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Sex, Lies, and Surveys: The Role of Interviewer Characteristics

Tricia Koroknay-Palicz
World Bank

Joao Montalvao
World Bank

Abstract

This paper examines how easily observable interviewer characteristics, such as gender and physical attractiveness, and more difficult to observe characteristics, such as attitudes and beliefs, affect adolescent girls' disclosure of sexual behavior during a baseline survey for an adolescent girls program in Liberia. We find that girls are more likely to report sexual activity to better-looking interviewers, and less likely to do so to interviewers holding more discriminatory gender attitudes and greater expectations about the program. While we find no evidence of a direct effect of interviewer gender, we find some evidence that the impacts of interviewer characteristics vary by interviewer gender.

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Contact: Tricia Koroknay-Palicz - tgonwa@worldbank.org, Joao Montalvao - jmontalvao@worldbank.org.

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1. Introduction

Early sexual initiation puts adolescent girls at risk for early childbearing and marriage. To test the impact of policy interventions, researchers often rely on self-reported sexual behavior data obtained from face-to-face surveys [e.g. Duflo et al. 2015]. However, survey methodologists have long been concerned with respondents' tendency to misreport sensitive behaviors whether to give a favorable picture of themselves or avoid the risk of feeling embarrassed, judged, or punished [Tourangeau and Yan 2007].

To adjust their answers accordingly and alleviate such social desirability concerns, respondents must form impressions of and make inferences about the preferences, values, and intentions of the interviewer. Easily observable interviewer characteristics such as race and gender can provide important signals and cues due to stereotypes. Enumerators themselves may "leak" their inner thoughts and feelings, potentially through nonverbal cues such as subtle (and perhaps subconscious) changes in gaze or intonation. And even well-trained enumerators can sometimes deviate from survey protocols. Regardless of the precise mechanism, survey responses can vary with interviewer characteristics.

In this paper we examine how easily observable interviewer characteristics, such as gender and physical attractiveness, and more difficult to observe interviewer attitudes and beliefs, affect adolescent girls' disclosure of sexual behavior. The context is a baseline survey of an impact evaluation for an adolescent girls' mentorship program in Liberia. Our sample comprises girls aged 14-15 years. About 23% of adolescent girls in Liberia have had their first sexual intercourse by 15, according to the Demographic and Heath Surveys in 2013.

Our results suggest that physical appearance and nonverbal communication play an important role in the social cognition processes that take place in a survey. Interviewer's physical attractiveness could evoke stereotypes among respondents, such as the belief that better-looking individuals are more trustworthy or "sexually warmer" as long emphasized by the social psychology literature [e.g. Langlois *et al.* 2000]. Whether such stereotypes induce respondents to report sensitive behaviors more or less truthfully is ambiguous. If better-looking interviewers are indeed perceived to be more trustworthy and friendly, it is then possible that respondents could feel more comfortable to disclose early sexual debut to them. We cannot however rule out the possibility that some respondents could exaggerate their sexual experiences.

Perhaps more surprising is the finding that responses are also affected by interviewer attitudes, given the structured and scripted nature of the interview. In principle attitudes are more difficult to observe, and this finding could thus suggest that respondents may be picking up on (potentially subconscious) non-verbal communication cues to interviewers' views and opinions. Respondents might be less likely to disclose sexual activity to interviewers who they perceive to judge more harshly such behavior to avoid embarrassment. They may also avoid sharing such information if they believe the research team has a role in influencing their selection into the program and fearing

that telling the truth will harm their chances of being selected. It is also possible that despite the extensive training and quality checks implemented during the survey, some interviewers could have deliberately induced girls to respond in a certain way, in order to improve their chances of being selected. This is an important question given the large number of impact evaluations in developing countries, which often rely on face-to-face surveys. More research is warranted.

We add to a voluminous literature on interviewer effects [see e.g. Hox et al. 1991, Schaeffer et al. 2010, West and Bloom 2017]. Much of this literature has focused on the role of easily observable interviewer characteristics. In particular, a series of studies suggest that the race of an interviewer can have an important impact on survey responses, especially to questions dealing with racial issues [e.g. Schaeffer 1980, Cotter et al. 1982, Davis and Silver 2003]. Some studies have found that respondents indicate more egalitarian gender attitudes when interviewed by female interviewers, though in general the evidence on interviewer gender is, like ours, mixed [e.g. Kane and Macaulay 1993, Catania et al. 1996, Liu and Stainback 2013, Houle et al. 2016]. In some contexts, the perceived religiosity of an interviewer has also been shown to affect survey responses to questions of religiosity [Benstead 2014, Blaydes and Gillum 2013, Mneimneh et al. 2020].

We contribute by focusing on data from adolescent girls in a developing country context, and examine how self-reports of sexual behaviors vary by both easily observable interviewer characteristics and more difficult to observe interviewer attitudes and beliefs. In doing so, we add to a small body of evidence documenting the importance of attitudes-of-interviewer effects [Himelein 2015, Mneimnah et al. 2020], and provide among the first evidence on the importance of beauty-of-interviewer effects [Esinga et al. 2011, Jaeger 2016].[1]

2. Data

2.1 Girls' Sexual and Romantic Activity

This study is embedded within a baseline survey for an impact evaluation of the Sisters of Success (SOS) Program in urban Monrovia, in which mentors and girls' groups delivered life skills, including sex education, to adolescent girls aged 12-15. The baseline survey took place from October 2013 through January 2014, with girls who registered for the SOS program. This paper uses data from the 1,264 girls aged 14-15 during baseline, as incidence of reported sexual activity among the younger girls is too low for statistical inference. We further drop 46 observations for whom some data used in this analysis are missing, for a final working sample of 1,210 girls.

Appendix Table A1 shows summary statistics for the adolescent girls in our sample. We note that girls in our sample have on average only 5 years of education, and about one-third come from

[1] Esinga et al. [2011] find that respondents are more likely to report restrictive eating behavior to interviewers with higher body max index values, and Jaeger [2016] finds that more attractive enumerators have higher response rates and elicit more positive self-reports on physical appearance and health from respondents.

households where the head has no education. In terms of sexual and romantic activity, we see that 17% of the girls reported having ever had sex, 10% having had sex in the past thirty days, 20% having ever had a boyfriend, and 15% currently having a boyfriend.[2]

2.2 Interviewers' Characteristics

We examine how girls' self-reported sexual and romantic activity vary with the physical appearance and psychological attitudes of the 40 enumerators who interviewed them, conditional in their age, gender, and abilities. We use data from a survey self-administered by the interviewers in May 2014 to construct measures of attitudes and ability using selected questions that predict girls' responses. We also rated interviewers' physical attractiveness. Appendix Table A2 presents summary statistics for all the enumerator level characteristics used in the analysis.

2.2.1 Physical Attractiveness

To measure physical attractiveness, we follow a similar procedure to that used in the economics literature on beauty [e.g. Hammermesh and Biddle 1994]. Each interviewer was rated independently on a scale from 1 ("Very unattractive") to 10 ("Very attractive") by a male-female pair of young Liberian adults, hired as research assistants for this study. The raters have similar standards: the mean enumerator physical attractiveness is 5.6 (s.d.=1.6) for the male rater, 5.2 (s.d.=1.5) for the female rater, and the Cronbach's alpha of their ratings is 0.81.[3] To create a single index, we employ a double standardization method. First, we standardize both ratings to have mean zero and standard deviation one. Second, we standardize the average of the two standardized ratings to have mean zero and standard deviation one. A higher index score means greater physical attractiveness.

2.2.2 Attitudes

We construct a gender attitudes score by aggregating interviewers' level of agreement with four statements: "*Females are not as good as males in school*"; "*Girls can make as good leaders as boys*"; "*If a woman differs with her husband, she must accept his opinion*"; and "*In some circumstances, it is justifiable for a man to beat his wife*". Possible responses were on a scale from 1 ("*Really agree*") to 4 ("*Really do not agree*"). We recode negative items such that higher values mean more gender equitable views. We standardize the score to have mean zero and standard deviation one.

[2] In this paper we focus on these extensive margins of girls' sexual and romantic behaviors. We find little variation on the corresponding intensive margins (e.g. number of sexual partners the girl ever had).
[3] A higher Cronbach alpha coefficient means greater concordance among raters. The Cronbach alpha for beauty reported in Hamermesh and Biddle [1998] is 0.75.

We measure interviewer attitudes towards the SOS program by asking: "*How big of a difference do you think a program, like the SOS program, which matches girls to mentors and creates girls' groups, will make in the lives of the girls who participate in it?*", with possible responses on a scale from 1 ("*Least*") to 5 ("*Most*"). Among the respondents, 53% selected 5 ("Most"); 27%, 4; and 8%, 3. Given this skewed distribution, we define *mentorship-enthusiastic* enumerators as those who selected "Most".

2.2.3 Ability

To control for interviewer ability, we construct scores for "hard" and "soft" skills. The hard skills score adds two indicators: having prior survey experience (48% have) and a university degree (53% have). The soft skills score combines information on patience and ability to communicate with girls about sex. Patience is measured by asking: "*On a ladder from 1 to 5, where 1 is 'not very patient' and 5 is 'very patient', where do you stand?*". We measure communication skills with the question: "*I feel uncomfortable talking with adolescent girls about their sexual behavior*", with possible responses on a scale from 1 ("*Really agree*") to 4 ("*Really disagree*"). The score adds two indicators for reporting to be very patient (75% do) and very comfortable talking to girls about sex (65% do).

3. Results

We estimate the following logit model for girl i interviewed by interviewer j:

$$y_{ij} = \alpha + \beta Attract_{ij} + \gamma Gender_{ij} + \delta Attitudes_{ij} + \eta X_{ij} + \lambda W_{ij} + \varepsilon_{ij},$$

where y is the girl's dichotomous response of interest. $Attract$ is the measure of interviewer physical attractiveness. $Gender$ is a dummy equal to one if the interviewer is male. $Attitudes$ is a vector of interviewer attitudes towards gender and the SOS program. X is a vector of interviewer controls, including age and ability scores. As the assignment of interviewers to respondents was not random, we also control for respondent level controls W, such as age, years of schooling, household size, number of assets owned by the girl's household, and dummies for household head's educational attainment.[4] ε_{ij} is a disturbance term that we allow to be clustered by interviewer.

Table 1 reports the results. The first row shows that girls are more likely to report sexual and romantic activity to better-looking interviewers. A one standard deviation increase in interviewer's physical attractiveness significantly increases the likelihood that girls report having ever had sex by about 3 percentage points (pp), having ever had a boyfriend by 5pp, having had sex in the past

[4] While we asked survey team leaders to randomly distribute respondent tracking sheets to the interviewers, we did not implement a formal randomization procedure to assign interviewers to respondents

thirty days by 2pp, and currently having a boyfriend by 4pp. The second row shows interviewer gender has no significant impact on girls' responses, which is in line with the literature showing many null results [see West and Blom 2016, for a review].

Table 1: Interviewer Characteristics and Adolescent Girls' Responses to Questions Related to Sexual and Romantic Behavior

Logit marginal estimates, standard errors clustered by interviewer reported in parentheses

	Lifetime Behavior		Current Behavior	
	(1) Ever had sex	(2) Ever had boyfriend	(3) Had sex in past 30 days	(4) Has boyfriend currently
Mean of dependent variable:	.170	.204	.102	.150
Physical Attractiveness [z-score]	.032**	.045***	.024**	.042***
	(.013)	(.016)	(.012)	(.013)
Male [yes=1]	.018	.036	-.002	.020
	(.022)	(.028)	(.023)	(.021)
Gender Attitudes [z-score]	.024**	.033***	.001	.029***
	(.012)	(.012)	(.010)	(.010)
Program Enthusiastic [yes=1]	-.054**	-.055*	-.041**	-.048*
	(.025)	(.029)	(.017)	(.026)
Soft Skills [0-2 score]	.070***	.085***	.059***	.075***
	(.022)	(.024)	(.016)	(.019)
Hard Skills [0-2 score]	.063**	.054**	.039**	.064***
	(.025)	(.027)	(.018)	(.022)
Age	.000	.003	-.001	.002
	(.002)	(.002)	(.002)	(.002)
Respondents [interviewers]	1,210 [40]	1,210 [40]	1,210 [40]	1,210 [40]

Notes: *** denotes significance at 1%, ** at 5%, and * at 10% level. All columns report logit estimates, where marginal effects are reported in each case. Standard errors are in parentheses, and are clustered by interviewer. All columns control for the following respondent level characteristics: girl's age, years of schooling, household size, number of assets owned by the household, and dummies for household head's educational attainment.

The third row shows that girls are more likely to disclose sexual and romantic activity to interviewers holding more gender equitable views: a one standard deviation increase in interviewer's gender attitudes significantly raises the likelihood that girls report having ever had sex, a boyfriend, and currently having a boyfriend by about 2-3pp. The fourth row shows that girls interviewed by interviewers that are enthusiastic about the program are significantly less likely to report having ever had sex by 5pp, having ever had a boyfriend by 6pp, having had sex in the past thirty days by 4pp, and currently having a boyfriend by 5pp.

The fifth and sixth rows show that interviewer ability also matters. Girls are more likely to disclose sexual and romantic activity to higher ability enumerators. The magnitudes of the coefficients multiplying the soft skills score are substantially larger than those multiplying the hard skills score. We find no systematic evidence that the age of the enumerator has an impact on girls' responses. Appendix Tables A3 and A4 show subsample estimates by interviewer gender. While these results should be interpreted with caution given the small number of enumerators, they suggest that the

impacts of gender attitudes and physical attractiveness appear to be driven by male enumerators, while the impacts of enthusiasm and skills appear to be driven by female enumerators

4. Discussion

Our findings illustrate that interviewer characteristics can impact survey data. A methodological implication is that researchers may wish to randomly assign enumerators to respondents, or control for interviewer fixed effects in regression analysis of survey data. These results are important given the prevalence of face-to-face surveys in developing countries. A substantive implication is that, to the extent that the social interaction during a survey interview echoes social interactions in the real world, our results can offer insights into the psychological mechanisms through which vulnerable adolescent girls perceive others and strategically attempt to manage how they are perceived.

We note that we find no evidence that responses vary with the gender of the interviewer. Interviewer gender may affect respondents' willingness to share details of their intimate lives for a number of reasons. If being interviewed by a same-gender interviewer enhances a respondent's degree of emotional comfort [Catania et al. 1996], respondents in our sample might prefer to disclose greater sexual and romantic activity to female interviewers. While we find no evidence of a direct effect of interviewer gender, we find some evidence that the impacts interviewer characteristics on girls' responses can vary by interviewer gender.

While identifying the precise mechanisms driving interviewer effects is beyond the scope of this paper, the most common explanation for interviewer effects is that it reflects social desirability concerns. There is a well-established literature on social desirability bias [see e.g. DeMaio 1984, Nederhof 1985, Tourangeau and Yan 2007, Krumpal 2013]. The psychological mechanisms driving social desirability bias are generally thought to reflect (conscious or subconscious) complex identity and impression management concerns, motivated by e.g. an effort to conform with social norms, impress or please the interviewer, or engage in self-deception. A meta-analysis by Tourangeau and Yan [2007] suggests that social desirability bias is common in surveys on sensitive questions, and that they are highly contextual. Indeed, some studies suggest that respondents that are younger, less educated, and from poorer backgrounds are more susceptible to social desirability concerns and interviewer effects [Schuman and Converse 1971, Campbell 1981, Huddy et al. 1997, Blaydes and Gillum 2013]. Our sample of adolescent girls in a developing country thus provides a particularly suitable setting to study interviewer effects. Our results are important given the prevalence of face-to-face surveys in developing countries.

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Appendix

Table A1: Summary Statistics: Respondents

Means, standard deviations in parentheses

	Mean	(SD)
Panel A: Sexual and Romantic Behaviors		
Lifetime Behavior		
Ever had sex [yes=1]	.170	(.376)
Ever had boyfriend [yes=1]	.204	(.403)
Current Behavior		
Had sex in past 30 days [yes=1]	.102	(.302)
Has boyfriend currently [yes=1]	.150	(.358)
Panel B. Background Characteristics		
Age	14.5	(.500)
Years of education	4.95	(2.32)
Household size	7.69	(3.25)
Household assets [0-100 score]	48.0	(13.8)
Household head's educational attainment		
No education [yes=1]	.340	(.474)
Primary school [yes=1]	.178	(.382)
Junior high school [yes=1]	.130	(.336)
Senior high school [yes=1]	.208	(.406)
Post-secondary school [yes=1]	.145	(.352)

Notes: The household asset ownership index consists of a cumulative score of dummy variables indicating ownership of the following assets: radio, TV, books, mobile phone, kerosene lamp, oil lantern, torchlight, battery, coal pot, wheelbarrow, table, chairs, generator, sleeping mat, sponge mattress, bicycle, motorbike, residential plot, and agricultural plot. We then re-scale this score to run from 0 to 100.

Table A2: Summary Statistics: Enumerators

Means, standard deviations in parentheses

	Mean	(SD)
Panel A. Demographics		
Male [yes=1]	.475	(.506)
Age	29.9	(6.35)
Panel B: Beauty		
Male rater [1-10 score]	5.63	(1.61)
Female rater [1-10 score]	5.18	(1.47)
Panel C: Attitudes		
Gender attitudes [4-16 score]	9.75	(1.64)
Enthusiastic about girls' mentorship programs [yes=1]	.545	(.498)
Panel D: Hard skills		
Has prior survey experience [yes=1]	.439	(.496)
Has a university degree [yes=1]	.253	.435
Panel E: Soft skills		
Comfortable talking to girls about sex [yes=1]	.650	(.477)
Believes to be patient [yes=1]	.733	(.443)

Notes: The beauty scores are measured on a scale from 1 ("Very unattractive") to 10 ("Very attractive"). The fender attitudes index consists of a cumulative score of enumerators' level of agreement with the following statements: "Females are not as good as males in school"; "Girls can make as good leaders as boys"; "If a woman differs with her husband, she must accept his opinion"; and "In some circumstances, it is justifiable for a man to beat his wife". Possible responses were on a scale from 1 ("Really agree") to 4 ("Really do not agree"). We recode negative items such that higher values mean more gender equitable views. Enthusiasm about adolescent girls' mentorship programs is measured with the question: "How big of a difference do you think a program, like the SOS program, which matches girls to mentors and creates girls' groups, will make in the lives of the girls who participate in it?", with possible responses on a scale from 1 ("Least") to 5 ("Most"). We define mentorship-enthusiastic enumerators as those who selected "Most". Patience is measured with the question: "On a ladder from 1 to 5, where 1 is 'not very patient' and 5 is 'very patient', where do you stand?". We define patient enumerators as those who select "Very patient". Communication skills are measured with the question: "I feel uncomfortable talking with adolescent girls about their sexual behavior", with possible responses on a scale from 1 ("Really agree") to 4 ("Really disagree"). We define enumerators comfortable discussing the topic as those who select "Really agree".

Table A3: Female Interviewer Characteristics and Adolescent Girls' Responses to Questions Related to Sexual and Romantic Behavior

Logit marginal estimates, standard errors clustered by interviewer reported in parentheses

	Lifetime Behavior		Current Behavior	
	(1) Ever had sex	(2) Ever had boyfriend	(3) Had sex in past 30 days	(4) Has boyfriend currently
Mean of dependent variable:	.166	.198	.104	.147
Physical Attractiveness [z-score]	.008	.017	.000	.020
	(.019)	(.022)	(.014)	(.016)
Gender Attitudes [z-score]	.005	-.006	.016	-.013
	(.026)	(.025)	(.013)	(.019)
Program Enthusiastic [yes=1]	-.111***	-.124***	-.067***	-.108***
	(.030)	(.034)	(.023)	(.029)
Soft Skills [0-2 score]	.076***	.084***	.057***	.090***
	(.019)	(.023)	(.017)	(.017)
Hard Skills [0-2 score]	.045*	.035	.045**	.050**
	(.024)	(.030)	(.018)	(.025)
Age	-.000	.002	-.005**	.001
	(.002)	(.002)	(.002)	(.002)
Respondents [interviewers]	682 [21]	682 [21]	682 [21]	682 [21]

Notes: *** denotes significance at 1%, ** at 5%, and * at 10% level. Sample used is the subset of girls interviewed by female interviewers. All columns report logit estimates, where marginal effects are reported in each case. Standard errors are in parentheses, and are clustered by interviewer. All columns control for the following respondent level characteristics: girl's age, years of schooling, household size, number of assets owned by the household, and dummies for household head's educational attainment.

Table A4: Male Interviewer Characteristics and Adolescent Girls' Responses to Questions Related to Sexual and Romantic Behavior

Logit marginal estimates, standard errors clustered by interviewer reported in parentheses

	Lifetime Behavior		Current Behavior	
	(1) Ever had sex	(2) Ever had boyfriend	(3) Had sex in past 30 days	(4) Has boyfriend currently
Mean of dependent variable:	.176	.212	.098	.155
Physical Attractiveness [z-score]	.044***	.062***	.043***	.057***
	(.015)	(.017)	(.014)	(.011)
Gender Attitudes [z-score]	.022	.038***	-.007	.039***
	(.014)	(.014)	(.016)	(.010)
Program Enthusiastic [yes=1]	.010	.018	.014	.014
	(.040)	(.038)	(.032)	(.030)
Soft Skills [0-2 score]	.034	.052	.026	.030
	(.031)	(.039)	(.022)	(.022)
Hard Skills [0-2 score]	.041	.020	.006	.022
	(.046)	(.050)	(.031)	(.037)
Age	.002	.005***	.002	.005***
	(.002)	(.002)	(.002)	(.001)
Respondents [interviewers]	528 [19]	528 [19]	528 [19]	528 [19]

Notes: *** denotes significance at 1%, ** at 5%, and * at 10% level. Sample used is the subset of girls interviewed by male interviewers. All columns report logit estimates, where marginal effects are reported in each case. Standard errors are in parentheses, and are clustered by interviewer. All columns control for the following respondent level characteristics: girl's age, years of schooling, household size, number of assets owned by the household, and dummies for household head's educational attainment.