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Performance of audio-assisted confidential voting interview for assessment of sexual behavior among young adults in Chandigarh Union Territory

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Abstract

A cross-sectional study was conducted in Chandigarh Union Territory to evaluate the performance of an audio-assisted confidential voting interview (AVI), for assessing the sexual behavior among young adults aged 20 - 34 years. Using systematic random sampling 625 males and 630 females were interviewed alternately, either by AVI or by face-to-face interview (FFI). More men revealed having sex with men in AVI (2.6%) than FFI (0.6%) ($P = 0.06$). Women reported having sex with non-regular partners more often in AVI (4.8%) compared to FFI (0.3%) ($P < 0.001$). AVI performed better than FFI for eliciting sensitive sexual behaviors.

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Full Text

Behavioral surveillance has made a useful contribution to the formulation of an appropriate response to the HIV epidemic. In India, face-to-face interview (FFI) has been used for conducting sexual behavior surveillance. [1] However, the validity of this method is uncertain. Major difficulties include selective participation and concealment of socially proscribed behaviors. [2] Better interview methods need to be developed, which must be feasible to implement in developing countries and also be better than FFI in estimating sexual behaviors.

In comparison to the FFI, confidential voting and computer based-electronic interview methods might be perceived as more confidential and hold the attention of the respondents, but these methods require access to a computer, basic computer literacy, and familiarity with numbers and keyboards, which is yet not widespread in most of the developing countries. The use of a self-administered questionnaire is not possible in these countries, due to the high illiteracy level. Therefore, a combination of an audio [3] and voting [4] method termed as the 'Audio-assisted Confidential Voting Interview' (AVI) has been devised and its performance has been compared with the face-to-face interview (FFI), for assessing high-risk sexual behavior among young adults.

Men and women in the 20 - 34 year age group were enrolled in the study, which was conducted from May to September 2006, in an urban sector, a slum colony, and a village in the Chandigarh Union Territory. These areas were purposively chosen as the Community Medicine Department of the Institute delivers primary health care in these places. Approval of Institute Ethics Committee was obtained.

In the general population, prevalence of non-regular sexual partner(s) in the last one year was estimated to be 9.7% among men. [1] Lifetime non-regular sexual partner(s) among males was at least 20%. [5] Compared to FFI, the AVI was assumed to reveal a high prevalence of non-regular sexual partners. Taking 95% confidence interval (CI) and 80% power, a sample size of 315 by each method was considered to be sufficient for detecting at least a 10% rise in the reporting of lifetime non-regular sexual partners by the AVI method, compared to the FFI, primarily among men. The same sample size was taken to explore the differential reporting of sexual behavior by these methods among females, as a secondary objective.

Two hundred and ten males and 210 females were selected from each of the three sampled areas (urban, rural, and slum). In each of these areas, households were selected by systematic random sampling from the list obtained from a health worker or anganwadi worker. If a sampled household did not have an eligible person then the immediate next household was taken. If there was more than one eligible person, then only one respondent was selected using the Kish method. [6] In each study area, the first selected respondent was interviewed randomly either by face-to-face or by the AVI method. Subsequently, these methods were used alternatively on the sampled subjects. Each individual was interviewed only with one of the two methods. The male and female respondents were interviewed by trained male and female investigators, respectively, who had graduate level education. Audio cassettes recorded in male and female voices were used for male and female respondents, respectively.

The study was conducted during the evening hours and on Sundays to have maximum participation. Non-participation, which included non-availability and refusals, was 15%. The characteristics of responders and non-responders were similar. To control for confounding due to socio-demographic variables, which were usually associated with sexual behavior, a binary logistic regression model was used, for comparing the AVI with the FFI.

Interview schedules containing questions on socio-demographic status, substance abuse, knowledge of HIV / AIDS, and sexual behaviours were pre-tested before use. In FFI, all the questions were administered face-to-face, whereas, in AVI, the questions on socio-demographic status, substance abuse, and knowledge of HIV / AIDS were administered face-to-face, but sensitive questions related to sexual behavior were presented through the headphones of an audio cassette player. Responses to audio-questions were marked by the respondent in a response sheet, which was dropped in a locked voting box. The first two questions were dummy questions, which were answered in the presence of the interviewer, so that any error in understanding the AVI method could be corrected. To help illiterate respondents, response slips were color coded according to the sequence of questions. The pace of the audio-player was controlled by the participant with an externally connected pause button. After the end of the interview, all participants were provided with information about HIV / AIDS and those who reported STI symptoms were referred to the health centers operating in the study areas, for consultation and treatment.

Eighty-five percent of eligible respondents were available and agreed to participate. Overall, 1255 interviews were conducted, of which 624 were interviewed by AVI and 631 by FFI. The Chi square test was used to compare the respondents' profile and sexual behaviors reported in the AVI and FFI methods. Logistic regression analysis was done to assess the performance of the AVI, in comparison to the FFI, after taking into account the effect of potentially confounding variables. Epi Info version 2000 and SPSS version 11 were used for data analysis.

Operational definitions were used to categorize sexual behaviors. A non-regular sex partner for a married respondent included any person of the opposite sex other than the spouse with whom he / she had sex; for an unmarried person it included sex with any person of the opposite sex. Paid sex meant buying sex from a female sex worker by a male respondent or selling sex in exchange for money or a gift by a female respondent. Men having sex with men (MSM) included both the receiving and penetrating partner. Last time condom use meant use of condom during last sex with a non-regular partner or MSM partner in the last one year. Consistent condom use included condom use in every sexual encounter with a non-regular or an MSM partner, in the last one year.

The mean age of male and female respondents was 26 years (SD 4.3) and 27 years (SD 5.1), respectively. More than half (57.2%) of the male and a majority (82.5%) of the female respondents were married. Of the married males, around 11% were not staying with their wives, and among the married females only 6.5% were not staying with their husbands. Seven percent men and 23% women had never attended any formal school. The main occupation of the male population was service and small business (54%), labor (20%), and transport-related work (4.2%), whereas, the majority of the females (78%) were housewives. Eighty percent men and 60% women knew the common modes of HIV transmission and prevention. Prevalence of self-reported, foul smelling urethral discharge and / or genital ulcers in the last one year was 1.3% (8 / 625) among men and 6.8% (43 / 630) among women.

As shown in [Table 1], almost equal proportion of males reported non-regular sex partners in AVI and FFI (nearly 30% in lifetime and 12% in the past one year). However, females reported having a non-regular sex partner significantly more often in AVI (4.8%) as compared to FFI (0.3%) ($P < 0.001$). Nearly 3% of the males reported having sex with a sex worker in both AVI and FFI. However, in

AVI, 1.3% of the females reported selling sex in exchange for money or a gift, while none reported this behavior in FFI. In AVI, 80% (32 / 40) of the male respondents reported condom use during the last sexual encounter in the previous 12 months with any non-regular partner, while 65% (26 / 40) said so in FFI ($P > 0.05$), whereas, among females, condom use in non-regular sex was 80% (4 / 5) and 100% (1 / 1), respectively in AVI and FFI ($P > 0.05$). Consistency in condom use decreased in both the methods among males (70% AVI vs. 60% FFI) as well as females (40% AVI vs. 100% FFI) ($P > 0.05$).{Table 1}

Male respondents reported having sex with another male partner more often in AVI (2.6%) compared to FFI (0.6%) ($P = 0.06$). After controlling for confounding variables in multivariate analysis, it was found that male respondents were significantly more likely to report MSM activities in the last one year in AVI as compared to FFI (OR 5.2, 95% CI 1.03, 26.3, $P = 0.046$).

Prevalence of sexual activity with a non-regular sexual partner in the last one year was comparable to the behavior surveillance survey by National AIDS Control Organization (NACO). [1] Audio-assisted confidential voting interview (AVI) was found to be better than a face-to-face interview (FFI) for reporting sensitive behaviors like men having sex with men and women having premarital or extramarital sex. Better performance of AVI among females might be due to the fact that revealing sexuality in FFI is a taboo among them, hence they reported more multi-partner sex when better privacy and confidentiality was provided in AVI. Similarly MSM activity, which is usually a hidden behavior, was revealed more in AVI. A study from Kenya showed better performance of the audio computer-assisted self-interview (ACASI) as compared to FFI, whereas, another study from Tanzania provided an inconsistent benefit of ACASI. [7],[8] At present there is no 'gold standard' method to test the validity of self-reported sexual behavior.

The AVI method was developed after several rounds of field testing and modification in questions and recording of responses. When more questions were administered in AVI through the headphone, it created confusion, especially among illiterate respondents, hence, only six questions on sexual behavior were presented through the headphone and the rest were asked in the face-to-face interview. Some of the respondents, especially those belonging to the low socioeconomic status, who were not used to modern gadgets, were a bit apprehensive about the AVI method, but easily understood its use, especially about the confidentiality it offered. From the feasibility point of view, the cost of the AVI was nearly four rupees more per interview compared to the FFI, because it included an audio-player, a headphone, two pencil batteries (which had to be replaced eight times), eight blank audio cassettes, a wooden voting box, and a small lock. After making good rapport before starting the interview, on an average AVI took about 15 - 20 minutes, whereas, FFI could be completed in about 10 - 15 minutes.

Ideally, the FFI and AVI methods should have been used on the same individual within a short interval, but this was not possible due to the limited time period available for conducting this study. Sexual behavior on a population level is expected to be similar if a sample of sufficient size is drawn randomly more than once from the same population. The AVI and FFI methods were used separately in different individuals residing in the same community, who were selected by using systematic random sampling. Therefore, any difference in the population level behavior estimate was an indirect measure of the performance of the interview method.

Another limitation of the study was that the sample size for women should have been more than for men, as the prevalence of non-regular sex was lower among females compared to males. However, due to resource constraints we sampled an equal number of women to explore the differences among them in the two interview methods and also as a secondary objective. Despite a limited sample size, AVI could detect significantly more women having a lifetime, non-regular partner, compared to the FFI ($P < 0.001$). However, these results should be interpreted with caution, as in a multivariate analysis although the odds ratio was statistically significant it had a very wide confidence interval.

In conclusion, the AVI method fared better in comparison to the FFI. However, evaluation of a larger sample size was needed before recommending its use on a larger scale. Validity of the AVI method should also be tested using biological markers of STI among unmarried persons who report virginity. [9] The AVI method needs to be tried for other sensitive behaviors such as drug use, domestic violence, and sex work also.

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