A Methodology for Asking Sensitive Questions
Among College Undergraduates

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Abstract

This paper summarizes a research design developed in a Fall 1989 survey. It used a stratified random sample of names drawn from a sampling frame of all Cornell University undergraduates, which was provided by the Registrar's Office. The survey asked questions about dating and sexual mixing patterns. The study design incorporated a combination of techniques that encouraged student participation, producing a response rate of 53%. The techniques included using a self-administered questionnaire under supervision (SAQUS) and a modified lottery incentive.

INTRODUCTION

It has become evident that accurate predictions about the incidence and prevalence of HIV (Human Immunodeficiency Virus, the etiological agent for AIDS) are not possible until further data on human sexual behavior are collected (Gagnon, 1988; Judson, 1989; Office of Science and Technology, 1989). In addition, it has been shown that heterogeneous mixing is very important in the transmission dynamics of HIV (Dietz and Hadeler, 1988; Hyman and Stanley, 1988, 1989; Blythe and Castillo-Chavez, 1990, Castillo-Chavez, 1989). Yet we still know very little about sexual mixing patterns among and between different groups within the population (Johnson, 1988; Shaver, 1988; Kaplan et al., 1987; Crawford, in press, 1990a).

The results of the Kinsey studies (Kinsey *et al.*, 1948) completed over four decades ago are still being used to estimate the current size of the homosexual and bisexual populations in the U.S. and abroad (U.S. Public Health Service, 1987). While there are more recent studies of sexual practices of homosexuals (Kingsley *et al.*, 1987; Winkelstein *et al.*, 1987), many of these studies are problematic because of the selection bias caused by the methods of recruitment. In fact, "only the Kinsey data attempt to assess the extent of the homosexual experience in the general population, but this is severely limited by the recruitment of a volunteer sample" (Johnson, 1979: 102). Thus, we are using data gathered nearly a half century ago to estimate current population size for the homosexual community, and these data were taken from convenience samples (Cochran *et al.*, 1953; Gagnon, 1988).

Sexual Mixing Patterns of Young Adults The sexual behavior and drug-using activities of some young adult populations in this country suggest that they may be more vulnerable to AIDS than other age groups in the heterosexual population for a number of reasons. First, approximately 2.5 million teenagers are affected by sexually transmitted diseases each year (Division of Sexually Transmitted Disease, 1986). Second, there are about one million unwanted pregnancies among teenage females each year (National Research Council, 1987). These suggest the extent to which teenagers are sexually active and the possibility for transmitting HIV perinatally. Third, more than 70% of unmarried males and females have reported that they have experienced sexual intercourse at least once by the age of 20 (National Research Council, 1987). Fourth, recent data for high school students show that of those students surveyed, 93% had used alcohol, 65% had used an illicit drug, and 35% had used a drug other than marijuana (Johnston *et al.*, 1984). Fifth, more than 21% of all AIDS cases have been diagnosed in the 20-29 age group (Centers for Disease Control, 1990). This is pertinent to the adolescent population because the time between infection with the

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AIDS virus and the onset of symptoms may be several years (Lui *et al.*, 1986). Finally, the time delay in becoming symptomatic suggests that a substantial proportion of those aged 20-29 who have been diagnosed with AIDS must have been infected as teenagers (Kolbe and Jones, 1988).

Many studies of human sexuality have addressed issues concerning the sexual behavior of young adults, particularly college undergraduates. A review of articles published in *The Journal of Sex Research* since 1970 revealed more than 40 articles related to the sexual behavior of college undergraduates in this country. However, most of these studies did not use the basic survey techniques of randomization to address the biases inherent in any nonrandom sample (Campbell and Stanley, 1963).[2] Only one of the surveys using a random sample was placed within the context of the AIDS epidemic (Baldwin and Baldwin, 1988). Thus, it could be concluded that while many studies have looked at these important issues, their results may not be either representative or generalizable.

Because of a lack of reliable information on sexual mixing patterns and drug-using behaviors, a study of undergraduates was conducted in the fall of 1989 to determine the social and sexual patterns of students at Cornell University in Ithaca, New York.[3] The study was called the Cornell Undergraduate Social and Sexual Patterns Survey (CUSSP). This paper describes the research design used to achieve this goal.

SURVEY PHILOSOPHY AND OBJECTIVES

The recent history in the U.S. of previous epidemics of sexually-transmitted diseases and the effect of small groups of highly active individuals within populations, called core groups, in disease dynamics has been established (CDC policies are

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partially based on these principles, see Hethcote and Yorke, 1984). Although we do not have a complete picture of size and composition of these core groups, we know that very small core groups are capable of sustaining an epidemic. From this observation, it becomes evident that an important objective in a quantitative study of sexual behaviors is to measure the prevalence and frequency of extreme behaviors. For example, if only 2% of sexually-active individuals are members of core groups, then to capture these rare behaviors in surveys would require high response rates, small nonresponse and response biases, and potentially a very large sample size.[4]

Thus, core group activity presents a dilemma to those seeking information on sexual behaviors through the use of surveys. While it is known that surveys that ask sensitive questions are highly susceptible to response and nonresponse biases (Fox and Tracy, 1986; Knudsen *et al.*, 1967); surveys on sexual behaviors may be particularly prone to such biases if members of core groups are not among the respondents. Generally, nonresponse biases can occur in two ways. In the first of these, a person chooses not to participate in a survey in any manner. There may be many reasons why one would choose not to participate; one of these is the sensitivity of the survey topic (Dijkstra and Van der Zouwen, 1982; DeLamater and MacCorquodale, 1975; Sudman and Bradburn, 1974; Johnson and DeLamater, 1976). The second kind of nonresponse bias occurs when a person chooses to participate but does not respond to particular questions.

Response biases occur when a respondent overreports and/or underreports certain behaviors. The perceived social desirability of a particular behavior will affect survey responses if it makes a respondent reluctant to reveal socially undesirable behaviors (or inclined to overreport behaviors that are deemed very desirable) (Bradburn *et al.*, 1979). Questions concerning sexual activity may be sensitive to response biases if participants are asked about behaviors for which there are social definitions of

disapproval. In fact, response bias has been substantiated in male homosexuals who were infected with HIV but asymptomatic at the time of the study (Saltzman *et al.*, 1988). One procedure that can be used to overcome response bias is providing a convincing guarantee of absolute confidentiality or anonymity. This will positively affect the willingness of an individual to answer threatening questions (Bradburn, 1982).

In light of the problems summarized above and the need for accurate information pertaining to certain risky behaviors, the goals of CUSSP were to: (a) maximize the response rate, (b) minimize response and nonresponse biases, and (c) be cost-efficient relative to standard survey design methods.

SURVEY IMPLEMENTATION

A stratified random sample of 2,000 names was drawn from the Registrar's list of all undergraduate names.[5] The population of 11,750 undergraduates at Cornell was divided into 16 strata by using three characteristics: gender, class year, and residence on-campus or off-campus.[6] Sample sizes within strata were determined by proportional allocation; that is, sample size was proportional to stratum size.

Each of the 2,000 students whose name was chosen from the sampling frame was mailed an announcement letter. Then three waves of letters were sent out, one wave for each week of the survey. All 2,000 students received the first wave letter describing the range of days and times available for them to respond in the first week; only those students who had not responded in the first week were sent second wave letters; and only those students who had not responded in the first or second week received third wave letters (see Crawford *et. al.*, 1990c for more details).

<u>Maximizing Response Rate</u> It was decided that participation would be encouraged by informing students of the purpose of the survey in a clear and straightforward

manner. An advertising campaign was used to arouse interest. Advertisements were published in *The Cornell Sun*, and personal ads were also written and placed in this campus daily paper referring to participation in CUSSP. The personal ads were published starting two weeks before the survey in order to arouse curiosity and interest. Further advertisements were used to pique students' interest and to remind those who had received letters to participate. An article was also published in *The Cornell Sun* during the first wave of the survey, describing the substance of the survey and summarizing the goals we hoped to achieve.[7]

We informed students of the importance of the survey topic in the announcement letter sent to each student prior to each of the three waves. We communicated at every opportunity the overall purpose of the survey - to learn about social and sexual patterns, which play a vital role in AIDS research.

Furthermore, participation was encouraged by using a modified lottery as an incentive. This lottery was described in the announcement letters. Students who completed the survey questionnaire were allowed either to select a coupon that was guaranteed to be redeemable for $2.00 or to select a coupon that offered a 1 in 16 chance of being worth anywhere from $5.00 to $100.00 (for further details see Schwager *et al.* 1990b).

The three-wave design was structured to encourage participation and to make participating convenient. The timing of the survey was important; we asked students to recall and report on their behavior during the preceding two months. The first wave of the survey began on Monday, October 30 and lasted for four consecutive days. The second wave covered four consecutive days beginning Monday, November 6. The third and final wave took place on the Friday, Monday, and Tuesday before Thanksgiving.[8] An array of rooms, days, and times was provided to make participation convenient. There were four response sites in each of the first two

waves, and a student could choose to report to any of these rooms at any time from 1:00 p.m. to 8:00 p.m. There was only one response site in the third wave, but day and time (any time from 1:00 p.m. to 5:00 p.m.) options remained.[9] The rooms were chosen for two reasons. First, they were geographically dispersed throughout the campus. Second, they were in buildings that remained open and easily accessible during all hours of the survey. Two rooms were in students unions, the third room was located in a library, and the fourth room was located in a building that houses religious organizations.

We wanted to track respondents in order to encourage nonrespondents to participate. However, tracking possessed the potential for conflict with any guarantee of anonymity. That potential conflict was resolved by enclosing an admission card in the announcement letter sent to each student in the sample. The card was the "admission ticket" into any of the four response sites. The card was professionally printed to prevent fraud and contained the dates, times, and response site locations, as well as a respondent identification number. First wave cards were of a different color than second wave cards. Second wave cards were mailed with the second wave letters to all students who had not responded to the first wave. This procedure allowed us to prevent any student from responding more than once. Students dropped their admission cards into a marked box before selecting a questionnaire from a pile. Therefore, while we could identify which students responded - and during which wave - it was impossible to associate any filled-out questionnaire with any particular student.

In addition to determining who did and who did not respond, the identification numbers on the admission cards enabled us to determine in which wave a student responded. The numbers on the collected admission cards were used to identify the pool of nonrespondents, substantially reducing mailing costs by avoiding the need to

mail reminders to all students in the sample, and allowed us to follow up on nonrespondents via telephone to encourage participation after the first wave.[10]

Telephone follow-up calls were used as a means of increasing the response rate of subjects who failed to participate in the first week of the survey. At the end of the first week of the survey, a randomly selected group of non-respondents was contacted by telephone to encourage them to participate in the CUSSP survey and to remind students of the dates and times that they could report to response sites. While the sensitive nature of this survey left open the possibility that telephone contact would decrease the response rate, we found the opposite to be true. The telephone follow-up calls provided a statistically significant means of raising survey response rates (see Schwager *et al.*, 1990a).

<u>Minimizing Response Bias</u>   Each survey technique carries with it advantages and disadvantages in terms of this concern. Face-to-face interviews tend to generate bias caused by interviewer-respondent interactions (Dijkstra, 1987). Mailed questionnaires raise the issue of potential identifiability: respondents might suspect that some hidden serial number or similar device would allow each questionnaire's author to be identified. Nonresponse and response biases would be the result. Finally, telephone surveys may be perceived by respondents as not providing absolute anonymity.

We modified a method that typically uses the self-administered questionnaire (SAQ). Because SAQ's can produce less response bias than interviews when the questions pertain to sensitive issues (Knudsen *et al.*, 1967), we decided to take the SAQ format a step further. Students were asked to answer a questionnaire in any of four rooms on campus designated as response sites. The design incorporated the use of SAQ's and room staff (trained volunteers) at the response sites.[11]   We call this procedure a self-administered questionnaire under supervision (SAQUS). Staff were needed to supervise rooms to ensure that (1) only those students identified as

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belonging to the sample were allowed to participate, (2) respondents had privacy while filling out the questionnaire, and (3) the modified lottery was administered properly. Thus, the use of response sites helped to prevent the introduction of response biases by eliminating the potential for peer involvement in filling out mailed survey instruments.

The survey instrument was designed in an easy-to-read format to reduce respondent error. Questions were phrased in a simple and straightforward manner, and all terms that were potentially ambiguous were defined. The questions were placed in a logical format. Randomly chosen focus groups went over the questionnaire and judged it to be clear and effective; these groups led to a few adjustments in presentation (such as wording and response choices).

Anonymity was based on a key fact: no respondent could be matched with the questionnaire he or she filled out. Each respondent entered a response site and dropped a numbered admission card into a box. The respondent then picked up a questionnaire of his/her choice from a large pile and filled it out. Completed questionnaires were placed by respondents anywhere in a drop-off pile - the top, middle, or bottom. This mechanism for maintaining anonymity was explained in the letters mailed to the students in the sample, as well as in the survey response sites.

Two survey questionnaires were designed to explore the possibility that respondent accuracy may be systematically influenced by the wording of questions. One questionnaire (the direct questionnaire) was more explicit than the other (the indirect questionnaire) (Crawford et al., 1990b). The instruments looked the same on the outside; only the questions within differed. The two questionnaires were mixed together, making the choice completely random. The direct questionnaire was very explicit, dealing with the undergraduates' social events, sexual practices, and alcohol and drug use during the two months preceding the survey. The indirect questionnaire

also asked explicit questions dealing with respondents' social events and alcohol and drug use. But rather than asking explicit questions, respondents were asked to provide information on "intimate behavior", which was a broader (more inclusive) term than phrases such as "intercourse", "anal sex", "oral sex", etc., all of which were used in the direct questionnaire. The indirect questionnaire was 20 pages in length and the direct questionnaire was 26 pages in length. This was necessary in order to obtain the degree of detail necessary for studying social and sexual mixing patterns.[12]

Resource Constraints The budget for this project was $14,730. Fiscal constraints compelled us to rule out face-to-face interviews, a telephone survey, and mailing questionnaires. The largest portion of the CUSSP budget was used to acquire the services of the Survey Research Facility (SRF), a subsidiary of the Cornell Institute for Social and Economic Research (CISER). SRF is a campus-based survey research office that specializes in the development and execution of surveys administered off-campus as well as on-campus. The services we required included assisting in the development and evaluation of the questionnaire, mailing activities, and data processing.[13] Tracking the students who responded in an earlier wave also substantially reduced the mailing costs for waves two and three. Finally, the authors did a great deal of administrative work associated with implementing and executing this survey.

RESULTS

Survey Response The stratified random sample of size 2,000 was selected from a sampling frame of 11,750 names and was adjusted by removing those not reached due to incorrect addresses. The adjusted sample consisted of 1,878 names. The adjusted sample cell frequencies were proportional to the population cell frequencies (X^2_{15}= 9.169, p > 0.05). The same was true for the original sample cell frequencies (X^2_{15} =

0.107, p > 0.05) (see Crawford *et al.*, 1990b). The overall proportions of males and females in the adjusted sample were 55.3% and 44.7%, respectively. The proportion of students selected in each class was 26.6% freshmen, 23.9% sophomores, 23.7% juniors, and 25.8% seniors. The proportions of on-campus and off-campus residents were 51.4% on-campus and 48.6% off-campus. For each of these characteristics, as well as the 16-category combination of all three characteristics, the adjusted sample was consistent with the null hypothesis of random sampling from the undergraduate population ($X^2_1 =$ 0.096 for gender, $X^2_3 =$ 3.008 for class, $X^2_1 =$ 1.172 for residence; p > 0.05 for all three of these).

The total number of respondents was 995, producing a 53% response rate. There were significant differences in response rates based upon gender, class, and residence. The respondents consisted of 49.5% females and 50.5% males; 29.5% freshmen, 24.7% sophomores, 21.4% juniors, and 24.5% seniors; and 53.5% on-campus and 46.5% off-campus residents. The response rates from the adjusted sample were 58.6% for females versus 48.3% for males ($X^2_1 =$ 19.864, p < 0.0001); 59.3% for freshmen, 56.1% for sophomores, 47.6% for juniors, versus 48.5% for seniors ($X^2_3 =$ 18.949, p = 0.0003); and 57.6% for on-campus versus 48.3% for off-campus residents ($X^2_1 =$ 16.347, p = 0.0001). Females, lowerclassmen and on-campus residents were overrepresented among the respondents. The gender bias suggests that the women on this campus are more willing than the men to discuss their social and sexual behaviors. The class status bias may represent the enthusiasm with which freshmen and sophomores greet invitations to answer surveys on this campus. We believe that students become less willing over time to answer surveys in general. The residence bias might be attributable to the greater convenience of the response sites, which were on the campus, to students living on-campus than to those living off-campus.

Since the study was conducted in three waves, an analysis comparing the

respondents in the three waves was also performed. The number of respondents diminished with each successive wave: 650 students in the first wave, 219 in the second wave, and 126 in the final wave. There were no significant differences in the distributions of gender ($X_2^2 = 1.082$, $p > 0.05$) and class ($X_6^2 = 9.818$, $p > 0.05$) by wave. However, there was a marginally significant difference in the distribution of on-campus versus off-campus residents ($X_1^2 = 6.275$, $p = 0.0434$) over the three waves. Students living on-campus responded in the first wave at a rate significantly higher than those living off-campus, 37.7% to 31.3% ($X_1^2 = 8.477$, $p = 0.0036$). Looking at those who had not responded in an earlier wave, the response rates in the second and third waves did not differ between on-campus and off-campus residents ($X_1^2 = 0.516$ for wave two, $X_1^2 = 0.931$ for wave three; $p > 0.05$ for both of these). Overall, there were more respondents who lived on-campus (532) than off-campus (463). This represents an overall ratio from the three waves that is basically representative of the entire undergraduate population.

The modified lottery appeared to be very successful in that almost all respondents were eager to participate in the incentive (see Schwager *et al.*, 1990b). As reported by site staff, only one student participated in the survey but chose not to participate in either option of the modified lottery. The final question on the survey instrument reminded students that they could choose a coupon from either of two boxes, one box offering a $2.00 coupon with certainty and the other box offering a 1 in 16 chance of a coupon worth between $5.00 and $100.00. Of those students who answered the question, 89% opted for the lottery while 11% opted for a guaranteed coupon worth $2 at the book store. These answers were quite consistent with actual behavior: 862 students out of 994 (86.7%) tried their luck in the lottery. There were 77 winners: no student won $100, but nine students won $50, 47 students won $25, and 21 students won $5. We had advertised that there was a 1 in 16 chance of

winning a prize. In actual fact, 1 in every 11.2 students won a prize. This higher-than-expected proportion of winners is partially due to our increasing the proportion of prize coupons when we replenished the lottery boxes' supply of coupons (see Schwager *et al.*, 1990b).

Since most students chose the lottery, we conclude that the value of the $2 guaranteed coupon was too low to be an attractive option to many. A $5 or $10 guarantee might well have resulted in an even greater response rate. Such an increase in the value of the incentive would raise the budget required for the modified lottery incentive. However, if this higher cost produced a higher response rate as well as additional cost per respondent, which seems likely, the additional expense might be justified by the value of the data for subsequent analysis and inference.

Survey Costs   The total cost of the lottery was $1,730. Other monetary costs directly associated with developing, implementing, and administering the survey amounted to approximately $13,000, which is much lower than the cost would have been if we had implemented a survey that used either mailed SAQ's, telephone interviews, or face-to-face interviews.

CONCLUSIONS AND RECOMMENDATIONS

The SAQUS method is a useful mechanism for implementing surveys that ask questions of a sensitive nature to a college population. Anonymity, not merely confidentiality, can be guaranteed to participants, while evaluators can still get an excellent picture of the nature of the respondent group and the demographics of the nonrespondent group.

In the CUSSP survey, a response rate of 53% was attained for a study including a large number of very sensitive questions. This rate is close to the actual response rate of 60% in the Baldwin and Baldwin (1988) study,[14] which addressed the AIDS

epidemic and asked questions about the sexual behavior of college undergraduates. However, the Baldwin and Baldwin study mailed a four-page survey instrument to the sample. The SAQUS method placed a greater burden on the CUSSP sample by asking these individuals to report to response sites and to spend about 20 minutes answering 20 or more pages of detailed questions, many of them sensitive. Nevertheless, we achieved a comparable response rate at reduced costs and incurred other benefits as well. The discrepancies between respondent and nonrespondent populations can be enumerated and analyzed. Also, the guarantee of complete anonymity and confidentiality ensures a high degree of reliability to the survey responses.

Although the random selection probabilities were proportional to the sizes of the 16 strata, respondents did not accurately reflect the distributions of gender, class status, and residence among all Cornell undergraduates. A more complex sampling procedure, such as adjusting the selection probabilities for particular strata, might be helpful (Lee et al., 1986). In particular, males, upperclassmen, and off-campus residents might be assigned higher selection probabilities than those resulting from proportional allocation.

Using the lessons learned from this pilot study, we are certain that a much higher response rate can be achieved in other applications of this method. Incorporating a reward of higher value than we were able to afford for respondents, such as a modified lottery with increased rewards, can be expected to increase the response rate. Supplementing the letters to respondents with telephone calls soliciting participation can also be expected to improve the response rate (Schwager et al., 1990a). In addition, higher response rates can be expected if similar survey designs are implemented at times that do not conflict with final or midterm exams, holidays, and similar periods.[15]

Other populations suitable for being surveyed with the SAQUS method include

the residents of military bases, workers in factories, and the other populations similarly based at specific geographic locations. In these situations, SAQUS offers a high quality, yet low cost, alternative to the standard research designs.

FOOTNOTES

1. This study was supported, in part, by the following grants: College of Human Ecology Grant and Hatch project grant NYC 325-413, USDA to Catherine M. Crawford; Hatch project grant NYC 151-909, USDA and NIAID grant RO1 A129178-01 to Carlos Castillo-Chavez; Hatch project grant NYC 151-407, USDA to Steven J. Schwager; Grants from the Cornell University Office of the Provost, the University Office for Campus Affairs, and the Dean's Office, College of Agriculture and Life Sciences to the above authors.

2. Six of the identified studies did use a randomly chosen sample. See Aright and Yorgburg (1973), Bauman and Wilson (1974), Spanier (1977), Koff (1974), Sack *et al.* (1984) and Baldwin and Baldwin (1988). One other study (Sherwin and Corbett, 1985) used a random sample in a 1963 survey, but then used convenience samples in 1971 and 1978 surveys.

3. We are aware of the limitations of studying the Cornell population. The results of this study are not applicable in general, but they may be suggestive of possible behavioral patterns among students in the Northeastern U.S. However, the methodology developed in the implementation of this survey is inexpensive, easy to apply, and potentially very effective for use on other campuses.

4. The following calculations illustrate the sample size, N, needed to make the expected number of respondents from the core group equal to a desired number N_c. Let p = the proportion of the population in the core group. Let C denote the core group, so the probability of a randomly chosen individual being in the core group is P(C) = p. Let R denote the set of all people who would choose to respond in a survey if asked. Let r_c denote the conditional probability of responding among the members of the core group, that is, r_c = P(R|C). Then pr_c is the proportion within the population, and hence the expected sample proportion, of people who are core group members and who would respond if asked. The expected number of respondents from the core group is equal to the desired value N_c when $N_c = Npr_c$, so the sample size required to achieve this is $N = N_c/pr_c$. For example, if the desired N_c is 100, the following table gives N for selected combinations of r_c and p:

r_c	p: .02	.04	.06	.10
.10	50,000	25,000	16,667	10,000
.20	25,000	12,500	8,333	5,000
.30	16,667	8,333	5,556	3,333
.40	12,500	6,250	4,167	2,500

5. We would like to acknowledge the important contribution Mark Levine made during the planning and implementation stages of CUSSP.

6. Cornell has a complex housing structure that includes fraternity and sorority houses as well as dormitories. In order to facilitate this definition, we followed the rule used by the Registrar's Office: a student lives on-campus if the

housing bill is received from Cornell and off-campus if no housing bill is received from Cornell.

7. "Researchers Conduct Sex Pattern Survey," by Deborah Steuer. *The Cornell Sun,* October 25, 1989, Volume CVI-40, Page 1.

8. Survey dates were: Wave 1: October 30-31, November 1-2; Wave 2: November 6-9, Wave 3: November 17 and 20-21.

9. We decided that one room would facilitate any response expected in the third wave. This turned out to be an accurate expectation. In addition, we had depleted the pool of volunteers who had faithfully staffed the response sites during the first two waves.

10. Telephone follow-ups were used as a means of trying to increase the response rate of students who failed to participate during the first wave of the survey.

11. Dr. Leslie Elkind and Sharon Dittman at Cornell Health Services were instrumental in bringing to our attention the help that Cornell Peer Counselors could provide us. Over the three waves a minimum of 271 staff hours needed to be arranged with volunteers. We were able to enlist a large group of graduate students and undergraduate and undergraduate volunteers, some of whom were Peer Counselors and service fraternity students. Most of the volunteers received special training that lasted approximately two hours.

12. Almost all students did not fill out every question on every page in the survey instrument. Many questions were legitimately "skipped". For instance, if a respondent had never used drugs during the prior two months, he or she checked a box that stated so and then was instructed to skip all questions pertaining to drug use.

13. The services of the staff at SRF were essential in completing a successful survey and were provided in a thoughtful and creative manner. In particular, the guidance provided by Jane Maestro-Scherer, Manager of SRF, was of special importance in the development of the survey instruments.

14. The authors "estimate that the response rate was approximately 66%" (p.185). This estimate was based upon another estimate that "some 10% of the students may not have received" the questionnaire (p. 185). We computed the actual response rate by dividing the completed questionnaires received (851) by the total sample (1,426).

15. A word of caution may be important to those who implement random sampling designs based upon student lists from a Registrar's Office. Such lists may contain a large number of incorrect addresses. For CUSSP, 6% of the entries on the Registrar's Office list were incorrect. Several possible reasons may contribute to the presence of a substantial fraction of incorrect addresses, including a large portion of the student population living off-campus, a tendency for students to move relatively often, and the general difficulty of keeping student records accurate and current.

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