Title: The Association of Interviewer Gender on Responses to Sensitive Survey Questions

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Abstract

Bias may be introduced in survey data collection when participants answer questions differently depending on interviewer gender. This could affect the validity of collected data, especially sensitive data. Using sexual behavior data collected in a 2017-2018 cross-sectional survey of Haitian women (n=304), we evaluated the effect of interviewer-gender on three outcomes: (1) question-specific response rates, (2) total number of non-responses, and (3) differences in reported answers. We observed higher item response rates for sensitive sexual behavior questions when the interviewer was female and more item non-responses (Don't know/Refuse) when the interviewer was male. Among those who did respond, participants were more likely to report some sensitive sexual behaviors to women and others to men. We conclude that researchers should consider the sociocultural norms of the study population and the potential for interviewer bias in the planning and analysis phase of studies using self-reported data.

Introduction

The validity of data collected in a survey study could be influenced by bias introduced by the interviewer, especially as it pertains to interviewer gender. The gender-based stereotypes in a society can influence the participants responses in an interview survey (Davis et al. 2009). Even though isolating interviewer gender bias in a study is difficult, it is important to be aware of its existence, to understand its consequences, and to apply procedures to minimize the information bias that it introduces to the data (Szklo et al. 2001). Gender is an important interviewer characteristic because it is generally easy to identify, unlike some other attributes, e.g. interviewing skills, and it is not possible to ask interviewers to mask their gender in a face-to-face interview. Therefore, gender can cause measurement error and information bias that can evidently weaken the outcome of a survey study (Hernán and Robins 2018).

Several studies have evaluated the interviewer gender effect, yet fewer have assessed the effect in sexual behavior surveys (Davis et al. 2009). The evidence that does exist is mixed on the

direction and strength of the potential bias. A study in the Dominican Republic found that male respondents were more likely to report higher frequencies of oral and vaginal sex to female interviewers (Chun et al. 2011). Similarly, in Ghana, female respondents disclosed previous sex more frequently to male interviewers (McCombie and Anarfi 2002). Conversely, in the same study male respondents were more likely to declare intention of condom use to female interviewers (McCombie and Anarfi 2002). A study in California found that men report fewer sexual partners to female interviewers (Wilson et al. 2002). Likewise, in Germany, participants reported more frequently a history of STI to a same-gender interviewer (Fuchs 2009). In another study, both male and female interviewees were more likely to report sexual abuse to female interviewers (Dailey and Claus 2001). In sum, the findings of previous studies have been inconsistent, with some reports of null findings, and others reporting effect measures of varying magnitudes and differing directions (West and Blom 2017).

One explanation for the mixed results of prior studies is that the gender-interviewer effect has different effects among different populations (Davis et al. 2009; West and Blom 2017). Geographic location and sociocultural context of a study can influence the gender-interviewer effect on participants' responses (Flores-Macias and Lawson 2008). Further, most studies evaluating the gender-interviewer effect were conducted more than a decade ago and, therefore, do not represent the cultural and behavioral context of the current era (Davis et al. 2009; West and Blom 2017). Accordingly, newer studies that consider the geographic, cultural, and social attributes of the population are needed. Additionally, most previous studies evaluated the gender-interviewer effect on participants' responses in surveys other than sexual behavior surveys (Dykema et al. 2012; Huddy et al. 1997; Lau 2017; Liu and Stainback 2013; West and Blom 2017). The associations and trends found in these studies could differ from each other because

the surveys relate to different fields (Davis et al. 2009; West and Blom 2017). Only a limited number of studies have examined the effects of interviewer gender on survey item non-response and refusal (Lau 2017; Tu and Liao 2007). These studies also found mixed results for the interviewer gender effect on responses, suggesting further study of the effect of interviewer gender on participants willingness to respond to survey questions is necessary (Tu and Liao 2007).

In this study, we examine the relationship between interviewer gender and participant responses to queries about their sexual behaviors in a sample of Haitian women. In terms of participant responses to sexual behavior queries, we assessed both the types of participant responses and patterns in item non-response. To our knowledge, this study is the first to examine the potential influence of gender-interviewer effect on survey responses in Haiti and the first to examine multiple components of participant response patterns together.

Methods

Study setting

Data were originally collected in a cross-sectional survey study in Haiti from December 2017 to February 2018 in collaboration with Haiti's largest microfinance organization, Fonkoze. Trained fieldworkers interviewed female clients of the Fonkoze branch office in Okay, a small port city on Haiti's southern peninsula (population=70,000). The branch was serving upwards of 6,200 Fonkoze clients in Okay and its surrounding towns at the time of this study (Tucker and Tellis 2005). The participants were randomly sampled from the complete client database of the Okay Fonkoze branch office. Participation eligibility criteria were: 1) 18-49 years old, 2) female, and 3) currently a member of the Okay branch office of Fonkoze.

Data Collection

Four trained local Haitian interviewers conducted the data collection procedures in the local Haitian Creole language. Interviewers contacted and recruited potential participants in person at their home. Study information scripts stressed that participation would be voluntary, and refusal would influence neither Fonkoze membership nor future access to microloans. Interviewers obtained written informed consent from each participant before commencing data collection. At each visit, interviewers asked for a private location in the participant's home for reading the survey questions on tablets to the interviewers. They entered the participants' responses to the tablet. The survey was designed to capture self-reported data on a wide scope of variables, including but not limited to socio-demographic, microfinance, infectious disease risk experience, and sexual behavior.

Key variables

Exposure variable: The independent variable for this study was the gender of interviewers (male vs. female). Of the four interviewers, two were female and two were male.

Outcome variables: The outcome variables were derived from the participants' responses to sensitive sexual behavior questions. There were 26 questions on the "Sexual Behavior" module. We analyzed a subset of 12 of the most highly sensitive questions. The items we evaluated were number of lifetime sex partners, number of current sexual relationships, number of sex partners in last year, relationship type (casual or anonymous vs. regular), partner ever had sex with someone else during relationship (Yes vs. No), used a condom in last sex (Yes vs. No), Transactional sex (Yes vs. No), ever been tested for HIV (Yes vs. No), ever tested positive for

HIV (Yes vs. No), currently at risk of contracting HIV (Yes vs. No), clinical history of STI (Yes vs. No), STI symptom in last year (Yes vs. No).

We generated three sets of outcomes. First, we assessed item-specific response rates. Here, we categorized those who endorsed "Don't Know" or "Refuse" as non-responses for the item and those who endorsed any valid response as responses for an item. Second, we evaluated the cumulative number of "Don't Know" and "Refuse" endorsements for each participant with a count variable. Third, we analyzed the interviewer gender effect on selecting different responses. In these analyses, participants who endorsed "Don't Know" or "Refuse" responses were excluded in the analysis for that particular item.

Socio-demographic covariates: We evaluated several key socio-demographic covariates, including age (20-29, 30-39, and 40-49), marital status (currently married, divorced or separated, and never married), education level (none, preschool or primary, and secondary or higher), literacy (Yes vs. No); household size, measured as the number of people sharing a household with the participant, and household asset index, constructed from the self-reported value of 20 potential items in the participants' households (e.g. television, oven, cellular phone, radio, and refrigerator) and categorized into quartiles. In our adjusted models, we dichotomized the education variable in to two levels (none vs. any level of education).

Statistical analysis

For dichotomous outcomes, we used log-binomial models and modified Poisson models with robust standard errors to obtain Prevalence Ratios (PR) for the associations between interviewer gender and outcome variables (Zou 2004). Initially, we did not adjust for covariates because interviewers were not assigned to participants based on any socio-demographic characteristics.

However, in descriptive analysis, four of the sociodemographic variables, i.e. educational attainment, literacy, household assets, and household size, differed significantly by interviewer-gender. Hence, we conducted sensitivity analyses adjusting for these four variables. Additionally, we used crude and adjusted Poisson regression models with robust standard errors to obtain the average number of non-responses for female and male interviewers. In the results section, we report the PRs and 95% Confidence Intervals (95% CI). We used SAS software, Version 9.4 (Cary, NC), for all statistical analyses.

Results

Interviewers contacted 349 potential participants in this study. One of the potential participants refused participation, three were not located, and 41 did not meet the eligibility criteria. Overall, 304 participants (participation rate: 98.7%) were included in our analyses. Male interviewers conducted 128 (42%) interviews and female interviewers conducted 176 (58%) interviews. The ages of participants ranged from 20 to 49 with a mean age of 36 (Table 1). More than half of participants (54%) were married. Approximately three-fourths (74%) of participants were literate, while only 44% had an educational attainment of secondary schooling or higher. Participants lived in households with an average of 4.9 other members. Participants differed in several key ways depending on the gender of their interviewer. Participants reported more educational attainment, higher literacy rates, more household assets, and larger household sizes to male interviewers compared to female interviewers.

In general, participants responded to the questions more frequently when female interviewers interviewed them (Table 2). Participants were 16% more likely to respond to female interviewers than male interviewers when asked about type of their most recent partner (regular vs. casual/anonymous) [PR (95% CI): 1.16 (1.07-1.26)]. Additionally, participants were 86% more

likely to respond to female interviewers than male interviewers when asked: "Has/did your partner ever had sex with someone else during your relationship" [PR (95% CI): 1.86 (1.25-2.76)]. Participants were also more than 30% likely to respond to female interviewers when asked questions about transactional sex [PR (95% CI): 1.31 (1.17-1.48)]. Furthermore, participants were 10% more likely to report a history of STI to female interviewers [PR (95% CI): 1.10 (1.04-1.17)]. There was one exception to this trend. When asked "Are you currently at risk of contracting HIV?" participants were 17% less likely to respond when they were interviewed by female interviewers compared to male interviewers [PR (95% CI): 0.83 (0.71-0.96)].

In addition to differences in responding to individual questions by interviewer gender, there were significant differences in the number of reported "Don't Know" and "Refuse" by interviewer gender (Table 3). The results of crude Poisson model analysis indicated that the average number of non-responses for female interviewers was 0.68 (95% CI: 0.55, 0.84) times the average number of non-responses for male interviewers. We found similar results in sensitivity analysis.

The content of participant responses to several sensitive sexual behavior questions also differed by interviewer gender (Table 4). These results, examining the reported content/outcomes of questions, did not reveal a clear trend with participants sometimes reporting more sensitive responses to female interviewers and sometimes to male interviewers. Nonetheless, they were significantly 10% less likely to report a history of HIV testing to female interviewers [PR (95% CI): 0.90 (0.83- 0.98)]. They tended to report themselves as currently being at risk of contracting HIV less frequently when they were interviewed by women [PR (95% CI): 0.65 (0.41-1.04)], albeit statistically insignificant. Furthermore, participants were over two times more likely to report condom use in last sex to female interviewers [PR (95% CI): 2.27 (1.35- 3.84)], and over

two times more likely to report a positive STI history to female interviewers [PR (95% CI): 2.29 (1.13- 4.63)]. However, they were almost 50% less likely to report any recent STI symptom to female interviewers [PR (95% CI): 0.58 (0.39- 0.86)].

In our sensitivity analyses, we adjusted for education level, literacy, household assets, and household size. Adjusting for these covariates produced negligible changes in the magnitudes of most of the associations presented in tables 2 and 4. There were a few exceptions. After adjustment, a handful of associations were slightly weakened toward the null (e.g.: association between interviewer gender and reporting condom use in last sex), and several associations were slightly strengthened away from the null.

Discussion

We looked at three outcomes that might be affected by interviewer gender: (1) the effect on participants' question-specific response rates, (2) the differences in total number of item non-response, and (3) the differences in reporting sensitive sexual behavior information. In this study population of all female participants, we observed higher item response rates for sensitive sexual behavior questions when the interviewer was female. Specifically, participants were significantly more likely to respond to female interviewers when they were asked about the type of most recent partner, participant's partner having sex with others, transactional sex, and STI history. Our analyses also revealed that male interviewers received more item non-responses in comparison to female interviewers. Finally, in terms of response content, participants were more likely to report condom use at last sex and positive STI history to female interviewers and more likely to disclose history of STI symptoms and ever testing for HIV to male interviewers.

Few studies have assessed the interviewer gender effect on sensitive sexual behavior questions (Fuchs 2009; Lavrakas 1992; Olson and Bilgen 2011). Compared to other face-to-face interview studies (Wilson et al. 2002), the participation rate in our study was high (98.7%). This implies that our results are less prone to overall non-response bias. However, in our study, item-specific response rates for almost all sexual behavior questions were lower for male interviewers compared to female interviewers. The only question that male interviewers elicited a higher response rate asked about participant's current risk of HIV infection. The results of previous studies on the association between interviewer gender and response rates are not consistent. A review evaluated the gender effect on response rate in 15 studies; of these studies, 11 found null findings, 3 found that being female increases the response rates, and 1 study found that respondents' attributes moderate gender effect (West and Blom 2017). However, these studies did not evaluate the association in sexual behavior surveys (West and Blom 2017). Another study in the United States found that, similar to our findings, women were more likely to refuse responding to sexual behavior questions with male interviewers compared to same-gender interviewers (Catania et al. 1996).

We found that female participants selected "Don't Know" or "Refuse" options more frequently on average when the interviewer was male. To our knowledge, only one study has evaluated the gender-interviewer effect on the cumulative number of non-responses in sexual behavior surveys (Tu and Liao 2007). Similar to our findings, this study in Taiwan found that in crude analysis female participants selected "Don't Know" option more frequently when interviewed by male interviewers, compared to female interviewers. However, in their multivariate analysis, adjusting for interviewer working experience and presence of a third person in the interview session, the effect measure turned insignificant (Tu and Liao 2007). In our analysis, the PR remained

significant even after adjusting for potential confounders. The results of this analysis indicate that Haitian women are more likely to provide a response to a sexual behavior question when the interviewer is female.

A higher response rate does not guarantee honest or higher quality responses. However, previous evidence suggests that female interviewers tend to collect more honest responses, from both female and male participants (West and Blom 2017). Of the 23 studies evaluating gender-interviewer effect on response quality, 10 found null findings, 9 found that female interviewers elicit high-quality responses, 4 concluded that male interviewers collect higher-quality responses, and 3 found that respondent gender moderates interviewer gender effect (West and Blom 2017). In contrast to the majority of these studies, our findings indicate that participants were more willing to provide sensitive responses for most of the sexual behavior questions to male interviewers. However, this trend was not significant for all the questions and was in the opposite direction for some of the sensitive questions.

More specifically, we found that participants were strongly more likely to report an STI symptom, when the interviewer was male. Previous studies showed that male interviewers have more frequently elicited reports of chronic disorders, perhaps because participants recognize male interviewers as more "doctor-like" (Edwards and Berk 1993; West and Blom 2017). The "doctor-like" theory might explain our findings regarding STI-symptoms and risk of contracting HIV questions, where participants reported more honest responses to male interviewers. Studies show that participants who choose the gender of their interviewers tend to report more frequently on their recent sexual problems and recent partner counts (Catania et al. 1996). In a similar trend (i.e. providing more sensitive responses to male interviewers), participants in our study were 65% less likely to report condom use in last sex to male interviewers. Similar trends were seen

for a similar question published in studies conducted in Ghana (McCombie and Anarfi 2002) and Dominican Republic (Chun et al. 2011). However, in our study, women were more willing to provide sensitive responses to the question about STI history to female interviewers. This finding suggests that there might be stigma around reporting STI in the context of Haiti, at least for female population. The varying trends in responding to similar sexual behavior question seems to imply that social and cultural contexts may influence the interviewer gender effect on participant responses.

Haiti is a country with traditional gender norms, reinforced by low income and educational access and unequal distribution of finances and education between genders. The Gender Inequality Index (GII) quantifies the loss of achievement because of gender inequality in a country. In 2017, the GII for Haiti was 0.601 (United Nations Development Programme 2018), which implies that Haitian women do not have access to equal rights as men (ranked 168 out of 189 countries). For instance, compared to men, Haitian women have notably less access to education (King and Hill 1993). The inequalities and discriminations against Haitian women could have affected the participants' responses when they were responding to a male-interviewer.

Different methods have been proposed for eliminating the gender-interviewer bias. Although a previous review indicated that there is insufficient evidence to conclude that matching the interviewers and interviewees on gender characteristics improve survey response quality and rate (Davis et al. 2009), a more recent review suggests that matching interviewers and interviewees on gender might improve the cooperation rates, but not necessarily the response quality (West and Blom 2017). However, we had high participation rates regardless of interviewer gender. Another method is rewording of the questions in a less judgmental way, which could buffer the

effect of interviewer gender on sexual behavior survey responses (Catania et al. 1996). Furthermore, a promising method for decreasing study dropout is allowing participants the option of choosing the gender of their interviewers (Catania et al. 1996). When funding allows, a pilot study can also provide valuable information about the direction of the association in the sampling frame.

In our study, we only had four interviewers and their individual attributes could have influenced our results. However, the interviewers were not assigned to participants based on any socio-demographic characteristics. Another limitation of our study is that the respondent gender is limited to female. Hence, we cannot evaluate whether respondent gender moderates interviewer gender effect. Although this limitation limits the generalizability of our results, it does not influence the validity of our findings. Moreover, like other survey studies, information bias and, in particular, recall bias could had been present in our study. This type of bias can influence the magnitude and direction of reported effect measures. Investigators have proven that questions about incidences, e.g. positive HIV test, are less prone to recall bias than frequency, e.g. number of sexual partners (Fenton et al. 2001). For frequency questions, shorter recall periods result in more reliable reports (Fenton et al. 2001). Most questions in our study followed the mentioned rules to diminish the recall bias. The questions in our study mostly asked about recent periods or incidences.

Conclusion

In any study setting where the gender of the interviewer is identifiable, interviewer gender effect could potentially be a source of bias. However, this effect is not uniform in different surveys and questions. The magnitude and direction of the effect measure might vary in different surveys. Furthermore, other characteristics of the study may influence the interviewer gender effect.

Geographic location, year of study, and cultural context, such as gender-related social stereotypes (Fuchs 2009), are some of the attributes of a study that appear to have an influence on the way that participants respond to questions. Our study suggests that for most sexual behavior questions, Haitian women tended to respond more frequently when reporting to a female interviewer. However, for the type of response, results were mixed and indicated that often more sensitive responses were provided to male interviewers. To reduce the gender-interviewer bias, we suggest that researchers consider the cultural norms of the general population under study to design an efficient method for data collection, e.g. rewording of the survey questions.

Compliance with Ethical Standards

Conflict of Interest: The authors declare that they have no conflict of interest.

Ethical approval: We obtained the ethical approval for this study's protocol from the Indiana University's Human Subjects Office (Protocol #1705661852).

Informed consent: Informed consent was obtained from all individual participants included in the study.

Table 1. Respondents basic demographic characteristics by interviewer-gender (Haiti, 2018, interviewer gender effect in a sexual behavior survey)

Basic Characteristic		Interview condition [a]		
	Total sample	Female interviewer	Male interviewer	P-value
	n (%)	n (%)	n (%)	
	304 (100)	128 (42)	176 (58)	
Age				0.56
20-29	69 (22.7)	30 (23.4)	39 (22.2)	
30-39	127 (41.8)	49 (38.3)	78 (44.3)	
40-49	108 (35.5)	49 (38.3)	59 (33.5)	
Marital Status				0.92
Currently married	164 (55.0)	70 (56.0)	94 (54.3)	
Divorced/separated	26 (8.7)	10 (8.0)	16 (9.3)	
Never married	108 (36.2)	45 (36.0)	63 (36.4)	
Missing [b]	6	3	3	
Education level				0.0007
None	51 (16.9)	9 (7.2)	42 (23.9)	
Preschool/Primary	119 (39.5)	54 (43.2)	65 (36.9)	
HS or more	131 (43.5)	62 (49.6)	69 (39.2)	
Missing	3	3	0	
Literacy				0.0251
Yes	223 (74.1)	101 (80.8)	122 (69.3)	
No	78 (25.9)	24 (19.2)	54 (30.7)	
Missing	3	3	0	
Household Assets				<.0001
Q1	76 (25.2)	7 (5.6)	69 (39.2)	
Q2	75 (24.8)	37 (29.4)	38 (21.6)	
Q3	76 (25.2)	39 (31.0)	37 (21.0)	
Q4	75 (24.8)	43 (34.1)	32 (18.2)	
Missing	2			
	Mean (SD)	Mean (SD)	Mean (SD)	
Household size	4.9±1.86	4.5±1.91	5.2±1.78	0.0012

a. All respondents were female

b. Missing values were not included in the whole proportions

Table 2. Prevalence ratios for response rate and interviewer gender associations (Haiti, 2018, interviewer gender effect in a sexual behavior survey)

Question	Response Rate			PR [c] Female vs. Male	PR 95% CI	Adjusted [d] PR Female vs. Male	Adjusted [d] PR 95% CI
	Total [a]	Interview condition [b]					
		Female interviewer n (%)	Male interviewer n (%)				
Number of lifetime sex partners [e]	304	176 (100)	128 (100)	1	-	-	-
Number of current sexual relationships [e]	304	176 (100)	128 (100)	1	-	-	-
Number of sex partners in last year [e]	304	176 (100)	128 (100)	1	-	-	-
Type of most recent partner	234	140 (100)	81 (86.2)	1.16*	1.07-1.26	1.20*	1.09-1.32
Has/did your partner ever had sex with someone else during your relationship?	235	64 (45.4)	23 (24.5)	1.86*	1.25-2.76	1.61*	1.02-2.53
Did you use a condom in last sex?	121	64 (98.5)	54 (96.4)	1.02	0.96-1.08	1.01	0.94-1.09
Transactional sex [f]	235	140 (99.3)	71 (75.5)	1.31*	1.17-1.48	1.33*	1.17-1.50
Have you ever been tested for HIV? [e]	303	175 (100)	128 (100)	1	-	-	-
Have you ever tested positive for HIV?	261	143 (100)	116 (98.3)	1.02	0.99-1.04	1.02	0.99-1.06
Are you currently at risk of contracting HIV?	303	110 (62.9)	97 (75.8)	0.83*	0.71-0.96	0.86	0.72-1.03
Has a doctor ever told you that you have a STI?	303	173 (98.9)	115 (89.8)	1.10*	1.04-1.17	1.12*	1.04-1.20
During last year, have you had STI symptom(s)?	297	172 (100)	124 (99.2)	1.01	0.99-1.02	1.01	0.99-1.02

a. Total number of observations differ due to skip pattern of the survey.

b. All respondents were female

c. PR= Prevalence Ratio

d. adjusted for Education level (none vs. any level of education), Literacy (Yes vs. No), Household Assets quartiles, and Household size

e. Response rate was 100% for both gender (The model diverged because of 0 cells in the contingency tables)

f. limited to those who had a partner in the last year.

* $p < .05$

Table 3. Interviewer gender effect on the number of item non-responses (Haiti, 2018, interviewer gender effect in a sexual behavior survey)

	Female (mean±SD)	Male (mean±SD)	Relative number of non-responses [b] (95% CI) (Female vs. Male)	Relative number of non-responses [c] (95% CI) (Female vs. Male)
Non-responses [a]	0.83±0.78	1.22±1.11	0.68* (0.55, 0.84)	0.64* (0.50, 0.81)

a. "Don't know" or "Refuse" values

b. Crude Poisson model analysis

c. Multivariate Poisson model analysis, adjusted for Education level (none vs. any level of education), Literacy (Yes vs. No), Household Assets quartiles, and Household size

* $p < .05$

Table 4. Prevalence ratios for sexual behavior responses and interviewer gender associations (Haiti, 2018, interviewer gender effect in a sexual behavior survey)

Questions' Responses [a]	Total [b]	Interviewer gender		PR Female vs. Male	PR 95% CI	Adjusted [d] PR Female vs. Male	Adjusted [d] PR 95% CI
		Female n (%) [c]	Male n (%) [c]				
Number of lifetime sex partners >1	304	108 (61.4)	83 (64.8)	0.95	0.80-1.13	0.88	0.70-1.11
Number of current sexual relationships >0	304	144 (81.8)	103 (80.5)	1.02	0.91-1.14	0.96	0.85-1.10
Number of sex partners in last year >0	304	141 (80.1)	102 (79.7)	1.01	0.90-1.12	0.94	0.82-1.07
Most recent partner casual or anonymous	221	16 (11.4)	6 (7.4)	1.54	0.63-3.79	2.79	0.98-7.96
Partner had sex with someone else (Yes)	87	38 (59.4)	16 (69.6)	0.85	0.61-1.20	0.77	0.51-1.16
Used a condom in last sex (Yes)	118	35 (54.7)	13 (24.1)	2.27*	1.35- 3.84	2.01*	1.14-3.56
Transactional sex (Yes)[e]	272	70 (40.0)	42 (43.3)	0.92	0.69- 1.24	0.63*	0.44-0.90
Ever HIV test (Yes)	303	145 (82.9)	118 (92.2)	0.90*	0.83- 0.98	0.92	0.83-1.01
Positive HIV test result (Yes)	259	0	0	-	-	-	-
Currently at risk of contracting HIV (Yes)	207	23 (20.9)	31 (32.0)	0.65	0.41-1.04	0.31*	0.17-0.57
Positive STI history (Yes)	288	31 (17.9)	9 (7.8)	2.29*	1.13- 4.63	1.76	0.83- 3.76
Recent STI symptom (Yes)	296	33 (19.2)	41 (33.1)	0.58*	0.39- 0.86	0.33*	0.18-0.59

a. All questions are dichotomized (only the frequency and proportion of the more sensitive level of the dichotomized questions are reported)

b. Total number of respondents to each question: this number might be lower than total sample size, i.e. 304, because of survey's skip pattern.

c. Column percentages of the contingency tables (columns being interviewer genders)

d. adjusted for Education level (none vs. any level of education), Literacy (Yes vs. No), Household Assets quartiles, and Household size

e. limited to those who had a partner in the last year.

* $p <.05$

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