.

2.2.2 SAMPLE ALLOCATION

The target sample size for the survey is 4,400. The 2001 census includes a total of 4,168 EAs, of which 126 were selected for inclusion in the sample. The sample was designed to provide estimates in three different domains:

- Urban EAs ("urban")
- Rural EAs ("rural")
- Border post EAs ("border ")

The border post domain was defined as follows. The National Population Commission listed all major border posts (a total of 10 were listed). Using Geographic Information Systems (GIS) software, each of these 10 border posts was identified on a map containing the boundaries of all EAs in the 2001 census. The software was then used to query all the EAs that were contained within a circle with a 15 kilometer radius from the border post center. In other words, the query identified EAs that fell completely within the circle, but not EAs that were only partially within the circle. All EAs identified by this query were included in the border domain. In the case of one border post, not a single EA was contained within the 15 km radius circle. Visual inspection of the maps showed that one very large EA covered almost the entire circle, but also stretched outside of the circle. In order not to omit this border post from the sampling frame, this EA was purposively included in the border post domain. In total, 385 of the EAs in the census were classified as being in the border post domain.

The urban domain consists of all EAs that were coded as urban in the 2001 census, but excluding any EAs that had been included in the border post domain. Similarly, the rural domain consists of all EAs that were coded as rural in the 2001 census, but excluding any EAs that were included in the border post domain. Based on the census sampling frame, 1,283 EAs were classified as in the urban domain and 2,262 as in the rural domain.

To achieve the targeted 126 EAs for the survey sample, 42 EAs were selected per domain. To ensure that enough detailed information will be available about the program areas, program areas were oversampled. To achieve this, each of the three main domains was further divided into a program sub-domain and a non-program sub-domain (producing a total of 6 sub-domains).

The aim was to oversample program areas within each domain with a ratio of 3.2:1 (i.e. 32 program EAs and 10 non-program EAs). However, to ensure that all regions were included in the sample, and that a sufficient number of EAs were selected from each domain, the following constraints were imposed on the selection of the EAs:

1. Within each sub-domain, at least one EA must be selected from each region that is included in the sub-domain.
2. There must be a total of 42 EAs in each domain, across the program and non-program sub-domains.

These constraints implied that the actual ratio of program to non-program areas varied by domain. The resulting distribution of the 126 EAs across the subdomains is shown in Table 1.

Table 1: Number of EAs to be selected, by domain and subdomain

	Urban	Rural	Border-post
Program Area	10	13	33
Non-Program Area	32	29	9
Total	42	42	42

2.2.3 SAMPLING PROCEDURES

The survey sample was selected in three stages, with samples selected independently in each stratum/domain. In the first stage of selection, within each domain and each region, EAs were selected with a probability proportional to the size of the EA[2].

In the second stage, households were selected within each EA, using techniques developed for use in situations in which a sampling frame is not available (Boesten and Chalabi 2006; Brogan et al. 1994; Grais et al. 2007; Henderson and Sundaresan 1982). Within each EA, the sampling interval was calculated by dividing the estimated number of households in the EA[3] by 25. If a selected household

[2] Size was defined by the number of households listed in the census sampling frame.
[3] The number of households in the EA was estimated based on the number of households listed in the census sampling frame and/or observation during a walk around the EA.

had no eligible respondents, or if there was a refusal at the household level, then the household next-door was substituted.

In the third stage individual respondents were selected within the selected households. After the interviewer listed all household members, one eligible male and one female (aged 15-49) were randomly selected for interviewing, using Kish grids (Figure 1).

Figure 1: Kish grid

Proportion of assigned tables	Table number	If the number of adults in household is: 1	2	3	4	5	6 or more
		Select adult numbered:					
1/6	A	1	1	1	1	1	1
1/12	B1	1	1	1	1	2	2
1/12	B2	1	1	1	2	2	2
1/6	C	1	1	2	2	3	3
1/6	D	1	2	2	3	4	4
1/12	E1	1	2	3	3	3	5
1/12	E2	1	2	3	4	5	5
1/6	F	1	2	3	4	5	6

If a selected respondent was not available for interviewing, up to three visits were made to the household in order to complete the interview. In the event that a household contained only one eligible household member, no substitutions were made. Similarly, if a household included both an eligible male and female, but one of them refused to participate, then no substitutions were made. In order to reach the targeted sample size of 4,400 interviews, interviewing of individual respondents continued until 35 interviews had been completed in the EA (35 respondents per EA yields a total of 4,410 interviews). In the event that a small EA contained too few household to complete the targeted 35 interviews, no substitutions were made.

Because the sample is not self-weighting (i.e., the probability of selection for EAs, households, and individuals is not constant), our analyses are weighted. Three sets of weights were calculated: EA weights, household weights, and individual weights. Weighting the analyses ensures that the survey results are representative at both the domain level and at the national level.

2.3 FIELDWORK

Tulane contracted with the Social Impact and Policy Analysis Corporation (SIAPAC), a survey firm based in Namibia, to implement the survey data collection. To select an experienced and qualified fieldwork

team, the SIAPAC Senior Quality Control Officer and Country Manager/Survey Coordinator first screened and interviewed nearly 70 prospective candidates. During the screening process, two field managers with extensive prior fieldwork experience were identified and recruited. From the remaining pool of applicants, 46 were selected to participate in the fieldwork training, based on the following criteria: previous experience as a survey enumerator, level of education, proficiency in English (with knowledge of other local languages being considered an added benefit), and gender (because interviews are to be conducted by same-sex interviewers, a gender-balanced interview team is required).

Upon completion of the fieldwork training (see below), the Senior Quality Control Officer and Country Manager/Survey Coordinator selected eight of the 46 trainees as field supervisors, based on their assessment of the trainees' leadership skills and performance during the training. In addition, 32 trainees were selected as enumerators/interviewers. The remaining five trainees (one trainee dropped out of the training due to personal reasons) were not formally retained, but were held on standby as potential substitute fieldworkers, in the event that might be needed (e.g., in case of interviewer illness).

In total, eight field teams were used, each comprised of one supervisor and four enumerators (two males and females). Each of the two field managers supervised four field teams. All personnel were managed by the Country Manager/Survey Coordinator.

2.3.1 FIELDWORK TRAINING

Fieldwork training was conducted at a training facility in Windhoek, from November 28 to December 3, 2011. The six day training was facilitated by the SIAPAC Senior Quality Control Officer and Country Manager/Survey Coordinator. The entire training was attended by 46 trainees (one trainee dropped out before training had been completed). In addition, the training was attended by a representative from Tulane University and by representatives from Desert Soul and SAfAIDS. The latter individuals gave presentations outlining the key components of their programs, shared some of the materials used by their respective programs, and answered questions by the trainees. All trainees were provided with a detailed field training manual and copies of the questionnaire.

The main objective of the training was to provide the field workers with the necessary skills to successfully implement a high quality survey. As such, the training covered a broad range of topics, including:

- Purpose of the study

- Basic research methods and concepts (reliability, validity)
- Sampling strategy
- Ethical protocols and cultural sensitivity
- Detailed review of the survey instrument (questionnaire)
- Interviewing techniques, including role plays
- Techniques for quality assurance

The training format consisted of lectures, as well as extensive role plays to simulate interviews. All trainees role-played a section of the questionnaire in front of the larger group, after which the training coordinators as well as the larger group had an opportunity to provide comments, ask questions, and make suggestions for improvements. After this initial set of role plays, trainees role-played the entire questionnaire in two-person teams. All trainees were required to role play the entire questionnaire at least once as the mock respondent, and at least once as the interviewer.

A second but equally important objective of the training was to have the entire group of training participants conduct a very detailed review of the survey instrument (questionnaire), focusing on identifying potential problems that may occur with the implementation among different cultural groups. This included identifying questions that may be clear to members of some cultural groups, but that may not make sense in other groups. It also included verifying that different cultural groups would interpret the questions in the same manner. A detailed question-by-question review, as well as feedback from the role play, resulted in further fine-tuning of the questionnaire.

The final part of the training consisted of a half-day live pretest of the survey instrument. Two EAs in Katutura (a township of Windhoek) that were not part of the survey sample were selected as pretest sites. Survey teams were provided with census maps of these EAs and were taken to the outskirts of the EAs. The pretest enabled teams to practice reading the EA maps and identifying the border of the EAs, calculating the sampling interval for the households, contacting the selected households, identifying eligible household members and selecting them using the Kish grid, obtaining written consent from the selected household members, and conducting the interview(s). Upon completion of the pretest, all teams reconvened at the training facility and discussed problems and lessons learned from the pretest.

2.3.2 QUESTIONNAIRE DEVELOPMENT

The survey instrument used for the study was adapted from an earlier instrument that had been developed for a similar evaluation of the Regional Program as implemented in Malawi by Invest in Knowledge (IKI). In 2011, representatives from Tulane, SIAPAC, FGI, and Soul City met in Johannesburg to review the existing Malawi questionnaire and to draft a "core" questionnaire of standardized questions that could be used for the planned Soul City evaluations in other countries, with minor adaptations. This core questionnaire went through several rounds of review by representatives from the Tulane, SIAPAC, and regional partners, and was revised based on that feedback.

In November and December of 2011, a Namibia specific version of the core questionnaire was drafted by Tulane. This version once again went through several rounds of review by Tulane, SIAPAC, and the regional partners. In addition, the Namibia version of the questionnaire was reviewed by representatives from Desert Soul and from the SAfAIDS office in Namibia. Based on this feedback, the instrument was revised accordingly, which led to the pre-training version of the questionnaire. As previously discussed, further refinements of the instrument occurred during the field work training. Prior to the start of the actual fieldwork, the final version of the questionnaire was submitted to the regional partners for their final review and sign-off. Upon receipt of sign-off of this final version, the questionnaire was sent for printing.

2.3.3 RESULTS OF FIELDWORK

Data collection started on December 16, 2011 and continued until December 24, 2011. At that point, data collected was halted, as many urban residents are known to leave their homes during Christmas holiday period in other to visit relatives in their home region. Data collection was resumed in January continued through March 9, 2012.

During the fieldwork implementation, it was found that two of the selected EAs (one in Walvis Bay and one in Luderitz) were located in a business district and did not contain residences. With assistance from the National Population Commission, two alternate EAs were randomly selected from the same sub-domain and region.

In total, 4,326 interviews were completed, which is slightly below the target of 4,400. In 12 of the 126 EAs, the fieldworkers were unable to complete the targeted 35 interviews. Thirty-two selected respondents refused to participate in the survey. In four EAs, the target number of interviews could not

be reached because the EA did not contain a sufficient number of households, either because the EA was small, or because it was mostly a business area with few households. In one EA in Oshana, most residents had moved out due to flooding. In addition, in a few EAs the number was not reached due to fieldwork errors (e.g., a numbering error on the questionnaires caused interviewers to believe they had completed the targeted number of interviews. Quality control checks also identified 21 cases were interviews had been conducted with an eligible respondent, but not with the respondent who had been selected by the Kish grid. These cases were retained in the dataset because these were eligible respondents of the correct sex.

The 4,326 interviews include 21 partially completed questionnaires. The most common reason for not fully completing the interview was that the respondents lost interest or were uncomfortable answering questions about HIV. For some of the respondents, the interview was ended at that point. However, in some cases, the respondents asked to skip those questions, but continued to answer other questions. In addition to concerns about the HIV questions, some respondents stopped the interview because it was too long, or because they had other commitments. Three respondents ended the interview because of personal reasons (including one respondent who went into labor during the interview).

2.4 QUANTITATIVE METHODS

A principal objective of the quantitative analysis is to develop estimates of the statistical associations between exposure to partner interventions and the norms, attitudes, and behaviors upon which the regional program has focused its efforts. In order to effectively attribute differences in outcomes between exposed and unexposed individuals to the efforts of the Regional Program (and not to other confounders), the quantitative methods must:

1. Control for observable and unobservable differences between exposed and unexposed groups;
2. Control for other behavior change communication programs which may (differentially) influence the behaviors of these two groups;
3. Control for previous program efforts.

Measures of the above sets of factors are included as statistical control variables in each of the analytic methods described below in order to identify program effects.

2.4.1 PROGRAM EXPOSURE MEASURES

We focus on the following measures of exposure to program interventions:

- Exposure to any OneLove Radio program or any Champions Radio advertisement - This composite variable includes exposure to *Tjitjikutuara Kepembe Kotjii* (PE7a), *kelezo ki mulyani* (PE7b), the OneLove talk show (PE7c), OneLove phone in programs (PE7d), or any of the three Champions radio advertisements (PE30d - PE30f). This variable is dichotomous (Yes/No).

- Exposure to any OneLove television program, *Meet Joe* or any Champion television advertisement - This composite variable includes exposure to any of the Love Stories Film Series (PE17a-PE17j), any of the Untold Stories Drama Series (PE20a-PE20i), the "Meet Joe" television advertisements (PE12-PE13), or any of the Champion television advertisements (PE30a – PE30c). This variable is dichotomous (Yes/No).

- Intensity of exposure to OneLove print materials – This variable was calculated by summing across all the discrete exposures to the OneLove booklets (PE10a-PE10e) and creating three categories of exposure (none, 1 booklet, 2-5 booklets)

- Multimedia exposure to OneLove – This variable measures the number of media channels through which the respondent was exposed to One Love interventions. It includes all exposure by way of radio (PE7a-PE7d, PE30d-PE30f), television (PE17a-PE17j, PE12-PE13, PE30a-PE30c), and/or print materials (PE10a-PE10e). Three categories were created for this variable – none, 1 channel, and 2+ channels.

One variable was created for exposure to SAfAIDS.

- Exposure to SAfAIDS materials and programs – This composite variable includes exposure to any of the following SAfAIDS variables: ever heard of SAfAIDS (SE1), ever seen a SAfAIDS logo (SE2), receipt of SAfAIDS materials in the last 2 years (SE4), received HIV/AIDS information from a community-based volunteer in the past two years (SE9), participated in a community dialogue on HIV, gender and culture under Changing the River's Flow (SE13), or ever heard of Changing the River's Flow (SE16). This variable is dichotomous (Yes/No).

Unadjusted (bivariate) associations between program exposure and targeted outcomes are presented in the appendices for each exposure measure and the programmatic outcomes they are intended to influence. We do not report on these bivariate associations in the text simply because these associations make no statistical controls for any of the above confounders. Absent such controls, there is a real possibility that any differences in outcomes between exposed and unexposed individuals may

reflect underlying differences in those who are exposed rather than the effects of the program. This potential bias is reduced (but not eliminated) by adjusting – or controlling for – differences through matching methods or multivariate regression analysis. Regardless, because the data are cross-sectional and exposure to interventions is largely outside of the control of the researchers, assessments of causality between exposure to partner interventions and improved norms, attitudes, and behaviors are difficult to make, an issue discussed in greater detail below.

2.4.2 MULTIVARIATE REGRESSION ANALYSIS

We attempt to determine the statistical association between exposure to program interventions and outcomes hypothesized to be influenced by those interventions using a multivariate regression model that includes measures of self-reported exposure to those interventions and a set of statistical control variables. All regression models contain the following control variables: 1) socio-demographic variables (including age, ethnicity, religion, marital status, etc.); 2) variables that capture access to media (primary language, English fluency, literacy, ownership of radio, radio and television listenership and viewership); 3) variables capturing relevant life experience (national/international travel and whether the respondent knows someone who is HIV positive).

An important objective of the evaluation is also to differentiate between exposure to interventions of Desert Soul and SAfAIDs and exposure to other HIV/AIDS programs with similar objectives. To do this, data from the section on exposure to other programs is used to construct indexes of exposure to those programs. These exposure measures are divided into two types: (1) those that refer to specific programs such as the television HIV prevention program “Phillip Wetu” or the “Uitani” radio program and (2) exposure to sermons (such as those about supporting people who have AIDS). These indices are then included in the regression models – as well as the propensity score models described above – to control for and distinguish their contributions to differences in outcomes.

We estimate the relationships between our outcomes of interest and our programmatic exposure measures using a probit model for binary outcomes and weighted linear regression for continuous outcomes. For binary outcomes, logit (logistic) models have often been favored because of their computational ease and because the interpretation of odds ratios tends to be more straightforward, while probit models have been favored (mostly be economists) when there is a strong *a priori* assumption that the underlying distribution is normal as opposed to logistic. However, in this case, the choice of a probit model is motivated by its advantages in strategies to address unobserved

heterogeneity (i.e., selection bias) discussed below. Regardless, for most practical purposes and applications, results with logit and probit models are nearly indistinguishable (Greene 2002).

To calculate adjusted effects and adjusted proportions (akin to the treatment effects in the PSM models), the Stata command *margins* was employed, which calculates the marginal effect – the incremental change in the probability of an outcome due to an incremental change in an explanatory variable – for each explanatory variable, most notably the variables related to exposure to the programs. The *margins* command also permits calculations of the predicted probability of an outcome occurring as a function of exposure to program interventions.

2.4.3 PROPENSITY SCORE MATCHING

An alternative method of estimating program effects is to match people based on the likelihood of exposure to program interventions, i.e., the propensity score, and then to compare mean outcomes for individuals with equal likelihoods of exposure. We calculate the propensity score in Stata using the *pscore* command, which estimates a probit model for each binary exposure measure. For exposure measures reflecting intensity of exposure (e.g., "no booklets,""1 booklet,""2-5 booklets"), propensity scores are calculated for pairwise comparisons between the exposure category and the null ("no booklets") category.

Variables that are hypothesized to be associated with exposure are included as independent variables in the propensity score equation, including: 1) socio-demographic variables (including age, language spoken at home, education, wealth, religion, marital status, etc.); 2) variables that capture access to media (primary language, English fluency, literacy, ownership of radio, radio and television listenership and viewership); 3) variables capturing relevant life experience (national/international travel and whether the respondent knows someone who died of AIDS).[4]

[4] All propensity scores included a basic set of respondent characteristics, including: age (continuous years), gender (female), domain of residence (urban and border), years of schooling, religion (Catholic, Anglican, other religion, marital status (never married), ability to understand local languages (Afrikaans, Silozi, Otjiherero, Oshiwambo), wealth quintile, whether or not anyone in the respondent's household has salaried employment, and whether or not the respondent knew someone who had died of AIDS In addition, propensity scores were derived including variables that were hypothesized to affect exposure to communication activities but not outcomes. These included: ownership of a radio, ownership of a television, a binary variable for whether or not a respondent had traveled outside of their home region but within Namibia for at least two weeks in the past year, whether or not a respondent had traveled outside of Namibia in the last two years, the number of days per week that the respondent listens to the radio, the number of days per week that a respondent watches television, the number of days per week that a person reads the newspaper, an index of exposure to other HIV/AIDs behavior change

We restrict our analysis to the area of common support (or overlap) of the propensity score for exposed and unexposed individuals. For the majority of exposure variables, over 95% of exposed respondents were able to be matched to a suitably similar non-exposed respondent based on the propensity score. To ensure sufficient comparability between matched exposed and unexposed individuals, we also test for covariate balance within blocks (or strata) of the propensity score.

We estimate the average treatment on the treated (ATT) effect using kernel matching based on a weighted average of all controls, where the weights are inversely proportional to the distance between the propensity score of treated and controls (Becker and Ichino 2002). The ATT is calculated using the Stata command *psmatch2* (Leuven and Sianesi 2003), which generates predictions of the *levels of an outcome* for exposed ("treatment") and unexposed ("control") individuals, as well as the treatment effect, reflecting the estimated difference in average outcomes between exposed and unexposed individuals.

The results of the matching estimations are shown in the appendices. In the summary tables, columns are added to alert the reader to whether or not the multivariate regression results are confirmed in statistical significance by the PSM estimates.

2.4.4 SIMULTANEOUS EQUATIONS MODELING

A key limitation of both of the multivariate estimation methods described above is that they control only for observed confounders, i.e. information collected directly from respondents via the survey questionnaire (Rosenbaum and Rubin 1983; Rosenbaum 1991; Lu, Zanutto et al. 2001; Rosenbaum 2009; Silber, Lorch et al. 2009). *Unobserved* factors, may also affect estimates of the relationship between program interventions and outcomes. As noted in other studies (Guilkey, Hutchinson et al. 2006; Hutchinson and Wheeler 2006), exposed individuals likely differ from unexposed individuals in very measurable (exogenous) ways, such as levels of education, income, age, or geographic location. But they may also differ in other less easily measured ways – they may be more media savvy, be more efficient producers of health from available health inputs, or possess some other characteristics that are potentially correlated with both exposure and health outcomes. Failure to control for both observed and

communication activities and an index of exposure to sermons on HIV/AIDS related topics (about the risks of having more than one partner, about supporting people with AIDS, about fighting stigma and discrimination, and advising people to use condoms). To achieve balance in the propensity score across blocks, interactions were selectively added to the propensity score estimations as necessary.

unobserved differences can lead to confounding and potentially biased estimates of intervention effects.

Under certain conditions, SEM can account for the simultaneous determination of exposure and outcomes due to unobserved covariates (Bollen and Long 1992; Bollen 2002; Kincaid and Parker 2008; Bollen and Davis 2009; Kirby and Bollen 2009). In this analysis, we rely upon bivariate and trivariate probit models containing one or two endogenous exposure measures. For each such model, a main outcome equation is specified as a function of a single exposure measure (e.g., self-reported exposure to any OneLove radio program) or dose-response exposure measured (e.g., one OneLove multimedia channel versus none; two or more OneLove multimedia channels versus none). We estimate our models in Stata using the *cmp* command for multi-equation, multi-level, conditional recursive mixed-process estimators (Roodman 2011).

Key explanatory variables for the SEM models include not only the socio-demographic variables described above but also variables hypothesized to uniquely affect exposure but not the outcomes under study. These variables – known as the excluded exogenous variables (or exclusion restrictions) - overlap with those that determined exposure in the calculation of the propensity score and include variables associated with access to media (primary language, literacy, ownership of radio, radio and television listenership and viewership).

A key component of the analysis is in determining the validity of the exclusion restrictions, both theoretically and technically. Several key statistical conditions are necessary for the exclusion restrictions to be valid (i.e., for model identification to be achieved):

Condition 1. The excluded exogenous variables must be statistically significant explanatory factors determining exposure;
Condition 2. The excluded exogenous variables must <u>not</u> be statistically significant explanatory factors determining outcomes;
Condition 3. There must be at least as many excluded exogenous variables as exposure variables included in the model.

To assess whether these conditions are met, probit regressions were run in the first stage (as described above) and F tests calculated to identify those variables that would allow for the rejection of the null hypothesis that the exclusion restrictions were not jointly statistically significant different from zero (Condition 1). Different combinations of exclusion variables (e.g., number of days per week that respondent listened to the radio, number of days per week that a respondent read a newspaper) were

included until the null hypothesis could be rejected. Once these variables were determined, they were included in the outcome equation and the joint F test was again calculated to demonstrate that these variables were not jointly significant determinants of the outcomes (Condition 2). Frequently, one or several of these variables were individually significant, leading to the rejection of the null hypothesis, and the need to re-visit stage 1. This process was repeated for every program outcome and exposure variable until both conditions were met. In practice, it proved difficult for both conditions to be met. Often TV viewership, for example, was a significant determinant of both the exposure variable and the outcome under study, thereby rendering it unsuitable as an exclusion restriction.

2.4.5 OTHER ISSUES

For all of the quantitative analyses, the Stata 12.0 statistical software package is used. To address the multistage sample design described previously, Stata's *svy* routines are utilized, since these account for the differential probabilities of selection of EAs, households within EAs and respondents within households. The *svy* commands also address the sample stratification and the intracluster correlation associated with the multistage sample design and greater homogeneity of households within EAs relative to simple random sampling.5 Details of Stata's procedures for complex survey designs are available here (Stata Corp. 2011).

[5] Recall that two respondents, a male and a female, were selected from each sampled household. The characteristics of such individuals tend to "cluster." That is, two respondents from the same household are likely to be more similar to each other than two respondents selected randomly from different households: they have the same household assets, they are likely to have similar levels of literacy and to be of similar ages, etc.

CHAPTER 3. SAMPLE CHARACTERISTICS

This section provides information on the measures of exposure to each of the activities of the partners, population-level estimates of the reach of the partners' programs, and the results of the multivariate models estimating the relationship between the targeted outcomes of the programs and measures of program exposure, controlling for the characteristics of exposed and unexposed individuals.

3.1 GENERAL DESCRIPTION OF SAMPLE

The general description of the sample is found in Table 2. Results are presented for the total sample, for men and women, and for specific population of interest to the program: women between the ages of 15 and 24, urban/rural, and border populations.

Table 2: Sample characteristics

	National N=4322	Men N=2153	Women N=2173	Women (15-24) N=859	Urban N=1403	Rural N=1490	Border N=1433
Age Groups							
15-19	24.4	25.8	23.2	49.7	19.8	27.6	18.8
20-24	22.6	21.8	23.4	50.3	25.7	20.1	28.6
25-29	18	17	18.9	-	18.6	17.9	16.7
30-34	11.3	11.3	11.4	-	10.7	11.4	13
35-39	11.1	11.6	10.7	-	13.5	9.8	12.4
40-44	6.1	6.1	6.2	-	7.1	5.7	5.8
45-49	6.4	6.4	6.3	-	4.5	7.5	4.7
Education							
None	4.8	5.1	4.5	0.7	1.4	6.7	3.4
Primary	19.4	20.6	18.2	12.3	11	24	15.7
Secondary	69.3	67.5	71	80.2	75.1	65.6	74.4
Higher	6.6	6.9	6.3	6.8	12.5	3.7	6.5
Wealth Index (Quintiles)							
First quintile	30.1	29.1	30.9	35.6	2.4	46.5	13.2
Second	19.4	19.4	19.5	18.8	6.9	26.4	14.7
Third	17.6	17.6	17.7	15.1	13.3	19	22.3
Fourth	17.7	16.8	18.5	17	35.3	6.8	30.7
Fifth quintile	15.2	17.1	13.4	13.6	42.1	1.3	19.1
Current Marital Status							
Married/union	21.3	20.5	22	6.9	26	18.4	24.7
Div/sep/widow	3.1	1.5	4.6	0	2.8	3.2	3.6

	National N=4322	Men N=2153	Women N=2173	Women (15-24) N=859	Urban N=1403	Rural N=1490	Border N=1433
Never married	75.6	78.1	73.4	93.1	71.2	78.4	71.7
Region							
Caprivi	2.1	1.9	2.3	2.1	0	1.7	10.9
Erongo	8.6	9.9	7.5	5.8	16	2.7	23.4
Hardap	2.7	2.5	2.8	3.5	5.7	1.6	
Karas	3.7	3.8	3.5	2.8	3	2.9	10
Khomas	11.1	11.3	10.8	12.2	34.3	1.5	-
Kunene	2.8	3	2.6	2.2	2.6	3.3	-
Ohangwena	16	16.3	15.7	12.9	1.1	22.6	20.4
Kavango	13.9	11.6	16.1	22.2	0	17.3	35.4
Omaheke	2.5	2.6	2.4	2.3	1.5	3.4	-
Omusati	9.1	9	9.1	9.4	2.1	13.9	-
Oshana	10.8	10.7	10.8	10.2	12.1	11.9	-
Oshikoto	9.5	10	9	7.1	4.5	13.4	-
Otjozondjupa	7.3	7.3	7.2	7.4	17.1	3.6	-
Language Spoken at Home							-
Oshiwambo	54.1	55.7	52.6	50.4	39.2	65.4	29.5
Nama/Damara	11.9	12.2	11.7	10.3	28.9	4.2	8.5
Afrikaans	6.9	6.9	6.9	8.2	16.8	0.9	13.4
Silozi	2.7	2.1	3.2	2.1	1.4	2.2	9.1
Otjihereo	6.2	6.9	5.6	3.2	9	5.6	1.5
Other	18.2	16.3	20.1	25.8	4.6	21.7	37.9
Religion							
Lutheran	48.5	50.3	46.8	43.7	42.7	54.6	28.2
Catholic	28	28.1	27.9	34.2	34	25.3	26.4
Anglican	11.2	9.8	12.5	11.9	6.4	13.2	12.8
Other	12.3	11.8	12.8	10.2	16.9	6.8	32.6
Ease of English Speaking							
Easily	59.4	63.1	55.9	66	81.1	46.3	74.6
With difficulty	29.2	27	31.3	31.7	16.4	37.1	18.9
Not at all	11.4	10	12.8	2.3	2.6	16.6	6.5
Ownership of radio and television							
Household owns radio	88.9	89.4	88.4	89.5	92.1	88	84.8
Household owns television	38.4	39.2	37.6	36.3	80.4	13.4	65.6

The national sample is evenly split between males and females. Just under half (47%) of the sample is between the ages of 15 and 24. Over three-quarters of respondents had attended secondary education

or higher and the vast majority reported that they have never been married. Over half of the national sample speaks Oshiwambo at home, but this percentage increases to 65% for respondents in rural areas. Nearly half of the respondents identify as Lutheran. In terms of speaking English, there are marked differences between the urban and rural sample with 81.1% and 46.3% of respondents, respectively, indicating they speak English easily.

The results indicate that 88.9% and 38.4% of the respondents in the national sample lived in a household that owns a radio and a television, respectively. This result is consistent across the different sub-populations; ownership of both radios and televisions is higher in urban areas.

3.2 LOGFRAME INDICATORS FOR NAMIBIA ONELOVE

Estimates of the DfID Logframe indicators for Namibia are presented below. Descriptive statistics for the complete set of indicators are provided in Appendix E.

The DfID Logframe calls for measurement of progress toward "Increased health awareness and related social and behavioral change," which is measured by the following indicators:

- *Safer sexual practices*: Percentage of male and female adults aged 17 years or older who had more than one sexual partner in the past year;
- *Safer sexual practices*: Percentage of men and women who reported use of a condom in last sexual intercourse, among those who had more than one partner in the past 12 months;
- *Stigmatizing attitudes*: Percentage of adults aged 17 years or older who do not think that HIV/AIDS is a punishment for sinning;
- *Correct knowledge of HIV management*: Percentage of adults aged 17 and older who know that people can transmit HIV while on ARVs.

The targets for these indicators, as well as estimates for 2006 (the baseline) and 2011 are provided in the Table 3.

Table 3: Logframe Indicators (targets[6] and progress)

		Target	2006	2011
Percentage of adults (aged 17+) who had more than one sexual partner in the past year	Total	9%	22%	19%
Percentage who used a condom in last sex, among those who had multiple partners in the past 12 months	Total	-	-	71%
	Males	77%	74%	77%
	Females	69%	66%	43%
Percentage of adults (aged 17+) who do not think HIV/AIDS is a punishment for sinning	Total	90%	46%	58%
Percentage of adults (aged 17+) who know that people can transmit HIV while on ARVs	Total	80%	81%	87%

Since the Baseline Survey in 2006[7], some progress has been made with respect to the first indicator of percentage of adults having had more than on sexual partner in the last year, as we observe a difference of three percentage points between the two surveys. Overall, 19% of adults report having multiple partners, compared to the target of nine percent. With respect to the percentage of adults who had multiple partners in the past year and who report using a condom in last sex, the target of 77% is achieved for males. However, it must be noted that this target had been nearly achieved by 2006. Among women who report having multiple partners, the percentage of women who report using a condom at last sex declined from 66% in 2006 to 43% in 2011. However, the observed decline is possibly a consequence of small sample size; the total sample of women who had multiple partners in the past year – which forms the denominator for this indicator - is quite small (n=126).

The results further show that the target for the indicator of stigmatizing attitudes is not achieved. The target is for 90% of adults aged 17 and over to disagree that HIV/AIDS is a punishment for sinning. The results indicate that only 58% somewhat or strongly disagree that that HIV/AIDS is a punishment for sinning. But improvement is observed from the 2006 survey where 46% of the respondents believed this.

The target for the indicator of correct knowledge of HIV management is that 80% of adults aged 17 and over know that people can still transmit HIV while they are on ARVs. This target is achieved, with 87% having this knowledge.

[6] The targets and 2006 baseline estimates are those reported in the April 2010 revision of the Logframe.

[7] Baseline numbers come from a presentation given by Ailie Clarkson, Statistics Adviser, DFID 28th April 2010 *DFID Southern Africa BCC Programme: Impact*

CHAPTER 4. DESERT SOUL RESULTS

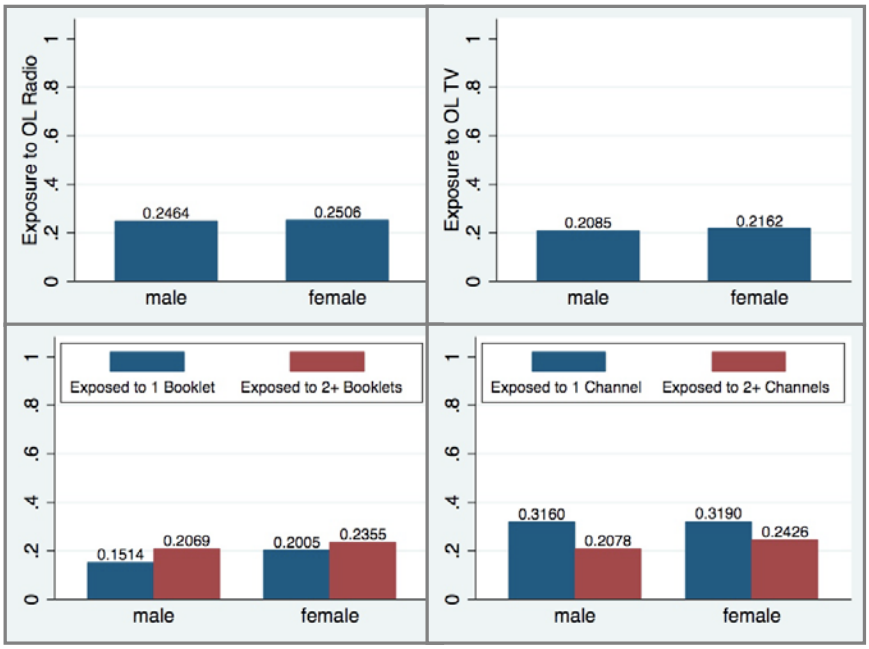
4.1 EXPOSURE MEASURES

Exposure to Desert Soul activities and to the OneLove campaign is measured with the following four summary indicators (for a detailed description of these indicators, see Section 1.3.4.1):

- Exposure to any OneLove radio program
- Exposure to any OneLove television program
- Intensity of exposure to OneLove print materials
- Multimedia exposure to OneLove

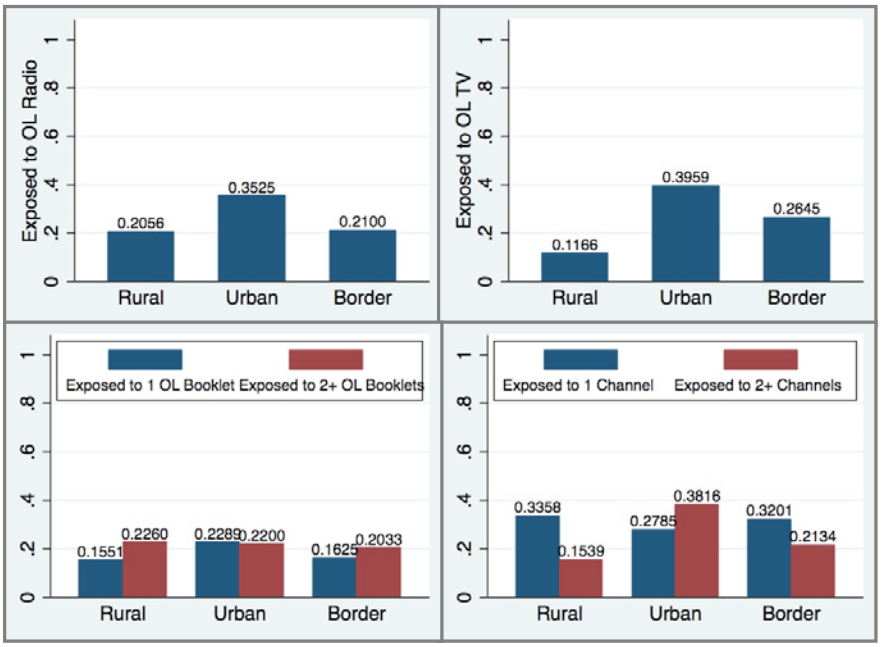
Estimates of exposure to program activities can be found in Figures 2 and 3. Approximately one quarter (24.9%) of all respondents were exposed to at least one of the OneLove radio programs, with no notable differences in exposure across gender (24.6% of males; 25.1% of females). Exposure to OneLove television programs is only slightly lower, at 21.3% (20.9% of males and 21.6% of females). Nearly four out of every ten respondents report being exposed to OneLove print materials. Specifically, 22.2% report having read between two and five of the OneLove booklets (20.7% for males; 23.6% for females), and an additional 17.7% report reading just one of the booklets (15.1% of males; 20.1% of females). The analysis shows that 31.8% of respondents (31.6% of males and 31.9% of females) were exposed to OneLove through a single media channel. However, nearly one in four respondents (22.6%) report being exposed to OneLove through at least two different media channels. The breakdown by gender shows that the percentage exposed through two or more media channels is slightly higher among females than males (24.3% vs. 20.8%, respectively).

Figure 2: Exposure to OneLove, by gender



As anticipated, exposure (rural, urban, border area) to OneLove radio and television are highest in urban areas (Figure 3). For example, 35.3% of urban respondents report radio exposure, as compared with 20.6% of rural respondents and 21.0% of respondents in border areas. The pattern for OneLove television is slightly different. While OneLove television exposure is also highest in urban areas (39.6%), television exposure is noticeably higher in border areas than in rural areas (26.4% vs. 11.7%, respectively). Exposure to OneLove print materials varies relatively little by domain. For example, the percentage of respondents who report reading between two and five OneLove booklets is 22.0% for urban respondents, 22.6% for rural respondents, and 20.3% for respondents in border areas. With respect to multimedia exposure to OneLove, the percentage exposed to OneLove through a single media channel does not vary much by domain (27.8% for urban, 33.6% for rural and 32.0% for border areas). However, as anticipated the percentage of respondents exposed to OneLove through two or more media channels is noticeably higher in urban areas (38.2%) than in border areas (21.3%) and rural areas (15.4%).

Figure 3: Exposure to OneLove, by domain



Among young women aged 15-24, who are one of the key target groups, 21.9% report exposure to OneLove through radio and 23.8% through television. One in five young women (19.9%) report having read one of the OneLove booklets, and 19.6% have read between two and five such booklets. Results for multimedia exposure show that 28.3% of young women were exposed to OneLove through a single media channel, while 24% were exposed through two or more media channels.

While 44.7% of respondents have heard of OneLove, the OneLove slogan is not very well known. Only 9.2% of respondents can spontaneously recite the OneLove slogan. With prompting, an additional 17.1% appear to know the slogan. Knowledge of the OneLove logo is considerably higher, at 39%. Nearly one in four respondents (22.5%) report having heard the OneLove phone-in radio program and 12.7% have heard the OneLove radio talk show. Exposure to the OneLove radio programs that are broadcast in local languages is low: 3.8% for *Tjitjikutuara Kepembe Kotjii* (broadcast on Otjiherero radio), and 1.8% for *Kelzo ki mulyani* (broadcast on Silozi radio). These low levels of exposure were anticipated since only 6.2% and 2.7% of respondents speak Otjiherero or Silozi respectively at home (see Table 2). Exposure to the OneLove booklets varies considerably by booklet. Only 3.6% were exposed to the English version of "You haven't Met Joe," which is consistent with the fact that the booklet was not distributed nationally.

Exposure to the OneLove booklet is high, but varies by language. For example, 8.4% read "*Een Liefde*", 21.7% read "Life and Love with One Partner," and 22.4% read "*Ohole Imwe Onghalamwenyo*." These differences in exposure were anticipated as the English and Oshiwambo booklets had the highest print runs (Kaunatjike, personal communication).

Viewership of the Love Stories film series is low, although it varies considerably by film. Viewership for most of the films is below 5% of respondents. The single exception is "Against the Odds," which has been watched by 8.5% of respondents. The higher viewership of "Against the Odds" was anticipated since it is a film produced by Desert Soul that depicts the story of how a Namibian orphaned girl experiences the advances of an older man. As is the case for the Love Stories films, all but one of the Untold Stories films, have less than 5% viewership. The exception is "Between Friends" which has been watched by 8.1% of respondents. "Between Friends" is also a Namibian film that addresses issues related to sex and friendships. Overall, these levels of exposure are somewhat lower than expected, given that 38% of respondents report that they have a television in their household and considering that 32% of respondents report watching television at least five days per week.

More detailed information on exposure to specific OneLove program activities within specific subgroups is available in Table 4 below and in Appendix C.

Table 4: OneLove exposure by domain

	Men N=2153	Women N=2173	Women 15-24 N=859	Border N=1433	Urban N=1403	Rural N=1490	Total N=4326
Composite Exposure Measures							
Exposure to No Booklets	64.2%	56.4%	60.5%	63.4%	55.1%	61.9%	60.1%
Exposure to One Booklet	15.1%	20.1%	19.9%	16.2%	22.9%	15.5%	17.7%
Exposure to 2-5 Booklets	20.7%	23.6%	19.6%	20.3%	22.0%	22.6%	22.2%
Exposure to Radio Drama	24.6%	25.1%	21.9%	21.0%	35.3%	20.6%	24.9%
Exposure to Any Television	20.9%	21.6%	23.8%	26.4%	39.6%	11.7%	21.3%
Exposure to No Media Channels	47.6%	43.8%	47.8%	46.6%	34.0%	51.0%	45.6%
Exposure to One Media Channel	31.6%	31.9%	28.3%	32.0%	27.8%	33.6%	31.8%
Exposure to Two or More Media Channels	20.8%	24.3%	24.0%	21.3%	38.2%	15.4%	22.6%
Individual Exposure Measures							
OneLove Slogan: Spontaneous	4.2%	13.8%	15.4%	14.0%	16.3%	4.9%	9.2%
OneLove Slogan: Aided	20.5%	13.9%	12.4%	14.6%	22.6%	14.8%	17.1%
Ever Heard of OneLove	44.3%	45.0%	45.4%	43.0%	60.6%	37.1%	44.7%
Seen OneLove Logo	38.3%	39.6%	40.4%	34.0%	52.6%	33.3%	39.0%
Knows OneLove Has Campaign in Other Countries	18.7%	18.7%	19.2%	16.5%	17.6%	19.9%	18.7%

	Men N=2153	Women N=2173	Women 15-24 N=859	Border N=1433	Urban N=1403	Rural N=1490	Total N=4326
Saw OneLove Logo in Other Country	15.4%	9.8%	7.3%	20.7%	3.8%	36.1%	11.8%
Radio: Tjitjikutuara Kepembe Kotjii	3.7%	3.9%	1.6%	0.9%	7.4%	2.6%	3.8%
Radio: OneLove Talk Show	16.7%	9.0%	7.9%	9.3%	18.4%	10.5%	12.7%
Radio: kelzo ki muljani	1.9%	1.7%	1.5%	7.0%	0.7%	1.4%	1.8%
Radio: OneLove Phone-In Program	23.9%	21.2%	16.6%	17.3%	33.5%	18.1%	22.5%
TV: Saw OneLove Ad Meet Joe	7.3%	3.4%	3.6%	4.1%	9.2%	3.6%	5.3%
Read: SoulSex	19.6%	18.2%	20.4%	19.6%	18.8%	18.8%	18.9%
Read: You Haven't Met Joe	2.5%	4.6%	3.9%	3.7%	6.2%	2.3%	3.6%
Read: Life and Love with One Partner	18.6%	24.6%	20.2%	21.1%	26.6%	26.7%	21.7%
Read: Ohole Imwe Onghalamwenyo	21.1%	23.6%	18.0%	14.9%	16.0%	26.7%	22.4%
Read: Een Liefde	4.8%	11.7%	10.9%	14.1%	13.7%	5.0%	8.4%
Watched: Love Stories film series	9.1%	13.0%	13.4%	10.8%	22.8%	5.6%	11.1%
Watched film: When the Music Stops	3.8%	2.8%	2.2%	5.2%	6.2%	1.5%	3.3%
Watched film: Big House, Small House	2.9%	2.4%	1.2%	2.7%	5.4%	1.4%	2.7%
Watched film: Travelling Man	1.8%	1.8%	2.3%	2.6%	4.6%	0.3%	1.8%
Watched film: After the Honeymoon	1.4%	1.8%	0.7%	0.8%	5.0%	0.1%	1.6%
Watched film: *Chaguo*	2.2%	2.2%	2.0%	1.1%	5.3%	0.9%	2.2%
Watched film: *Umshato*	3.2%	4.4%	2.8%	2.4%	9.7%	1.3%	3.9%
Watched film: Bloodlines	1.0%	2.8%	2.4%	1.0%	4.6%	0.9%	2.0%
Watched film: Second Chances	4.7%	5.1%	3.8%	2.6%	9.4%	3.1%	4.9%
Watched film: Against the Odds	7.5%	9.5%	10.6%	6.9%	18.0%	4.3%	8.5%
Watched film: Betrayed	0.6%	1.0%	0.4%	1.4%	2.0%	0.2%	0.8%
Watched drama: Untold Stories Series	8.2%	10.5%	9.5%	7.9%	18.8%	5.2%	9.4%
Watched drama: Rebel Rhymes	1.2%	2.6%	3.6%	2.6%	4.1%	0.8%	2.0%
Watched drama: Mapule's Choice	1.6%	3.3%	2.4%	2.7%	5.2%	1.2%	2.5%
Watched drama: Secrets and Lies	3.3%	3.7%	1.5%	4.7%	6.0%	2.1%	3.5%
Watched drama: The Test	1.4%	2.9%	3.1%	0.7%	4.4%	1.4%	2.2%
Watched drama: Tempestade	0.6%	1.4%	0.6%	0.2%	2.6%	0.4%	1.0%
Watched drama: *Ulendo waRose*	0.4%	0.7%	0.2%	0.3%	1.6%	0.1%	0.6%
Watched drama: Batjele	1.2%	1.9%	2.1%	0.6%	3.5%	0.8%	1.6%
Watched drama: Chipo's Promise	1.3%	1.6%	1.2%	1.0%	3.9%	0.4%	1.5%
Watched drama: Between Friends	8.5%	7.7%	9.0%	7.8%	16.9%	4.0%	8.1%
Ever Heard: Desert Soul	85.1%	91.2%	96.1%	84.6%	85.9%	90.0%	88.3%
Knows: Desert Soul Logo	80.0%	71.1%	70.3%	69.3%	83.5%	72.5%	75.3%
Read: HIV and AIDS...Action Now!	32.2%	44.5%	45.2%	42.6%	49.4%	32.9%	38.7%
Read: Stop the Abuse Against Women	24.4%	34.8%	32.6%	37.1%	33.2%	27.0%	29.8%
Read: Gardening for Health	27.0%	41.1%	47.5%	32.5%	25.0%	39.2%	34.4%
Read: Choose Life	35.6%	42.5%	41.2%	48.8%	46.2%	34.3%	39.2%
Read: Take Action to Stop TB	33.4%	34.8%	31.0%	41.0%	34.7%	32.7%	34.1%

	Men N=2153	Women N=2173	Women 15-24 N=859	Border N=1433	Urban N=1403	Rural N=1490	Total N=4326
Heard: Desert Soul Drama on Radio	50.6%	63.9%	65.8%	42.0%	41.7%	67.2%	57.5%
Watched: Desert Soul Children's Television Show	22.2%	21.5%	21.1%	25.7%	39.0%	13.3%	21.8%
Saw: Champions Advert, Dr. Speciosa Wandira	2.1%	4.8%	4.8%	4.9%	6.8%	1.7%	3.5%
Saw: Champions Advert, Dr. Kenneth Kaunda	7.2%	6.3%	6.2%	8.9%	12.5%	3.7%	6.8%
Saw: Champions Advert, Bishop Desmond Tutu	7.0%	6.5%	7.4%	8.9%	12.6%	3.6%	6.7%
Heard: Champions Advert, Dr. Speciosa Wandira	0.4%	2.1%	2.6%	2.2%	2.0%	0.8%	1.3%
Heard: Champions Advert, Dr. Kenneth Kaunda	0.4%	2.1%	2.6%	2.2%	2.0%	0.8%	1.3%
Heard: Champions Advert, Bishop Desmond Tutu	1.0%	4.0%	4.3%	4.4%	2.5%	2.3%	2.6%

4.2 REACH

This section discusses the estimated number of persons reached by various components of the program, which is estimated by extrapolating from the weighted percentage of people who report being exposed to each intervention component. Specifically, our analysis uses Stata's *total* command (StataCorp, 2007: 492-497), which estimates the total number of people exposed to the intervention in the population from which the survey sample is drawn, by taking into account the sampling weights (which in turn are the inverse of the probability of selection). The procedure also calculates a 95% confidence interval for the number of people reached.

Detailed results (including results for specific target groups) are provided in Appendix D. The reader is reminded that since the survey is limited to respondents aged 15-49, the number of persons reached also refers to this age group. Furthermore, the reader is cautioned that survey data can only provide very rough estimates of the number of people reached. Consequently, the confidence intervals for these estimates tend to be very wide (for example, while it is estimated that 409,000 people know the OneLove logo, the 95% confidence interval ranges from 286,000 to 533,000). Hence, these estimates should be used with caution.

4.2.1 REACH OF THE ONELOVE CAMPAIGN

An estimated 478,691 people (228,303 males and 250,388 females) have heard of the OneLove campaign. Considering that Namibia has an estimated population of less than 2.2 million, 48% of whom

are aged 15-49, this implies that almost one out of every two Namibians aged 15-49 had heard of the campaign. Overall, an estimated 95,194 persons (21,167 males and 74,027 females) spontaneously recognized the OneLove slogan, and an additional 176,723 (102,182 males and 74,541 females) recognized the slogan after prompting. It is estimated that 409,198 people (190,869 males and 218, 328 females) recognize the OneLove logo.

The OneLove phone-in radio program is listened to by an estimated 236,575 people (119,495 males and 117,080 females), and the OneLove talk show by 133,126 people (83,303 males and 49,823 females). As anticipated, radio programs in local languages have lower listenership. The Otjiherero radio program "*Tjitjikutuara Kepembe Kotjii*" is listened to by an estimated 39,996 people, and the Silozi program "*Kelezo ki mulyani*" by 18,739 people.

The OneLove booklets with the highest readership are "*Ohole Imwe Onghalamwenyo*" with an estimated 235,640 readers (105,541 males and 130,099 females), "Life and Love with One Partner" (228,647 readers, including 93,020 males and 135,626 females) and "SoulSex" (198,365 readers, including 98,146 males and 100,219 females). The "You haven't Met Joe" booklet had the lowest readership, with an estimated 39,996 readers (12,656 males and 25,251 females). As noted earlier, the latter was anticipated given that this booklet was not distributed nationally.

An estimated 116,890 people (45,341 males and 71,549 females) watched the Love Stories film series. Because some people may not be familiar with the title of the series, respondents were also prompted about each of the specific film titles and themes. The results suggest that many more people had seen some of the films in the series. The films with the highest viewership were "Against the Odds" (which was produced by Desert Soul) and ""Second Chances." "Against the Odds" was watched by an estimated 89,338 people (32,257 males and 52,082 females), and "Second Chances" was watched by an estimated 51,597 people (23,551 males and 28,046 females). The film with the lowest estimated viewership is "After the Honeymoon," which was watched by 16,517 people (6,797 males and 9,720 females).

The *Untold Stories* drama with the highest reach is "Between Friends" (also produced by Desert Soul) which is watched by an estimated 85,337 people (42,720 males and 42,616 females). This is followed by "Secrets and Lies," which had a viewership of 36,690 (16,397 males and 20,293 females). Viewership is lowest for the drama "Ulendo waRose," which is watched by an estimated 5,912 people (1,966 males and 3,945 females).

4.2.2 REACH OF DESERT SOUL

Overall, it is estimated that 928,437 people (425,149 males and 503,288 females) have heard of Desert Soul, and an estimated 782,436 (396,863 males and 385,574 females) recognize the Desert Soul logo. All Desert Soul booklets had high readership, which range from 312,767 (121,677 males and 191,091 females) for "Stop the Abuse Against Women" to 411,190 (177,827 males and 233,364 females) for "Choose Life."

An estimated 595,015 people (252,674 males and 342,341 females) have listened to the Desert Soul Radio drama. Furthermore, an estimated 227,389 (110,575 males and 116,814 females) have watched the Desert Soul children's show on television.[8] Considering that the show targeted children, rather than adults aged 15-49, these findings suggest that reach was very high.

4.3 RESULTS FOR GENERAL POPULATION (TOTAL, MALE, FEMALE)

Multivariate regressions were run for each of the exposure measures with each programmatic outcome. For the most part, results are presented for health measures that are significantly associated with exposure to the OneLove or SAfAIDS program. The only exceptions are health measures that are important programmatically: multiple partners in the last 12 months, multiple partners in the last month, currently having multiple partners, condom use at last sex with regular and casual partners, condom use at last sex among those who report having multiple partners, ever been tested for HIV, and tested for HIV in the last year. These results are presented in the tables regardless of statistical significance. For a full list of analyses for all measures for all health outcomes (i.e. including non-significant measures), see Appendix F.

The result tables are organized in the following manner: results are presented separately among different health areas, followed by a discussion of the results for each outcome. The results presented are for (1) probit models that compare the measure of interest between those exposed and the unexposed group, and (2) results for the propensity score matching analysis, as described above. The regression analyses are run for three groups in the general population: men and women combined (total population), men only, and women only. Propensity score matching results are presented for the total population only. One important note: we present results for all three populations even if the results

[8] Question PE28 in the questionnaire asks, "Have you ever watched a Desert Soul children's television show?" (PE29 asks how often they watched the children's TV show)

were statistically significant for only one or two of the three populations. In the summary of results below the tables, however, we only discuss results that were statistically significant.

This next section presents the summary of the multivariate results for primary outcomes by analysis types and by exposure to the various OneLove materials. We present the results in the following order: multiple sexual partnerships, other HIV risk factors, HIV communication, condom use, HIV testing, HIV treatment, HIV stigma, and gender-based violence. To ease readability, the tables contain adjusted proportions but these are presented in the text as percentages.

4.3.1 MULTIPLE PARTNERS

Table 5 presents the effect of different exposure measures on multiple sexual partnership outcomes. For the total sample, exposure to the radio program is positive and significant for outcomes such as *knowing multiple sexual partners increases the HIV risk* and *people discuss HIV risk and multiple partners*. Females exposed to the program are more likely than unexposed females to have more than one sexual partner. Exposed respondents are less likely to have received gifts or money in exchange for sex with their next to last and third to last sexual partner. Males exposed to the radio program are also less likely than unexposed males to give gifts or money in exchange for sex (5.5% versus 15.6%). There is no significant difference in the proportion of respondents who report multiple partners in the last year or in the last month.

We observe similar effects of exposure to the television intervention on the belief that people are discussing the HIV risk associated with having multiple sexual partners. One difference is that men exposed to the television program are more likely than unexposed men to believe that most married men are faithful to their wives (53.2% versus 38.8%). However, we also observe that respondents exposed to the television intervention are more likely than others to report having multiple partners in the last 12 months and to report having received gifts or money in exchange for sex with their last casual partner.

Table 5: Summary of multivariate results for OneLove and multiple partners

	Total Population			Male		Female	
	Unexposed	Exposed	PSM	Unexposed	Exposed	Unexposed	Exposed
Exposure: Exposed to Any One Love Radio Intervention							
Lifetime partners	4.2922	3.577	NS	5.9554	5.3192	3.112	2.1941
Knows multiple sexual partners increase HIV Risk	0.8922	0.9421**	NS	0.9241	0.9525	0.8642	0.9305*
People discuss HIV risk & MP	0.5407	0.6599*	+	0.5994	0.7063	0.5045	0.5674
Most married men are faithful to wives	0.3396	0.3510	+	0.3248	0.3705	0.3409	0.3750
Does not need someone to fill gap	0.6490	0.6907	NS	0.7190	0.5863	0.6032	0.7184 *
Multiple partners in the last 12 months	0.1828	0.1948	NS	0.3157	0.3872	0.0785	0.0332
Multiple partners in the last month	0.0706	0.0657	NS	0.1461	0.1339	0.0078	0.0103
Currently have more than one sexual partner (past three months)	0.0795	0.0890	NS	0.1700	0.1517	0.0051	0.0494 **
Received gifts or money in exchange for sex with next to last partner	0.1214	0.0408**	NS	0.0155	0.0112	0.4312	0.0959
Received gifts or money in exchange for sex with next to last partner, casual	0.0922	0.0392*	NS	0.0179	0.0093	0.3499	0.1603
Received gifts or money in exchange for sex with third to last partner	0.1172	0.0633**	NS	0.0268	0.0260	0.4623	0.0732
Gave gifts or money in exchange for sex with next to last partner	0.1622	0.0783	NS	0.1562	0.0548 **		
Gave gifts or money in exchange for sex with next to last partner, if casual	0.1692	0.0800	NS	0.1532	0.0569 **		
Exposure: Exposed to Any One Love Television Intervention							
	Unexposed	Exposed	PSM	Unexposed	Exposed	Unexposed	Exposed
Knows multiple sexual partners increase HIV Risk	0.9051	0.8872	NS	0.9345	0.9144	0.8800	0.8529*
People discuss HIV risk & MP	0.5341	0.6970**	+	0.5895	0.7505	0.4927	0.6154
Most married men are faithful to wives	0.3280	0.4060	+	0.2876	0.5321**	0.3579	0.3167
Does not need someone to fill gap	0.6441	0.7286	NS	0.7032	0.6195	0.5967	0.7848*
Multiple partners in last 12 months	0.1651	0.2615**	+	0.2927	0.4822	0.0533	0.1028

	Total Population			Male		Female	
	Unexposed	Exposed	PSM	Unexposed	Exposed	Unexposed	Exposed
Multiple partners in last month	0.0537	0.1273*	+	0.1029	0.2887	0.0073	0.0166
Currently have more than one sexual partner (past three months)	0.0647	0.1394	+	0.122	0.3104	0.0109	0.0221
Received gifts or money in exchange for sex with last partner	0.1161	0.1927*	NS	0.015	0.0203	0.2028	0.3387
Received gifts or money in exchange for sex with last partner, if casual	0.1179	0.2105*	NS	0.0124	0.0204	0.2175	0.3798
Received gifts or money in exchange for sex with next to last partner	0.0938	0.1068	NS	0.0025	0.0411**	0.3842	0.3086
Received gifts or money in exchange for sex with next to last partner, casual	0.0671	0.0927	NS	0.0026	0.0542**	0.2814	0.3189
Exposure: Exposed to 1 One Love Booklet (Vs. Zero)							
	None	1	PSM	None	1	None	1
Knows multiple sexual partners increase HIV Risk	0.8957	0.9406*	NS	0.9442	0.9526	0.8499	0.9239*
Most married men are faithful to wives	0.3429	0.3529	+	0.3323	0.2987	0.3376	0.3797
Leaders discourage multiple partnerships	0.3914	0.3512	NS	0.4707	0.3603*	0.3222	0.3071
Multiple partners in last 12 months	0.2005	0.1502*	-	0.3435	0.2414	0.0793	0.0604
Multiple partners in the last month	0.0728	0.0454	-	0.1459	0.1003	0.0112	0.0024*
Lifetime partners	4.4202	3.6827	-	6.1869	5.4033	2.8346	2.7212
Self-reported having concurrent partners in the past 12 months	0.1177	0.0800	-	0.1903	0.1564	0.0501	0.0296
Currently have more than one sexual partner (past 3 months)	0.0826	0.0876	NS	0.1713	0.1258	0.0084	0.0387*
Received gifts or money in exchange for sex with last partner	0.1170	0.1203	+	0.0136	0.0118	0.2006	0.2256
Received gifts or money in exchange for sex with last partner, if regular	0.1048	0.1325	NS	0.0277	0.0694*	0.1756	0.2139
Received gifts or money in exchange for sex with last partner, if casual	0.1261	0.1380	+	0.0137	0.0066	0.2203	0.2832
Gave gifts or money in exchange for sex with next to last partner	0.1410	0.0530*	NS	0.1633	0.0502**		

	Total Population			Male		Female	
	Unexposed	Exposed	PSM	Unexposed	Exposed	Unexposed	Exposed
Gave gifts or money in exchange for sex with next to last partner, if casual	0.1413	0.0753	NS	0.1634	0.0545**		
Exposure: Exposed to Two or More One Love Booklets (vs. Zero)							
Knows multiple sexual partners increase HIV Risk	0.8957	0.8903	+	0.9442	0.8874*	0.8499	0.9010
Most married men are faithful to wives	0.3429	0.3329	+	0.3323	0.3769	0.3376	0.3487
Leaders discourage multiple partnerships	0.3914	0.4573	+	0.4707	0.5926	0.3222	0.3403
Can resist being unfaithful to main partner	0.7581	0.6758*	+	0.7245	0.664	0.7899	0.6803*
Does not need someone to fill gap	0.6430	0.6833	-	0.7021	0.6315	0.6250	0.6504
Multiple partners in last 12 months	0.2005	0.1725	-	0.3435	0.3643	0.0793	0.0363*
Multiple partners in the last month	0.1945	0.2050	NS	0.3281	0.4208	0.0681	0.0450
Currently have more than one sexual partner (past 3 months)	0.0721	0.0921	NS	0.1360	0.2064	0.0109	0.0072
Self-reported having concurrent partners in the past 12 months	0.1177	0.0657*	-	0.1903	0.1404	0.0501	0.0148*
Received gifts or money in exchange for sex with last partner, if regular	0.1048	0.2356**	NS	0.0277	0.1002**	0.1756	0.3071*
Received gifts or money in exchange for sex with third to last partner	0.1049	0.0784*	NS				
Gave gifts or money in exchange for sex with last	0.0723	0.1337	+	0.0811	0.1035	0.0691	0.1205
Gave gifts or money in exchange for sex with last partner, if regular	0.0521	0.1844	+	0.0406	0.0759	0.0686	0.1731*
Gave gifts or money in exchange for sex with next to last partner	0.1410	0.1631	NS	0.1633	0.0600**		
Gave gifts or money in exchange for sex with next to last partner, if casual	0.1413	0.1609	NS	0.1634	0.0585**		
Exposure: Exposed to One Media Channel (vs. None)							
	None	1	PSM	None	1	None	1
Knows multiple sexual partners increase HIV Risk	0.8911	0.9062	+	0.9428	0.9176	0.845	0.8956
Most married men are faithful to wives	0.3301	0.3617	+	0.3097	0.2985	0.3181	0.4369 *

	Total Population			Male		Female	
	Unexposed	Exposed	PSM	Unexposed	Exposed	Unexposed	Exposed
Multiple partners in last 12 months	0.1759	0.1843	NS	0.3067	0.2955	0.0607	0.0880
Multiple partners in the last month	0.0708	0.0519	NS	0.1419	0.0952	0.0078	0.0139
Currently have more than one sexual partner (past 3 months)	0.0716	0.0628	NS	0.1461	0.1231	0.0056	0.0099
Self-reported having concurrent partners in the past 12 months	0.1230	0.0751*	NS	0.2015	0.1197*	0.0445	0.0357
Gave gifts or money in exchange for sex with next to last partner	0.1727	0.0929*	NS	0.2150	0.1079 *		
Gave gifts or money in exchange for sex with last partner, if regular	0.0506	0.1370*	+	0.0520	0.0373		
Gave gifts or money in exchange for sex with next to last partner, if casual	0.1690	0.1011	NS	0.2131	0.1058 *		
Gave gifts or money in exchange for sex with third to last partner	0.1346	0.1459	NS	0.1573	0.0860		
Exposure: Exposed to Two or More Media Channels (vs. None)							
	None	2+	PSM	None	2+	None	2+
People discuss HIV risk & MP	0.5301	0.6569*	NS	0.5475	0.7171	0.5342	0.5674
Leaders discourage multiple partnerships	0.3800	0.4222	+	0.4569	0.4826	0.3444	0.2862
Most married men are faithful to wives	0.3301	0.3461	+	0.3097	0.4621*	0.3181	0.2905
Men with many women are real men	0.0781	0.1302	NS	0.0584	0.1672*	0.0826	0.0984
Does not need someone to fill gap	0.6359	0.722	NS	0.7279	0.5766	0.5956	0.7597**
Currently have more than one sexual partner (past 3 months)	0.0854	0.1086	NS	0.1789	0.2051	0.0057	0.0392**
Lifetime partners	4.5017	3.3154*	-	6.4096	4.9373	2.968	2.4047*
Multiple partners in last 12 months	0.1759	0.2246	NS	0.3067	0.4587	0.0607	0.0520
Multiple partners in the last month	0.0708	0.0973	NS	0.1419	0.2270	0.0078	0.0012
Received gifts or money in exchange for sex with next to last partner	0.0669	0.1008	NS	0.0026	0.0381*	0.2142	0.3132
Received gifts or money in exchange for sex with next to last partner, casual	0.0582	0.0903	NS	0.0034	0.0426*	0.2233	0.3258

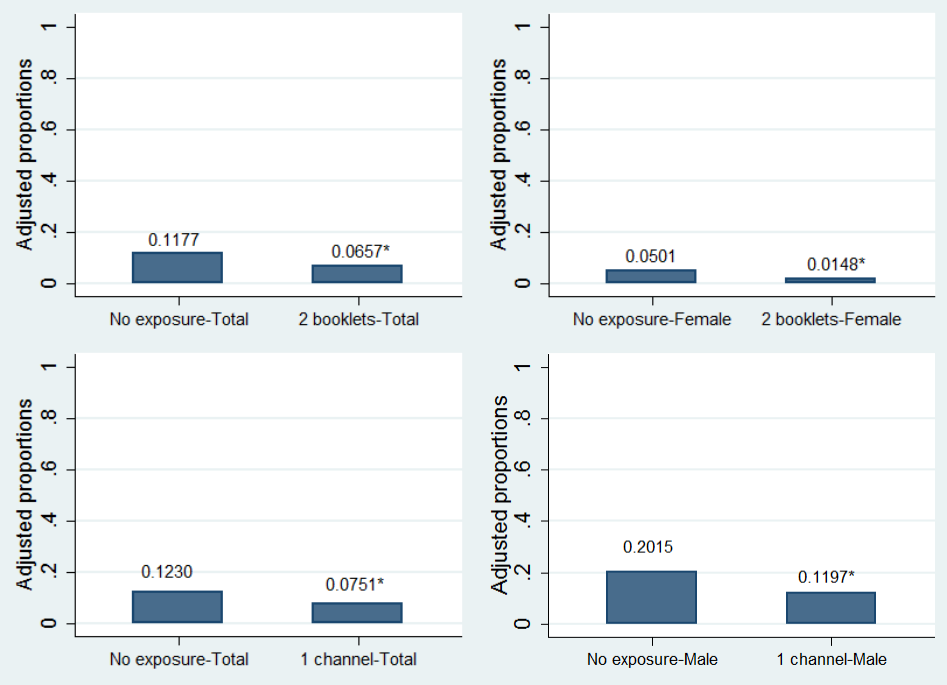
	Total Population			Male		Female	
	Unexposed	Exposed	PSM	Unexposed	Exposed	Unexposed	Exposed
Gave gifts or money in exchange for sex with last	0.0758	0.1029	+	0.0920	0.0692**		
Gave gifts or money in exchange for sex with last partner, if regular	0.0506	0.0908	+	0.0520	0.0495		
Gave gifts or money in exchange for sex with next to last partner	0.1727	0.1160	NS	0.2150	0.0425		
Gave gifts or money in exchange for sex with next to last partner, if casual	0.1690	0.1262	NS	0.2131	0.0435		

*=p<0.05 **=p<0.01

PSM: + significant/increasing ; - significant/decreasing ;NS not significant

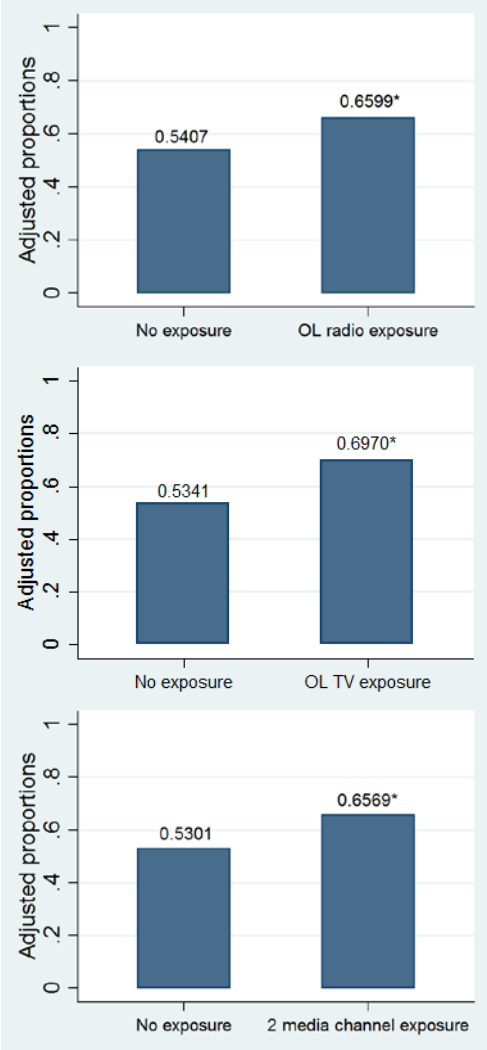
The analysis tests the effect of exposure to a single OneLove booklet (vs. no exposure) and of exposure to two or more such booklets (vs. no exposure) on the outcome measures. For both the total sample, and for females, exposure to one booklet is associated with an increase in awareness that having multiple sexual partners increases the risk of HIV. Exposed individuals report fewer multiple partners in the last 12 months than unexposed ones. However, exposed women are more likely than unexposed women to report having more than one sexual partner in the past three months. The overall percentage is still low at 3.9% but this is significantly higher than for unexposed women. We also observe a positive treatment effect on being exposed to two or more booklets on the likelihood of having concurrent sexual partners in the past 12 months. Exposed individuals report fewer concurrent sexual partners in the past 12 months (Figure 4). For example, 6.6% of the total population exposed to two booklets self-reports having had concurrent sexual partnerships in the past 12 months as compared with 11.8% of the unexposed respondents. This effect is also observed among women exposed to two booklets.

Figure 4: Effects of exposure to OneLove on self-reported having concurrent partners in the past 12 months



The analysis also tests the effect of exposure to different numbers of media channels versus no exposure. Exposure to one media channel also has a positive effect on self-reported concurrent partnerships in the past 12 months; this is true both for the total population and for men, among whom 12.07% of those exposed to one media channel report having concurrent partners in the past 12 months as compared with 20.2% of unexposed men. We also observe a positive association between several OneLove exposures (radio, television, and two media channels) and the belief that people in the community are openly talking about the risk of HIV from having more than one partner (Figure 5). TV exposure appears to have the strongest effect - a 16 percentage point difference between the exposed and unexposed. We also observe an almost 13 percentage point difference among those exposed to two media channels with exposed individuals more likely to believe that people are talking about these risks.

Figure 5: Effects of exposure to any OneLove media channel on agreement that people discuss the increased HIV risk with having multiple partners



4.3.2 OTHER RISK FACTORS

Table 6 presents the significant results of the probit estimations and PSM for other HIV risk factors. Respondents exposed (44.8%) to the radio intervention are more likely than unexposed respondents (33.7%) to say that leaders discourage multiple partners. Males exposed to the intervention are less likely than non-exposed males to report a ten or more year age difference between themselves and their next to last partner. We observe similar associations for respondents who are exposed to the television intervention. The association between exposure to one booklet and the belief that leaders discourage multiple partners is not significant in the probit estimations but there is a negative treatment effect in the PSM results. The probit results also indicate that exposure to OneLove booklets had no effect on the age gap between partners. That is, people who were exposed to one of the OneLove booklets are just as likely as unexposed people to report that there was an age gap of at least 10 years with their last, next-to-last, and third-last partner. Similarly, those exposed to two or more booklets are just as likely as those who were not exposed to report a large age gap with their last, next-to-last, and third-last partner. The PSM analyses confirm that booklet exposure had no effect on the age gap with the respondents' last or next-to-last partner. However, the PSM results indicate that people who were exposed to two or more OneLove booklets are less likely than those who were not exposed to report a large age gap with their third-last partner. In terms of exposure to media channels, we observe a positive association between males exposed to one media channel and two or more media channels and the belief that community leaders are discouraging people from having multiple sexual partners. For example, 55.4% of males exposed to two media channels agree that leaders are discouraging this behavior as compared with 38.4% of unexposed males.

Table 6: Summary of multivariate results for OneLove and other HIV risk factors

	Total Population			Male		Female	
	Unexposed	Exposed	PSM	Unexposed	Exposed	Unexposed	Exposed
Exposure: Exposed to Any OneLove Radio Intervention							
Leaders discourage multiple partners	0.3367	0.4480**	+	0.4143	0.5400	0.2838	0.3083
10+ year age difference between respondent and next to last sexual partner	0.0790	0.0637	NS	0.0922	0.0584*	0.0284	0.4854
Exposure: Exposed to Any OneLove Television Intervention							
	Unexposed	Exposed	PSM	Unexposed	Exposed	Unexposed	Exposed
Leaders discourage multiple partners	0.3334	0.4807**	+	0.4013	0.5993**	0.2907	0.2947

	Total Population			Male		Female	
	Unexposed	Exposed	PSM	Unexposed	Exposed	Unexposed	Exposed
10+ year age difference between respondent and third to last sexual partner	0.0947	0.0134**	NS	0.0909	0.0208**		
10+ year age difference between respondent and next to last sexual partner	0.0727	0.0734	NS	0.0892	0.0588*		
Exposure: Exposed to 1 OneLove Booklet (Vs. Zero)							
	None	1	PSM	None	1	None	1
Leaders discourage multiple partners	0.3794	0.3190	-	0.4351	0.3642	0.3322	0.2558
Exposure: Exposed to Two or More OneLove Booklets (vs. Zero)							
	None	2+	PSM	None	2+	None	2+
10+ year age difference between respondent and third to last sexual partner	0.0580	0.0054	-	0.0581	0.0158		
Exposure: Exposed to One Media Channel (vs. None)							
	None	1	PSM	None	1	None	1
Leaders discourage multiple partners	0.3320	0.3555	+	0.3838	0.4513*	0.3129	0.2768
Exposure: Exposed to Two or More Media Channels (vs. None)							
	None	2+	PSM	None	2+	None	2+
Leaders discourage multiple partners	0.3320	0.4431*	+	0.3838	0.5535**	0.3129	0.2755
*=p<0.05 **=p<0.01							
PSM: + significant/increasing ; - significant/decreasing ;NS not significant							

4.3.3 HIV COMMUNICATION

Table 7 presents the significant results for the effect of exposure to OneLove on HIV communication. Both men and women exposed to the radio program are more likely than unexposed individuals to discuss HIV with their spouse.

Table 7: Summary of multivariate results for OneLove and other HIV communication

	Total Population			Male		Female	
	Unexposed	Exposed	PSM	Unexposed	Exposed	Unexposed	Exposed
Exposure: Exposed to Any One Love Radio Intervention							
Discussed with spouse	0.7920	0.8844**	+	0.7463	0.9286*	0.8195	0.8808*
Sex life improves with communication	0.8975	0.8434**	NS	0.9072	0.8351	0.8917	0.8306
Exposure: Exposed to Any One Love Television Intervention							
	Unexposed	Exposed	PSM	Unexposed	Exposed	Unexposed	Exposed
Discussed with spouse	0.8235	0.7784	NS	0.7627	0.8638*	0.8544	0.8060

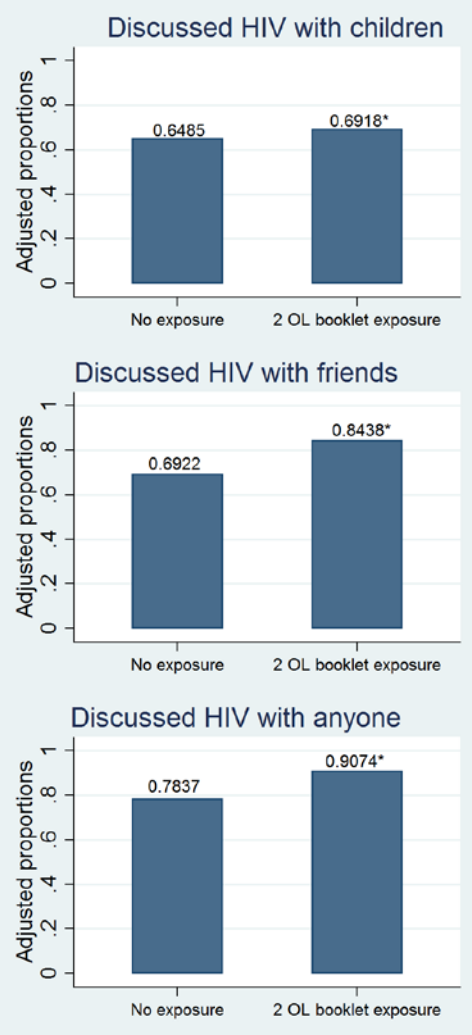
	Total Population			Male		Female	
	Unexposed	Exposed	PSM	Unexposed	Exposed	Unexposed	Exposed
Dissatisfied with sex with spouse	0.1452	0.2116	+	0.0274	0.0381	0.2360	0.3473
Sex life improves with communication	0.8924	0.8471	-	0.8966	0.8687	0.8912	0.8000
Exposure: Exposed to 1 One Love Booklet (Vs. Zero)							
	None	1	PSM	None	1	None	1
Discussed with spouse	0.8144	0.8030	NS	0.8040	0.6287	0.8044	0.9828
Discussed with children	0.5645	0.5415	+	0.4133	0.2949	0.6485	0.6468
Dissatisfied with sex with spouse	0.1831	0.1089*	NS	0.0353	0.0189	0.2984	0.1869*
Exposure: Exposed to Two or More One Love Booklets (vs. Zero)							
	None	2+	PSM	None	2+	None	2+
Discussed with children	0.5645	0.5560	+	0.4133	0.3744	0.6485	0.6918*
Discussed friends	0.6542	0.6891	+	0.6141	0.5250	0.6922	0.8438*
Discussed any	0.7386	0.7619	+	0.6903	0.6030*	0.7837	09074*
Sex life improves with communication	0.9023	0.8342*	-	0.9172	0.8002*	0.8952	0.8307
Exposure: Exposed to One Media Channel (vs. None)							
	None	1	PSM	None	1	None	1
Discussed with friends	0.6344	0.7058	+	0.5779	0.5930	0.6802	0.8032*
Exposure: Exposed to Two or More Media Channels (vs. None)							
	None	2+	PSM	None	2+	None	2+
Discussed with children	0.5674	0.4574*	NS	0.3674	0.3420	0.6533	0.5951
Sex life improves with communication	0.8993	0.8090*	+	0.9193	0.7928*	0.8923	0.7846*

*=p<0.05 **=p<0.01

PSM: + significant/increasing ; - significant/decreasing ;NS not significant

Females exposed to two or more booklets are significantly more likely than unexposed females to have discussed HIV with their own children, their friends, and with their children, friends, or spouse (Figure 6). In this case, 90.7% of women exposed discussed HIV with children, friends, or spouse; this is compared with only 78.4% of unexposed women.

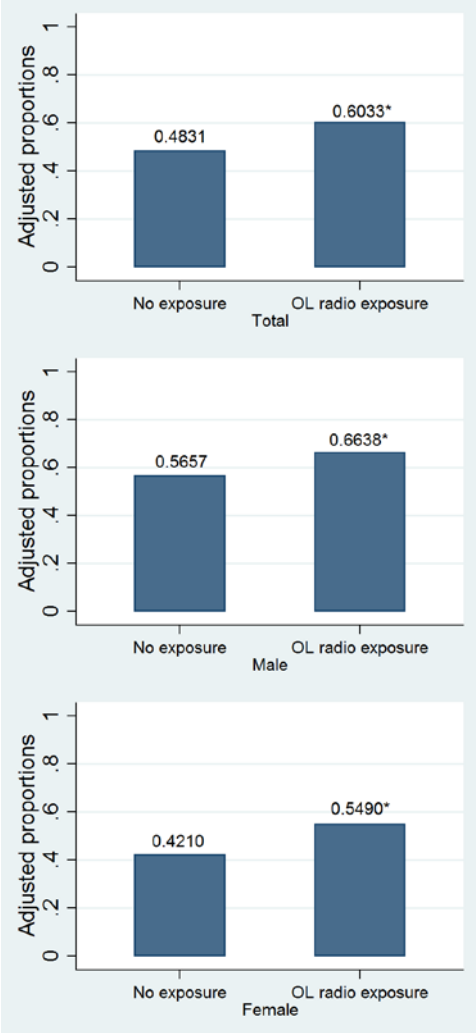
Figure 6: Effects of exposure to OneLove booklets on HIV communication



4.3.4 CONDOM USE

Table 8 presents the statistically significant associations between the OneLove exposure measures and behaviors involving the use of condoms. We observe several significant associations for the total sample. For example, exposed respondents are more likely than unexposed respondents to believe that condom use in marriage is acceptable, and they are more likely to use condoms with different types of partners. Women who are exposed to the radio program are more likely than other women to believe that women can ask their regular partner to use a condom (80.8% versus 67.0%). This effect is not significant for the total sample or for males, however. The strongest treatment effect is seen in the use of condoms at last sex (for those who have had sex in the past 12 months). This effect is significant for all groups in the probit estimations and in the PSM but we see the largest positive effect among women (15 percentage points). We also observe that respondents exposed to the radio program are more likely than unexposed respondents to report using a condom at last sex with a regular partner (Figure 7). This is true for both men and women but we observe a larger difference among women; 55.7% of exposed women report using condom at last sex with a regular partner as compared with 41.8% of unexposed women.

Figure 7: Effects of Exposure to OneLove radio program on condom use at last sex, if regular partner



Men exposed to the television program are more likely than unexposed men to believe that condom use in marriage is accepted (79.4% versus 64.5%). Although not significant in the probit results, the PSM results are positive and significant between the effect of exposure to OneLove television programming and the belief that women can ask a regular partner to use a condom. There is no significant effect on condom use at last sex with regular or casual partners.

In terms of exposure to OneLove booklets, we observe several negative associations between low exposure to OneLove booklets (defined as having read only one of the booklets) and condom use behaviors, particularly for women. For example, women exposed to a single OneLove booklet are less likely than women who were not exposed to any OneLove booklets to know that PLHIV on ART can transmit HIV, to use a condom at last sex with regular partners, and to always or usually use a condom with their most recent sexual partner. There no significant effects of exposure to OneLove booklets on condom use behaviors among men.

Table 8: Summary of multivariate results for OneLove and condom use

	Total Population			Male		Female	
	Unexposed	Exposed	PSM	Unexposed	Exposed	Unexposed	Exposed
Exposure: Exposed to Any One Love Radio Intervention							
Percentage who disagree that if one spouse is HIV+ the other certainly is	0.4877	0.4555	-	0.5870	0.5134	0.4095	0.3727
Knows that STIs increase HIV infection	0.8460	0.8481	-	0.8871	0.8561	0.8128	0.8285
Condom use in marriage accepted	0.6295	0.7454*	+	0.6570	0.7436	0.6126	0.7240
Women can ask regular partner to use condom	0.7108	0.7774	NS	0.7639	0.7012	0.6703	0.8081*
Condom at last sex, if regular partner	0.4831	0.6033**	NS	0.5657	0.6638*	0.4210	0.5490*
Condom at last sex, if casual partner	0.8977	0.8127	NS	0.9205	0.8964		
Condom at last sex among those with multiple partners	0.7360	0.7557	NS	0.7948	0.8154	0.4628	0.3924
Condom use at last sex among those have sex in the last 12 months	0.6740	0.8113**	+	0.7921	0.8839**	0.5793	0.7315**
Always/usually used a condom with last sexual partner	0.6704	0.7891**	+	0.7878	0.8268	0.5786	0.7318**
Always/usually used a condom with next to last sexual partner	0.8663	0.7987*	NS	0.9613	0.9585		
Exposure: Exposed to Any One Love Television Intervention							
	Unexposed	Exposed	PSM	Unexposed	Exposed	Unexposed	Exposed
Percentage who disagree that if one spouse is HIV+ the other certainly is	0.4971	0.4147	NS	0.5994	0.4441**	0.4068	0.3823
Knows that STIs increase HIV infection	0.8445	0.8650	-	0.8914	0.8160*	0.8030	0.8799
Knows PLHIV on ART can transmit HIV	0.8831	0.8091	NS	0.9146	0.9068	0.8553	0.7316*

	Total Population			Male		Female	
	Unexposed	Exposed	PSM	Unexposed	Exposed	Unexposed	Exposed
Condom at last sex, if regular partner	0.5230	0.4848	NS	0.6200	0.4950	0.4419	0.4939
Condom at last sex, if casual partner	0.8688	0.9019	NS	0.9101	0.9277		
Condom use in marriage accepted	0.6385	0.7192	NS	0.6445	0.7938*	0.6411	0.6139
Women can ask regular partner to use condom	0.7138	0.7859	+	0.7445	0.7859	0.6986	0.7239
Exposure: Exposed to 1 One Love Booklet (Vs. Zero)							
	None	1	PSM	None	1	None	1
Percentage who disagree that if one spouse is HIV+ the other certainly is	0.4865	0.4304	-	0.5533	0.5850	0.4335	0.3293
Knows PLHIV on ART can transmit HIV	0.8836	0.8317	NS	0.9280	0.9304	0.8429	0.7484*
Condom use in marriage accepted	0.6356	0.6440	+	0.6576	0.5783	0.6113	0.6675
Women can ask regular partner to use condom	0.7527	0.6912	NS	0.7982	0.6808**	0.7205	0.6625
Condom use at last sex among those ever having sex	0.5624	0.4776*	NS	0.6400	0.5548	0.5039	0.3849*
Condom at last sex, if regular partner	0.5205	0.4406*	NS	0.5783	0.5703	0.4945	0.3416*
Condom at last sex, if casual partner	0.8869	0.8815	NS	0.9172	0.9412		
Condom at last sex among those with multiple partners	0.7202	0.6686	NS	0.7875	0.8248		
Always/usually used a condom with last sexual partner	0.7169	0.6399	NS	0.7827	0.7520	0.6746	0.5317*
Condom use at last sex among those have sex in the last 12 months	0.7200	0.6505	NS	0.7901	0.8032	0.6763	0.5284 *
Exposure: Exposed to Two or More One Love Booklets (vs. Zero)							
	None	2+	PSM	None	2+	None	2+
While in ART, PLHIV can transmit HIV	0.9342	0.8181**	NS	0.9494	0.7194**	0.9196	0.8748
Knows PLHIV on ART can transmit HIV	0.8836	0.8666	NS	0.9280	0.8537*	0.8429	0.8808
Knows that STIs increase HIV infection	0.8608	0.8045*	NS	0.9042	0.8174	0.8121	0.8136
Condom use in marriage accepted	0.6356	0.7300	+	0.6576	0.8110	0.6113	0.6804
Women can ask regular partner to use condom	0.7527	0.6744	+	0.7982	0.6489*	0.7205	0.6825
Women can ask casual partner to use condom	0.7313	0.7241	+	0.8425	0.6727**	0.6296	0.7407 *

	Total Population			Male		Female	
	Unexposed	Exposed	PSM	Unexposed	Exposed	Unexposed	Exposed
Condom use at last sex among those ever having sex	0.5624	0.6281*	NS	0.6400	0.7694	0.5039	0.5054
Condom at last sex, if regular partner	0.5205	0.5474	NS	0.5783	0.6636	0.4945	0.4433
Condom at last sex, if casual partner	0.8869	0.8539	NS	0.9172	0.8795		
Always/usually used a condom with last sexual partner	0.7169	0.7056	NS	0.7827	0.8815**	0.6746	0.5432*
Condom use at last sex among those have sex in the last 12 months	0.7200	0.7226	NS	0.7901	0.9268**	0.6763	0.5434*
Exposure: Exposed to One Media Channel (vs. None)							
	None	1	PSM	None	1	None	1
While in ART, PLHIV can transmit HIV	0.9278	0.8753*	NS	0.9468	0.8302*	0.9085	0.8946
Knows that STIs increase HIV infection	0.8723	0.8162*	NS	0.9331	0.7928**	0.8089	0.8240
Condom use in marriage accepted	0.5980	0.6778	+	0.6241	0.6962	0.5737	0.6796*
Women can ask regular partner to use condom	0.7391	0.6987	NS	0.8034	0.7043*	0.7005	0.6786
Women can ask casual partner to use condom	0.7434	0.7116	+	0.8652	0.7127**	0.6329	0.7061
Condom at last sex, if regular partner	0.4943	0.5177	NS	0.5166	0.7053	0.4931	0.3719
Condom at last sex, if casual partner	0.8995	0.8804	NS	0.9207	0.9227		
Exposure: Exposed to Two or More Media Channels (vs. None)							
	None	2+	PSM	None	2+	None	2+
While in ART, PLHIV can transmit HIV	0.9278	0.8915	NS	0.9468	0.8832**	0.9085	0.9037
Knows that STIs increase HIV infection	0.8723	0.8425	NS	0.9331	0.8479**	0.8089	0.8351
Condom use in marriage accepted	0.5980	0.7452*	+	0.6241	0.7696*	0.5737	0.6977
Women can ask regular partner to use condom	0.7391	0.7415	NS	0.8034	0.6622**	0.7005	0.7488
Condom at last sex, if regular partner	0.4895	0.5785	NS	0.5887	0.6162	0.4214	0.5259
Condom at last sex, if casual partner	0.8919	0.8460	NS	0.9316	0.8779*		
Condom use at last sex among those have sex in the last 12 months	0.6954	0.7893**	NS	0.7875	0.8989**	0.6382	0.6397

*=p<0.05 **=p<0.01

PSM: + significant/increasing ; - significant/decreasing ;NS not significant

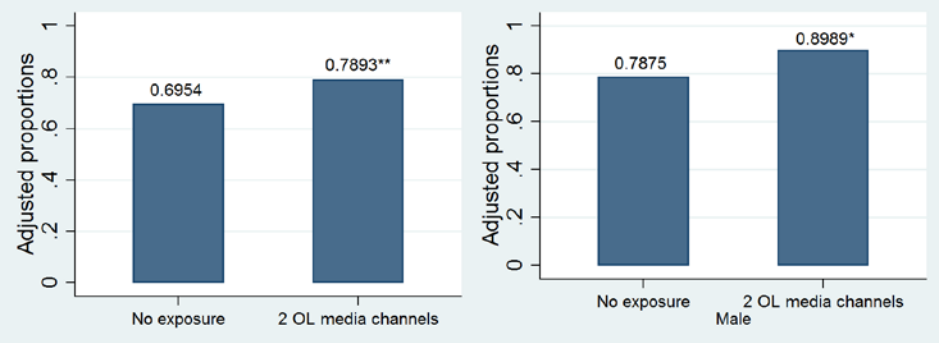
The effects of exposure to two or more booklets (versus no exposure) are also mixed. In some instances, we see positive treatment effects among males (e.g. higher adjusted proportions for always/usually used a condom with last sexual partner and for condom at last sex among those with multiple partners) but the opposite among women. For example, women exposed to two booklets had lower adjusted proportions for condom use at last sex among those who have had sex in the past 12 months. There are also no significant effects on condom use at last sex with regular or casual partners. Because each of the OneLove booklets addresses different health issues, it is not surprising that exposure to a single booklet (or even multiple booklets) does not affect all health outcomes. As previously discussed, the booklets with the highest readership were "Ohole Imwe Onghalamwenyo" and "Life and Love with One Partner." Exposure to such booklets is expected to affect outcomes related to multiple partnerships, but may not affect other outcomes. Nevertheless, the fact that exposure to OneLove booklets has a negative effect on some indicators is surprising.

The last two panels in Table 8 show the effect of exposure to OneLove through a single media channel (versus no exposure) and the effect of exposure through two or more media channels (versus no exposure). Once again, because summary measures of exposure can refer to different messages, it was anticipated that exposure may affect some outcomes, but not others. However, there is no compelling reason why respondents who were exposed to OneLove through one or more media channel would have worse outcomes than respondents who were not exposed at all. The results indicate that exposure to a single OneLove media channel had limited effects on condom use behaviors. Men exposed to one media channel are less likely than unexposed men to know that people on ART can still transmit HIV and that STIs increase HIV infection. This association is also observed among men who were exposed to two or more media channels. Women exposed to one OneLove media channel are more likely than unexposed women to believe that condom use in marriage is accepted. However we observe no significant differences in condom use at last sex with regular or casual partners.

The last panel in Table 8 indicates that men exposed to two or more media channels have lower knowledge about HIV transmission than unexposed men. However, individuals exposed to OneLove through two or more media channels are more likely than unexposed respondents to believe that condom use in marriage is accepted. Surprisingly, men who were exposed to two or more channels are also less likely than unexposed men to believe that it is acceptable for women to ask their regular partner to use a condom during sex. A lower percentage of men exposed to two or more media channels report using a condom at last with a casual partner, 87.8% versus 93.2%. There are no

observed differences in condom use at last sex with a regular partner. However, we do see a positive effect of treatment on behaviors such as using condoms at last sex among individuals who had sex in the last 12 months (Figure 8). This effect is seen in the total population and among men but it is not significant among women.

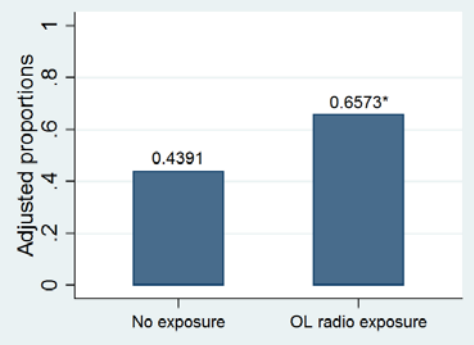
Figure 8: Effects of exposure to two or more media channels on condom use at last sex among those who had sex in the last year



4.3.5 HIV TESTING

The next set of analyses examines the effect of exposure to OneLove media on indicators related to HIV testing (Table 9). For some attitudinal outcomes (i.e., pregnant woman should be tested for HIV) and some knowledge variables (i.e. TB can be cured if HIV+ and knows of decreased HIV risk for circumcised men), we do not observe any significant results in the probit estimations although there are negative treatment effects estimated in the PSM. In terms of actual testing behaviors, 65.7%of men exposed to the radio program have had an HIV test in the last 12 months as compared with only 43.9% for unexposed men (Figure 9).

Figure 9: Effects of exposure to OneLove radio on having and HIV test in the last 12 months, males



There is limited effect of exposure to any of the OneLove programs on lifetime HIV testing and having been tested in the last 12 months. Exposure to radio and two media channels have a significant and positive treatment effect on ever having been tested for HIV. For example, 77.9% of individuals exposed to two media channels have ever been tested compared with 69.9% of unexposed individuals. These two exposures also have a significant effect on HIV testing in the last 12 months among men. Among the total population, we see significant effects of exposure to a single OneLove booklet on being tested for HIV in the last 12 months, although the magnitude of the effect is only two percentage points.

Table 9: Summary of multivariate results for OneLove and HIV testing

	Total Population			Male		Female	
	Unexposed	Exposed	PSM	Unexposed	Exposed	Unexposed	Exposed
Exposure: Exposed to Any One Love Radio Intervention							
Pregnant woman should test for HIV	0.9511	0.9484	-	0.9255	0.9489	0.9738	0.9507
Knows TB can be cured if HIV+	0.7238	0.6410	-	0.7413	0.7165	0.7062	0.5910
Knows that the risk of contracting HIV decreases for a circumcised man	0.7113	0.6638	-	0.8257	0.7439	0.6075	0.5756
Agrees that only way to know you are HIV positive is through blood test	0.9378	0.9810**	+	0.9096	0.9457*	0.9696	0.9895*
Thinks that last partner had other sexual partners	0.2118	0.2423	-	0.1403	0.1011	0.2700	0.3828*
Agrees that wife/cohabitating partner has another partner	0.0692	0.1394**	NS	0.0692	0.1394**		
Knows where to get HIV/AIDS info	0.9086	0.9083	NS	0.9594	0.9152*	0.8668	0.8799
Ever tested for HIV	0.7061	0.7863*	NS	0.6120	0.7265	0.7846	0.8528
HIV test in the last 12 months	0.5249	0.6181	NS	0.4391	0.6573*	0.5888	0.6190

	Total Population			Male		Female	
	Unexposed	Exposed	PSM	Unexposed	Exposed	Unexposed	Exposed
Number of times tested for HIV	2.0595	2.9015	NS	1.5837	1.9556*	2.5429	3.5201
Exposure: Exposed to Any One Love Television Intervention							
	Unexposed	Exposed	PSM	Unexposed	Exposed	Unexposed	Exposed
Knows that the risk of contracting HIV decreases for a circumcised man	0.7229	0.5998**	-	0.8414	0.6053**	0.6102	0.5501
Knows where to get HIV/AIDS info	0.9104	0.8898	NS	0.9613	0.8895**	0.8649	0.8984
Disagrees that HIV means life is over	0.7904	0.8668*	NS	0.7814	0.8347	0.8011	0.8801
Agrees that only way to know you are HIV positive is through blood test	0.9388	0.9699*	+	0.9039	0.9539*	0.9744	0.9753
Likely to be infected now	0.2863	0.2178	NS	0.2226	0.2156	0.3612	0.1696**
Leaders encourage HIV testing	0.4957	0.6902**	+	0.5420	0.7544**	0.4759	0.5535
Ever tested for HIV	0.7231	0.7291	NS	0.6320	0.6581	0.8003	0.8094
HIV test in the Last 12 Months	0.5681	0.4784*	NS	0.4995	0.4682	0.6175	0.5300
Received results of most recent HIV test	0.9727	0.9658	-	0.9637	0.8794	0.9801	0.9733*
Discussed results of most recent HIV test	0.8828	0.7821*	NS	0.8503	0.7822	0.9011	0.7975**
Pregnant woman should test for HIV	0.9545	0.9324	-	0.9368	0.9003	0.9712	0.9555
Knows TB can be cured if HIV+	0.7099	0.6876	-	0.7380	0.7212	0.6789	0.6819
Important to Know HIV Status	0.9664	0.9804	+	0.9705	0.9818	0.9639	0.9658
Thinks that last partner had other sexual partners	0.2180	0.2249	+	0.1258	0.1430	0.2937	0.2999
Husband/cohabitating partner has another sex partner (only females)						0.2031	0.0875*
Number of times tested for HIV	2.1290	2.7640	+	1.5723	1.9952**	2.6497	3.3335
Exposure: Exposed to 1 One Love Booklet (Vs. Zero)							
	None	1	PSM	None	1	None	1
Knows that the risk of contracting HIV decreases for a circumcised man	0.7083	0.6378**	NS	0.8143	0.8447	0.6182	0.4710**
Important to know HIV status	0.9706	0.9811	NS	0.9760	0.9537	0.9609	0.9915**
Worried about becoming infected	0.6149	0.5259**	-	0.6446	0.4779*	0.5777	0.5778
Leaders encourage HIV testing	0.5350	0.5227	NS	0.5862	0.4781*	0.4932	0.4969
Ever tested for HIV	0.7135	0.6892	NS	0.6453	0.5891	0.7838	0.7576

	Total Population			Male		Female	
	Unexposed	Exposed	PSM	Unexposed	Exposed	Unexposed	Exposed
HIV test in the Last 12 months	0.5206	0.5446*	NS	0.4834	0.4639	0.5585	0.5990
Received results of most recent HIV test	0.9926	0.9737*	NS			0.9838	0.9855
Exposure: Exposed to Two or More One Love Booklets (vs. Zero)							
	None	2+	PSM	None	2+	None	2+
Pregnant woman should test for HIV	0.9626	0.9110**	NS	0.9538	0.7841**	0.9723	0.9743
Knows TB can be cured if HIV+	0.7152	0.6817	+	0.7424	0.7293	0.6874	0.6582
Agrees that only way to know you are HIV positive is through blood test	0.9502	0.9480	NS	0.9078	0.9688**	0.9794	0.9628*
Likely to be Infected Now	0.2271	0.3827*	+	0.1579	0.4058**	0.3071	0.3176
Knows where to get HIV/AIDS info	0.9047	0.9295	+	0.9529	0.9427	0.8684	0.8950
Disagrees that HIV means life is over	0.7920	0.8331	+	0.8154	0.7434	0.7704	0.8959*
Ever tested for HIV	0.7135	0.7595	NS	0.6453	0.6321	0.7838	0.8608
HIV test in the last 12 months	0.5481	0.5571	NS	0.5299	0.3840*	0.5703	0.6716
Received results of most recent HIV test	0.9926	0.9081**	NS			0.9838	0.9680
Number of times tested for HIV	2.2777	1.9221	NS	1.6693	1.6415	2.8854	1.9915*
Exposure: Exposed to One Media Channel (vs. None)							
	None	1	PSM	None	1	None	1
Knows TB can be cured if HIV+	0.7477	0.6638*	NS	0.7655	0.6866	0.7282	0.6270
Likely to be infected now	0.2287	0.3435	+	0.1602	0.3159	0.3156	0.3900
Disagrees that HIV means life is over	0.7854	0.8042	+	0.8077	0.7700	0.7632	0.8266
Ever tested for HIV	0.6985	0.7044	NS	0.6012	0.6290	0.7945	0.7722
HIV test in the last 12 months	0.5181	0.5635	NS	0.4445	0.4740	0.5897	0.6436
Knows where to get HIV/AIDS info	0.9131	0.8915	NS	0.9665	0.9352	0.8710	0.8455
Exposure: Exposed to Two or More Media Channels (vs. None)							
	None	2+	PSM	None	2+	None	2+
Pregnant woman should test for HIV	0.9587	0.9200*	NS	0.9429	0.8815	0.9740	0.9427*
Knows TB can be cured if HIV+	0.7477	0.6753	+	0.7655	0.7269	0.7282	0.6659
Knows that the risk of contracting HIV decreases for a circumcised man	0.7339	0.6256**	-	0.8361	0.6624**	0.6432	0.5555

	Total Population			Male		Female	
	Unexposed	Exposed	PSM	Unexposed	Exposed	Unexposed	Exposed
Agrees that only way to know you are HIV positive is through blood test	0.9370	0.9670**	NS	0.8966	0.9624**	0.9710	0.9719
Disagrees that HIV means life is over	0.7854	0.8461	NS	0.8077	0.7592	0.7632	0.9010 **
Leaders encourage HIV testing	0.5007	0.6358**	NS	0.5621	0.6777	0.4739	0.5426
Knows where to get HIV/AIDS info	0.9131	0.9160	NS	0.9665	0.9039**	0.8710	0.8953
Ever tested for HIV	0.6985	0.7792*	NS	0.6012	0.7117	0.7945	0.8318
HIV test in the last 12 months	0.5181	0.5820	NS	0.4445	0.6061**	0.5897	0.5633
Number of times tested for HIV	2.2596	2.7525	+	1.5711	1.9870**	3.0007	3.1111
*=p<0.05 **=p<0.01							
PSM: + significant/increasing ; - significant/decreasing ;NS not significant							

4.3.6 HIV TREATMENT

This section presents the results of exposure to OneLove interventions on HIV treatment knowledge and attitudes (Table 10). Few statistically significant associations are detected, and several significant results are opposite of programmatic objectives. For example, respondents exposed to the radio program are less likely than unexposed respondents to know how often a person should take their ARVs.

Table 10: Summary of multivariate results for OneLove and HIV treatment

	Total Population			Male		Female	
	Unexposed	Exposed	PSM	Unexposed	Exposed	Unexposed	Exposed
Exposure: Exposed to Any OneLove Television Intervention							
Knows ARVs prevent MCT during breastfeeding	0.6339	0.6681	NS	0.5430	0.6968*	0.7027	0.6710
Knows how often people should take ARVs	0.8774	0.8203*	-	0.8767	0.8437	0.8728	0.8242
Leaders encourage HIV treatment	0.6013	0.6936*	NS	0.6377	0.7020	0.5830	0.6413
Received support from an ARV treatment buddy or CBV	0.2108	0.1744	NS	0.0364	0.9813	0.2877	0.1116*
Exposure: Exposed to Any OneLove Television Intervention							
	Unexposed	Exposed	PSM	Unexposed	Exposed	Unexposed	Exposed
Knows ARVs prevent MCT during pregnancy	0.7953	0.7425	-	0.8435	0.7465	0.7574	0.7366
Knows how often people should take ARVs	0.8705	0.8379	-			0.8620	0.8561

	Total Population			Male		Female	
	Unexposed	Exposed	PSM	Unexposed	Exposed	Unexposed	Exposed
Exposure: Exposed to Any OneLove Television Intervention							
Does not struggle to take your ARV drugs as advised by the doctor	0.0233	0.0535	NS			0.0201	0.4705**
Exposure: Exposed to 1 OneLove Booklet (Vs. Zero)							
	None	1	PSM	None	1	None	1
Knows ARVs prevent MCT during breastfeeding	0.6298	0.6481	+	0.5910	0.5580	0.6526	0.7156
Leaders encourage HIV treatment	0.6367	0.5722	NS	0.6673	0.5017*	0.6102	0.5721
Exposure: Exposed to Two or More OneLove Booklets (vs. Zero)							
	None	2+	PSM	None	2+	None	2+
Knows ARVs prevent MCT during pregnancy	0.7852	0.8114	+	0.8363	0.7896	0.7301	0.8166**
Knows ARVs prevent MCT during	0.7571	0.8051	+	0.7566	0.7860	0.7425	0.8420
Knows ARVs prevent MCT during breastfeeding	0.6298	0.6725	+	0.591	0.5783	0.6526	0.7863 *
Knows how often people should take ARVs	0.8721	0.8547	+	0.8874	0.7840	0.8556	0.8924
Exposure: Exposed to One Media Channel (vs. None)							
	None	1	PSM	None	1	None	1
Knows ARVs prevent MCT during pregnancy	0.8102	0.7481	+	0.8622	0.7729*	0.7546	0.7276
Knows ARVs prevent MCT during	0.7729	0.7224	+	0.7513	0.698	0.7749	0.7542
Knows ARVs prevent MCT during breastfeeding	0.6247	0.6547	+	0.5512	0.5759	0.6829	0.7060
Exposure: Exposed to Two or More Media Channels (vs. None)							
	None	2+	PSM	None	2+	None	2+
Leaders encourage HIV treatment	0.5950	0.7238*	NS	0.6264	0.6984	0.5899	0.6963
Knows ARVs prevent MCT during pregnancy	0.8102	0.7835	NS	0.8622	0.7610*	0.7546	0.7828
Knows ARVs prevent MCT during breastfeeding	0.6247	0.6530	NS	0.5512	0.6591*	0.6829	0.6957
Knows how often people should take ARVs	0.8830	0.8120	NS	0.9005	0.8398*	0.8587	0.8273

*=p<0.05 **=p<0.01

PSM: + significant/increasing ; - significant/decreasing ;NS not significant

4.3.7 HIV STIGMA

Table 11 presents the results for exposure to OneLove and stigma-related indicators. Radio exposure is not significant in the probit estimations but there are several significant results in the PSM analyses. For example, exposed individuals are more likely than unexposed ones to agree that people in the community are joining together to help people with HIV and less likely to agree that a family member's HIV status should be kept secret in their community. Men exposed to the television intervention are more likely than other men to agree that the community helps people with HIV (73.5% versus 47.8%).

Table 11: Summary of multivariate results for OneLove and HIV stigma

	Total Population			Male		Female	
	Unexposed	Exposed	PSM	Unexposed	Exposed	Unexposed	Exposed
Exposure: Exposed to Any OneLove Radio Intervention							
People in the community join together to help PLHIV	0.4924	0.5201	+	0.5309	0.5453	0.4586	0.4990
Keep secret if family member has HIV	0.7272	0.7162	-	0.7531	0.6959	0.6995	0.7460
Agrees that wife inheritance is practiced in the community	0.0930	0.1161	+	0.1111	0.1257	0.0759	0.1084
Exposure: Exposed to Any OneLove Television Intervention							
	Unexposed	Exposed	PSM	Unexposed	Exposed	Unexposed	Exposed
People in the community join together to help PLHIV	0.4814	0.5710*	+	0.4780	0.7349**	0.4880	0.4051*
Keep secret if family member has HIV	0.7272	0.7161	-	0.7594	0.6719	0.6993	0.7582
Exposure: Exposed to 1 OneLove Booklet (Vs. Zero)							
	None	1	PSM	None	1	None	1
Disagrees that HIV is a punishment for sinning	0.5196	0.6295*	+	0.5417	0.6415*	0.5083	0.6078
Disagrees that revealing HIV status doesn't help	0.7194	0.7589	NS	0.7405	0.6872	0.7003	0.8050*
Willing to care for someone on ART	0.9457	0.9710*	NS	0.9726	0.9846	0.9271	0.9614*
People in the community join together to help PLHIV	0.5317	0.3923**	NS	0.5372	0.3949*	0.5222	0.3593*
Agrees that wife inheritance is practiced in the community	0.0861	0.1054	+	0.1115	0.1180	0.0673	0.0941
Exposure: Exposed to Two or More OneLove Booklets (vs. Zero)							
	None	2+	PSM	None	2+	None	2+
Disagrees that HIV is a punishment for sinning	0.5196	0.7140**	+	0.5417	0.6233*	0.5083	0.7701*
Disagrees that revealing HIV status doesn't help	0.7194	0.7883	NS	0.7405	0.7644	0.7003	0.7998*
Willing to care for someone on ART	0.9457	0.9681*	NS	0.9726	0.9443	0.9271	0.9525

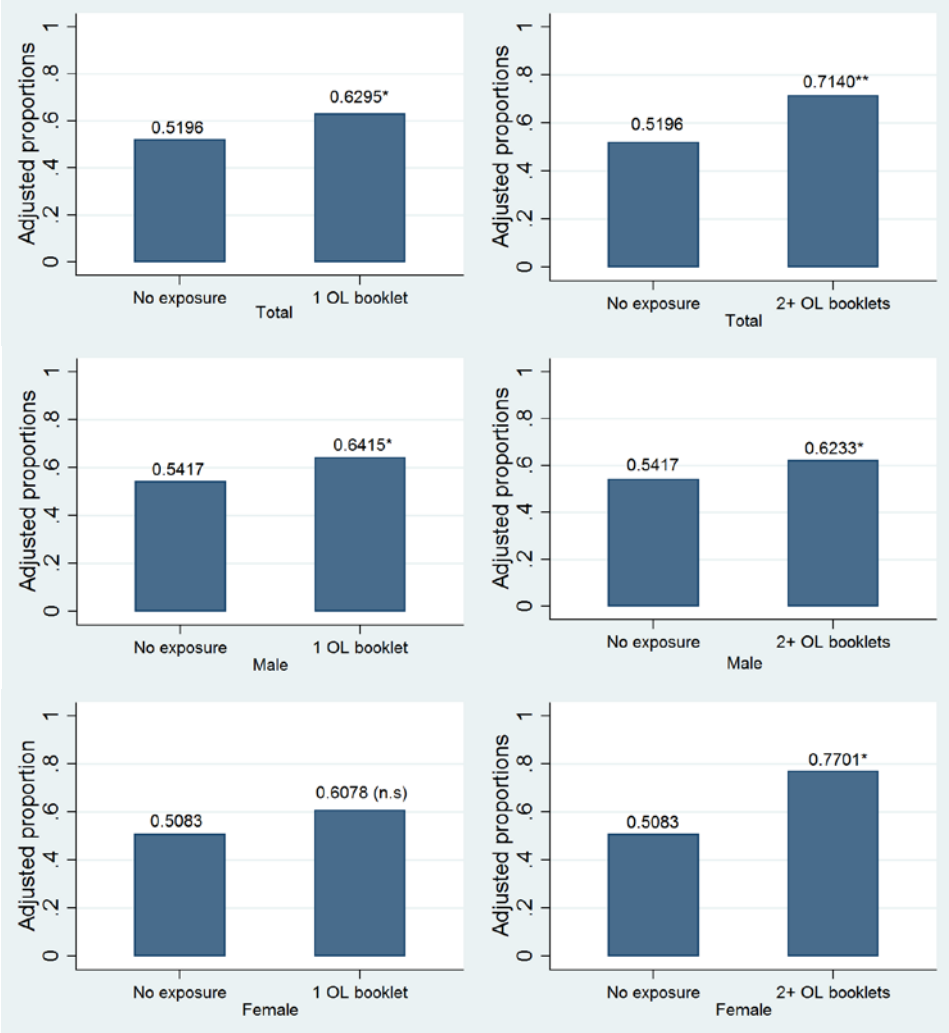
	Total Population			Male		Female	
	Unexposed	Exposed	PSM	Unexposed	Exposed	Unexposed	Exposed
People in the community join together to help PLHIV	0.5317	0.4957	+	0.5372	0.6229	0.5222	0.4308
Keep secret if family member has HIV	0.7412	0.7072	-	0.7668	0.6891	0.7162	0.6931
Agrees that wife inheritance is practiced in the community	0.0861	0.1342	+	0.1115	0.1235	0.0673	0.1177
Exposure: Exposed to One Media Channel (vs. None)							
	None	1	PSM	None	1	None	1
Disagrees that HIV is a punishment for sinning	0.5475	0.6607	+	0.5692	0.6525	0.5284	0.6557
Willing to care for someone on ART	0.9564	0.9581	NS	0.9661	0.9811*	0.9444	0.9501
Keep secret if family member has HIV	0.7598	0.6892*	-	0.7652	0.7618	0.7427	0.6373*
Agrees that wife inheritance is practiced in the community	0.0826	0.1201	+	0.1081	0.1248	0.0621	0.1032
Exposure: Exposed to Two or More Media Channels (vs. None)							
	None	2+	PSM	None	2+	None	2+
Disagrees that HIV is a punishment for sinning	0.5475	0.5549	+	0.5692	0.4802	0.5284	0.6308
Keep secret if family member has HIV	0.7598	0.7111	-	0.7652	0.6565*	0.7427	0.7648
Agrees that wife inheritance is practiced in the community	0.0826	0.1069	+	0.1081	0.1165	0.0621	0.0988

*=p<0.05 **=p<0.01

PSM: + significant/increasing ; - significant/decreasing ;NS not significant

The most striking result is the observed effect of exposure to OneLove booklets (either just one or two or more) on the belief that HIV is a punishment for sinning (Figure 10). Among the total population, we observe an increase (11 percentage points for one booklet and 19 percentage points for two or more) in the percentage of respondents who disagree with this statement with exposure to booklets. Exposure to booklets is significant among men, and although exposure to one booklet is not significant among women, the trend is similar. However, 77.0% of women exposed to two booklets disagree with this statement as compared with approximately half of the unexposed women.

Figure 10: Effects of exposure to OneLove booklets on disagreement that HIV is a punishment for sinning



Exposure to media channels has a somewhat limited effect on stigma-related indicators. For example, men exposed to a single OneLove media channel are more likely than unexposed men to say that they would be willing to care for someone on ARVs.

4.3.8 GENDER-BASED VIOLENCE

This section examines the effect of exposure to OneLove interventions on forced sex and physical violence (Table 12). The overall percentage of respondents who report having been forced to have sex in the past 12 months is 3.3%, and 11.1% of respondents report experiencing physical violence in the same time period. Results are mixed, but we do observe that some types of OneLove exposure (exposure to booklets and media channels) are associated with higher reporting of gender-based violence to anyone. We also observe that respondents exposed to television programs are more likely to say that leaders speak out against gender-based violence; this is true for both the total population and among men.

Table 12: Summary of multivariate results for OneLove and gender-based violence

	Total Population			Male		Female	
	Unexposed	Exposed	PSM	Unexposed	Exposed	Unexposed	Exposed
Exposure: Exposed to Any OneLove Television Intervention							
Reported forced sex to family member	0.2072	0.1205*	NS	0.3251	0.1862*	0.1245	0.1022
Reported GVB to anyone	0.3781	0.3116	NS	0.5856	0.5009	0.2835	0.1710*
Leaders speak out against GBV	0.5607	0.5954	+	0.6882	0.7323	0.4601	0.4212
Exposure: Exposed to Any OneLove Television Intervention							
	Unexposed	Exposed	PSM	Unexposed	Exposed	Unexposed	Exposed
Leaders speak out against GBV	0.5480	0.6600*	+	0.6742	0.8030*	0.4455	0.4814
Man has right to have sex for gifts	0.2934	0.2594	NS	0.2078	0.2970*	0.3672	0.2281*
Forced sex in the last 12 months	0.0331	0.0453	NS	0.0146	0.0082	0.0505	0.0759
Reported forced sex to family member	0.1593	0.2926*	NS	0.2734	0.3780	0.0961	0.1981*
Reported GBV to anyone	0.3141	0.5145*	NS	0.5303	0.6554	0.2023	0.3343*
Reported forced sex to police	0.2363	0.2531	NS	0.4403	0.6413*	0.0795	0.0452
Exposure: Exposed to 1 OneLove Booklet (Vs. Zero)							
	None	1	PSM	None	1	None	1
Leaders speak out against GBV	0.5718	0.5253	-	0.7076	0.6307	0.4564	0.3885
Physical GBV in the last 12 months	0.1014	0.0747	NS	0.0658	0.0842	0.1499	0.0751*
Reported GBV to anyone	0.2664	0.3210	NS	0.5207	0.4649	0.1809	0.3456*
Exposure: Exposed to Two or More OneLove Booklets (vs. Zero)							
	None	2+	PSM	None	2+	None	2+
Physical GBV in the last 12 months	0.1014	0.1482	NS	0.0658	0.1402	0.1499	0.0905
Reported GBV to anyone	0.2664	0.5725	+	0.5207	0.6834	0.1809	0.3627*

	Total Population			Male		Female	
	Unexposed	Exposed	PSM	Unexposed	Exposed	Unexposed	Exposed
Exposure: Exposed to One Media Channel (vs. None)							
	None	1	PSM	None	1	None	1
Forced sex in the last 12 months	0.0283	0.0506*	NS	0.0136	0.0165	0.0421	0.0785*
Reported GBV to anyone	0.2333	0.4874**	NS	0.5311	0.4667	0.1495	0.3249**
Exposure: Exposed to Two or More Media Channels (vs. None)							
	None	2+	PSM	None	2+	None	2+
Reported GBV to anyone	0.2333	0.4239*	NS	0.5311	0.6714	0.1495	0.2784*
*=p<0.05 **=p<0.01							
PSM: + significant/increasing ; - significant/decreasing ;NS not significant							

4.4 RESULTS FOR VULNERABLE POPULATIONS

We also examined the effect of exposure to OneLove by specific vulnerable populations: women between the ages of 15 and 24 and border populations. Significant results are presented here by type of exposure.

4.4.1 WOMEN AGED 15-24

4.4.1.1 WOMEN AGED 15-24: MULTIPLE PARTNERSHIPS

Table 13 presents the significant associations between exposure to OneLove media and multiple and concurrent sexual partnerships. Results vary by type of exposure with radio exposure having a mostly positive effect. For example, women exposed to the radio intervention are less likely to report having a concurrent partner and also have a lower average number of lifetime sexual partners than unexposed women. However, women exposed to the television programs are less likely to report knowing that having multiple partners increases your risk for HIV and are more likely to report having concurrent partners in the past 12 months. However, 1.8% of women exposed to two or more booklets report having concurrent partners in the past 12 months as compared with 7.8% of unexposed women.

Table 13: Summary of multivariate results for OneLove and multiple partnerships, women 15-24

	Unexposed	Exposed
Exposure: Exposed to Any OneLove Radio Intervention		
	Unexposed	Exposed
Knows multiple sexual partners increase HIV risk	0.8723	0.9318*
Most married men faithful to wives	0.3208	0.4893*
Number of lifetime partners	1.9328	1.2188*

	Unexposed	Exposed
Received gifts or money in exchange for sex with last partner	0.3867	0.2046*
Exposure: Exposed to Any OneLove Television Intervention		
	Unexposed	**Exposed**
Knows multiple sexual partners increase HIV risk	0.8945	0.7827*
Does not need someone to fill gap	0.5813	0.8347**
Self-reported having concurrent partners in the past 12 months	0.0475	0.0940*
Currently have more than one sexual partner (past 3 months	0.0120	0.0917*
Exposure: Exposed to 1 OneLove Booklet (Vs. Zero)		
	Unexposed	**Exposed**
Leaders discourage multiple partner	0.2571	0.0995*
Number of lifetime partners	1.9023	1.2100*
Does not need someone to fill gap	0.5814	0.7524**
Exposure: Exposed to 2 or more OneLove Booklets (Vs. Zero)		
	Unexposed	**Exposed**
Self-reported having concurrent partners in the past 12 months	0.0782	0.0177**
Exposure: Exposed to One Media Channel (vs. None)		
	Unexposed	**Exposed**
Most married men faithful to wives	0.3047	0.4561**
Men with many women are real men	0.1260	0.0477*
Multiple partners (last month)	0.0153	0.0039*
Exposure: Exposed to Two or More Media Channels (vs. None)		
	Unexposed	**Exposed**
Does not need someone to fill gap	0.5583	0.8206**

4.4.1.2 WOMEN AGED 15-24: OTHER HIV RISK FACTORS

In terms of other risk factors for HIV transmission, young women exposed to OneLove booklets and media channels are less likely to agree that leaders in their communities discourage multiple sexual partnerships. A significantly higher percentage of young women exposed to one media channel also report having a ten year plus age difference with their last sexual partner (5.0% versus <1%). One positive difference is that women exposed to one booklet have a higher average age at first sex (20.4 years) than other women (16.7 years).

Table 14: Summary of multivariate results for OneLove and other HIV risk factors, women 15-24

	Unexposed	Exposed
Exposure: Exposed to 1 OneLove Booklet (Vs. Zero)		
Leaders discourage multiple partners	0.3093	0.1168**
Age at first sex	16.7001	20.3826*
10+ year age difference between respondent and last sexual partner	0.0140	0.0467**
Exposure: Exposed to 2 or more OneLove Booklets (Vs. Zero)		
Leaders discourage multiple partners	0.3093	0.1879*
10+ year age difference between respondent and last sexual partner	0.0140	0.0583**
Exposure: Exposed to One Media Channel (vs. None)		
10+ year age difference between respondent and last sexual partner	0.0099	0.0496**
Exposure: Exposed to Two or More Media Channels (vs. None)		
10+ year age difference between respondent and last sexual partner	0.0099	0.0491**

4.4.1.3 WOMEN AGED 15-24: HIV COMMUNICATION

No statistically significant associations are noted between radio or television exposure and measures of HIV communication. However, young women exposed to OneLove booklets and media channels are more likely to report discussing HIV with their children and friends (Table 15), but less likely to agree that one's sex life improves with communication.

Table 15: Summary of multivariate results for OneLove and HIV communication, women 15-24

	Unexposed	Exposed
Exposure: Exposed to 1 OneLove Booklet (Vs. Zero)		
Discussed HIV/AIDS with children	0.2625	0.4703*
Exposure: Exposed to 2 or more OneLove Booklets (Vs. Zero)		
Discussed HIV/AIDS with children	0.2625	0.460**
Discussed HIV/AIDS with spouse, children, and/or friends	0.7667	0.8801*
Sex life improves with communication	0.8999	0.8193*
Exposure: Exposed to One Media Channel (vs. None)		
Discussed HIV/AIDS with children	0.2457	0.4717**
Exposure: Exposed to Two or More Media Channels (vs. None)		
Sex life improves with communication	0.9067	0.7781*

4.4.1.4 WOMEN AGED 15-24: CONDOM USE

The results of exposure to OneLove programming and condom use behaviors among young women are mixed (Table 16). On the one hand, 81.9% of women exposed to the radio intervention believe that condom used is accepted between married couples as compared with only 55.3% for other women. They are also more likely to agree that a woman can ask a regular sexual partner to use a condom. Young women exposed to the radio program report higher condom use at last sex regardless of partner type (72.9% versus 54.2%) but this difference is not significant for last sex with a regular partner. For booklet exposure, only about 50% of women exposed to two or more booklets report using a condom at last sex. There are no other significant findings between exposure to OneLove and condom use at last sex with a regular partner. The sample size of women 15 to 24 who reported having sex with casual partners was too low to include in the multivariate analysis.

Table 16: Summary of multivariate results for OneLove and condom use, women 15-24

	Unexposed	Exposed
Exposure: Exposed to Any OneLove Radio Intervention		
Condom use in marriage accepted	0.5529	0.8193**
Women can ask regular partner to use condom	0.6645	0.7997*
Condom use at last sex, regular partner	0.5486	0.6728
Condom use at last sex among those ever having sex	0.5422	0.7290*
Exposure: Exposed to Any OneLove Television Intervention		
	Unexposed	**Exposed**
Condom use at last sex, regular partner	0.5712	0.5785
Percentage who disagree that if one spouse is HIV+ the other certainly	0.4259	0.2453*
Exposure: Exposed to 1 OneLove Booklet (Vs. Zero)		
	Unexposed	**Exposed**
Condom use at last sex, regular partner	0.5965	0.4958
While in ART, PLHIV can transmit HIV	0.9662	0.8533*
Exposure: Exposed to 2 or more OneLove Booklets (Vs. Zero)		
	Unexposed	**Exposed**
While in ART, PLHIV can transmit HIV	0.9662	0.8135**
Condom at last sex, regular partner	0.5965	0.5613
Condom use at last sex among those have sex in the last 12 months	0.7787	0.5181**
Exposure: Exposed to One Media Channel (vs. None)		
	Unexposed	**Exposed**
While in ART, PLHIV can transmit HIV	0.9594	0.8721*
Condom at last sex, regular partner	0.6006	0.4920
Condom use in marriage accepted	0.5293	0.6786*
Exposure: Exposed to Two or More Media Channels (vs. None)		
	Unexposed	**Exposed**
Condom at last sex, regular partner	0.6006	0.6096
Percentage who disagree that if one spouse is HIV+ the other certainly is	0.4737	0.2804**

4.4.1.5 WOMEN AGED 15-24: HIV TESTING

The association between exposure to OneLove and HIV testing behaviors and attitudes is also mixed, although positive effects are observed for several knowledge variables (e.g., agree that the only way to know you are HIV positive is through a blood test). Sixty-five percent of women exposed to the radio program had been tested for HIV in the past 12 months as compared with 47.6% of unexposed women. Even so, exposed women are less likely to discuss the results of their most recent test. Also, women

exposed to two or more booklets or one media channel report a lower average number of HIV tests in their lifetime than other young women.

Table 17: Summary of multivariate results for OneLove and HIV testing, women 15-24

	Unexposed	Exposed
Exposure: Exposed to Any OneLove Radio Intervention		
	Unexposed	**Exposed**
Agrees that only way to know you are HIV positive is through blood test	0.9653	0.9936**
Ever Tested for HIV	0.4167	0.4882
HIV Test in the Last 12 Months	0.4758	0.6511*
Discussed results of most recent HIV test	0.8663	0.7770**
Exposure: Exposed to Any OneLove Television Intervention		
	Unexposed	**Exposed**
Ever Tested for HIV	0.4228	0.4928
HIV Test in the Last 12 Months	0.3292	0.3452
Likely to be infected now	0.3291	0.1947*
Exposure: Exposed to 1 OneLove Booklet (Vs. Zero)		
	Unexposed	**Exposed**
Ever Tested for HIV	0.4962	0.3454
HIV Test in the Last 12 Months	0.3759	0.2892
Important to know HIV status	0.9437	0.9938**
Exposure: Exposed to 2 or more OneLove Booklets (Vs. Zero)		
	Unexposed	**Exposed**
Important to know HIV status	0.9437	0.9858*
Leaders encourage HIV testing	0.4929	0.3543*
Ever Tested for HIV	0.4962	0.2959
HIV Test in the Last 12 Months	0.3759	0.2409
Number of HIV tests	2.2551	1.0490*
Disagrees that HIV means life is over	0.7499	0.8926*
Exposure: Exposed to One Media Channel (vs. None)		
	Unexposed	**Exposed**
Agrees that only way to know you are HIV positive is through blood test	0.9483	0.9887*
Ever Tested for HIV	0.4985	0.3280
HIV Test in the Last 12 Months	0.3647	0.2832
Important to know HIV status	0.9358	0.9908**
Exposure: Exposed to Two or More Media Channels (vs. None)		
	Unexposed	**Exposed**
Ever Tested for HIV	0.4985	0.4479
HIV Test in the Last 12 Months	0.3647	0.3428
Important to know HIV status	0.9358	0.9851*

	Unexposed	Exposed
Discussed results of most recent HIV test	0.8819	0.7819**

4.4.1.6 WOMEN AGED 15-24: HIV TREATMENT

We observe positive associations between exposure to OneLove media and knowledge of HIV treatment (Table 18). For example, women who report exposure to booklets and two or more media channels know that ARVs can prevent maternal-to-child transmission of HIV during breastfeeding. Further, 92.4% of women exposed to the television intervention, as compared with 81.9% of other women, know how often people should take their ARVs.

Table 18: Summary of multivariate results for OneLove and HIV treatment, women 15-24

	Unexposed	Exposed
Exposure: Exposed to Any OneLove Radio Intervention		
Knows how often people should take ARVs	0.8631	0.7965*
Exposure: Exposed to Any OneLove Television Intervention		
Leaders encourage HIV treatment	0.5595	0.7711*
Knows how often people should take ARVs	0.8199	0.924**
Exposure: Exposed to 1 OneLove Booklet (Vs. Zero)		
Knows ARVs prevent MCT during breastfeeding	0.5917	0.8068*
Exposure: Exposed to 2 or more OneLove Booklets (Vs. Zero)		
Knows ARVs prevent MCT during breastfeeding	0.5917	0.7543*
Exposure: Exposed to Two or More Media Channels (vs. None)		
Knows ARVs prevent MCT during breastfeeding	0.5819	0.7701*

4.4.1.7 WOMEN AGED 15-24: HIV STIGMA

The effects of exposure to OneLove media on stigma indicators are mixed (Table 19). For example, women exposed to two or more booklets are more likely to disagree with the idea that HIV is a punishment for sinning. But women exposed to one media channel are less likely to say they are willing to care for someone on ART (84.8% versus 91.7%of all young women).

Table 19: Summary of multivariate results for OneLove and HIV stigma, women 15-24

	Unexposed	Exposed
Exposure: Exposed to Any OneLove Radio Intervention		
Cared for someone on ART	0.1342	0.2950**
Exposure: Exposed to 1 OneLove Booklet (Vs. Zero)		

	Unexposed	Exposed
People in the community joint together to help PLHIV	0.4344	0.2874*
Exposure: Exposed to 2 or more OneLove Booklets (Vs. Zero)		
Disagrees that HIV is a punishment for sinning	0.4602	0.7446**
Disagrees that revealing HIV status doesn't help	0.6674	0.7808*
Exposure: Exposed to One Media Channel (vs. None)		
Willing to care for someone on ART	0.9170	0.8483*
Exposure: Exposed to Two or More Media Channels (vs. None)		
Keep secret if family member has HIV	0.8666	0.6186**

4.4.1.8 WOMEN AGES 15-24: GENDER-BASED VIOLENCE

Only two significant associations are observed between exposure to the program and gender-based violence indicators (Table 20). Only 18% of women exposed to the television intervention agree that a man has the right to have sex for giving gifts compared to 41.02% of all young women. A lower percentage of women exposed to one booklet believe community leaders speak out against gender-based violence.

Table 20: Summary of multivariate results for OneLove and GBV, women 15-24

	Unexposed	Exposed
Exposure: Exposed to Any OneLove Television Intervention		
Man has right to have sex for gifts	0.4102	0.1800*
Exposure: Exposed to 1 OneLove Booklet (Vs. Zero)		
Leaders speak out against GBV	0.4322	0.3123*

4.4.2 BORDER AREAS

4.4.2.1 BORDER AREAS: MULTIPLE PARTNERS

Tables 21 through 28 present the results of the analyses specifically for populations who live in border areas. Respondents who have been exposed to the television intervention and one media channel are more likely to say that people in the community discuss the risk of HIV associated with having multiple sex partners. A higher percentage of those exposed to the radio intervention (76.2% versus 64.8%) also report that they can resist being unfaithful to their partner. However, a higher percentage of respondents exposed to two or more booklets report receiving gifts or money in exchange for sex with their last regular and casual partner. The difference between exposed and unexposed, 13.5 percentage

points, is highest for a casual partner. There is no observed effect of program exposure to the proportion of respondents who report having multiple partners in the last year or in the last month. The only exception is exposure to one booklet; 19.6% of exposed respondents report multiple partners in the last 12 months as compared with 26.1% of unexposed respondents.

Table 21: Summary of multivariate results for OneLove and multiple partners, border areas

	Unexposed	Exposed
Exposure: Exposed to Any OneLove Radio Intervention		
Multiple partners in the last 12 months	0.2368	0.2532
Multiple partners in the last month	0.1039	0.0689
Currently have more than one sexual partner (past three months)	0.0794	0.1001
Exposure: Exposed to Any OneLove TV Intervention		
Multiple partners in the last 12 months	0.2274	0.2747
Multiple partners in the last month	0.1012	0.0811
Currently have more than one sexual partner (past three months)	0.0793	0.0922
People discuss HIV risk & MP	0.5529	0.6919 **
Can resist being unfaithful to main partner	0.6477	0.7621 **
Exposure: Exposed to 1 OneLove Booklet (Vs. Zero)		
Leaders discourage multiple partners	0.2601	0.1783*
Multiple partners in last 12 months	0.2605	0.1960*
Multiple partners in the last month	0.0919	0.1110
Currently have more than one sexual partner (past three months)	0.0711	0.0963
Exposure: Exposed to 2 or more OneLove Booklets (Vs. Zero)		
Multiple partners in last 12 months	0.2605	0.2163
Multiple partners in the last month	0.0919	0.1035
Currently have more than one sexual partner (past three months)	0.0711	0.1157*
Received gifts or money in exchange for sex with last partner	0.1114	0.2299**
Received gifts or money in exchange for sex with last partner, if casual	0.0958	0.2305*
Exposure: Exposed to One Media Channel (vs. None)		
Multiple partners in last 12 months	0.2534	0.2058
Multiple partners in the last month	0.1143	0.0686
Currently have more than one sexual partner (past three months)	0.0766	0.0777
People discuss HIV risk & MP	0.5124	0.6329 **
Exposure: Exposed to Two or More Media Channels (vs. None)		
Multiple partners in last 12 months	0.2534	0.2555

	Unexposed	Exposed
Multiple partners in the last month	0.1143	0.0918
Currently have more than one sexual partner (past three months)	0.0766	0.1076
People discuss HIV risk & MP	0.5124	0.6845*

4.4.2.2 BORDER AREAS: OTHER HIV RISK FACTORS

We see a significant treatment effect of exposure to radio, television, and two or more media channels on people agreeing that leaders in their communities discourage multiple sexual partnerships. However, a higher percentage of respondents exposed to the television intervention report having a ten year plus age difference with their last sexual partner than unexposed respondents - 12.1% versus 7.4%.

Table 22: Summary of multivariate results for OneLove and other HIV risk factors, border areas

	Unexposed	Exposed
Exposure: Exposed to Any OneLove Radio Intervention		
Leaders discourage multiple partnerships	0.2157	0.3036 *
Exposure: Exposed to Any OneLove TV Intervention		
Leaders discourage multiple partnerships	0.2113	0.2994*
10+ year age difference between respondent and last sexual partner	0.0739	0.1207 *
Exposure: Exposed to Two or More Media Channels (vs. None)		
Leaders discourage multiple partnerships	0.1856	0.3059 **

4.4.2.3 BORDER AREAS: HIV COMMUNICATION

In terms of communication about HIV, we observe a positive effect of program exposure to OneLove media on the likelihood that respondents discuss HIV with friends, children, and spouses. For example, 77.4% of respondents exposed to two or more booklets report discussing this topic with their children; this is almost 20 percentage points higher than unexposed individuals. However, exposed individuals are less likely to agree that communication can improve your sex life.

Table 23: Summary of multivariate results for OneLove and other HIV risk factors, border areas

	Unexposed	Exposed
Exposure: Exposed to Any OneLove Radio Intervention		
Discussed HIV/AIDS with friends	0.7242	0.8035 *
Exposure: Exposed to 2 or more OneLove Booklets (Vs. Zero)		

	Unexposed	Exposed
Discussed HIV/AIDS with children	0.5742	0.7737 **
Discussed HIV/AIDS with friends	0.7142	0.8593 **
Discussed HIV/AIDS with spouse, children, friends	0.7942	0.8948 **
Talked with spouse/regular partner about sexual problems	0.2224	0.0864 *
Sex life improves with communication	0.9092	0.7850**
Exposure: Exposed to One Media Channel (vs. None)		
Sex life improves with communication	0.9176	0.8334 **
Exposure: Exposed to Two or More Media Channels (vs. None)		
Discussed HIV/AIDS with friends	0.7016	0.8092 *
Sex life improves with communication	0.9176	0.8250 *

4.4.2.4 BORDER AREAS: CONDOM USE

Results for the association between program exposure and condom use behaviors, knowledge, and attitudes varied. For example, condom use is lower among individuals exposed to the radio intervention and who report having multiple partners than among the rest of the border population (Table 24). There is no significant effect of exposure of any of the OneLove programs on condom use with a regular partner or with a casual partner. However, 91.9% of respondents with multiple sexual partners exposed to two or more booklets used a condom at last sex as compared with 68.3% of unexposed respondents. Respondents exposed to two or more booklets are less likely to know that STIs increase the risk for HIV infection.

Table 24: Summary of multivariate results for OneLove and other condom use, border areas

	Unexposed	Exposed
Exposure: Exposed to Any OneLove Radio Intervention		
Knows that STIs increase HIV infection	0.8108	0.7293 *
Condom at last sex, if regular partner	0.5638	0.5888
Condom at last sex, if casual partner	0.7977	0.7180
Condom at last sex among those with multiple partners	0.7548	0.5750 *
Always/usually used a condom with last sexual partner	0.7803	0.6912 **
Condom use at last sex among those have sex in the last 12 months	0.7817	0.6878 **
Exposure: Exposed to Any OneLove TV Intervention		
Condom at last sex, if regular partner	0.5741	0.5550
Condom at last sex, if casual partner	0.7942	0.7662

	Unexposed	Exposed
Condom at last sex among those with multiple partners	0.6995	0.7710
Exposure: Exposed to 1 OneLove Booklet (Vs. Zero)		
Condom at last sex, if regular partner	0.5400	0.5652
Condom at last sex, if casual partner	0.7574	0.8764
Condom at last sex among those with multiple partners	0.6826	0.6539
Exposure: Exposed to 2 or more OneLove Booklets (Vs. Zero)		
While in ART, PLHIV can transmit HIV	0.8920	0.8338*
Percentage who disagree that if one spouse is HIV+ the other certainly is	0.4124	0.5030 *
Knows that STIs increase HIV infection	0.8214	0.7111 **
Condom use is marriage is accepted	0.5576	0.6810 **
Condom use at last sex among those ever having sex	0.5816	0.6770 *
Condom at last sex, if regular partner	0.5400	0.6618
Condom at last sex, if casual partner	0.7574	0.7726
Condom at last sex among those with multiple partners	0.6826	0.9187 *
Exposure: Exposed to One Media Channel (vs. None)		
Condom at last sex, if regular partner	0.5465	0.5903
Condom at last sex, if casual partner	0.7669	0.8526
Condom at last sex among those with multiple partners	0.6904	0.8271
Exposure: Exposed to Two or More Media Channels (vs. None)		
Knows that STIs increase HIV infection	0.8427	0.6938 **
Condom use is marriage is accepted	0.5379	0.6330 *
Always/usually used a condom with last sexual partner	0.7767	0.6772 **
Condom at last sex, if regular partner	0.5465	0.5801
Condom at last sex, if casual partner	0.7669	0.7520
Condom at last sex among those with multiple partners	0.6904	0.6621
Condom use at last sex among those have sex in the last 12 months	0.7780	0.6715 **

1.4.3.4.2.5 BORDER AREAS: HIV TESTING

The results for the effect of program exposure and HIV testing-related indicators are presented in Table 25. Exposed (to radio and two or more media channels) respondents are less likely to report knowing that the risk for HIV is lower among circumcised men. However, individuals exposed to the television

intervention are more likely to agree that the only way to know if you are HIV positive is through a blood test (96.4% versus 85.5%). We also observe a lower percentage of exposed individuals agreeing that their spouse or cohabiting partner has another wife.

Table 25: Summary of multivariate results for OneLove and other HIV testing, border areas

	Unexposed	Exposed
Exposure: Exposed to Any OneLove Radio Intervention		
Knows that the risk of contracting HIV decreases for a circumcised man	0.6683	0.4881 **
Exposure: Exposed to Any OneLove TV Intervention		
Agrees that only way to know you are HIV positive is through blood test	0.8548	0.9637 **
Knows where to get HIV/AIDS information	0.8741	0.7985 *
Exposure: Exposed to 1 OneLove Booklet (Vs. Zero)		
Knows TB can be cured if HIV+	0.6834	0.7920 *
Worried about becoming infected	0.5901	0.4925 *
Agrees that husband/cohabitating partner has another wife	0.2930	0.1363 *
Exposure: Exposed to 2 or more OneLove Booklets (Vs. Zero)		
Pregnant woman should be tested for HIV	0.9655	0.9334 *
Agrees that husband/cohabitating partner has another wife	0.2930	0.1295 **
Exposure: Exposed to One Media Channel (vs. None)		
Pregnant woman should be tested for HIV	0.9552	0.9855 **
Likely to be infected now	0.1836	0.2785 *
Agrees that husband/cohabitating partner has another wife	0.3345	0.1365 **
Exposure: Exposed to Two or More Media Channels (vs. None)		
Knows that the risk of contracting HIV decreases for a circumcised man	0.6856	0.4876 **
Agrees that only way to know you are HIV positive is through blood test	0.8681	0.9409 **
Worried about becoming infected	0.5944	0.5045 *
Agrees that husband/cohabitating partner has another wife	0.3345	0.1740 *

4.4.2.6 BORDER AREAS: HIV TREATMENT

For some exposure measures, exposed individuals have lower knowledge of how often HIV infected people should take their ARVs. For example, 79.3% of individuals exposed to two or more media channels know this as compared with 89.3% of unexposed individuals. However, exposed individuals are

more likely to know that ARVs can help prevent mother-to-child transmission of HIV during pregnancy, childbirth, and breastfeeding.

Table 26: Summary of multivariate results for OneLove and other HIV testing, border areas

	Unexposed	Exposed
Exposure: Exposed to Any OneLove Radio Intervention		
Knows how often people should take ARVs	0.8837	0.8113 *
Exposure: Exposed to Any OneLove TV Intervention		
Knows how often people should take ARVs	0.8876	0.8086 *
Exposure: Exposed to 2 or more OneLove Booklets (Vs. Zero)		
Knows ARVs prevent MCT during childbirth	0.7182	0.8284 *
Exposure: Exposed to One Media Channel (vs. None)		
Knows ARVs prevent MCT during pregnancy	0.7819	0.8758 **
Knows ARVs prevent MCT during childbirth	0.7117	0.8087 **
Exposure: Exposed to Two or More Media Channels (vs. None)		
Knows ARVs prevent MCT during breastfeeding	0.6282	0.7314 *
Knows how often people should take ARVs	0.8928	0.7925 **

4.4.2.7 BORDER AREAS: HIV STIGMA

The results for exposure to OneLove media on HIV stigma are presented in Table 27. Individuals who are exposed to two or more booklets are more likely to disagree that HIV is punishment for sinning (e.g. 84.5% versus 56.8%). A higher percentage of exposed individuals report that people in their community join together to help people living with HIV. We also observe that the proportion of individuals who believe that it should be kept secret if a family member has HIV decreases with exposure to OneLove booklets, around seven percentage points for one booklet and ten percentage points for two or more booklets.

Table 27: Summary of multivariate results for OneLove and other HIV stigma, border areas

	Unexposed	Exposed
Exposure: Exposed to Any OneLove Radio Intervention		
Disagrees that HIV is a punishment for sinning	0.6075	0.7317 **
People in the community joint together to help PLHIV	0.5062	0.6010 *
Agrees that wife inheritance is practiced in the community	0.1322	0.2395 **
Exposure: Exposed to Any OneLove TV Intervention		
People in the community joint together to help PLHIV	0.4979	0.6086*

	Unexposed	Exposed
Exposure: Exposed to 1 OneLove Booklet (Vs. Zero)		
Keep secret if family member has HIV	0.8802	0.7480**
Agrees that wife inheritance is practiced in the community	0.1196	0.2290*
Exposure: Exposed to 2 or more OneLove Booklets (Vs. Zero)		
Disagrees that HIV is a punishment for sinning	0.5679	0.8448**
People in the community joint together to help PLHIV	0.5038	0.6178 **
Keep secret if family member has HIV	0.8802	0.8137 **
Agrees that wife inheritance is practiced in the community	0.1196	0.2075 *
Exposure: Exposed to Two or More Media Channels (vs. None)		
Disagrees that HIV is a punishment for sinning	0.5585	0.7817 **
People in the community joint together to help PLHIV	0.4702	0.6151 **
Keep secret if family member has HIV	0.8827	0.7877 *
Agrees that wife inheritance is practiced in the community	0.1119	0.2521 **

4.4.2.8 BORDER AREAS: GENDER-BASED VIOLENCE

A higher percentage of individuals exposed to booklets and media channels report that leaders in their community speak out against gender-based violence. However, 12.6% of individuals exposed to the television intervention (as compared with 6.6% of the rest of the population) report experiencing physical gender-based violence in the last 12 months. However, a lower proportion of respondents exposed to two or more media channels (1.8%) report forced sex in the last 12 months than unexposed individuals (4.8%)

Table 28: Summary of multivariate results for OneLove and GBV, border areas

	Unexposed	Exposed
Exposure: Exposed to Any OneLove TV Intervention		
Physical GBV in the last 12 months	0.0658	0.1259 **
Exposure: Exposed to 2 or more OneLove Booklets (Vs. Zero)		
Leaders speak out against GBV	0.5558	0.6922 **
Exposure: Exposed to One Media Channel (vs. None)		
Leaders speak out against GBV	0.5128	0.6336 *
Exposure: Exposed to Two or More Media Channels (vs. None)		
Leaders speak out against GBV	0.5128	0.6643**
Forced sex in the last 12 months	0.0477	0.0184 *

CHAPTER 5. SAfAIDS RESULTS

5.1 EXPOSURE MEASURES

Exposure to SAfAIDS materials and programs is measured by a variable that includes exposure to any of the following SAfAIDS variables: ever heard of SAfAIDS, ever seen a SAfAIDS logo, receipt of SAfAIDS materials in the last two years, received HIV/AIDS information from a community-based volunteer in the past two years, participated in a community dialogue on HIV, gender and culture under Changing the River's Flow, or ever heard of Changing the River's Flow. The overall percentage of individuals who report any exposure to SAfAIDS programs is 19.5%.

Variation in exposure to SAfAIDS across various populations of interest, such as sex, domain, age group, and other measures, are found in Figures 11-14. More information on exposure to SAfAIDS program by each of the specific SAfAIDS variables listed above can be found in Appendix C.

Figure 11 presents the results of exposure to SAfAIDS by sex. There are no significant differences in exposure to SAfAIDS between men and women; 21.5% of women report exposure to at least one of the SAfAIDS variables, as compared with 23.1% of men. Figures 12 and 13 show that SAfAIDS exposure varies by age and sex; for men, the percentage exposed to SAfAIDS is the lowest at ages 20-24 years. The highest levels of exposure are found among men over age 45. For women, the age groups reporting the lowest percentages of exposure are women aged 20-24 years and 35-39 years, while the 45-49 and 25-29 year age groups have the highest levels of exposure.

Figure 11: SAfAIDS exposure by sex

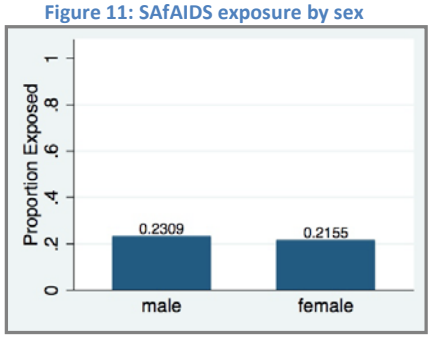


Figure 12: SAfAIDS exposure by age, men

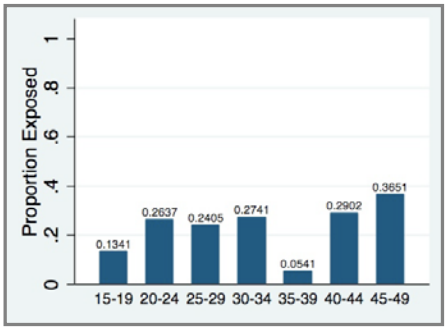
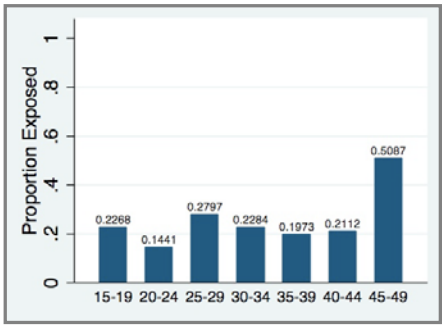
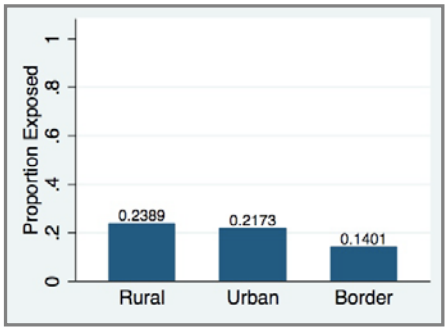


Figure 13: SAfAIDS exposure by age, women



Next, we examined SAfAIDS exposure by type of place of residence. While there is no difference in exposure between rural and urban groups, at 14.0%, the border population has the lowest exposure to SAfAIDS (Figure 14).

Figure 14: SAfAIDS exposure by domain



As previously mentioned, a full breakdown of exposure to specific SAfAIDS measures (e.g. ever heard of SAfAIDS, knows SAfAIDS logo, etc.) by gender, domain, program area, and for women aged 15-24 can be found in Appendix C. Table 29 summarizes SAfAIDS exposure by gender and domain.

Table 29: SAfAIDS exposure by gender and domain

	Men N=2153	Women N=2173	Women 15-24 N=859	Border N=1433	Urban N=1403	Rural N=1490	Program Area N=2387	Total N=4326
Any SAfAIDS Exposure	23.1%	21.6%	19.8%	14.0%	21.7%	23.9%	21.7%	22.3%
Ever Heard of SAfAIDS								
Know: SAfAIDS Logo	3.4%	2.8%	2.0%	2.6%	3.1%	3.1%	4.0%	3.1%
Read/received: Any SAfAIDS Materials	7.8.%	2.7%	2.1%	1.1%	6.5%	5.2%	6.5%	5.1%
Read/received: SAfAIDS HIV materials, past 2 years	7.0%	2.0%	2.0%	0.9%	34.3%	4.5%	5.8%	4.4%
Received: Toolkit	13.8%	8.2%	3.0%	-	8.9%	13.8%		12.5%
Read: Flipchart	7.6%	41.4%	45.1%	-	34.4%	4.3%	12.3%	15.6%
Read: Poster	50.2%	79.8%	92.5%	-	78.5%	45.4%	57.8%	57.2%
Read: Brochure	15.9%	41.3%	18.6%	-	24.2%	19.0%	29.6%	21.9%
Read: Newsletter	37.1%	34.0%	3.9%	-	27.5%	41.2%	28.9%	36.4%
Read: Factsheet	2.1%	7.1%	1.2%	-	6.0%	0.8%	7.6%	3.2%
Read/received: Okukala naaholike oyendji poshikando	85.0%	44.3%	48.6%	-	61.1%	84.0%	82.0%	75.3%
Read/received: Tseya oshiponga sho-HIV kungoye	76.1%	27.1%	43.2%	-	35.5%	81.6%	65.0%	64.5%
Read/received: Die Gevare van Dwelmmiddel Misbruik: Wat jy behoort te weet	2.2%	38.3%	45.9%	-	28.5%	0.1%	3.6%	10.8%
Read/received: Okutseya iitsa yohili kombinga: Yekenko lyAalumentu	96.2%	18.6%	2.8%	-	46.0%	96.6%	75.7%	77.8%
Heard: Changing the River's Flow	0.2%	2.3%	1.7%	1.7%	2.0%	1.0%	1.3%	1.3%
Seen: Changing the River's Flow Logo	0.7%	4.0%	2.6%	1.5%	3.3%	2.1%	2.4%	2.4%
Seen: Changing the River's Flow Bag	0.2%	2.9%	1.6%	0.5%	2.0%	1.6%	1.7%	1.6%
Participated in Changing River's Flow Programme	0.0%	0.2%	0.0%	0.1%	0.1%	0.2%	0.1%	0.1%

The level of exposure to SAfAIDS programs varies between men and women. Women are more likely than men to have received SAfAIDS materials, including a flipchart (41.4% women, 7.6% men), poster (79.8% women, 50.2% men), and brochure (41.2% women, 15.9% men). However, women are less likely

than men to have received "other materials" (2.4% women and 43.2% men). Similar patterns of exposure to SAfAIDS activities are also observed for young women aged 15 to 24 years.

For several measures of SAfAIDS exposure, there are few differences between urban and rural areas. For example, approximately the same percentage of rural and urban respondents know the SAfAIDS logo (3.1% for all), received or saw SAfAIDS materials (5.2% rural, 6.5% urban), and received SAfAIDS materials in the past two years (4.5% rural, 5.2% urban).

As for border areas, compared with rural and urban areas, similarly percentages know the SAfAIDS logo (2.6%) and received/saw SAfAIDS materials (1.1%).

5.2 REACH

An estimated 229,270 people (113,666 males and 115,604 females) have been exposed to the SAfAIDS campaign. However, only a fraction of this number recognizes the SAfAIDS logo (32,289 persons). Overall, 45,902 people (34,990 males and 10,911 females) report receiving SAfAIDS materials in the past two years, with poster being the most commonly mentioned material (26,264 persons). The results suggest that 27,693 people received "*Okutseya iitsa yohili kombinga*," 26,805 people received "*Okukala naaholike oyendji poshkando*," and 22,953 received "*Tseya oshiponga sho-HIV kungoye*." It is further estimated that 32,466 people (28,173 males and 4,292 females) discussed something they read in the SAfAIDS materials with someone else, most often with a friend or peer.

An estimated 184,681 people (85,640 males and 99,041 females) have ever received information about HIV/AIDS from a community-based volunteer or community-based health officer. A large number of them (126,356 of whom 49,231 males and 77,124 females) discussed this information with someone else, most often with a family member other than a spouse (73,755 persons), or with friends or peers (62,378 persons). Over 2,000 people (2,057, of whom 1,049 males and 1,008 females) have participated in a community dialogue.

5.3 RESULTS FOR GENERAL POPULATION (TOTAL, MALE, FEMALE)

This next section presents the summary of the multivariate results for primary outcomes by analysis types and SAfAIDS exposure. We present the results in the following order: multiple sexual partnerships, other HIV risk factors, HIV communication, condom use, HIV testing, HIV treatment, HIV stigma, and gender-based violence.

5.3.1 MULTIPLE PARTNERS

Table 30 presents the results of the relationship between exposure to the SAfAIDS program and various measures related to multiple sexual partnerships. As described above, results presented here are for variables that are significant for either multivariate regression (total population, male, or female) or propensity score matching (PSM),.

Table 30: Summary of multivariate results for SAfAIDS and MCP

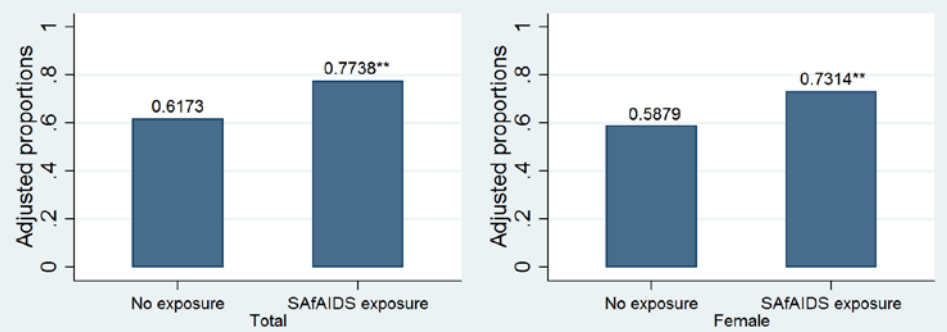
	Total Population			Male		Female	
	Unexposed	Exposed	PSM	Unexposed	Exposed	Unexposed	Exposed
People discuss HIV & MP	0.5434	0.6748**	+	0.6046	0.6814	0.4954	0.6454*
Leaders discourage MP	0.3900	0.4387	+	0.4420	0.5852	0.3455	0.2708
Most men faithful to wife	0.3707	0.2569**	-	0.3252	0.3577	0.3983	0.1965**
Can resist being unfaithful	0.7291	0.7928	+	0.7094	0.7276	0.7570	0.8249
Does not need someone to fill gap	0.6173	0.7738**	NS	0.6650	0.7688	0.5879	0.7314**
Number of lifetime partners	4.1295	4.1776	NS	5.6231	6.2231	3.0298	2.4380*
Multiple partners last year	0.1625	0.2639*	NS	0.2945	0.4574*	0.0552	0.0892
Received gifts/money for sex, next to last partner	0.1063	0.0861	NS	0.0242	0.0030*	0.3473	0.4045
Received gifts/money for sex next to last partner, if casual	0.0887	0.0409**	NS	0.0252	0.0015	0.3128	0.2345
Gave gifts/money for sex, last partner	0.0720	0.1445*	+	0.0735	0.1334*	0.0731	0.1312
Gave gifts/money for sex last partner, if casual	0.0711	0.1592**	+	0.0815	0.1568*	0.0624	0.1522**
Gave gifts/money for sex next to last partner, casual	0.1935	0.0573*	NS	0.1526	0.0679	.	.
Gave gifts/money for sex with third to last partner	0.1654	0.0907*	NS	0.1396	0.0587*	.	.

*=p<0.05 **=p<0.01

PSM: + significant/increasing ; - significant/decreasing; NS not significant

Several measures of attitudes towards MP are significantly different for respondents exposed to the SAfAIDS program relative to unexposed respondents. As shown in Figure 15, respondents who are exposed to the SAfAIDS program are more likely than unexposed respondents to say that they do not need someone to fill the gap in case they break up with their current partner. This is true for women as well - 73.3% of exposed women as compared with 58.9% of unexposed women.

Figure 15: Effects of exposure to SAfAIDS and reporting not needing a sexual partner to fill gap



For both the total population and for females, respondents exposed to SAfAIDS are significantly more likely than unexposed respondents to report that people discuss the risk of HIV and having multiple partners. This result is corroborated by the PSM analysis. However, men exposed to SAfAIDS are no more likely than unexposed men to report these discussions. Also, the PSM analysis for the total population shows that respondents who are exposed to SAfAIDS are more likely than others to report that community leaders discourage people from having multiple partnerships and to report that they are able to resist being unfaithful.

Several behavioral measures are also significantly different between populations exposed to SAfAIDS and unexposed populations. Those exposed to SAfAIDS are less likely than others to believe that most men are faithful to their wives. This effect is observed in both the total population as well as among women. The PSM analysis for the total population confirms these findings. Women exposed to SAfAIDS report fewer lifetime partners. Men exposed to SAfAIDS (45.7%), however, are more likely than other men (29.5%) to report having had multiple sexual partners in the past year.

Finally, several measures related to the exchange of gifts or money for sex are significantly different between populations exposed and not exposed to SAfAIDS. However, the results differ for men and women. Whereas men exposed to SAfAIDS are less likely to report receiving gifts or money for sex (with their second most recent partner), they are more likely to report giving gifts or money for sex with some other partners (their most recent and second most recent, if the partner is casual) and less likely for their third most recent partner. Two of these results are confirmed by the PSM analysis. Finally, women

exposed to SAfAIDS are more likely than unexposed women to report giving gifts or money for sex with their most recent partner, if casual.

5.3.2 OTHER HIV RISK FACTORS

Only two other risk factors are significantly different between populations exposed to the SAfAIDS program and those unexposed (Table 31).

Table 31: Summary of multivariate results for SAfAIDS and other HIV risk factors

	Total Population			Male		Female	
	Unexposed	Exposed	PSM	Unexposed	Exposed	Unexposed	Exposed
Leaders discourage much younger partners	0.3305	0.4687**	+	0.4233	0.4888	0.2556	0.4245**
10+year age difference with last partner	0.0921	0.0669	NS	0.0646	0.0590	0.1222	0.0514*
*=p<0.05 **=p<0.01 PSM: + significant/increasing ; - significant/decreasing; NS not significant							

The results for the total population and for female population both show that respondents who are exposed to SAfAIDS are more likely than others to agree that leaders discourage men from having much younger sexual partners. The PSM analysis shows a similar effect. In addition, women exposed to SAfAIDS are less likely than other women to report having a 10 year age difference (or greater) with their most recent sexual partner.

5.3.3 HIV COMMUNICATION

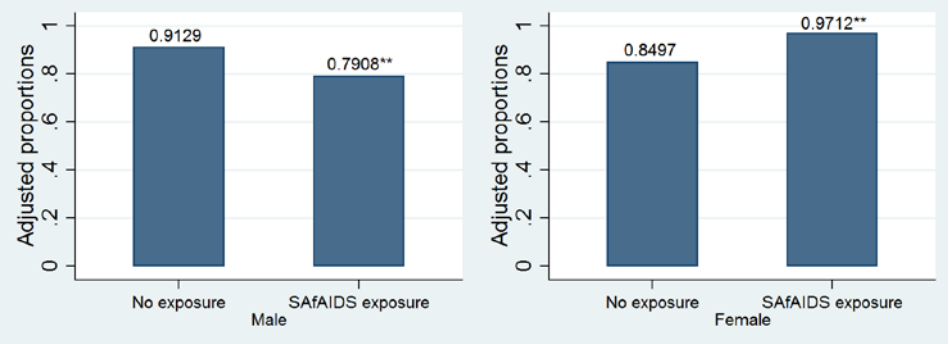
Overall, the results for HIV communication show that the effects of SAfAIDS exposure on discussions about HIV/AIDS are not consistent (Table 32). For one of the variables, the SAfAIDS exposure is in the wrong direction; women exposed to SAfAIDS are less likely to discuss HIV with a spouse than the unexposed. In contrast, the PSM analysis shows that the total population exposed to SAfAIDS is more likely to discuss HIV with friends, or anyone, than the unexposed population; and men exposed to SAfAIDS are more likely than other men to speak with their partner or spouse about sexual dissatisfaction. The effect of SAfAIDS on whether communication improves one's sex life differ for men and women. Men exposed to SAfAIDS are less likely than other men to state that communication improves one's sex life, while women are more likely to believe that communication is beneficial for their sex life (Figure 16).

Table 32: Summary of multivariate results for SAfAIDS and HIV communication

	Total Population			Male		Female	
	Unexposed	Exposed	PSM	Unexposed	Exposed	Unexposed	Exposed
Discussed HIV with spouse	0.8235	0.8120	NS	0.7534	0.8948	0.8611	0.7277*
Discussed HIV with friends	0.6565	0.6918	+	0.5870	0.6333	0.7144	0.7620
Discussed HIV with anyone	0.7396	0.7692	+	0.6625	0.6926	0.8061	0.8511
Spoke with partner/spouse about sexual dissatisfaction	0.1160	0.1060	NS	0.0115	0.0290*	0.1966	0.1459
Sex life better with communication	0.8795	0.9026	NS	0.9129	0.7908**	0.8497	0.9712**

*=p<0.05 **=p<0.01
PSM: + significant/increasing ; - significant/decreasing; NS not significant

Figure 16: Effects of exposure to SAfAIDS on agreement that communication can improve sex life



5.3.4 CONDOM USE

The results for the effect of exposure to SAfAIDS interventions on indicators of condom use are shown in Table 33. The analysis examines the effect of exposure on knowledge as well as the effect on actual behaviors. The results of the PSM analysis indicate that populations exposed to SAfAIDS are more likely than unexposed populations to disagree that if one spouse is HIV positive then the other spouse will certainly be HIV positive as well. Results for the association between SAfAIDS exposure and the knowledge that STIs increase HIV risk differed by gender. While women exposed to SAfAIDS (85.8%) are significantly more likely than other women (80.5%) to agree that STIs increase the risk of HIV infection, exposed men are less likely than unexposed men to agree with this.

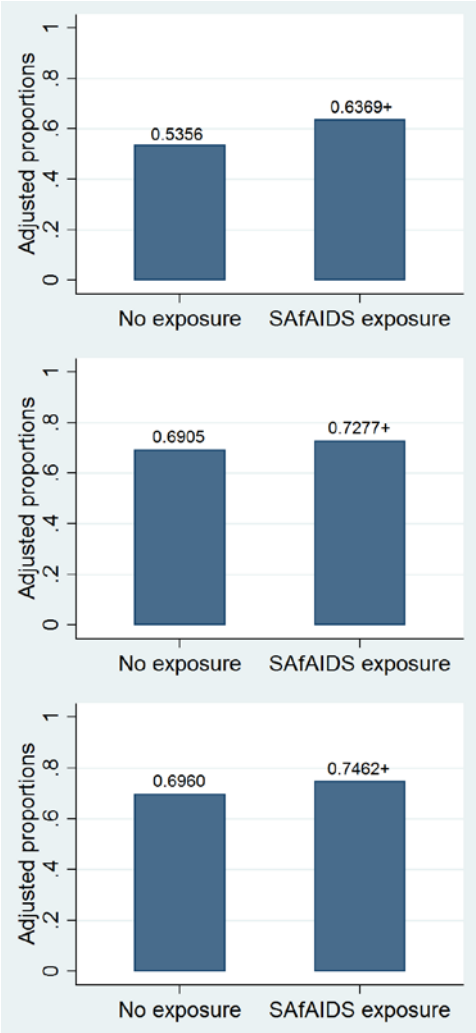
Table 33: Summary of multivariate results for SAfAIDS and condom use

	Total Population			Male		Female	
	Unexposed	Exposed	PSM	Unexposed	Exposed	Unexposed	Exposed
Disagree that if one spouse is HIV+, then the other spouse certainly is too	0.4598	0.5242	+	0.5635	0.5925	0.3725	0.4404
STIs increase risk of HIV infection	0.8514	0.8259	NS	0.8989	0.7813*	0.8047	0.8579*
Condom use last sex	0.5356	0.6369	+	0.6455	0.6939	0.4471	0.5730
Condom use last sex, if regular partner	0.4895	0.5785	NS	0.5887	0.6162	0.4214	0.5259
Condom use last sex, if casual partner	0.8919	0.8460	NS	0.9316	0.8779*		
Condom use last sex, those with multiple partners	0.7679	0.7112	NS	0.8128	0.7831		
Always/usually used condom with last partner	0.6905	0.7277	+	0.7859	0.8331	0.6084	0.6197
Condom use last sex among those who had sex in the last 12 months	0.6960	0.7462	+	0.7924	0.8884	0.6092	0.6153

*=p<0.05 **=p<0.01
PSM: + significant/increasing ; - significant/decreasing; NS not significant

Generally, the PSM results showed greater condom use for those exposed to SAfAIDS but these results are not significant in the probit results. According to the PSM results for the total population, those exposed to SAfAIDS are more likely than the unexposed to use condoms at last sex (63.7% versus 53.6%), always or usually use a condom with last partner (72.8% versus 69.1), and use a condom among those sexually active in the last 12 months (Figure 17). However, men exposed to SAfAIDS are less likely to have used a condom at last sex with a casual partner (87.8% versus 93.2%).

Figure 17: PSM results for condom at last sex, always/usually use a condom, and condom use among those who had sex in the last 12 months



5.3.5 HIV TESTING

Results for the effect of SAfAIDS exposure on HIV testing-related outcomes are mixed (Table 34). In some cases, exposure to SAfAIDS is associated with increased knowledge about HIV infection, worry or suspicion of HIV infection, or encouragement of testing; those exposed to SAfAIDS are more likely to know that circumcision decreases risk of HIV infection (total population), more likely to worry about HIV infection (men only), and more likely to think that they are currently infected with HIV (women only). According to PSM results, those exposed to SAfAIDS are also more likely to think leaders encourage HIV testing. In contrast, those exposed to SAfAIDS are also less likely than others to find it important to know one's HIV status, and are less likely to have discussed the results of a recent test.

Table 34: Summary of multivariate results for SAfAIDS and HIV testing

	Total Population			Male		Female	
	Unexposed	Exposed	PSM	Unexposed	Exposed	Unexposed	Exposed
Knows circumcision decreases HIV	0.6896	0.7862*	NS	0.8042	0.8595	0.5882	0.7037
Important to know HIV status	0.9738	0.9542**	NS	0.9793	0.9588*	0.9598	0.9732
Worried about HIV infection	0.5990	0.6135	NS	0.5721	0.7644**	0.6200	0.4750
Likely to be HIV positive now	0.2520	0.3610	NS	0.2253	0.2182	0.2957	0.4673**
Suspects wife has extramarital	0.1102	0.0453*	NS	0.1102	0.0453*	.	.
Suspects husband has extramarital	0.1976	0.0565*	NS	.	.	0.1976	0.0565*
Thinks last partner had other partners	0.1752	0.4224**	+	0.0957	0.2775**	0.2460	0.5162**
Thinks third to last partner had other partners	0.3229	0.6890**	+	0.3348	0.6925**	.	.
Leaders encourage HIV testing	0.5167	0.5871	+	0.5740	0.6120	0.4670	0.5592
Discussed results of recent HIV test	0.8858	0.7793*	NS	0.8417	0.8235	0.9038	0.7953*

*=p<0.05 **=p<0.01
PSM: + significant/increasing ; - significant/decreasing; NS not significant

Results for the effect of SAfAIDS on suspicion of infidelity are also mixed. Men and women exposed to SAfAIDS are less likely to think that their spouse or regular partner has had extramarital partnerships. They are, however, suspicious about previous partners. Results for the overall population, and for men and women, show that those exposed to SAfAIDS are more likely than others to think that their last sexual partner had other partners. The PSM results are consistent with these findings. In addition, the results for overall population and for men show that those exposed to SAfAIDS are more likely than

others to think that their third to last sexual partner had other partners. The PSM results show a similar effect.

5.3.6 HIV TREATMENT

Results for HIV treatment generally show greater uptake and better use of ARVs for populations exposed to SAfAIDS than among those not exposed (Table 35). In probit and PSM results, exposed populations are more likely than others to report ever taking ARVs. Similarly, those exposed to SAfAIDS are more likely than others to receive support from a buddy or CBV in ARV uptake (the total population), are less likely to struggle with the ARV regimen (women only), and are more likely to participate in PMTCT programs (PSM).

The results also show significant differences in knowledge about ARVs between exposed and unexposed populations. According to PSM results, those exposed to SAfAIDS are more likely to know that ARVs prevent mother-to-child transmission of HIV during childbirth. In contrast, men exposed to SAfAIDS are less likely than unexposed men to know that ARVs prevent MCT via breastfeeding.

Table 35: Summary of multivariate results for SAfAIDS and HIV treatment

	Total Population			Male		Female	
	Unexposed	Exposed	PSM	Unexposed	Exposed	Unexposed	Exposed
Knows ARVs prevent MCT childbirth	0.7604	0.7829	+	0.7846	0.6858	0.7691	0.7528
Knows ARV prevent MCT breastfeeding	0.6513	0.6284	NS	0.6156	0.4945*	0.6768	0.7947
Ever taken ARVs	0.0514	0.1062*	+	0.0278	0.0540	0.0759	0.1413**

*=p<0.05 **=p<0.01
PSM: + significant/increasing ; - significant/decreasing; NS not significant

5.3.7 HIV STIGMA

The results for exposure to SAfAIDS and HIV stigma related behaviors and attitudes are found in Table 36.

Table 36: Summary of multivariate results for SAfAIDS and HIV stigma

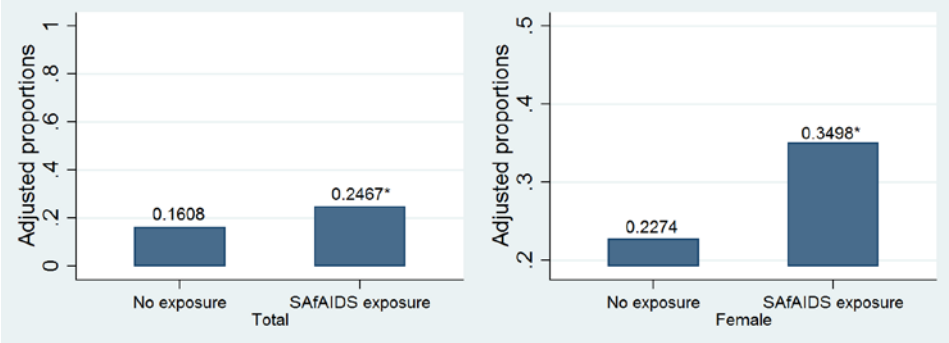
	Total Population			Male		Female	
	Unexposed	Exposed	PSM	Unexposed	Exposed	Unexposed	Exposed
Disagrees HIV punishment for sin	0.5858	0.5571	-	0.5934	0.5485	0.5778	0.5575
Willing to care for someone on ART	0.9544	0.9664	NS	0.9721	0.9947**	0.9375	0.9355
Community helps PLHIV	0.5093	0.4902	+	0.9721	0.9947	0.4878	0.4593
Keep secret if family member has HIV	0.6992	0.7760*	NS	0.7008	0.8096	0.6927	0.7438
Cared for someone on ART	0.1608	0.2468*	+	0.0878	0.1252	0.2274	0.3498*
Wife inheritance is practiced in community	0.1056	0.0775	NS	0.1159	0.1174	0.0945	0.0507*

*=p<0.05 **=p<0.01

PSM: + significant/increasing ; - significant/decreasing; NS not significant

The results presented above suggest that there is generally a beneficial effect of SAfAIDS exposure on attitudes towards those living with HIV/AIDS. For example, those exposed to SAfAIDS are more likely than others to (1) be willing to care for someone on ART (men only), (2) state that the community assists people living with HIV/AIDS (PSM only), and (3) care for someone on ART (total population, PSM and women, see Figure 18). Women exposed to SAfAIDS are also less likely than other women to state that wife inheritance is practiced in their community.

Figure 18: SAfAIDS exposure and having supported someone on ART



Not all results showed greater openness towards the HIV infected with exposure to SAfAIDS, however. According to PSM results, the population exposed to SAfAIDS is less likely to disagree that HIV is a punishment for sin. Also, the results for the total population show that those exposed to SAfAIDS are more likely than others to state that families keep HIV positive members secret.

5.3.8 GENDER-BASED VIOLENCE

The overall percentage of respondents who report experiencing forced sex is 3.3% (Table 37). The percentage is a one and two percentage points higher for women and young women, respectively. The vast majority of individuals who experienced forced sex and who reported it to anyone reported it to a family, friend, or neighbor. Physical violence in the last 12 months was reported by 11.1% of the sample. Of these individuals, 37.3% reported the physical violence to either a family or friend or to the police or another type of traditional authority.

Table 37: Forced sex and physical violence

	Percentage	N
Forced sex in the last 12 months	3.3%	4313
Females	5.1%	2168
Females 15-24	4.0%	857
Reported forced sex	19.5%	97
Reported forced sex to family, friends, neighbor	93.3%	38
Reported forced sex to authority	14.9%	38
Physical violence in last 12 months	11.1%	4314
Females	12.3%	2168
Females 15-24	12.6%	857
Reported physical violence	37.3%	404
Reported physical violence to family, friends, neighbor	62.7%	209
Reported physical violence to authority	58.5%	209

Table 38 shows results for the association between exposure to SAfAIDS programs and attitudes and behaviors related to gender-based violence. A lower percentage of women exposed to SAfAIDS report being forced to have sex in the last 12 months (2.5% versus 6.1%), and we observe no statistical difference in the percentage of respondents who report experiencing physical violence. We do observe one negative and significant association; men exposed to SAfAIDS are more likely to agree that a man has a right to sex in exchange for gifts (34.4% versus 18.9%). There are no significant differences between exposed and unexposed individuals when it comes to agreeing that community leaders speak out against gender-based violence.

Table 38: Summary of multivariate results for SAfAIDS and gender-based violence

	Total Population			Male		Female	
	Unexposed	Exposed	PSM	Unexposed	Exposed	Unexposed	Exposed
Leaders speak out against GBV	0.5603	0.5908	**NS**	0.6854	0.7253	0.4537	0.4277
Man has right to sex for gifts	0.2898	0.3099	NS	0.1896	0.3444*	0.3635	0.3193
Been forced to have sex in past year	0.0384	0.0174*	NS	0.0149	0.0073	0.0610	0.0249*
Experienced physical violence	0.1059	0.1179	NS	0.0863	0.1021	0.1293	0.1125
Reported violence to anyone	0.3363	0.4488	NS	0.5601	0.6374	0.2434	0.1996
Reported violence to friend, family, community member	0.5939	0.5870	NS				
Reported violence to police or authority	0.7022	0.5457	NS				

*=p<0.05 **=p<0.01

PSM: + significant/increasing ; - significant/decreasing; NS not significant

5.4 VULNERABLE POPULATIONS

The next two sections present the results of the analysis of exposure to SAfAIDS and health outcomes for young women and for border populations. Only statistically significant results are presented.

5.4.1 WOMEN AGES 15-24

Table 39 presents the results for the effect of SAfAIDS exposure on outcomes for women aged 15-24 years only. We observe some negative associations between exposure and multiple partnership indicators. For example, women exposed to SAfAIDS are less likely to know that multiple sexual partners can increase your risk of HIV. In addition, 23.8% of exposed women report having multiple sexual partners as compared with 9.9% of other women in this age category. Over half of exposed women also report receiving money in exchange for sex with last partner.

Table 39: Summary of multivariate results for SAfAIDS and health outcomes, women 15-24

	Unexposed	Exposed
Multiple Partners		
Knows multiple sexual partners increase HIV risk	0.9030	0.7318**
Most married men faithful to wives	0.3869	0.2451*
Multiple partners (last 12 months)	0.0994	0.2381**
Self-reported having concurrent partners in the past 12 months	0.0444	0.1164**
Received gifts or money in exchange for sex with last partner	0.3138	0.5594**
Other HIV Risk Factors		

	Unexposed	Exposed
Leaders discourage multiple partners	0.2147	0.3545*
10+ year age difference between respondent and last sexual partner	0.0321	0.0103*
HIV Communication		
	Unexposed	**Exposed**
Sex life improves with communication	0.8711	0.9481*
HIV Testing		
	Unexposed	**Exposed**
Knows TB can be cured if HIV+	0.6728	0.5438*
Knows that the risk of contracting HIV decreases for a circumcised man	0.5188	0.7103*
Important to know HIV status	0.9506	0.9977*
Worried about becoming infected	0.5604	0.7631*
Likely to be infected now	0.2627	0.4984**
Thinks that last partner had other sexual partners	0.2305	0.6115**
Disagrees that HIV means life is over	0.7837	0.6691**
Discussed results of most recent HIV test	0.8808	0.6719**
HIV Treatment		
	Unexposed	**Exposed**
Knows ARVs prevent MCT during breastfeeding	0.6372	0.8351*
Knows how often people should take ARVs	0.8955	0.6923**
HIV Stigma		
	Unexposed	**Exposed**
Disagrees that revealing HIV status doesn't help	0.7191	0.5724**
Gender-Based Violence		
	Unexposed	**Exposed**
Leaders speak out against GBV	0.4154	0.2660*
Forced sex in last 12 months	0.0534	0.0214
Physical violence in last 12 months	0.1423	0.0958

Other results of note are that women exposed to the intervention are more likely to be worried that they will become infected with HIV. In addition, 49.8% think they might be infected now as compared with 26.8% of all women in this age group. Further, women exposed to the intervention are more likely to know that ARVs prevent mother to child transmission but less likely to know how often people should take ARVs.

5.4.2 BORDER AREAS

There are only a few significant results from the analyses conducted only on the border population (Table 40). We do see that exposed individuals are more likely to say that leaders discourage multiple partners (35.9% versus 21.8%) and to report less multiple partners in the last 12 months.

Table 40: Summary of multivariate results for SAfAIDS and health outcomes, border areas

Multiple Partners		
	Unexposed	**Exposed**
Leaders discourage multiple partners	0.2176	0.3595 *
Multiple partners (last 12 months)	0.2271	0.3255 **
HIV Communication		
	Unexposed	**Exposed**
Discussed HIV with spouse	0.8690	0.9624 *
Condom Use		
	Unexposed	**Exposed**
Condom use in marriage is accepted	0.5932	0.5040 *
HIV Testing		
	Unexposed	**Exposed**
Thinks that last partner had other sexual partners	0.2343	0.3784 **
Gender Based Violence		
	Unexposed	**Exposed**
Forced sex in the last 12 months	0.0275	0.0681*
Physical violence in last 12 months	0.0758	0.1177
Leaders speak out against GBV	0.5818	0.5874

Individuals exposed to the program are more likely to report talking about HIV with their spouse. Some negative associations include: lower percentage of respondents agreeing that condom use in marriage is accepted, higher percentage thinking that their last sexual partner had other partners, and a higher percentage reporting forced sex in the last 12 months.

CHAPTER 6. MARGINAL AND CUMULATIVE EFFECTS

6.1 METHODOLOGY

As noted by West (2010), a key issue in this evaluation is distinguishing the impact of the current three-year program of partner activities from prior program activities and from the programs of other funders. This is referred to by West as the marginal impact, "the additional reach and effect of further rounds of BCC in an environment where multiple sources of information exist and where many exposed to BCC programs may have had previous exposure" (West, p. 7). Marginal impact is held to be distinct from cumulative impact, the effects of exposure to program activities over multiple rounds of funding.

Ideally, this marginal impact of the program would be calculated as the change in mean outcomes from baseline to endline for those exposed to the program relative to those not exposed, controlling at the same time for exposure to other programs. This would address the issue of cumulative exposure, as the influence of previous programs would already be determined in baseline outcomes, and changes across time for sampled respondents would reflect only the effects of recent programs (using suitable controls for other programs).

However, the baseline data which were collected in 2007 had several drawbacks which limited their usefulness, namely insufficient comparability - at least for many of the indicators being examined here – and questions about overall data quality. Further, many of the key data – including measures of exposure to other programs – were collected using open-ended responses, which had not been fully coded. Hence, we sought a compromise – not ideal – that attempted to distinguish between current exposure and prior exposure using this single wave of data.

The compromise involved inserting several questions into the survey instrument about the timing of first exposure to Desert Soul and SAfAIDS interventions. Specifically, respondents were asked:

- If they had ever heard of Desert Soul and, if so, when they first heard of it;
- If they had ever seen the Desert Soul logo and, if so, when they first saw it;
- If they had ever listened to a Desert Soul radio drama and, if so, when they first heard it;
- If they had ever watched a Desert Soul children's television show and, if so, when they first saw it;
- If they had ever seen the SAfAIDS logo and, if so, when they first saw it
- If they had ever received any informational material from SAfAIDS and, if so, when

Coded responses included time periods that distinguished between recent exposure (either in the past year or past 12-36 months) from earlier exposure (more than 36 months ago) and from no exposure. Measures of intensity of exposure (e.g., number of episodes watched or radio programs listened to) during each of these time periods were not included in the questionnaire as they were considered to be too prone to error and recall bias. For similar reasons, a timeline of exposure (e.g., "Were you exposed to a Desert Soul radio drama in 2008? 2009? 2010? 2011?") was also omitted.

To address the issue of marginal versus cumulative effect, we distinguish between two types of marginal effects: (1) the marginal effect of exposure to program interventions for those exposed *only during the most recent 3 years* of program activities (relative to those not exposed at all) and (2) the marginal effect for those first exposed *prior to the most recent 3 years* netting out the effects of previous exposure.

For those exposed only during the most recent three years, our counterfactual is straightforward. We use as a comparison group the sample of respondents not exposed to program activities during the current period (nor in prior periods), and then examine differences in mean outcomes through bivariate and multivariate analyses that control for observable differences in these two groups.

For those with prior exposure, the comparison is less straightforward, but we use as our counterfactual the group of respondents who report exposure to program activities in previous periods but not the current period. This group – we assume – represents what would have happened to those who continued to be exposed had they not in fact been exposed further, i.e., their baseline outcomes. We make the assumption that the sample who report exposure both before and during the most recent program cycle are reporting cumulative exposure effects; their outcomes reflect both the effects of prior Desert Soul efforts as well as more recent activities. For these individuals, recent programmatic activities may have a lesser impact if only because of diminishing marginal returns to exposure. To calculate the marginal effect of the most recent activities for this group, we would need to subtract a value for their baseline level of outcomes (as would be obtained through a timeline or prior data collection), and therefore look only at their change in outcomes during the past three years. Using the group with prior but not subsequent exposure is admittedly an imperfect proxy for baseline outcomes and in some cases may tend to overstate program effects because it assumes that those exposed to Desert Soul interventions only prior to the most recent round experienced no deterioration in effects over the past three years. This may be untenable in some cases. Nonetheless, for some indicators, such as knowledge and attitudes, it may represent a reasonable approximation since knowledge once gained

or attitudes once changed may be less likely to revert back to their original levels. In the absence of a suitable baseline, we therefore see no other attractive alternative.

We focus here on exposure to Desert Soul / OneLove radio programs because these have relatively large samples reporting exposure both during and before the most recent round of partner activities. As described in the larger Desert Soul section, a person was characterized as having current exposure to Desert Soul radio activities if they reported listening to any of the following: the OneLove radio program, talk show or Phone-in program; *"Tjitjikutuara Kepembe Kotjii"* on Otjiherero radio*, "kelezo ki mulyani"* on Silozi radio*,* or the "Meet Joe" radio advertisements. Prior exposure is determined from the question about whether or not a person heard a Desert Soul radio drama prior to the current round of activities. In both bivariate and multivariate analyses, we look at the differences in mean outcomes for four groups:

(1) Never Exposed: Those never exposed to Desert Soul / OneLove / Meet Joe radio in either the previous 36 months or earlier;
(2) Recently Exposed: Those who report exposure to Desert Soul/OneLove/Meet Joe radio only in the most recent three years but not prior;
(3) Previously Exposed: Those exposed to Desert Soul radio drama prior to three years ago and then to no further radio programs; and
(4) Exposed during both Periods (Dual exposers): Those exposed both previously and during the most recent 36 months.

For simplicity, we focus principally on whether there are statistically significant differences in mean outcomes (adjusted and unadjusted) between each of the exposed groups (based on the timing of exposure) relative to the never exposed group. Differences between the recently exposed (Group 2) and the never exposed (Group 1) would be an indication of significant recent marginal effects. Differences between those exposed during both periods (Group 4) and the never exposed (Group 1) would be indicative of significant cumulative effects. We then compare the effects for the recently exposed (Group 2) and the cumulatively exposed (Group 4). If they are similar, then that would be an indication that exposure in the most recent period would have had little impact *amongst those previously exposed* (except to the extent that current exposure prevented deterioration of effects). If mean outcomes for the cumulatively exposed (Group 4) are significantly better than those for the respondents exposed only in the current period (Group 2), then that would tend to indicate a significant contribution of the program even for those previously exposed. In addition, we examine the differences in outcomes

between Groups 3 and 4. As noted above, the difference between these two represents the incremental effect of exposure amongst those exposed both before and after the most recent round.

During analysis we control in multivariate probit regression models for the standard set of characteristics of respondents, as well as contemporaneous exposure to other programs. We hypothesize that:

(1) The effect of cumulative exposure for the cumulatively exposed (Group 4) will exceed the marginal effect for the recently exposed (Group 2), reflecting the additive effect of multiple Desert Soul programs across time.
(2) The marginal effect for the recently exposed (Group 2) will exceed that for the cumulatively exposed (Group 4), reflecting diminishing marginal returns for the latter group.
(3) Effective programmatic efforts will lead to significant differences in outcomes among the two previously exposed groups: those exposed only in the prior period (Group 3) and those exposed in both periods (Group 4).

6.2 RESULTS

6.2.1 MULTIPLE AND CONCURRENT PARTNERSHIPS

Table 41 below presents the marginal and cumulative effects of the OneLove program on variables relating to multiple and concurrent partnerships. Only those variables for which significant results were found are presented below. As hypothesized above, the effect of exposure for those cumulatively exposed (Group 4) was found to be significant in some indicators, where no significant results were found for the marginal effect of recent exposure (Group 2). This trend was found in an indicator measuring the perception that people in the community discuss HIV risk and multiple partnerships (adjusted effect= 22.4 percentage points) and in an attitude variable capturing whether *Men with many women are real men* (adjusted cumulative effect= -6.7 percentage points). For the variable *Leaders discourage multiple partners* a program effect was found regardless of the timing of exposure (adjusted effects are 15.8, 22.3 and 17.9 percentage points for Groups 2, 3 and 4, respectively). For this indicator, there is an effect of the program regardless of the timing of the exposure. A marginal effect was found for exposure to the OneLove campaign, where no effect was found with previous exposure in two key behavioral indicators: *Multiple partners in the past 12 months* (adjusted effect= -5.7 percentage points) and *Gave gifts or money in exchange for sex with last partner* (adjusted effect= 6.7 percentage points).

While the effect of the program is in the desired direction for multiple partners in the past 12 months, it increases for the variable capturing gifts for sex.

Table 41: Marginal and cumulative effects of the OneLove program on multiple and concurrent partnerships outcomes

	Never Exposed (Group 1)	Exposed <3 years ago (Group 2)	Exposed >3 years ago (Group 3)	Exposed both >3 year and <3 years ago (Group 4)
Multiple and Concurrent Partnerships				
People discuss HIV & MP	0.5600	0.4830	0.7498 *	0.7843 **
Leaders discourage MP	0.2970	0.4550 *	0.5205 *	0.4761 **
Men with many women are real men	0.0770	0.0920	0.0754	0.0105 **
Multiple partners last year	0.2000	0.1430 *	0.2509	0.2290
Received gifts/money for sex, last partner if regular	0.1280	0.1520	0.0168 **	0.1092
Gave gifts/money for sex, last partner	0.0550	0.1220 **	0.0376	0.0540

6.2.2 OTHER RISK FACTORS

Table 42 below presents the significant results associated with other HIV risk factors. The analysis found a significant cumulative effect of exposure for Group 4 (those cumulatively exposed) on the variable *Leaders discourage men from having younger partners*. No such effect was found for those only exposed to the recent interventions (Group 2). With regards to behavior, the analysis found lower proportions of respondents reporting a 10 or more year age difference with their last sexual partner, but these differences were only significant among those who were only exposed more than three years ago.

Table 42: Marginal and cumulative effects of the OneLove program on other HIV risk factors

	Never Exposed (Group 1)	Exposed <3 years ago (Group 2)	Exposed >3 years ago (Group 3)	Exposed both >3 year and <3 years ago (Group 4)
Other Risk Factors				
Leaders discourage much younger partners	0.3410	0.3140	0.4864	0.5829 **
10+year age difference with last partner	0.0910	0.1010	0.0497 *	0.0608

6.2.3 HIV COMMUNICATION

The table below presents the marginal and cumulative effects of the program on interpersonal communication regarding HIV. *Discussion of HIV/AIDS with friends* within the past 12 months was only found to be significant with cumulative exposure to the program (Group 4), while *Discussion of HIV/AIDS with children* within the past 12 months was only found significant with previous (and not recent)

exposure to the program (Group 3). *Discussion of HIV/AIDS with spouse* was only found significant in the recently exposed group (but not those who were also previously exposed). Across all groups only those who were previously exposed (Group 3) are less likely than unexposed individuals to report being sexually dissatisfied with their spouse/cohabitating partner.

Table 43: Marginal and cumulative effects of the OneLove program on HIV communication

	Never Exposed (Group 1)	Exposed <3 years ago (Group 2)	Exposed >3 years ago (Group 3)	Exposed both >3 year and <3 years ago (Group 4)
HIV Communication				
Discussed HIV with spouse	0.7900	0.8810 *	0.8356	0.6843
Discussed HIV children	0.5180	0.5980	0.6507 *	0.3702
Discussed HIV with friends	0.6250	0.6560	0.7313	0.8204 **
Discussed HIV with anyone	0.7010	0.7420	0.8356 *	0.9225 **
Dissatisfied with sex with spouse	0.1780	0.1430	0.0513 **	0.1839
Discussed sexual dissatisfaction with partner	0.1340	0.1060	0.0479 *	0.1671

6.2.4 CONDOM USE

The analysis of condom use outcomes found conflicting results for the group of individuals who were only exposed to the program within the past three years (Table 44). In several key knowledge and attitude variables the exposed group presents negative effects for the program. For example, those exposed only recently to the program are less likely to agree that *Condom use in marriage is accepted* (treatment effect= -12.6 percentage points). The other significant knowledge variable *Knows PLHIV on ART can transmit HIV*, was only found to be significant if exposure occurred more than three years ago (treatment effect=8.45 percentage points for Group 3 and 9.5 percentage points for Group 4). Regarding condom use behaviors, *Condom at last sex, if casual partner* was only significant with previous exposure to the program (Group 3 and 4), and consistent use of condoms with most recent partner with continued exposure (Group 4, adjusted effect=17.76 percentage points). Recent exposure alone had no significant marginal effect in the desired direction on any of the condom use variables measured.

Table 44: Marginal and cumulative effects of the OneLove program on condom use

	Never Exposed (Group 1)	Exposed <3 years ago (Group 2)		Exposed >3 years ago (Group 3)		Exposed both >3 year and <3 years ago (Group 4)	
Condom Use							
Disagree that while in ART, PLHIV don't need to practice safe sex	0.9100	0.8580	*	0.9750	*	0.9423	
Knows PLHIV on ART can transmit HIV	0.8390	0.8660		0.9235	*	0.9341	*
Percentage who disagree that if one spouse is HIV+ the other certainly is	0.5450	0.4130	**	0.4864		0.4309	
Condom use in marriage accepted	0.7060	0.5800	**	0.6162		0.7697	
Women can ask regular partner to use condom	0.7640	0.6610	**	0.7135		0.8246	
Condom at last sex, if casual partner	0.7770	0.8150		0.8876	**	0.9196	*
Always/usually used a condom with last sexual partner	0.6700	0.6960		0.6849		0.8476	*

6.2.5 HIV TESTING

The analysis showed a cumulative effect on a number of variables (Group 4) that were not present when estimating the marginal effect of recent exposure to the program (Group 2). This pattern was present in the variables *Agrees that only way to know you are HIV positive is through blood* test (adjusted effect=4.5 percentage points), *Knows where to get HIV/AIDS info* (adjusted effect= 9.8 percentage points), and *Discussed results of most recent HIV test* (adjusted effect=10.1 percentage points) and implies that there is only an effect when there is a sustained exposure over time. Regarding HIV testing variables, however, the only significant exposure pattern on *Ever tested for HIV*, was with recent exposure to the program (Group 2). Interestingly, though more likely to report HIV testing (adjusted effect=6 percentage points), this recently exposed group was less likely than those unexposed to report receiving test results.

Risk perception of HIV infection (*Likely to be infected now*) is significant regardless of the timing of exposure (adjusted effects= 15.5 percentage points for Group 2, 19 percentage points for Group 3, and 17.3 percentage points for Group 4). Only those respondents that were recently exposed to the program, however, reported being *Worried about becoming infected* (adjusted effect= 15.4 percentage points).

While knowledge that TB can be cured if a person is HIV positive showed increasing trends throughout the exposure measures, only previous exposure (Group 3) showed a significant effect on the outcome.

Table 45: Marginal and cumulative effects of the OneLove program on HIV testing

	Never Exposed (Group 1)	Exposed <3 years ago (Group 2)		Exposed >3 years ago (Group 3)		Exposed both >3 year and <3 years ago (Group 4)	
HIV Testing							
Knows TB can be cured if HIV+	0.6680	0.7140		0.8093	**	0.6862	
Knows that the risk of contracting HIV decreases for a circumcised man	0.6240	0.7520	**	0.8390	**	0.6711	
Agrees that only way to know you are HIV positive is through blood test	0.9490	0.9310		0.9542		0.9938	*
Worried about becoming infected	0.5340	0.6890	*	0.6071		0.6206	
Likely to be Infected Now	0.1720	0.3270	**	0.3644	**	0.3447	*
Knows where to get HIV/AIDS info.	0.8810	0.9160		0.9438		0.9791	**
Ever Tested for HIV	0.6910	0.7510	**	0.7394		0.7663	
Received results of most recent HIV test	0.9900	0.9440	**	0.9704		0.9547	
Discussed results of most recent HIV test	0.8370	0.8790		0.8638		0.9382	*

6.2.6 HIV TREATMENT

Recent exposure to the program (Group 2) showed a significant and positive marginal effect on *Knowledge that taking ARVs during pregnancy and childbirth prevent mother-to-child transmission of HIV* (adjusted effect=13 percentage points and 6.7 percentage points, respectively), but no significant cumulative effect was found for those who were recently and previously exposed (Group 4). Cumulative exposure (Group 4) was found to have a significant and positive association with whether the respondent had ever taken ARVs (Table 46).

Table 46: Marginal and cumulative effects of the OneLove program on HIV treatment

	Never Exposed (Group 1)	Exposed <3 years ago (Group 2)		Exposed >3 years ago (Group 3)		Exposed both >3 year and <3 years ago (Group 4)	
HIV Treatment							
Knows ARVs prevent MCT during pregnancy	0.7340	0.8220	*	0.8640	**	0.7138	
Knows ARVs prevent MCT during childbirth	0.7240	0.7910	*	0.7668		0.7894	
Has ever taken ARVs b28	0.0460	0.0690		0.0642		0.1367	**

6.2.7 HIV STIGMA

The analysis found a significant and negative effect of previous exposure to the program (Groups 3 and 4) and disagreement that HIV is a punishment for sinning (i.e., those exposed over three years ago were less likely to disagree that HIV is a punishment for sinning). Effects of continuous exposure (Group 4) were found on the outcome *People in the community joint together to help PLHIV*, where no effects were found for the marginal exposure of the current program. An association for the current program period (<3 years) was found with the statement *Wife inheritance is practiced in the community*.

All exposure measures were found to have a significant association with caring for someone on ART (adjusted effect= 7.4 percentage points for Group 2, 12.2 percentage points for Group 3, 10.3 percentage points for Group 4).

Table 47: Marginal and cumulative effects of the OneLove program on HIV stigma

	Never Exposed (Group 1)	Exposed <3 years ago (Group 2)		Exposed >3 years ago (Group 3)		Exposed both >3 year and <3 years ago (Group 4)	
HIV Stigma							
Disagrees that HIV is a punishment for sinning	0.6190	0.6530		0.4103	*	0.3855	**
People in the community join together to help PLHIV	0.4990	0.4370		0.6056		0.6736	**
Cared for someone on ART	0.1240	0.1980	*	0.2456	**	0.2268	*
Agrees that wife inheritance is practiced in the community	0.0700	0.1530	**	0.0834		0.1309	

6.2.8 GENDER-BASED VIOLENCE

The analysis of outcomes relating to gender-based violence found that those exposed previously to the program (Groups 3 and 4) were significantly less likely to report experiencing forced sex in the past 12 months (as compared to those never exposed).

Continuous exposure to program (Group 4) was found to have a significant effect on the outcome *A man has right to have sex for gifts,* though this outcome is opposite to that hypothesized (those exposed both recently and previously are more likely to agree that *Men have the right to have sex with a female if they buy them gifts.*

Table 48: Marginal and cumulative effects of the OneLove program on HIV treatment

	Never Exposed	Exposed <3 years ago (only)	Exposed >3 years ago (only)	Exposed both >3 year and <3 years ago
Gender Based Violence				
Man has right to have sex for gifts	0.2470	0.3020	0.3008	0.4739 *
Forced Sex in the Last 12 Months	0.0390	0.0410	0.01190 *	0.0073 *

CHAPTER 7. VALUE-ADDED OF THE REGIONAL PROGRAM PARTNERS

A key objective of this evaluation is to assess the value-added of the combined interventions of the two Regional Program partners. This objective intends to measure whether greater health benefits are gained through the combination of Regional Program partner interventions relative to independent, stand-alone interventions. The rationale for this assumes that synergies exist between the interventions of the two partners and that these synergies amplify the potential effects of exposure. The post-only evaluation design allows for the examination of the effects of different exposure patterns by categorizing respondents based on their exposure to the two partners, and then examining differences in mean outcomes through bivariate and multivariate analyses that control for observable differences between the groups.

As was presented in the previous partner-specific sections, when looking at a single exposure we take a straightforward approach to the counterfactual and use as the comparison group the sample of respondents who are unexposed to that partner's activities. When looking at combined interventions, we have a numerous comparisons to make and counterfactuals to identify. In the case of Namibia, it becomes necessary to isolate the sample of respondents who: 1) remained unexposed to any of the partner's interventions; 2) were exposed to only one of the partner's interventions, but not the other; and 3) were exposed to both interventions.

The limitations of this design are that: 1) we are unable to determine whether any additive effects of exposure to combined interventions are due to the synergies between the partners or simply a greater intensity of exposure; and 2) the feasibility of the analysis relies heavily on the existing exposure patterns within the data. Other limitations include geographical scope of each of the partners' programs, i.e. OneLove was not implemented as a national campaign. For the present analysis, we created four variables: a) no exposure (34.3% of sample), b) exposure to OneLove only (46.1%), c) exposure to SAfAIDS only (4.2%), and d) and exposure to both OneLove and SAfAIDS (15.3%). Results for this analysis are presented below.

7.1 MULTIPLE PARTNERS AND OTHER HIV RISK FACTORS

The first table in this section presents the results of the value-added analysis on outcomes relating to multiple partnerships and other HIV risk factors.

Table 49: Value-added of combined interventions on multiple partnerships and other risk factors

Multiple partners	No exposure	OneLove only	SAfAIDS only	Both
People discuss HIV risk & multiple partners	0.5177	0.5643	0.6081	0.7128**
Can resist being unfaithful to main partner	0.7139	0.7431	0.8293*	0.7789
Does not need someone to fill gap	0.5944	0.6408	0.8122**	0.7614**
Multiple partners (last 12 months)	0.1624	0.1647	0.3234*	0.2375*
Self-reported having concurrent partners in the past 12 months	0.1171	0.0956	0.2006	0.0515*
Other HIV Risk Factors				
Leaders discourage multiple partners	0.2971	0.3602*	0.4778**	0.4757**

While no significant differences are observed for the first indicator by single exposure measures, individuals exposed to both interventions are more likely to say that people in their communities discuss the increased risk for HIV when a person has multiple partners (almost 20 percentage point difference when compared with the unexposed group). SAfAIDS has a positive effect on reports of being able remain faithful to main partner but there are no other significant differences by other exposure measures. In terms of actual behaviors, we observe some mixed results. A higher percentage of individuals exposed to SAfAIDS only (17 percentage points higher than unexposed) and to both interventions (7.5 percentage points higher than unexposed) report having had multiple sexual partners in the last 12 months as compared with individuals who were not exposed to any program. However, 5.2% of respondents exposed to both OneLove and SAfAIDS report having concurrent partners in the last 12 months as compared with 11.7% of unexposed individuals. The differences are not significant for other exposure categories. We do observe that exposure to every type of exposure category has a positive effect on respondents agreeing that their community leaders discourage people from having multiple sexual partnerships.

7.2 HIV COMMUNICATION

Table 50 presents the value-added results for HIV communication. In terms of HIV communication, we only observe a significant effect of SAfAIDS exposure on these outcomes. Individuals exposed to SAfAIDS are more likely to say that they discuss HIV/AIDS with their children and that a person's sex life can improve with communication with one's partner. We also observe a significant effect but in the opposite hypothesized direction; 3.9% of individuals exposed to SAfAIDS only report being sexually dissatisfied with their partner as compared with 16.5% of individuals who have not been exposed to any of the interventions.

Table 50: Value-added of combined interventions on HIV communication

Communication	No exposure	OneLove only	SAfAIDS only	Both
Discussed HIV/AIDS with children	0.5154	0.5731	0.6736*	0.5043
Percentage who are dissatisfied when having sex with spouse/regular	0.1649	0.1421	0.0387*	0.1768
Sex life improves with communication	0.8803	0.8792	0.9779**	0.8572

7.3 CONDOM USE

This next section looks at the value-added effects on condom use and knowledge. Individuals exposed to SAfAIDS only have higher knowledge that HIV positive people on ART can still transmit HIV (97.6% versus 91.5% of the unexposed). The other exposure measures are not significant for this outcome. However, individuals exposed to OneLove only and to both interventions are more likely to say that condom use is accepted in marriage. The greatest difference, 16 percentage points, is seen among those exposed to both interventions. In terms of actual condom use behaviors, we observe positive effects on condom use at last sex among those exposed to SAfAIDS alone (72.5% versus 51.5% for unexposed).

Table 51: Value-added of combined interventions on condom use

Condom Use	No exposure	OneLove only	SAfAIDS only	Both
Knows PLHIV on ART can transmit HIV	0.8598	0.8881	0.9930*	0.8359
Condom use in marriage accepted	0.5913	0.6826*	0.6346	0.7518*
Condom use at last sex	0.5152	0.5574	0.7245*	0.6035

7.4 HIV TESTING

The results for the value-added analysis yielded some mixed results and some of the results are contrary to the hypothesized direction (Table 52). For example, a lower percentage (5 percentage points) of respondents exposed to both OneLove and SAfAIDS know that a pregnant woman should be tested for HIV. People exposed to SAfAIDS only are more likely to know that the risk of HIV decreases for a circumcised man (94.3% versus 70.4% among the unexposed). There are inconsistent results when we look at the importance placed by different respondents on knowing one's HIV status. Individuals exposed to SAfAIDS only are more likely to think that it is important to one's HIV status; however, those exposed to both interventions are less likely to think this as compared with the unexposed. This still translates to over 90% of the respondents exposed to both interventions agreeing that it is important to know your status but this is the lowest proportion of all the exposure groups.

Table 52: Value-added of combined interventions on HIV testing

Testing	No exposure	OneLove only	SAfAIDS only	Both
Pregnant woman should test for HIV	0.9597	0.9545	0.9818	0.9050*
Knows that the risk of contracting HIV decreases for a circumcised man	0.7042	0.6753	0.9426**	0.7019
Important to know HIV status	0.9666	0.9818	0.9978**	0.9186*
Agrees that husband/cohabitating partner has another sex partner	0.1996	0.1978	0.0211*	0.0833
Thinks that last partner had other sexual partners	0.1668	0.1834	0.5500**	0.3748**
Leaders encourage HIV testing	0.4968	0.5367	0.5367	0.6179*
Knows where to get HIV/AIDS information	0.8999	0.8967	0.9833**	0.9082
HIV test in the last 12 months	0.5851	0.5455	0.4116*	0.5348

The next two outcomes deal with the respondents' partners having other sexual partners. On the one hand, respondents exposed to SAfAIDS only are less likely to think that their husband or cohabitating partner has another sexual partner (2.1% for the exposed versus 20.0% for the unexposed). However, both respondents exposed to SAfAIDS only and to both interventions are more likely to believe that their last sexual partner had other sexual partners. For example, 37.5% of respondents exposed to both OneLove and SAfAIDS thought their last partner had other sexual partners as compared with only 16.7% of unexposed respondents. Dual exposure has a positive effect on people believing that leaders encourage people to get tested for HIV. Finally, SAfAIDS only exposure had a positive effect on people knowing where to get HIV information but people exposed to SAfAIDS only are less likely to have been tested for HIV in the last 12 months (41.2% versus 58.5% unexposed).

7.5 HIV TREATMENT

Exposure to OneLove is positively associated with two HIV treatment outcomes. People exposed to OneLove only are less likely to have ever taken ARVs but those who have taken ARVs and were exposed to OneLove only are more likely to say they have received support from an ARV treatment buddy or community-based volunteer (34.4% versus 7.3% unexposed). A higher percentage of people exposed to both programs also report receiving support while taking ARVs compared with people not exposed to any program. We also observe that <1% of people exposed to both interventions struggle to take ARVs on time as compared with 6.0% of the unexposed group.

Table 53: Value-added of combined interventions on HIV treatment

HIV Treatment	No exposure	OneLove only	SAfAIDS only	Both
Knows people on ARVs have to stay on ARVs	0.9011	0.8543	0.7551**	0.8552
Has ever taken ARVs	0.0665	0.0340*	0.0754	0.1161
Received support from an ARV treatment buddy or CBV	0.0732	0.3441**	0.2059	0.4754**
Does not struggle to take your ARV drugs as advised	0.0597	0.0301	0.1003	0.0050*
Participated in a PMTCT program	0.2870	0.3521	0.9813**	0.3488

People exposed to SAfAIDS only are less likely to know that people on ARVS have to stay on treatment for the rest of their lives (almost 15 percentage point difference). However, women exposed to SAfAIDS alone are much more likely to have participated in a PMTCT program when they were pregnant.

7.6 HIV STIGMA AND GENDER-BASED VIOLENCE

This last section presents the results of the value-added analysis on HIV stigma and gender-based violence outcomes (Table 54). Exposure to OneLove only is significantly associated with several stigma outcomes. A higher percentage of people exposed to OneLove only disagree that HIV is a punishment for sinning (10 percentage point difference) and disagree that testing positive for HIV means your life is over (almost a 5 percentage point difference). We also observe that a significantly lower percentage of people exposed to OneLove only think that people in their community keep it a secret if a family member has HIV (66.3% versus 74.1% unexposed). However, we see no significant effects of dual exposure on any of these measures.

Table 54: Value-added of combined interventions on HIV stigma and gender-based violence

HIV Stigma	No exposure	OneLove only	SAfAIDS only	Both
Disagrees that HIV is a punishment for sinning	0.5360	0.6329*	0.5454	0.5764
Keep secret if family member has HIV	0.7412	0.6632**	0.7814	0.7637
Disagrees that HIV means life is over	0.7870	0.8355*	0.8113	0.7351
Gender-based violence				
Man has right to have sex for gifts	0.3123	0.2636*	0.2488	0.3307
Reported physical GBV to authorities	0.2363	0.4415*	0.1629	0.5544**

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