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Mozambique 2008: HIV/AIDS TRaC Study Among Men and Women Aged 15-35 in Sofala. First Round.

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**Mozambique 2008: HIV/AIDS TRaC Study Among Men and Women
Aged 15-35 in Sofala. First Round.**

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Summary

Acknowledgements We would like to express our gratitude to and acknowledgement of PEPFAR and USAID for funding this TRaC behavioral study and to the Ministry of Health at the national, provincial, and district levels for supporting the effort. We are also grateful to the National Bioethics Committee for Health for approving the study design and to the CNCS for providing input and technical guidance during the process.

Background & Research Objectives In 2004, PSI conducted the first country-wide TRaC (Tracking Results Continuously) study for Condoms, Sexually Transmitted Infections (STIs), and Prevention of Mother-to-Child Transmission (PMTCT). The current study is the first TRaC study for HIV interventions and was conducted in three provinces: Gaza, Sofala, and Zambezia. This study is intended to provide localized evidence for decision-making for social marketing of *JeitO* condoms, and help measure the impact of PSI interventions and activities.

Description of Intervention PSI/Mozambique supports the Ministry of Health in its efforts to reduce the rate of new HIV infections by implementing a wide range of interventions for behavior change, with an emphasis on the use of condoms, along with the reduction of sexual partners, delay of sexual debut, voluntary counseling and testing, and prevention of mother-to-child transmission. Targeting sexually active, low income populations, PSI implements three types of interventions: 1) interpersonal communication (IPC) with the use of theatre groups, community agents, and a network of peer educators; 2) Promotion of condoms and risk reducing behaviors through mass media channels; and 3) Large-scale distribution of subsidized condoms.

Methodology The current study is based on a cross-sectional survey conducted among male and female respondents in the city of Beira in the Sofala province. The survey used a stratified multi-stage cluster design. Results are presented in standard PSI Dashboard form.

Main Findings   Over 50% of men and women in Beira reported using a condom at last sex with NMNC partners, whereas only 48% of men and 30% of women reported using condoms with their primary sexual partners. A little over one fifth of men reported having more than one partner in the past month, while less than five percent of women reported the same.

Self-efficacy was significantly associated with condom use for both men and women. Among men, having more than one partner in the past month and agreeing that a person can reduce the risk of HIV/AIDS by always using a condom was also significantly and positively associated with condom use. Among women, having positive attitudes towards condom use was significantly and positively associated with condom use at last sex with both NMNC partners and primary partners. Perceived reliability of condoms (whether people agree or disagree with the statement: "*you can't trust condoms*,") was a significant variable associated with condom use with NMNC partners for women, but not of condom use with primary partners.

For men, two key factors were significantly associated with having more than one partner in the past month: social norms rejecting cross-generational sex and a locus of control variable.

Programmatic Recommendations   This study documents the current levels of condom use with NMNC partners and can be used as a baseline for future studies. The key factors associated with condom use and multiple partnerships were identified and programmatic recommendations are suggested based on these findings.

Self efficacy is a key variable associated with all condom use behaviors for both men and women reported in this study. Interventions should focus their activities on increasing self-efficacy of condom use in order to ensure condom use with all partners. This recommendation, however, comes with certain caveats.   For one, the current segmentation methodology can only identify whether a variable is significantly associated with the outcome, but cannot elucidate the directionality of this association

(whether condom use increases self-efficacy or self-efficacy increases condom use). This finding, however, does highlight the importance of self-efficacy as a key characteristic of a condom "user."

Motivation is an important factor associated with condom use with NMNC partners for both men and women. The specific components of motivation that are associated with condom use differ by gender. For men, knowing that they can reduce the risk of HIV/AIDS by using condoms is the only significant component of motivation that is associated with condom use. Among women, two variables capturing attitudes towards condom use are significantly related to condom use. Communication programs that are tailored to each gender should thus highlight different aspects of motivation: men should be approached with messages to improve indicators of locus of control, while women should be approached with messages reinforcing positive attitudes towards condom use.

Having multiple partners in the past month is significantly associated with acceptance of social norms condoning cross-generational sex and with a variable measuring locus of control. Men with multiple partners were more likely to have an external locus of control regarding HIV infection. Men with multiple partners were also more likely to have a higher SES.

Monitoring Table
Trends in Behavioral Outcomes and Determinants for Men and Women Aged 15-35 in the City of Beira, Sofala, 2008.
Risk: *Men and Women Aged 15-35*
Behavior: *Condom use at last sex with non-marital/non-cohabitating partners and multiple concurrent partners in the past month.*

INDICATORS	Men Aug/2008 N=420	Women Aug/ 2008 N=868	Sig.
BEHAVIOR/USE			
- Condom use at last sex with non-marital/ non cohabitating partners (among those with non-marital/non cohabitating partners)	61.5% (n=292)	53.1% (n=275)	*
- Condom use at last sex with primary sexual partner (among those who had sex in past 12 months)	48.1% (n=316)	29.6A% (n=651)	***
- More than one sex partner in past 1 month (among those who had sex in past 12 months)	26.6% (n=319)	5.5% (n=655)	***
OPPORTUNITY			
Availability	3.75	3.54	NA[1]
-It's difficult to find a discreet place to store condoms (r)[2]	3.57	3.55	ns
Generic Condom Appeal	2.31	2.51	**
ABILITY			
Knowledge (Index of four items)	3.13	3.16	ns
Community Social Support	3.28	2.99	***
Friend Social Support	2.93	2.72	***
Self-Efficacy	3.45	3.29	
-I know how to use a condom when I have sex with someone	3.64	2.96	***
MOTIVATION			
Attitudes	3.05	3.15	NA
-Condoms are agreeable to use	2.92	2.75	*
Locus of Control			
- I can reduce the risk of getting HIV/AIDS by always using a condom.	3.67	3.50	***
-Whether of not you get HIV/AIDS is a question of bad luck (r)	3.69	3.66	ns
Outcome Expectation	3.64	3.33	***
-You can't trust condoms (r)	3.23	3.17	ns
EXPOSURE			
- PSI Radio Programs	32.1%	41.2%	**
- PSI Group Discussions	6.0%	10.4%	**
- PSI Theatre Activities	22.8%	34.5%	***
- Jeito Advertisements	83.8%	86.5%	ns

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[1] The significance test cannot be applied here because scales were constructed separately for men and women and the same items didn't load.
[2] Items in this table that are follwed by a (r) have been reverse coded so that a higher value represents a more "positive" direction with respect to the indicator.

**Monitoring Analysis: Monitoring Dashboard Showing Trends in the Use of Condoms,
Mozambique, 2008**

This "monitoring dashboard table" presents the prevalence of key behavioral outcomes and
determinants of condom use for men and women. Indicators in this table are presented in the
form of means or percentages. Where relevant, results of a test of differences in proportions or
means are indicated. The results of this analysis are are estimated separately for men and women
to highlight the significant differences in behaviors and determinants of behavior by gender.

The primary behavioral outcome for this study is the use of a condom at the last sexual encounter
with a non-marital or non-cohabitating (NMNC) partner. This indicator was chosen as the
primary variable of interest because it is thought to be a powerful measure of the effect of
condom promotion campaigns on their primary target market (Bertrand and Escudero 2002).
While close to 70% of men reported having a NMNC partner, only a third of women reported the
same. Among those with NMNC partners, 62% of men and 53% of women reported using a
condom at last sex. Condom use with primary partners (those with whom the respondent has sex
most often) was lower than condom use with NMNC partners (48.1% and 29.6% for men and
women respectively). Condom use rates reported by men were significantly higher than condom
use reported by women, for both NMNC and primary partners.

Determinants of condom use were collected in the form of scaled items where respondents were
asked whether they strongly disagreed, disagreed, agreed, or strongly agreed with a number of
items. These items were then used to create scales intended to measure a single construct. The
scales presented in this table are means that range from 1 to 4. All items have been reverse coded,
so that a higher value represents a more "positive" direction.[3] Where items fell outside of the
construct or items did not combine to measure a single construct, individual variable means are
presented.

Variables capturing availability and generic condom appeal are presented in this table as
measures of the respondent's opportunity to use condoms. Both men and women had relatively
high mean scores for the availability scale (3.75 and 3.54 respectively, out of a scale from 1 to 4).
One item did not load onto the availability scale ("*It is difficult to find a discreet place to store*

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[3] Reverse coded items are presented with a (r).

condoms") and is presented independently. There was no significant difference between men and women on this variable (mean scores: 3.57 and 3.55 respectively). The generic condom appeal scale is composed of three items that try to capture the preference for branded condoms over generic condoms. Men, in this case, show a preference for branded condoms over generic condoms as they have a significantly lower mean score on this scale than women (men: 2.31, women: 2.51).

Four aspects of a respondent's ability to use condoms are included in the previous table: knowledge, community social support, friend social support and self-efficacy. Men and women both present high levels of knowledge of HIV transmission (mean scores on a four item index of 3.13 for men and 3.16 for women). Two forms of social support were measured in this study: 1) community social support—which captures the individual's perceived support of condom use in the community; and 2) social support from friends. For both community and friend social support scales, men presented higher mean values (3.28 for community and 2.93 for friend social support) as compared to women (2.99 and 2.72 respectively). With regards to self-efficacy, men's mean score for self-efficacy is higher than women's[4]. One of the variables that did not load into the male measure of self efficacy is "*I know how to use a condom when I have sex with someone.*" Mean scores for this variable are significantly higher for men (3.64) than women (2.96).

The difference between the mean values for the attitudes towards condom use scale indicates that women have slightly more positive attitudes than men. Men, however, are more likely to indicate that condoms are agreeable to use (mean score of 2.92 versus 2.75). With regards to locus of control variables, men had a significantly higher average value (3.67) than women (3.50) for the variable "*I can reduce the risk of getting HIV/AIDS by always using a condom,*" but both sexes similarly disagreed with the statement "*Whether or not you get HIV/AIDS is a question of bad luck* (r)" (men 3.69 and women 3.63). A single variable is presented under the heading of Outcome Expectations: an item measuring how strongly respondents disagree with the statement "*you can't trust condoms.*" There was no significant difference between men and women on this variable.

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[4] The self efficacy scale for women is composed of 12 items, while the same scale for men has only 9, so no statistical test is performed.

Segmentation Table

Determinants of condom use with non-marital/non-cohabitating partners among men aged 15-35 in Sofala, 2008.

Risk: *Men aged 15-35*

Behavior: *Condom use at last sex with non-marital/non-cohabitating partners*

INDICATORS	Used a Condom N=169 61.5%	Did not use condom N=106 38.5%	OR	Sig.
RISK/NEED				
-More than one partner in the past month	38.6%	16.8%	3.88	***
OPPORTUNITY				
Availability				
-It's difficult to find a discreet place to store condoms (r)	3.49	3.80	0.46	**
ABILITY				
Self-Efficacy	3.61	3.32	4.25	***
-I know how to use a condom when I have sex with someone	3.82	3.68	3.54	**
MOTIVATION				
Locus of Control				
-I can reduce the risk of HIV/AIDS by always using a condom.	3.81	3.59	1.66	*
POPULATION CHARACTERISTICS				
Medium or High SES	71.1%	53.6%	2.63	**
Age	22.5	23.6	0.93	*

-*: p<.05; **: p<.01; ***: p<.001.
-OAM Determinants: values ranged from 1-4 "strongly disagree=1, Disagree=2, Agree=3, Strongly Agree=4
-Omnibus χ^2 (df=17): 127.24, p<0.001
- GOF χ^2 (df=8): 8.027, p=0.431
-Pseudo R^2 (Cox and Snell): 0.370
-Study design variable is PSU.

Segmentation Analysis: Determinants Condom Use at Last Sex with NMNC Partner for Men Aged 15-35, Sofala Province, Mozambique 2008

In the above segmentation table, the group at risk is men with non-marital and non-cohabitating partner (n=275). A logistic regression analysis was conducted with the dependent variable measuring whether the respondent used a condom at last sex with a NMNC partner (1=yes, 0=no). Mean scores and adjusted percentages for determinants that were found to be statistically significant are shown in the table. The mean scores and percentages are adjusted for other significant factors in the final logistic regression model and for study design variables. Seven scales measuring the OAM constructs which were found to be reliable (Cronbach's alpha>0.7), were used for the segmentation analysis: availability, brand appeal, self-efficacy, community social support, friend social support, attitudes and outcome expectations. Results of the reliability analysis can be found in Appendix 3. Only those scales and variables found to be significantly associated with the outcome are presented above.

A significantly greater percentage of men who used a condom at last sex with NMNC partners had more than one partner in the past month (38.6%), as compared to those who did not (16.8%). Condom users tended to be younger (mean age of 22.5 versus 23.6) and wealthier (71.1% of medium/high SES compared to 53.6%). It's interesting to note that those who used a condom were more likely to agree with the statement: "*it is difficult to find a discreet place to store condoms* (r)" as compared to those who did not. This finding may be explained by a respondent's experience using condoms influencing their perceptions, instead of the other way around. A person who has used condoms or uses condoms regularly may have encountered difficulty finding a discreet place to store condoms, whereas a person who has not used condoms has never had that experience.

Self-efficacy to use and carry condoms highly associated with condom use at last sex with NMNC partners: those who used a condom had an average of 3.61 on the self-efficacy scale, whereas those who did not had an average value of 3.32. Men who used condoms were also more likely to feel that they know how to use condoms (3.82 versus 3.68) and more likely to agree that they can reduce the risk of HIV/AIDS by always using a condom (3.81 versus 3.59).

Segmentation Table
Determinants of having more than one partner among men aged 15-35 in Sofala, 2008.
Risk: *Men aged 15-35 who were sexually active in the past 12 months*
Behavior: *More than one sex partner in the past month*

INDICATORS	1 partner N=234	2 or more partners N=85 26.6%	OR	Sig.
ABILITY				
Social Norms Rejecting Cross generational Sex	3.16	2.94	0.64	*
-In the majority of families, the parents usually talk to their children so that they don't have older sexual partners.	2.58	3.13	1.63	***
-If I knew a young woman/girl in a relationship with an older married man, I would try to convince her to terminate it.	2.74	2.44	0.81	0.07
MOTIVATION				
Locus of Control				
-Whether or not you get HIV/AIDS is a question of bad luck (r)	3.75	3.39	0.62	**
POPULATION CHARACTERISTICS				
Medium or high SES	41.3%	55.7%	1.98	*

-*: p<.05; **: p<.01; ***: p<.001.
-OAM Determinants: values ranged from 1-4 "strongly disagree=1, Disagree=2, Agree=3, Strongly Agree=4
-Omnibus χ^2 (df=16): 42.81, p<0.001
- GOF χ^2 (df=8): 4.08, p=0.850
-Pseudo R^2 (Cox and Snell): 0.126
-Study design variables are PSU.

Segmentation Analysis: Determinants of Multiple Sexual Partners in the Past Month for Men Aged 15-35, Sofala Province, Mozambique, 2008

This segmentation table presents the determinants of having more than one sexual partner in the past month (among those having sex in the past 12 months). A logistic regression analysis was conducted with the dependent variable measuring whether the respondent reported more than one partner in the past month (1=yes, 0=no). Mean scores and adjusted percentages for determinants that were found to be statistically significant are shown in the table. The mean scores and percentages are adjusted for other significant factors in the final logistic regression model.

Three measures of social norms were significant in the model. The first was a composite scale composed of five items. Men who had multiple partners were more likely to agree with social norms that are accepting of multiple partnerships and inter-generational sex (the means presented in the table are lower for those with MCP (2.94) than those without MCP (3.16) because the scale items were reserve coded as described previously). Men with multiple partners were also less likely to disagree with the statement "*If I knew a young woman/girl in a relationship with an older married man, I would try to convince her to terminate it*," and agree with the statement "*In the majority of families, the parents usually talk to their children so that they don't have older sexual partners.*"

Men with multiple partnerships had lower mean scores on the following variable: "*Whether or not you get HIV is a question of bad luck (r)*" (3.39 and 3.75 for those with and without MCP, respectively). This variable was included in the survey as a measure of Locus of Control, which is defined as "the external or internal site of control in a person's life" (Chapman and Patel 2004). When an individual has an external locus of control they believe that their health is determined by someone else, fate, luck or chance. In this case, men who had multiple partners were more likely to have an external Locus of Control as compared to men without multiple partners.

Only one population characteristic was significant in the model: men with multiple partners were more likely to have higher SES than men without multiple partners.

Segmentation Table

Determinants of condom use with non-marital/non-cohabitating partners among women aged 15-35 in Sofala, 2008.

Risk: *Women aged 15-35*

Behavior: *Condom use at last sex with non-marital/non-cohabitating partners*

INDICATORS	Used a Condom N=155 53.1%	Did not Use condom N=137 46.9%	OR	Sig.
ABILITY				
Self-Efficacy	3.61	3.12	4.60	***
MOTIVATION				
Attitudes	3.38	3.03	2.56	***
-Condoms are agreeable to use	3.16	2.58	1.72	***
Outcome Expectations				
-You can't trust condoms (r)	3.06	3.39	0.702	*
POPULATION CHARACTERISTICS				
Age	22.1	24.7	0.900	***

-*: p<.05; **: p<.01; ***: p<.001.

-OAM Determinants: values ranged from 1-4 "strongly disagree=1, Disagree=2, Agree=3, Strongly Agree=4

-Omnibus χ^2 (df=9): 143.46, p<0.001

- GOF χ^2 (df=8): 4.95, p=0.763

-Pseudo R^2 (Cox and Snell): 0.388

-Study design variables are strata (urban/rural) and PSU.

Segmentation Analysis: Determinants of Condom Use with NMNC partners for Women Aged 15-35, Sofala Province, Mozambique, 2008

In the above segmentation table, the group at risk is women with non-marital and non-cohabitating partner (n=263). A logistic regression analysis was conducted with the dependent variable measuring whether the respondent used a condom at last sex with a NMNC partner (1=yes, 0=no). Mean scores and adjusted percentages for determinants that were found to be statistically significant are shown in the table. The mean scores and percentages are adjusted for other significant factors in the final logistic regression model. Five scales measuring the OAM constructs which were found to be reliable (Cronbach's alpha>0.7), were used for the segmentation analysis: availability, brand appeal, self-efficacy, community social support, and friend social support. Results of the reliability analysis can be found in Appendix 3. Only those scales and variables found to be significantly associated with the outcome are presented above.

Women who used a condom with their NMNC partners were significantly younger (a mean age of 22.1) than those who did not (mean age of 24.7). Only three OAM constructs were found to be associated with condom use for women: Self-Efficacy; Attitudes, and Outcome Expectations. Women who used condoms had higher self-efficacy regarding condom use than women who did not (a mean of 3.61 versus a mean of 3.12 on the self-efficacy scale). Differences between condom users and non-users were very large for variables relating to attitudes. On the attitude scale, users had a mean value of 3.38 as compared to 3.03 among non-users. Users were also more likely to agree that condoms are agreeable to use (3.16 out of 4 on a scale item) as compared to non-users (2.58).

A surprising finding in this study is that women who did not use a condom were more likely to disagree with the statement "*you can't trust condoms*." Condom users score a mean value of 3.06 on a scaled item from 1 to 4, and non-users scored a mean value of 3.39. This is contrary to our hypothesis: we would expect that users would be more likely to "trust" condoms than non-users.

Segmentation Table

Determinants of condom use with primary sexual partners among women aged 15-35 in Sofala, 2008.

Risk: *Women aged 15-35*

Behavior: *Condom use at last sex with primary sexual partner*

INDICATORS	Used a Condom N=151 21.9%	Did not Use condom N=540 78.1%	OR	Sig.
ABILITY				
Self-Efficacy	3.51	3.24	2.87	***
MOTIVATION				
Attitudes				
-Condoms are agreeable to use	3.10	2.67	1.52	***
POPULATION CHARACTERISTICS				
Age	23.21	24.94	0.924	***
Married	38.7	75.4	0.19	***

-*: p<.05; **: p<.01; ***: p<.001.

-OAM Determinants: values ranged from 1-4 "strongly disagree=1, Disagree=2, Agree=3, Strongly Agree=4

-Omnibus χ^2 (df=8): 233.04, p<0.001

- GOF χ^2 (df=8): 9.18, p=0.326

-Pseudo R^2 (Cox and Snell): 0.301

-Study design variable is PSU.

Segmentation Analysis: Determinants of Condom Use with Primary Sexual Partners, for Women Aged 15-35, Gaza Province, Mozambique, 2008

In the segmentation table above, the group at risk is women with a primary sexual partner. A primary partner is defined as the person with whom she has sex most often. A logistic regression analysis was conducted with the dependent variable measuring whether the respondent reported used a condom at last sex with her primary partner (1=yes, 0=no). Mean scores and adjusted percentages for determinants that were found to be statistically significant are shown in the table. The mean scores and percentages are adjusted for other significant factors in the final logistic regression model and study design variables. Five scales were included in the original logistic regression command: availability and quality of products/services; social support; self-efficacy; attitudes; beliefs; and outcome expectations. However, only significant factors are presented in the segmentation table.

Factors associated with condom use with primary partners are similar to those associated with condom use with NMNC partners: self-efficacy and attitudes towards condom use are the most significant variables. Women who used a condom at last sex with their primary sex partner had an average value of 3.51 (out of a maximum of 4) on the self-efficacy scale. Those who didn't use a condom had an average score of 3.24. The self efficacy scale is a composite score of 12 statements, including: "*I am able to talk to all of my partners about the importance of condom use even if we have already had sex*" and "*I know how to use condoms when I have sex with someone.*" Women who used a condom with the primary partners were also more likely to agree that "*condoms are agreeable to use*" as compared to those who didn't use condoms (mean values of 3.10 and 2.67 on the scale item).

As with the previous indicator, condom use at last sex with NMNC partners, those who used a condom with their primary partner were, on average, younger than those who didn't (mean ages of 23.2 and 24.9 respectively). Less than half of the women who used a condom were married (39%), as compared to those who didn't use a condom (75.4%).

Programmatic Recommendations

Two of the primary messages promoted by PSI Mozambique's behavior change interventions are: using condoms consistently and reducing the number of sexual partnerships. In the previous nation-wide PSI HIV TRaC study, conducted in 2004, condom availability, knowledge of HIV transmission, self-efficacy, social support to use condoms, attitudes towards condom use and outcome expectations were all key determinants of men's condom use with regular and non-regular NMNC partners.

The current study, conducted in Beria City in the Province of Sofala, is intended to be representative of the epidemic in the "central" region of the country. With regards to condom use with NMNC partners, self-efficacy remains a critical variable that is significantly different between those who used condoms and those who did not for both men and women. The large odds ratios corresponding to self-efficacy presented in the tables in this study show how strongly having a high self-efficacy is associated with condom use. While the relationship between self-efficacy and condom use is clearly a strong, the directionality and implications of this relationship is complex. For one, the current segmentation analysis can only help us determine what factors are associated with condom use—but it does not allow us to identify whether these factors are "causing" the behavior change. For example, a person who has used condoms repeatedly can grow confident in their ability to use condoms and thus have an increased self-efficacy. Similarly, a person can participate in an IPC activity and improve their self-efficacy to negotiate condom use, and subsequently use condoms. Though the direction of causation is complex, and probably reinforcing, it is clear that a high self-efficacy is associated with condom use and thus programs should invest themselves in improving self-efficacy. If experience with using condoms raises self-efficacy, then programs should focus on providing opportunities for negotiating, experimenting with and perfecting condom use.

Motivation is significantly associated with condom use with NMNC partners for both men and women, but the components of motivation that are associated with condom use differ by gender. For men, knowing that they can reduce the risk of HIV/AIDS by using condoms is the only significant component of motivation that is associated with condom use. Among women, two variables of motivation are significantly and positively associated with condom use with NMNC partners: 1) positive attitudes towards condom use (measured by a scale) and 2) feeling that

condoms are agreeable to use. Communication programs that are tailored to each gender should thus highlight different aspects of motivation: men should be approached with messages to improve indicators of locus of control, while women should be approached with messages reinforcing positive attitudes towards condom use. Rejecting the statement "*you can't trust condoms*" is also significantly, but negatively, associated with condom use with NMNC partners among women. This finding is contradictory to our hypothesis: we would think that people who trust condoms would like be using condoms. Since the finding is converse to what we anticipate, programs should focus resources on the determinants that are positively associated with the outcome.

Finally, both men and women who used condoms were significantly younger than those who did not use condoms, regardless of partner type. This finding was significant even after controlling for marital status, indicating that younger respondents are more willing, able and motivated to use condoms as compared with older respondents regardless of whether they are married. For women, being married was significantly and negatively associated with condom use with primary partners. This last finding may evidence the difficulty of implementing and promoting condom use in marital relationships.

While a very small percentage of women reported having more than one partner in the past month (4.1%), one fourth of men reported the same. Social norms rejecting cross-generational sex and a variable measuring locus of control are the important factors associated with having more than one partner in the past month. The consistency of locus of control variables being significant predictors of men's preventive sexual behavior should be noted. While agreeing with the statement "*I can reduce the risk of HIV/AIDS by always using a condom*" is a significant predictor of condom use, agreement with "*whether you get HIV/AIDS is a question of bad luck*" was a significant predictor of having multiple partners. Focusing on locus of control with regards to HIV prevention may serve to improve both HIV prevention behaviors.

Population Characteristics

POPULATION CHARACTERISTICS	Men (n=420)	Women (n=868)	Sig
Age (mean)	22.39	23.63	***
Socio-Economic Status			
Lowest	14.7%	14.8%	ns
Second-Lowest	21.5%	21.7%	
Medium	17.1%	16.7%	
Second-Highest	26.0%	22.7%	
Highest	20.7%	24.0%	
Marital Status			
Single	75.1%	42.2%	***
Married	23.4%	53.7%	
Separated/Widowed/Divorced	1.5%	3.9%	
Religion			
Assembly	1.7%	9.3%	***
Zion	2.6%	3.1%	
Catholic	48.9%	42.3%	
None	13.5%	10.0%	
Other	33.4%	35.4%	
Schooling			
None	1.9%	4.3%	**
Primary	40.2%	45.4%	
Higher	57.9%	50.2%	

Methodology

Sampling and participants: The target population for this study was women and men aged 15-35. This study was conducted in the city of Beira in the Sofala Province. A listing of all the quarters of the city and their respective population size by sex, aged between 15 and 35 was created. A total of 45 quarters were selected using PPS.

The north end of each quarter was located and a listing of houses in the quarter was created. A sampling interval for the number houses was created by dividing the number of houses in the sampling frame by 30. Houses were selected based on the sampling interval.

Once a house was selected a list of all residents was created, from which one respondent was selected randomly based on gender. In the first 10 households selected a woman was interviewed. The next five, men were interviewed, The following 10 women and then the last five men.

Data Collection Procedure In urban areas, bairros were approached to identify the quarters. The chiefs of the quarters work with the team to conduct the field work. Each interviewer had a badge to identify him or her as part of the survey team. Informed consent and confidentiality information was given to the respondents at the time of the survey. Interviewers were instructed to attempt to interview the selected respondent three times. If unsuccessful, no interview was conducted in that household.

Survey Instrument(s) The questionnaires were conducted in Portuguese, and only seldom was the interview conducted in a local language. The instrument collected information about knowledge of HIV, number of sexual partners by partner type, condom use, exposure to PSI activities, and scaled items to measure the determinants of condom use. The questionnaire was pre-tested during interviewer training and modifications were made in skip patterns and terminology.

Analytic Technique For monitoring analysis, cross tabulations and paired t-tests were used to detect differences between men and women on behaviors and determinants. For segmentation analysis, correlation analysis was used to detect multi-collinearity; no variables were dropped. To reduce the number of determinants, only those variables that were correlated

with the outcome at a significance level of 0.25 or lower, were retained in the analysis. The segmentation model was based on multiple logistic regression in which explanatory variables were dropped if found not to significantly contribute to explanation of the variance in the behavior of interest. Adjusted means or proportions were presented for explanatory variables which remained in the final logistic regression model, while adjusting for all other explanatory variables in the model.

Reliability Analysis

Composite Variables	Men (N=420)		Women (N=868)	
	Cronbach's Alpha	No. of Items	Cronbach's Alpha	No. of Items
OPPORTUNITY				
Availability (1: strongly disagree-4: strongly agree)	.801	3	.748	4
Generic Condom Appeal (1: strongly disagree-4: strongly agree)	.820	3	.80	3
ABILITY				
Community Social Support: (1: strongly disagree-4: strongly agree)	.741	5	.74	5
Friend Social Support: (1: strongly disagree-4: strongly agree)	.919	6	.921	6
Self-Efficacy (1: strongly disagree-4: strongly agree)	.906	9	.910	12
MOTIVATION				
Attitudes (1: strongly disagree-4: strongly agree)	.666	5	0.65	4
Locus of Control (1: strongly disagree-4: strongly agree)	Did not load into a single factor		Did not load into a single factor	
Outcome Expectation (1: strongly disagree-4: strongly agree)	.673	3	.673	3

		Means (Men)	**Means (Women)**
Availability: *(1: strongly disagree-4: strongly agree)*		**3.75**	**3.54**
	1. Shops near here always have condoms for sale	3.69	3.53
	2. I know where I can get condoms	3.86	3.67
	3. Condoms are easy to get	3.70	3.50
	4. It is always difficult to have a condom at the moment you need one (r)		3.47

Social Norm *(1: strongly disagree-4: strongly agree)***:**		**3.10**
	1. It's acceptable for older men to have sex partners younger than them (who are not their wives). (r)	3.15
	2. There is no way to stop men from having many sexual partners(r)	2.87
	3. There is no way for young women to refuse sex with older men (r)	3.12
	4. It's normal for young women to receive presents from older men (not their husbands) with whom they have sex (r)	2.66
	5. Men need to have many sexual partners to show that they are really men (r)	3.71

		Means (Men)	**Means (Women)**
Generic Condom Appeal *(1: strongly disagree-4: strongly agree)***:**		**2.31**	**2.51**
	1. Free condoms are good as the condoms sold in shops	2.21	2.48
	2. The condoms brand really makes no difference to me	2.39	2.48
	3. All condoms brands are about the same	2.33	2.58
Community Social Support *(1: strongly disagree-4: strongly agree)*		**3.28**	**2.99**
	1. People in my community are open to discussing condoms.	3.11	3.01
	2. I think that the majority of people in my community use condoms.	2.88	2.52
	3. The majority of my friends always have condoms with them.	3.23	2.76
	4. In my community, it is OK to be seen buying condoms.	3.72	3.47
	5. The majority of my friends can talk openly about condom use.	3.47	3.19
Friend Social Support *(1: strongly disagree-4: strongly agree)*		**2.93**	**2.72**
	1. If I had sex and told my friends that I did not use a condom, they would be angry and disappointed in me	2.61	2.46
	2. My friends talk a lot about condom use	3.33	2.95

3.	My friends encourage each other to use condoms	3.24	2.99
4.	When I think that one of my friends is going to have sex, I as them if they have condoms	2.79	2.64
5.	If a friends of mine knew I was going to have sex, he/she would ask if I had condoms	2.77	2.59
6.	If I knew that one of my friends had had sex, I would ask if he/she used a condom	2.85	2.69

Self Efficacy *(1: strongly disagree-4: strongly agree)*		**3.45**	**3.29**
1.	I am able to say no to sexual relations with a new partner if we don't have condoms at the time, even if I want to have a relationship.		3.38
2.	I am able to talk to my partner about condom use before we get too sexually aroused	3.17	3.38
3.	I am able to talk to all of my partners about the importance of condom use even if we have already had sex	3.45	3.44
4.	When I go out, I am able to take condoms with, just in case	3.36	2.88
5.	I am able to talk to all new partners about the importance of condom use	3.51	3.41
6.	I am able to stop initiating sex to put on a condom, even if I am very excited	3.04	3.21
7.	Condoms are easy to use	3.49	3.04
8.	Using condoms when I have sexual relations shows my partner that I take care of my health	3.63	3.60
9.	I am able to buy condoms	3.80	3.36
10.	I know where to get condoms		3.68
11.	I can carry condoms with me for occasions when I decide to have sex	3.60	3.14
12.	I know how to use a condom when I have sex with someone		2.96

Attitudes *(1: strongly disagree-4: strongly agree)*		**3.05**	**3.15**
1.	Condoms are agreeable to use.	2.92	
2.	Condoms reduce pleasure.	2.58	2.85
3.	The idea of using condoms doesn't work for me.	3.35	3.32
4.	Condoms are not comfortable.	2.95	3.09
5.	I would to anything to avoid using a condom.	2.43	3.33
Outcome Expectations *(1: strongly disagree-4: strongly agree)*		**3.64**	**3.33**
1.	I think condoms offer excellent protection against HIV/AIDS	3.65	3.39
2.	If I use a condoms consistently, it's unlikely that I'll get infected with HIV	3.44	3.00
3.	Condoms protect against all kinds of sexually transmitted infections	3.81	3.59

Performance Framework for Social Marketing
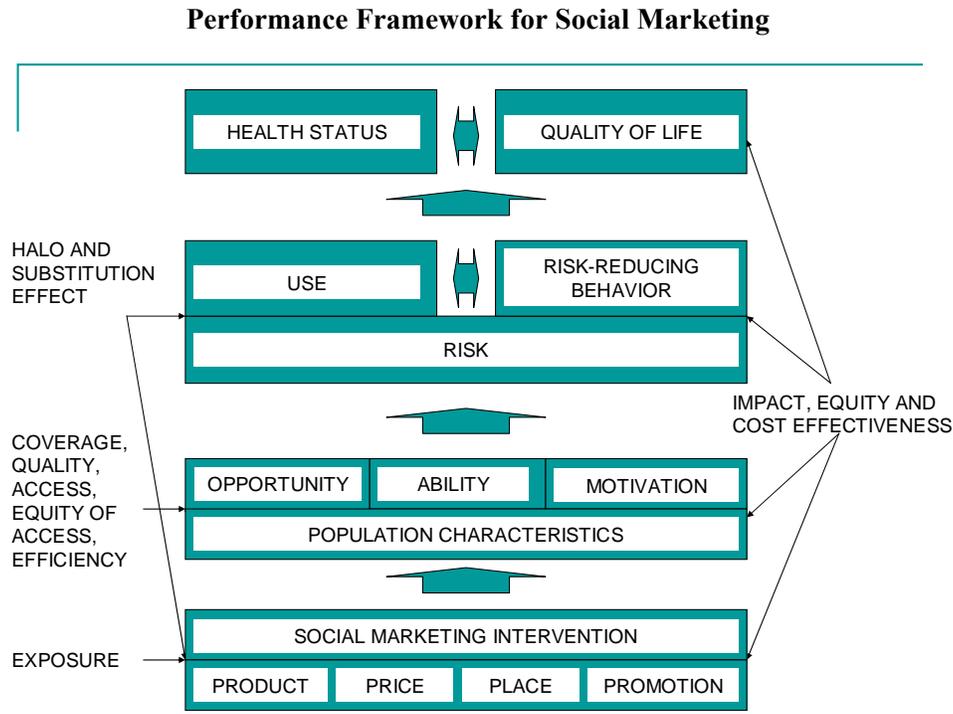
This study design is guided by PSI's PERForM framework. PERForM describes the social marketing research process, identifies key concepts important for designing and evaluating social marketing interventions and mirrors the four levels and concepts in the logical framework.

The top level consists of the goal of social marketing for any health promotion intervention, namely improved health status and/or for interventions relating to coping with sickness or disability, quality of life.

The second level consists of the objectives of social marketing stated as product or service use on the left side and/or other risk-reducing behaviours that do not involve the use of a product or service on the right side. The adoption or maintenance of these behaviours in the presence of a given risk or need for health services is causally antecedent to improving or maintaining health and or quality of life.

The third level consists of the determinants of PSI Behaviour Change framework summarised in terms of opportunity, ability and motivation that may differ by population characteristics such as age and sex. The fourth level consists of the characteristics of the social marketing intervention.

References

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