

Attempt at improving the validity of self-reported sexual behavior and condom use: a polling box approach



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- A number of factors influence response effects in behavioral surveys (Sudman, 1974):
 - Interviewer role:
 - Rules the interviewer is expected to follow
 - Degree of competence with which the interviewer carries out their role
 - Interviewer's social background or demographics
 - Respondent role behavior:
 - The degree to which the respondent is motivated to participate
 - Task variables:
 - Interview location or setting
 - Saliency of questions to the respondent
 - Level of sensitivity a question or response poses*
 - Method of question administration*
- Task variables have strongest effects on participant response, the latter two (starred) being the focus of this poster

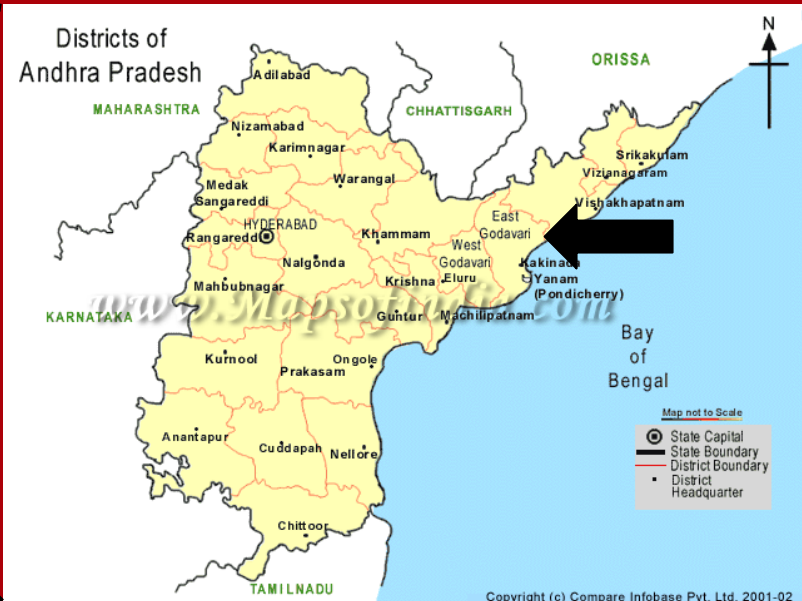
- Large body of literature illustrates that embarrassing, sensitive, or socially undesirable behaviors are consistently misreported in surveys (Tourangeau, 1998).
- Sensitivity of a question involves several dimensions (Tourangeau, 2000):
 - Degree to which the possible answers are socially undesirable
 - The question's degree of intrusiveness or invasion of privacy
 - The risk of disclosure to a third party
- Overall, studies have shown systematic misreporting of sensitive topics in two forms (Tourangeau, 2000):
 1. Under reporting socially undesirable (sensitive) behaviors
 - Drug use
 - Alcohol consumption
 - Smoking
 - Abortion
 - Crime victimization
 - Criminal behavior
 2. Over reporting socially desirable behaviors
 - Voting
 - Seat belt use
 - Energy conservation
 - Church attendance
 - Exercise behavior
 - Condom use

- Researchers have developed numerous survey administration approaches to try to minimize social desirability bias:
 - Self-completed questionnaires
 - Computer-assisted survey interview (CASI)
- Adaptations for low literacy populations:
 - Audio computer-assisted survey interview (ACASI)
 - Simple diaries
 - Pocket chart voting
 - Used to elicit anonymous responses from a small group; results are then discussed by the group (UNDP SAHAR, 1990)
 - Adapted for a sexual health survey using portable voting boxes; 3 color-coded compartments/slots; voting tokens divided into 6 sections requiring respondent to write out some responses (Zimbabwe, 1998)
 - Polling booth (CMS, ICHAP in Karnataka, India) – polling structures separated by a sari or sheet; homogenous groups of participants answer questions simultaneously; cards mixed up at end so only aggregate results possible.
 - Polling box (Parivartan) – hybrid of the pocket chart voting and polling booth methods so that social desirability bias is minimized, but responses are still individually attributable, and possible to use with an illiterate population.



East Godavari District, Andhra Pradesh

- Population: 5 million
- 2004: 16% female sex workers HIV+



- Cross-sectional survey of 812 sex workers
- Conducted April - June 2006
- Recruitment via Respondent Driven Sampling (RDS)
- 5 local, female survey administrators

SURVEY DOMAINS

- Demographics
- History of sex work
- Sex behavior/condom use
- Violence
- Experiences with police
- KAP for HIV and STIs
- Utilization of health services
- Collective efficacy
- Exposure to/participation in the intervention

Systematic sampling: every 3rd respondent selected for polling box method

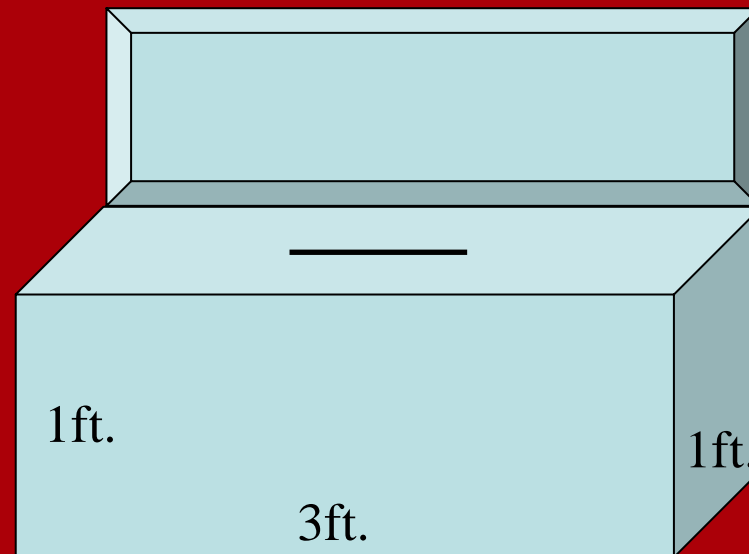
Group A (n=269)



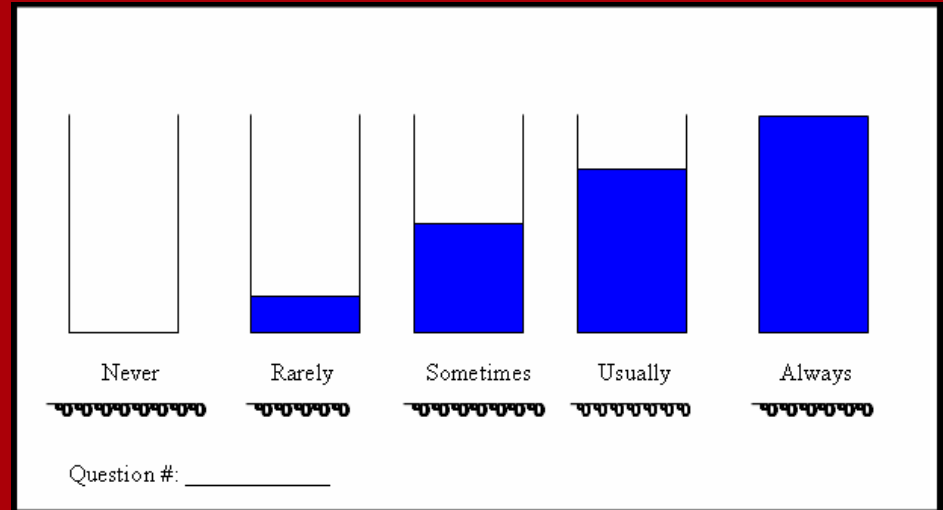
Group B (n=443)



Locked wooden box with lid, under which is a single slot for completed response cards so that when the lid is open, it blocks the interviewer's view of the response card.



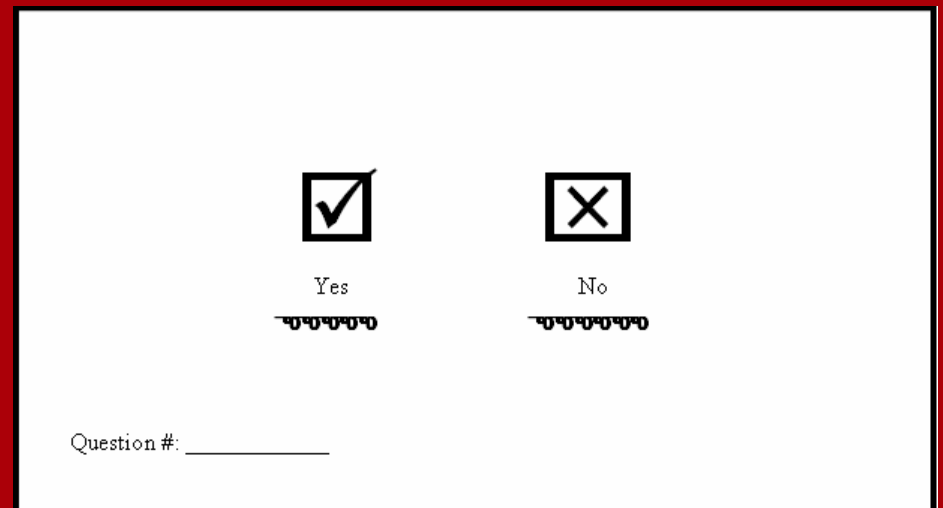
- Only chose questions with simple, bounded response categories (e.g. Yes/No, 5-point Likerts) due to low literacy levels
- Used visual cue response cards (right) for each question given to both PB and non-PB respondents for parity
- Intentionally chose a variety of questions based on estimated sensitivity



Never Rarely Sometimes Usually Always

Question #: _____

Detailed description: This is a visual cue response card for a 5-point Likert scale. It features five vertical rectangular boxes of equal height. The first box is empty. The second box is filled with blue liquid up to approximately 15% of its height. The third box is filled up to approximately 35%. The fourth box is filled up to approximately 65%. The fifth box is completely filled with blue liquid. Below each box is a label: 'Never', 'Rarely', 'Sometimes', 'Usually', and 'Always'. Under each label is a horizontal line of small, repeating symbols (resembling a barcode or a series of small 'u' characters). At the bottom of the card, there is a label 'Question #' followed by a blank line for the question number.



Yes No

Question #: _____

Detailed description: This is a visual cue response card for a Yes/No question. It features two square boxes. The left box contains a checkmark symbol (✓) and is labeled 'Yes' below it. The right box contains an 'X' symbol and is labeled 'No' below it. Under each label is a horizontal line of small, repeating symbols. At the bottom of the card, there is a label 'Question #' followed by a blank line for the question number.

1. Each interviewer given a stack of pre-sorted cards.
2. Interviewer explains the purpose of the polling box to retain the privacy of the respondent's answer from the interviewer.
3. Interviewer explains response categories using a script.
4. Participants told to indicate their answer by marking the appropriate box and placing the card in the box's slot without informing the interviewer of their response.
5. After the interview, office asst. discretely collects the response cards, writes the participant's unique ID on the back of each card, and responses are entered along with face-to-face responses at a later date.

No significant differences in demographics between samples

	Polling box	Face-to-face
Age (p=0.434)		
Less than 25	21.9%	19.4%
25-29	20.8%	19.0%
30-34	20.4%	19.9%
35-39	22.7%	20.8%
40-44	6.7%	9.8%
45-49	4.5%	5.7%
50 or older	3.0%	5.4%
Literacy		
% that can read (p=0.346)	23.7%	20.8%
% that can write (p=0.559)	18.2%	16.6%
Education (p=0.849)		
No formal education	53.9%	54.6%
Some formal education	46.1%	45.4%
Caste (p=0.905)		
Scheduled Caste	36.4%	35.1%
Scheduled Tribe	3.0%	3.1%
Backward Caste	20.1%	21.0%
Other Forward Caste	37.5%	38.4%





	Polling box	Face-to-face
Marital status (p=0.887)		
Never married	10.4%	11.4%
Currently married	21.9%	21.0%
Separated/divorced/widowed	67.7%	67.5%
Sources of income (p=.897)		
Sex work only	58.0%	57.5%
Sex work and other work	42.0%	42.5%
Age of entry into SW (p=0.427)		
Less than 18	13.4%	16.0%
18-24	45.0%	39.2%
25-29	20.1%	21.7%
30-34	15.2%	14.4%
35+	6.3%	8.7%

No significant differences in SW characteristics between samples

	Polling box	Face-to-face
Number of clients, last 7 days (p= 0.199)		
1	2.6%	3.4%
2-3	24.7%	20.5%
4-5	18.0%	19.7%
6-7	7.5%	12.8%
8-14	23.6%	22.5%
15+	23.6%	21.0%
Sex work locale (currently) (p=0.733)		
Brothel only	4.9%	5.2%
Street only	16.1%	12.9%
Lodge/hotel only	9.0%	9.4%
Home only	24.3%	25.0%
Highway only	19.1%	23.1%
Agriculture only	13.1%	10.7%
Multiple locales currently	13.5%	13.7%
Amount last client paid (p= 0.168)		
Less than Rs. 50	15.5%	18.0%
Rs. 50-99	35.1%	30.5%
Rs. 100-199	22.3%	27.1%
Rs. 200-299	11.7%	13.2%
Rs. 300+	15.5%	11.2%

Table 1. Sensitive responses
(Hypothesis: polling box respondents more likely to admit sensitive behavior)

Question	Face-to-face	Polling	p value	Odds ratio	95% Confidence interval
In the last 30 days, have you had oral sex with any of your clients without a condom? (Yes)	18.0%	20.4%	0.411	1.167	0.808 – 1.686
In the last 30 days, have you had anal sex with a client without a condom? (Yes)	18.8%	26.3%	0.018*	1.520	1.075 – 2.150
In the past 6 months, were you ever forced to have vaginal, anal, and/ or oral sex against your will while you were in jail or prison? (Yes)	26.1%	36.4%	0.538	1.618	0.347 – 7.576
In the past 6 months, have you been sent to a remand home for rehabilitation? (Yes)	1.7%	5.9%	0.001***	3.731	1.626 – 8.547

-  Meets hypothesis; significant
-  In predicted direction, but not significant
-  Contradicts hypothesis; significant
-  Against predicted direction, but not significant

*Significant at 0.05 level

**Significant at 0.01 level

***Significant at 0.001 level

- 2 of 4 questions meet the hypothesis that polling box respondents are more likely to admit sensitive behavior, and the remaining 2 of 4 questions trend in the predicted direction even if they are not statistically significant.
- “Were you ever forced to have vaginal, anal, and/ or oral sex against your will while you were in jail or prison” is not significant, but has a fairly large effect size, likely due to the question’s small sample size (n=34)
- Seems to indicate that respondents are more willing to admit sensitive behaviors when asked via the polling box method than via face-to-face interviews.

Table 2. Socially desirable responses

(Hypothesis: polling box respondents less likely to give the socially desirable response)

Question	Face-to-face	Polling	p value	Odds ratio	95% Confidence interval
The last time you had sex with a regular client, did he use a condom? (Yes)	79.5%	74.9%	0.184	0.769	0.521 – 1.134
The last time you had sex with an occasional client, did he use a condom? (Yes)	83.9%	80.6%	0.276	0.799	0.533 – 1.198
The last time you had sex with your husband, did he use a condom? (Yes)	16.5%	18.0%	0.800	1.111	0.491 – 2.519
The last time you had sex with your temporary husband or lover, did he use a condom? (Yes)	48.1%	52.5%	0.483	1.189	0.733 – 1.931
Overall in the past 7 days, about how often did you use condoms with your regular client(s)? (Always)	59.8%	68.1%	0.039*	0.699	0.497 – 0.982
Overall in the past 7 days, about how often did you use condoms with occasional client(s)? (Always)	68.1%	70.0%	0.610	0.916	0.654 – 1.284
Overall in the last 7 days, about how often did you use condoms with your husband? (Always)	10.3%	7.2%	0.497	1.484	0.473 – 4.651
Overall in the last 7 days, about how often did you use condoms with your temporary husband or lover? (Always)	41.2%	37.8%	0.423	1.224	0.746 – 2.008

- Here the results are more mixed.
- 4 of 8 socially desirable responses trend in the predicted direction that polling box respondents are less likely to give the socially desirable response since they did not have to inform the interviewer, but none are significant.
- 3 of 8 responses trend against the predicted direction, but are not statistically significant and have fairly small effect sizes.
- 1 of 8 responses contradicted the hypothesis and was the only statistically significant result in this category.

- For last 112 PB participants, interviewers indicated whether for any PB question, respondent:
 - a) Said her answer out loud
 - b) Pointed to her answer on the response card
 - c) Asked interviewer how to mark her answer, but interviewer did not find out what the answer was
 - d) Asked interviewer to tell her what answer she should give
- Protocol breachers = participants rated (a) or (b) above
- 65 of 112, or 58% of latter polling box participants breached protocol, informing the interviewer of their response

- Protocol breachers more likely to be:
 - Older
 - Illiterate
 - Have no formal education
- However, there were no significant differences between breachers and non-breachers in responses given to PB questions

- The PB method may be useful for sensitive questions. All findings were in the hypothesized direction, 2/4 were significant.
- The utility of PB method for socially desirable questions is less clear. 4/8 questions went against the predicted direction, (although only 1 was significant), and several questions in the hypothesized direction had small effect sizes.
- Given the high % of protocol breachers, we either may not have conveyed the purpose of, or procedure for, the PB well enough, OR respondents did not care whether interviewers knew their responses.

- Given that the PB questions took place within a larger face-to-face interview, may not have successfully created the feeling of a different setting or increased anonymity from the interviewer.
- Given the procedural difficulties of implementing PB within a larger face-to-face interview with a highly illiterate, research naive population, the results do not warrant the continuation of this approach in our serial cross-sectional survey.
- Further research is needed using other adaptations of the PB method, perhaps outside the face-to-face context, and with more sensitive questions and socially desirable responses.



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**Table 3. Neither sensitive nor socially desirable responses
(Hypothesis: only marginal differences (2 percentage points or less) between respondents)**

Question	Face-to-face	Polling	p value	Odds ratio	95% Confidence interval
Have any of your clients ever asked for oral sex? (Yes)	70.8%	65.1%	0.93	0.766	0.561 – 1.046
Have any of your clients ever asked for anal sex? (Yes)	68.1%	54.5%	0.000***	0.560	0.414 – 0.756
Do you think it is important for sex workers to have their own community fund to save money? (Yes)	85.0%	84.3%	0.809	0.951	0.633 – 1.429
If there was a community fund for sex workers to save money, would you use it? (Yes)	93.2%	92.2%	0.589	0.857	0.490 – 1.499
In the past 6 months, have you gone to the police to speak for the rights of sex workers? (Yes)	12.0%	17.5%	0.035*	1.548	1.029 – 2.326
Have the police protected you from a bothersome or violent client, in the past 6 months? (Yes)	13.8%	11.9%	0.341	0.806	0.518 – 1.256
Have the police helped you get medical attention when you needed it, in the past 6 months? (Yes)	5.4%	7.4%	0.253	1.410	0.779 – 2.558
Have the police rescued you from a brothel you did not want to work in, in the past 6 months? (Yes)	5.4%	7.4%	0.262	1.403	0.775 – 2.538

- 5 of 8 responses that were neither particularly socially desirable or sensitive met the hypothesis that there would only be marginal differences of 2 percentage points or less between the two groups.
- However, the remaining 3 responses contradicted the hypothesis, 2 of which were statistically significant.
- Perhaps saying clients ever ask for anal or oral sex is a socially desirable response?
- Perhaps admitting to going to the police to speak for the rights of sex workers is a sensitive response, although less likely?
- Illustrates the difficulty of ascertaining which responses are interpreted by respondents as sensitive or socially desirable, either a priori or post hoc.