Multiple Partnerships and HIV among the Garifuna Minority Population in Belize

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Introduction

At 2.1 percent, Belize has the highest level of HIV infection in Central America and is experiencing a generalized epidemic; that is an epidemic where adult HIV prevalence exceeds 1 percent and transmission is mostly heterosexual. (WHO 2008). As such, the epidemic in Belize follows a pattern of transmission more common to Africa and the Caribbean than to other parts of Central America. A group at disproportionate risk for HIV infection is the Garifuna, an ethnic group descended from African slaves and Carib Indians. The spread of the epidemic through Garifuna communities is likely facilitated by cultural patterns of multiple sexual partnerships among men and women (Stansbury and Sierra 2004) and potentially overlapping, or concurrent partnerships.

The objective of this paper is to analyze survey data collected in Garifuna communities in Belize among men and women aged 15 to 50. We describe common risk behaviors among the study sample and examine variables associated with having multiple (non-concurrent) partnerships. We argue that patterns of multiple (non-concurrent) sexual partnerships are suggestive of the riskier behavior, maintaining multiple concurrent partnerships (MCP), which has been demonstrated to accelerate the spread of HIV through sexual networks. The findings from this study will be used to develop future interventions to reduce MCP among Garifuna living in Belize.

Literature Review

The history of the Garifuna dates back to 1635 when two Spanish ships carrying slaves to the West Indies were ship-wrecked near St. Vincent. The slaves escaped and were welcomed and protected by the Carib Indians. Their intermarriage formed the Garinagu people, which are today known as Garifuna. In 1797, British colonizers relocated many Garifuna prisoners to the island of Roatan in Honduras and eventually, Garifuna communities settled along the coast of Belize, as well as in Guatemala, Honduras and Nicaragua. The first recorded arrival of the Garifuna to Belize was in 1802. They are the fourth largest ethnic grouping in Belize, totaling 6.1% percent of the population (World Factbook 2009).

Garifuna women tend to bear children without having a permanent or legal relationship with the children's father, with legal marriage occurring in a minority of households. The Garifuna are generally seen as a *matrifocal* society, with family lineage determined by the mother, rather than the father. In the past, households often had three generations of women. Increasingly, however, only the oldest and youngest generations remain since working-age women often leave households to seek better jobs in major Central American cities or the United States, most often in the textile industry or as maids (Matthei and Smith 2008). While away they leave the care of their children to grandparents. There is also a great deal of out-migration among Garifuna men too with many traveling to other parts of Belize, neighboring countries, and the United States for work (Matthei and Smith 2008). As a result, many Garifuna households are single-parent (or grandparent) and female-headed (Matthei and Smith 2008).

As stated previously, Belize has the highest prevalence of HIV in the Central American region at 2.5 percent (UNAIDS 2006). Garifuna in the Central American region appear to be disproportionately affected by the epidemic: in neighboring Honduras, UNAIDS estimates that 8 to 14 percent of Garifuna are HIV-positive. As a result, Garifuna have been prioritized for HIV prevention activities due to their elevated risk for infection (WHO 2005, UNAIDS 2006). Studies on HIV prevalence among Garifuna in Belize are limited. The World Health Organization (2005) reported that among 6088 women who were enrolled in a program to prevent the mother-to-child transmission of HIV in 2003, 0.9% were HIV-positive (WHO 2005).

Very little has been published on the prevalence of STIs among Garifuna in Belize and the available data are quite old. A 1993 study among Belizian Defense Force (BDF) personnel found that 11.6% of the Garifuna men in the study tested positive for Hepatitis B (Craig et al. 1993). A 1997 study of women attending prenatal clinics in Belize found even higher rates of infection: 41% of the Garifuna women in that study tested positive for Hepatitis B (Scott-Wright 1997).

In addition to low levels of reported condom use (Stansbury and Sierra 2004) one behavior that may put Garifuna at elevated risk for HIV infection and STIs is the maintenance of multiple concurrent partnerships (MCP). Concurrent sexual partnerships are defined as those in which there is partner overlap, for example, where one or both individuals in a partnership have other sexual partnerships while at the same time continuing sexual activity with the first partner (Adimora et al. 2002, Morris 2008). Theoretical evidence from mathematical models of STI and HIV transmission suggest

that it is not only an individual's behavior that defines his or her risk for HIV and STIs; it is also his/her partner's behavior (Morris 2008, Ferguson and Garnett 2000, Watts and May 1992, Chick et. al 2000, Kretzschmar and Morris 1996, Ghani 2000). MCP simulation studies have demonstrated that HIV/STI-positive persons who have concurrent sexual relationships are at risk of transmitting infection to their different partners at the same time (Morris 2008). The practice of MCP has been associated with the acquisition of STIs, including chlamydia, gonorrhea, and bacterial STIs (Castor et al. 1002, Potterat et al. 1999, Rosenberg et al. 1999, Drumright et al. 2004). It has also been associated with the transmission of syphilis (Koumans et al. 2001). Simulation studies suggest that by achieving even small reductions in the levels of sexual partnership concurrency may have a dramatic impact on the chain of HIV/STI transmission through sexual networks (Morris 2008).

There appear to be no data available on the proportion of Garifuna who report MCP, but a few studies suggest that patterns of multiple (non-concurrent) partnerships are common to Garifuna men and women. In neighboring Honduras, a Pan American Health Organization (PAHO) report from 2001 showed that 40 percent of Garifuna men reported having had sex with two or more women in the previous six months: 13 percent of women reported the same. Another study from Honduras revealed that one third of sexually active Garifuna men reported having more than one sexual partner during the last year while 3 percent of Garifuna women reported the same (Garcia et al. 2000). A 2004 study among Belizean youth aged 13 to 17, of which 10 percent of the sample were Garifuna, showed that 40 percent reported having three or more lifetime partners (Kinsler

et al. 2004). This finding suggests that a pattern of multiple partnerships begins early for Belizeans and potentially carries through adulthood.

Background of PSI and PASMO in Belize

The Pan-American Social Marketing Organization (PASMO) has been operating in Belize since 1999. It implements a program that targets Garifuna in the Cayo, Stan Creek, and Toledo regions of Belize. The purpose of the program is to promote safer sexual behavior through interpersonal communications, such as discussion groups and outreach efforts as well as through mass media communications. PASMO also uses a high coverage social marketing strategy to increase access to and availability of condoms. The program aims to not only increase condom use among Garifuna, but to also increase their ability and motivation to adopt key safer behaviors. Recently, PASMO partnered with a Garifuna NGO, the Progressive Organization for Women in Action (POWA), which allows interpersonal communication activities to be facilitated by Garifuna educators and provided in English. Efforts are also under way to expand current interventions to include Garifuna youth.

Data

The study population for this survey is Garífunas residing in Cayo, Stan Creek and Toledo, Belize aged 18-50. A representative sample of this target population living in these areas was drawn using a multi-stage cluster sampling approach. While we aimed to recruit 500 Garifunas, our final sample size came to 531. The study sample was

distributed proportionally across the three study cities according to population size. Information from the National Statistical Institute was used to estimate city size.

For each city, an exhaustive list of neighborhoods (clusters) with the corresponding number of Garifuna households and household size were generated. Cluster size is the number of Garífunas present in each neighborhood. Neighborhoods were selected using probability proportional to size and a fixed number of Garífuna households were randomly selected from each cluster. Individual respondents were selected randomly from within each household.

The data was collected with the intention of finding determinants of condom use with occasional partners, or partners Garifuna see every so often but not daily or weekly. We determined the sample size with the assumption that 85% of Garifunas would use a condom at last sex with their occasional partner. While this was the original intent, during subsequent data cleaning we found high rates of having multiple partners.

A structured questionnaire was used to collect data on concepts related to condom use. This questionnaire included modules in population characteristics, opportunity, ability, and motivation determinants of behavior, and exposure to interventions PSI is currently invested in. The opportunity, ability and motivation determinants (OAM) is a conceptual framework used at PSI to analyze behavioral determinants. Variables included under OAM come from a series of theories of behavior (Chapman and Patel 2004). The questionnaire was developed in consultation with other questionnaires that was fielded at

the same time in other Central American countries that touched on other unique populations PSI deals with, including female sex workers, gay men, and youth aged 15-24. Country program researchers and programmers helped select opportunity, ability, and motivation scaled questions based on their knowledge of country context. The questionnaire was pre-tested in Belize City using 25 cognitive interviews with members of each target group who did not participate in the larger study. The pre-test was used to gather information on the following points: ease or difficulty of statement, comprehension, confidence in response, level of discomfort and social desirability about discussing the topic. The questionnaire was revised based on findings from the pre-testing and scaled analysis activities described above.

Methods

We utilize logistic regression to explore the predictors of having multiple partners in the past thirty days. A module asked for the number of regular, occasional, and commercial partners a Garifuna had in the past thirty days. A regular partner is an unmarried partner whom someone sees on a habitual basis, perhaps daily or weekly. Occasional partners are seen less often, and commercial partners are usually associated with female sex workers with whom a Garifuna might have a one-night stand with. Of course, commercial partners who are seen more often may transition into occasional partners, and maybe eventually regular partners. The module assures that double-counting of partners in the last thirty days does not happen. By knowing the number of each type of partner a Garifuna had in the past thirty days, and their marital status, we can determine the total number of partners had in the last thirty days. If someone had more than one partner in

the last thirty days, they are considered to have had concurrent relationships. We acknowledge the crude definition used here to determine concurrency; it is perfectly feasible for an individual to have broken up with someone and begun a relationship with another person in the last thirty days. Perhaps even the person saw a commercial partner between these two relationships. Being aware of the crudeness of the concurrency definition, we ran other models (not shown) where if a person had 3 or more and even 4 or more partners in the last thirty days, then they were practicing multiple partnerships. The results did not dramatically change.

With the dependent variable being if someone had more than one partner in the last thirty days or not, we ran two different logistic regression models. The first regression, using SPSS, employed the backward stepwise method. As a first step, the variables are entered into the model together and are tested for removal (if insignificant) one by one. After each entry, variables that are already in the model are tested for possible removal, based on the significance of the Wald statistic. The variable with the largest probability greater than the specified p-value is removed, and the model is reestimated. Variables in the model are then evaluated again for removal. When no more variables satisfy the removal criterion, covariates that are not in the model are evaluated for entry. Our model building stops when no more variables meet entry. Therefore, the final table will only present significant results unless insignificant variables are forced to remain. In our case, since the data was collected by sample strata using the city, we keep the city in as a control.

The next logistic regressions run are standard. We include all relevant independent variables which we believe will predict multiple partnerships among the Garifuna. The first model run includes all relevant variables, and this is followed by another model with the same independent variables and inclusion of three interaction terms because we believe some variables may be conditioned by gender.

The questionnaire included a number of scaled items that were constructed during pilot testing. Using factor analysis, individual statements under a single construct (such as 'social norms') were tested together to see how well they hung together to describe the given construct using factor analysis. Individual statements that hung together were then tested using a reliability test. Scales were considered reliable if they achieved a Chronbach's alpha of .70 or higher. Statements that did not hang with at least two other statements were kept separate for the analysis. If a scale using factor analysis was not found to be reliable, the individual statements were also kept separate during the analysis. For all scales except knowledge, the response choices ranged from 1-4, where 4 means "strongly agree" and 1 "strongly disagree." The scales were written such that higher numbers represent more desirable outcomes. In some cases, statements posed were asked such that agreeing with the response was not regarded as a positive outcome. For instance, agreeing that 'having many partners at once is exciting' is not a positive outcome. In these cases, the scales were reverse-coded.

Results

We first assess the descriptive statics shown in table 1. We discuss the dependent variable first in light of the crude definition and its implications for the analysis described above. The median number of partners in the last thirty days is two, while the mean is higher, at 3.79 (see figure 1). We find that 49% of Garifunas had one or fewer partners in the last thirty days. Additionally, 18% and 4% had two or three partners, respectively, in the last thirty days. We used these cutoff points to define our dependent variable to see if the results would be drastically difference than if the dependent variable was defined as having more than one partner. We found the results (not shown) were fairly consistent. The greatest number of partners someone had in the past thirty days was twenty-four.

We broke our age variable into two groups, 15-25 and 26-50. The former group made up 53.5% of the sample while the latter made up 46.5%. Most Garifunas had at least some education, so we dichotomized the education variable into primary school or less versus completed secondary school or higher. We found that 27.7% had at most a primary education degree while far more had at least completed secondary school. Overall, this is a fairly educated population.

It is also a largely single sample; just over half of the sample is under 26 years old, and only 37.8% are married while the remainder are single. Interestingly, 46.9% have at least one child, suggesting that children outside of marriage are not uncommon among Garifuna. No information was collected to determine if these children were mis-timed or unwanted. Despite our attempt to keep the sample roughly equal between men and

women, 68.8% of respondents were men. 14% of the Garifunas sampled live in Cayo, 35.5% live in Toledo, and just over 50% live in Stann Creek city. A full 40.9% said they had had an STI in the last year, a worrisome number.

We next move onto the descriptive statistics of our scaled items. We created a knowledge index, which measures the knowledge Garifunas have about the causes of HIV, including multiple concurrent partnerships. The mean for this 5-point index was 4.1, indicating relatively high levels of knowledge about the causes of HIV. The OAM scales are all on a range from 1-4 where 4 means "strongly agree" and 1 means "strongly disagree." The mean for the social norm scale was 2.8 on a scale of 1-4, indicating only slight agreement about it being the norm to not have multiple partners. The fact that this mean is low suggests social norms may be a barrier to reducing the number of partners one has. The mean for the statement 'reducing one's number of regular partners reduces the risk of HIV transmission' was 3.06, representing overall agreement. Overall, the means in the range of 2.4-2.9 indicate a relatively low perception of certain items that may contribute to a high number of multiple partners. Only the statement 'it's important to know your HIV status' received a high level of agreement, at a mean of 3.4.

We also observed these results by gender, testing for significant differences. The results are found in table 2. In general, men are more educated than women, though not significantly more so. Almost half of the men reported an STI in the past year, and only a quarter of women could say the same. This difference was highly significant. Although we found this to be the case, STIs are not the primary key variable in this paper, and

therefore will not be tested as an interaction in the logistic model. We also found that men thought it was more important to know your HIV status than women. Similar trends are found on indicators such as planning to get tested for HIV in the next three months and believing it is necessary to get treated for STIs (though this may be more the result of men's greater experiences with STIs). Men also reported significantly lower means regarding social norms supporting partner´s reduction, compared to women (2.76 vs 2.87), and showed no significant difference in terms of knowledge.

Table 3 presents the results of the logistic regression using the bstep method, whereby initial models are run with all chosen independent variables, and non-significant independent predictors are dropped in subsequent models until the final model contains only significant predictors of having multiple partners. We force the city variables to remain in the model so we can control for the study design effects on each predictor since the sample was stratified by city. Certain findings are unsurprising; males were almost twice more likely to have more than one partner in the past thirty days compared to females (OR: 1.9, $p<.01$). Those who are married are 57% as likely to have practiced multiple partnerships compared to those who are single (OR: 0.4, $p<0.001$). Similarly, those with children are less likely to have practiced multiple partnerships (0.5, $p<0.001$). The multicollinearity diagnostics showed that the correlation between marriage and having at least one child was fairly high (0.50), which may be influencing each of these predictors. We also found no significant differences in practicing multiple partnerships across the three sampled cities.

The strongest predictor of multiple partnerships in the past 30 days is stating that one had an STI in the last year; those who had an STI in the past year were 4.7 times more likely to be practicing concurrency ($p<0.001$). Results could be shown to the Garifuna and we could explain the relationship between multiple non-concurrent partnerships influences STI prevalence, and how reducing the number of partners at one time may reduce the chances of getting an STI.

Other findings are interesting. The 5-point knowledge index showed that the higher one's knowledge, the less likely they were to have multiple partnerships (0.8, $p<0.05$). Additionally, social norms impacts having multiple partnerships; those agreeing with statements such as "having multiple partners is not a source of pride" and "many of their friends don´t have multiple partners" are less likely to have multiple partners compared to those who disagree with such statements (OR: 0.6, $p<0.05$).

Individual statements could also be significant predictors of multiple partnerships. Those saying that having several partners at the same time is not exciting were *less* likely to have multiple partnerships (OR: 0.7, $p< 0.05$). But those who felt strongly that it is important to know your HIV status or seek medical treatment for STIs were more likely to have multiple partnerships (OR: 1.4, $p<0.05$). While these Garifuna may have multiple partners, they may also understand some of the inherent health risks associated with these practices and the need for medical check ups,. Finally, those who stated that AIDS has affected their behavior are 1.68 times more likely to be in multiple partnerships. Nevertheless this study, which uses crossectional data at only one point in time, does not

tell us whether behavioral change has really occurred and if so whether that's due to a more careful selection of sexual partners, an increase in condom use, or an actual reduction of sexual partners overtime.

Turning to table 4, we ran another logistic regression the b-step method including three interactions. In the model, we found that married Garifuna are more than twice less likely to practice concurrency compared to single Garifuna. The highest odds ratio was again found for the predictor 'had an STI in the previous' year. We found the direction and strength of the odds ratio for other significant predictors to be very similar to what was found in table 3. One interaction was significant using the bstep method; the interaction of males and believing that reducing one's number of regular partners reduces the risk of HIV transmission. Because the independent variable, male, dropped out, the only interpretation we can make is the OR of the OAM variable on its own versus the interaction. The interaction term suggests that Garifuna with multiple partners are less likely to believe that that reducing their number of regular partners reduces the chance of getting HIV, but this effect is weaker for men than for women since the odds ratio for the interaction term is above 1.

Limitations

The instrument used listed three different partner types: regular partners, casual partners, and commercial partners. Each type was represented by a row and then we asked a number of questions by column, including the number of that type of partner one had had in the past year and the past thirty days. From this module we were able to determine the

number of each partner type in the past thirty days and if there was MCP, defined as having more than one partner in the past thirty days. We acknowledge this is a crude measure of MCP and the best way to determine whether an individual is in a MCP is through a calendar that documents a dating history and use event history analysis methods. We also had to use this crude measure because the instrument was originally designed to collect information about HIV and condom use. Many of the statements we asked Garifuna to give their opinion on focused on condom use so there were some model specification issues.

Discussion and Conclusion

The objective of this paper was to understand the variables associated with having multiple partners in the last 30 days among Garifuna population between 15-50 years old in three towns of Belize. The Garifuna population is an ethnic group with one of the highest prevalence rate in the country. The HIV transmission follows the Afro-Caribbean pattern with heterosexual transmission as the main route due to multiple sexual partners among men and women. Understanding the socio-demographic factors associated to multiple partnerships, as well as the components of opportunity, ability and motivation, would shed light into programmatic strategies to reduce the risk of HIV transmission among this culturally distinct group.

Our data corroborates previous findings about the common practice of having multiple sexual partners and the elevated rate of STIs. Fifty percent of the studied population reported more than one sexual partner in the last 30 days and 40% had or were suspected

of having an STI in the last year. While this is common for all the Garifuna population, there are significant differences by gender with men scoring higher in both indicators: 59% of men had multiple partners in the last 30 days versus 33% of women; and 48% of men reported an STI in the last year versus 24% of women. Given the high reporting of STIs, it is not surprising that in spite of having multiple sexual partners only 50% of the sample reported consistent condom use with an occasional partner in the last 30 days and 12% reported consistent condom use with any partner.

Social norms focusing on controlling sexual impulses and beliefs about partner's reduction were intrinsically associated to lower likelihood of reporting multiple partners in the logistic analysis. Although separated analysis by gender did not show social norms as significantly associated to multiple partners, the level of endorsement to social norms and beliefs was significantly different for men and women, explaining its overall association. From the overall sample, men scored lower on social norms supporting partners reduction and controlling sexual impulses when compared to women (mean value of 2.7 versus 2.86); men also reported a lower endorsement to the idea that "having multiple partners at the same time is not exciting" (2.41 versus 3.04). Such differences translate in an average number 4 of sexual partners in the last month for men, and 2 partners for women.

Knowledge about HIV prevention, including partner's reduction, was also associated with a lower likelihood of multiple partners in the last 30 days in the pooled sample. The level of this indicator, with no significant differences between men and women, was high

among the pooled sample (mean value of 4.11 out of 5). It may be difficult to increase the level of reported knowledge about HIV prevention even more, but educational interventions or campaigns should continue sending messages about preventing HIV and STIs, making people aware of their risk of having multiple partners and not using condoms. The opinion relating to "I am at risk of AIDS" was very low (1.76), in spite of risk factors previously mentioned: multiple sexual partners, low prevalence of consistent condom use, and elevated rates of STIs.

For the pooled sample, being single and not having children were associated to a greater likelihood of having multiple partners in the last 30 days. Among men and women no significant differences between marital status or having children were found. This data suggests that not having marital or children's responsibilities facilitates sexual experimentation with different partners, but by looking at numbers it is evident that married people still practice MCP; on average, single Garifunas reported 4.9 sexual partners during the last 30 days partners, while married Garifunas reported 1.8 partners.

Other factors associated with multiple partners in the last 30 days reflect more the awareness of engaging in risky behavior than predicting multiple sexual partners. For example, Garifunas who adhered to statements such as "it is important to know your HIV status" and "it is necessary to seek medical treatment for STI's", were more likely to have had multiple partners in the last 30 days. Another consequence of having multiple partners is increased reporting of STIs.

As a corollary, this data suggest the need to reduce risky sexual behavior in all Garifuna adults to decrease the incidence of STIs and the risk of HIV transmission. Although men, single and children-free adults were more likely to have multiple partners in the last 30 days, women, married and people with children were not exempted from such practices. They all need to be targeted through educational activities or mass media that place value to social norms and beliefs that favor partner´s reduction, perception of risk to HIV and condom use.

Knowing more about the rooted causes of multiple partners in the Garifuna population also needs more research. The present study analyzed some opportunity, ability and motivational factors, but did not explore on deeper cultural and personal factors underlying having multiple partners, such as monetary and non-monetary benefits, sources of pride and image. For this, qualitative research qualitative research needs to be implemented. The next round of data among Garifuna in Belize should incorporate the tool kits questions on MCP. The chapter has recently been updated to include Martina Morris' advice and the state-of-the-art line of questioning. Messages on MCP should be disseminated via social networks. An example of where this was effectively done was in Uganda where "zero grazing" became a mantra and there was social pressure not to "graze." Morris cites this example in her 2008 paper and also provides generic text on how messages should be spread through networks. These will be the focus of PSI in this area in the upcoming years.

Table 1
Descriptive Statistics

Dependent and Demographic Indepdent Variables	
Had more than 1 partner in last 30 days	50.4%
Age	
15-25	53.5%
26-50	46.5%
Education	
Primary School or Less	27.7%
Completed Secondary school or more	72.3%
Married	37.9%
Has at least 1 child	47.0%
Male	68.5%
City	
Cayo	13.2%
Toledo	34.9%
Stann Creek	51.9%
Had STI in the last year	40.6%
OAM Variables	
Knowledge Index	4.11
Social Norms Supporting Partner Reduction Scale Mean	2.79
Reducing one's number of occassional partners reduces the risk of HIV transmission	3.11
Reducing one's number of regular partners reduces the risk of HIV transmission	3.05
Having several different partners at the same time is exciting	2.61
It's important to know your HIV status	3.42
I plan to get tested for HIV in the next 3 months	2.41
I feel at risk of acquiring AIDS	1.76
It's necessary to seek medical treatment for STIs	2.97

All means reported on a scale of 1-4, except Knowledge which is 1-5

Table 2
Descriptive Statistics by Gender

Dependent and Demographic Independent Variables	Men	Women	Sig
Education			
Primary School or Less	25.4%	32.9%	
Completed Secondary school or more	74.6%	67.1%	
Married	35.3%	43.7%	
Has at least 1 child	46.6%	47.9%	
Had STI in the last year	48.0%	24.0%	***
OAM Variables			
Knowledge Index	4.16	4.01	
Social Norms Scale Mean	2.76	2.87	*
Reducing one's number of occasional partners reduces the risk of HIV transmission	3.12	3.07	
Reducing one's number of regular partners reduces the risk of HIV transmission	3.08	2.99	
Having several different partners at the same time is exciting	2.77	2.75	
It's important to know your HIV status	3.46	3.32	*
I plan to get tested for HIV in the next 3 months	3.06	2.83	**
It's necessary to seek medical treatment for STIs	3.06	2.79	***

*p<.05, **p<.01, ***p<.001

Table 3: Logistic Regression Results Predicting Multiple Partners among Garifuna in last 30 days using Bstep

Indepdent Variables	Odds Ratio	Sig
Male	1.88	**
Married	0.43	***
Has at least 1 Child	0.51	***
Had STI in last year	4.70	***
Knowledge Index	0.77	**
Social Norms Supporting Partner Reduction Scale	0.59	*
Reducing one's number of regular partners reduces the risk of HIV transmission	0.74	*
Having several different partners at the same time is exciting	0.74	*
It's important to know your HIV status	1.35	*
It's necessary to seek medical treatment for STIs	1.55	*
AIDS hasn't affected my behavior	1.68	***
Cayo (vs Stann Creek)	0.56	
Toledo (vs Stann Creek)	1.03	

Log Liklihood: 540.58
Cox & Snell R^2: .31
N: 531

*p<.05, **p<.01, ***p<.001

Knowledge scale:
1) Can a healthy-looking person have HIV?
2) list the methods for preventing the transmission of HIV: reducing number of sex partners
3) list the methods for preventing the transmission of HIV: practicing mutual fidelity
4) list the methods for preventing the transmission of HIV: abstinence
5) list the methods for preventing the transmission of HIV: using condoms

Social norms scale:
1) having multiple partners is not a source of pride
2) people I know can control their sexual impulses
3) my friends look up to others when they try to decrease their number of sex partners
4) having a boy/girlfriend is an obstacle to haing other sexual partners
5) Women/Men do not need to have more than one sexual partner
6) No one wants to win an opportunity to have sex
7) People I know do not have several sexual partners
8) People I know only have sex with FSW when they don't have a steady partner

Table 4: Logistic Regression Results Predicting Multiple Partners among Garifuna in last 30 days using Bstep with Interactions		
Indepdent Variables	**Odds Ratio**	**Sig**
Married	0.43	***
Has at least 1 Child	0.51	**
Had STI in last year	4.62	***
Knowledge Index	0.77	*
Social Norms Supporting Partner Reduction Scale	0.59	*
Reducing one's number of regular partners reduces the risk of HIV transmission	0.63	**
Having several different partners at the same time is exciting	0.74	*
It's important to know your HIV status	1.52	*
It's necessary to seek medical treatment for STIs	1.68	**
Male*Reducing one's number of regular partners reduces the risk of HIV transmission	1.23	**
Chi-Square	198.29	***
Cox & Snell R^2	0.31	
N	531	
Log Liklihood	537.68	

*p<.05, **p<.01, ***p<.001

Knowledge scale:
1) Can a healthy-looking person have HIV?
2) list the methods for preventing the transmission of HIV: reducing number of sex partners
3) list the methods for preventing the transmission of HIV: practicing mutual fidelity
4) list the methods for preventing the transmission of HIV: abstinence
5) list the methods for preventing the transmission of HIV: using condoms

Social norms scale:
1) having multiple partners is not a source of pride
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3) my friends look up to others when they try to decrease their number of sex partners
4) having a boy/girlfriend is an obstacle to haing other sexual partners
5) Women/Men do not need to have more than one sexual partner
6) No one wants to win an opportunity to have sex
7) People I know do not have several sexual partners
8) People I know only have sex with FSW when they don't have a steady partner

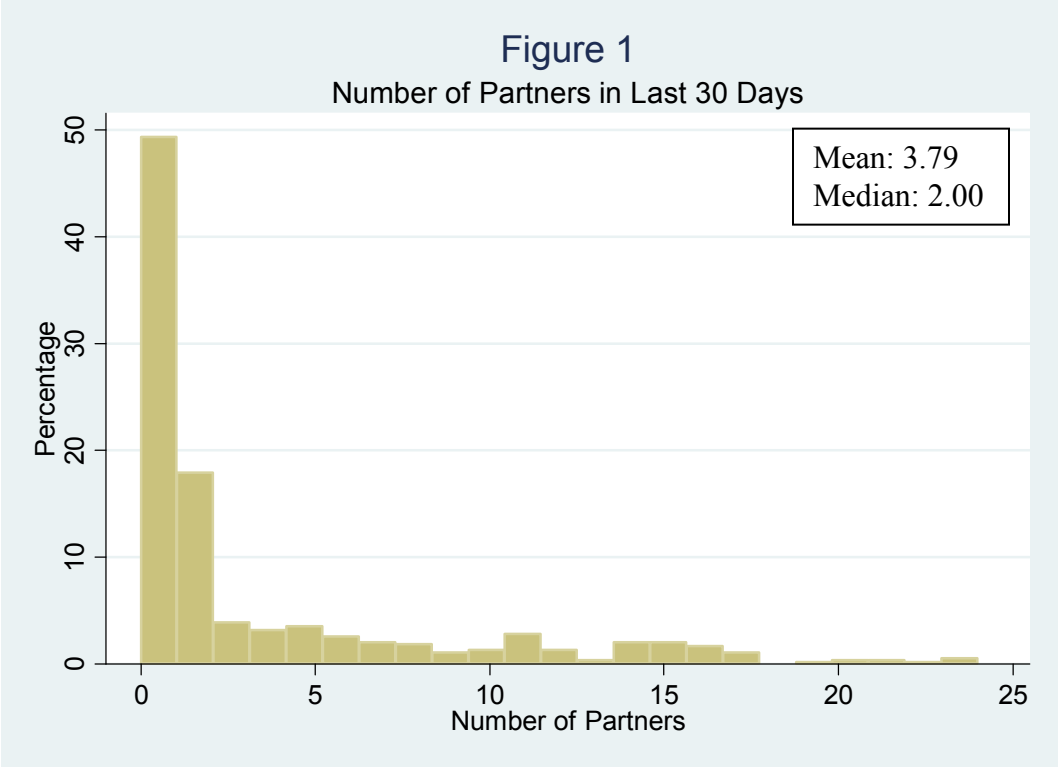
Figure 1
Number of Partners in Last 30 Days
Mean: 3.79
Median: 2.00
Percentage
0
10
20
30
40
50
0
5
10
15
20
25
Number of Partners

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