Enhancing Participant Recruitment in Studies of Sensitive Topics

Kathie Records and Michael Rice

BACKGROUND *Recruiting participants in studies involving sensitive topics can be challenging.* ***OBJECTIVE*** *This article examines whether a modified application of the Dillman method for enhancing survey response rates will increase participant recruitment rates when studying abuse during childbearing.* ***STUDY DESIGN*** *Bilingual informed consents (*N = *676) were mailed from 10 obstetrician, midwife, and family practice offices. Return of a signed informed consent enrolled the participant in the study. Informed consents were sent a maximum of three times to nonresponders.* ***RESULTS*** *Application of the modified Dillman method improved the recruitment rate from 13% to 35%, but only 16% of the sample had experienced abuse.* ***CONCLUSION*** *The data provide initial evidence supporting using this methodology for increasing sample recruitment. Further study is necessary to identify whether the characteristics of participants responding to the first mailing differ from the characteristics of those who respond to subsequent mailings.* ***J Am Psychiatr Nurses Assoc, 2006; 12(1), 28-36. DOI: 10.1177/1078390306288830***

Keywords: *methods, abuse, recruitment, sensitive topics*

Nursing, as a practice-oriented profession, provides care to individuals and groups with conditions that are deeply personal or are associated with a significant amount of social stigma. The provision of evidence-based care to all clients mandates that nursing research explore these socially sensitive topics and recruit participants who are at the greatest risk. Investigations of these conditions are deemed sensitive topics by participants and researchers alike, and participant recruitment is frequently difficult. Often, participants who are at greatest risk are least likely to self-enroll. However, Sieber and Stanley (1988) defined socially sensitive research as "studies in which there are potential consequences or implications, either directly for the participants in the research or for the class of individuals represented by the research" (p. 49). More succinctly, research on sensitive topics is that which "poses a substantial threat to those who are or have been involved in it" (Lee, 1993, p. 4). A variety of phenomena can be defined as sensitive. The purpose of this report is to describe a social science method designed to enhance recruitment of potential study participants and to describe use of this methodology with a sample of postpartal women for a socially sensitive study on the topic of physical and sexual abuse during pregnancy.

RESEARCH PARTICIPATION OF WOMEN WHO HAVE EXPERIENCED ABUSE

A prominent issue for researchers studying abuse is the personal safety of women considering participation. Often, women in abusive relationships have highly controlling partners who strive to maintain social isolation for their victims. Research participation violates the isolation inherent in abusive relationships (Rice, 1998) and may anger abusive partners, putting women at risk of physical harm or death. A study of risk factors for femicide in abusive relationships identified that the presence of a highly controlling partner presented the most danger to a woman's life (Campbell et al., 2003). Women may fear that revealing their abuse status to researchers will anger their abusers and result in physical harm or death. This fear is a reality; femicide is now the seventh overall leading cause of premature deaths for women (Greenfield et al., 1998).

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The authors wish to acknowledge Group Health Kaiser Permanente Community Foundation of Seattle, Washington, for its support of this project.

Another important issue for researchers studying abuse is accurate measurement of abuse status. Researchers can access health care provider records to determine if a woman has revealed a history of abuse or current abuse experience. These data are highly dependent on the methods that health care providers use to elicit abuse history data. Research findings indicate that fewer than one third of all abused women report violence to their health care provider (Plichta & Falik, 2001), and often, a woman's lack of disclosure is due to inadequate history taking by the health care provider and the woman's tendency to report socially desirable behaviors (Rodriguez, Bauer, McLoughlin, & Grumbach, 1999). Rather than using health record data, researchers are encouraged to use interviews to increase abuse disclosure. The prevalence rates for disclosure of abuse vary from 7.3% when self-report measures are used to 29.3% when nurse interviews are used (N = 777, $p \leq .001$; McFarlane, Cristoffel, Bateman, Miller, & Bullock, 1991). Gazmararian et al. (1996) reviewed prevalence rates for violence during pregnancy and concluded that higher prevalence rates are found when (a) interviews are conducted by skilled interviewers, (b) several abuse questions are asked, and (c) questions are asked during each trimester. Researchers can use these recommendations to elicit the most accurate data regarding abuse status once participants are available for a study. Carefully chosen sampling strategies will enable researchers to find participants from vulnerable groups and increase the likelihood of their participation.

SAMPLING STRATEGIES

There are a variety of sampling strategies that can be used to recruit participants. Many of them are not suitable for sensitive topics such as abuse. For example, list sampling would entail finding a list naming victims and/or survivors of physical or sexual abuse, a highly unlikely endeavor. Advertising might reach potential participants if the advertisements were placed in appropriate venues, such as near support group meetings or domestic violence shelters.

Other sampling strategies can be more appropriate for participants who are experiencing or have experienced abuse. Multipurposing is the most practical sampling method, in which an existing survey is used as a vehicle for reaching the population of interest (Lee, 1993). Ideally, another researcher would have already recruited a sample of interest, and the second researcher could use the same sample. Alternatively, screening could be used to systematically canvas a particular location to identify members of a given population. Screening near domestic violence programs might result in sufficient participant enrollment. The most useful strategy to date for participant recruitment is networking, whereby an initial set of contacts/participants who meet selection criteria refer the researchers to potential participants.

Although all of the above are well-accepted sampling strategies, albeit with sampling bias, none were useful for the particular setting and circumstance of our study. The goal of our study was to identify and compare two groups: women who did not reveal physical or sexual abuse to their prenatal health care provider and women who revealed one or both types of abuse. Using screening to systematically canvas near domestic violence shelters would facilitate the recruitment of abused women but would have decreased the feasibility of data collection as participants would come from a wide region, creating an impossible task of gaining access to medical records in various parts of the state and, possibly, in other states. The canvas method works best when paper-and-pencil or interview methods of data collection are used. The same feasibility issues arise with networking sampling strategy. Multipurposing is dependent on collaborative relationships with other abuse researchers; this was not practical because of the need of health care providers to have findings specific to their region and settings. Given the limitations of the traditional sampling methods, in this study, we used a mailed survey design and Dillman's (1978, 2000) method to distribute informed consents in an attempt to enhance recruitment response rates, particularly of women with histories of abuse during pregnancy.

DILLMAN'S TOTAL DESIGN METHOD

Dillman's (1978) methodology originated in the 1970s in response to decreased response rates to face-to-face interviews. Researchers turned to mail and telephone surveys as a way to increase response rates but found disappointing results. Dillman wanted to find a better method to increase response rates, specifically of surveys, and found the premises of social exchange theory useful guides for the methodology. Social exchange theory can be traced to the disciplines of economics, anthropology, and psychology. Thibaut and Kelley (1959) posited the first version that continued to be developed through the work of other social scientists. Social exchange theory is a perspective by which we can understand relationships, specifically, the costs and rewards that people experience by participating in relationships.

Relationships between any two people occur when there is something to exchange. An exchange can be tangible, as in the sharing of a meal, or that which is intangible, such as sharing of affection, skills, knowledge, or attention. Individuals seek to maximize their gains or rewards and minimize their costs when participating in relationships so that a profit results. Individuals will participate in relationships that result in personal gains while avoiding costly relationships. The rewards of participating in a relationship must have meaning, or symbolic significance, to the individual (Singelmann, 1972). An enhancement to the theory includes the individual's comparison of profits gained with a standard that reflects what he or she thinks is deserved.

Dillman's method challenges researchers to increase the rewards and decrease the perceived costs for participants to encourage participant return of completed surveys. Rewards are increased by showing positive regard for the participants, showing appreciation of their time and effort, using a consulting approach, offering tangible rewards, and making the questionnaire interesting (Dillman, 1978). Costs are decreased by making the task appear brief, decreasing the physical or mental effort required, and decreasing the chance of embarrassment. At the same time, the investigator must establish trust with participants so they will feel comfortable entering into the relationship. Extending a token of appreciation in advance, identifying with a known organization that has legitimacy, or building on other exchange relationships will facilitate the development of trust.

Dillman's total design method provides direction for all phases of data collection: from design of questionnaires to follow-up with responders and nonresponders alike. The focus of the total design method is on enhancing rewards and minimizing costs for participation in a study. First, cover letters designed on high-quality letterhead promote recognition and attachment to the institution where the study occurs. A cover letter should express appreciation and respect of the participant's time and effort in completing the questionnaires and stress the importance of the individual's data to accomplishing the study's goals. Dillman (1978, 2000) recommended changing the cover letter for each mailing to maximize the social exchange value. For example, the first letter might emphasize the importance of the project to creating positive health outcomes for similar people. This approach may appeal to people who are motivated by altruism. The second letter could emphasize the support of the institution to the project, thereby appealing to people who desire affiliation with credible or powerful agencies. The third letter could emphasize the value of the individual's knowledge and experiences, appealing to individuals who want to feel valued for their skills or expertise. By changing the exchange value of each letter, one maximizes the likelihood of participant response to the survey and increases the amount of data obtained. His writings provide other details for how to structure each subsequent letter to maximize the social exchange value.

When using the Dillman method, each mailing takes place within 2 weeks of the previous one. Four mailings occur: (a) the initial survey distribution, (b) postcard follow-up to remind participants to return the surveys, (c) a second survey mailing, and (d) a third survey mailing. The response rates obtained for surveys will vary depending on whether the method is wholly or partly followed. Average response rates when the method is wholly followed are 34% to 50% for the first mailing, 60% for the second mailing, and 72.4% for the third mailing. The method is for studies using nonsensitive surveys, and recent developments extend the use of the method to Internet surveys (Dillman, 2000). Thus, once participants are identified and consent to participate in a study, Dillman's method is useful for mail, telephone, or Internet surveys to increase the response rates. Our study extends the use of Dillman's method and is the first to explore whether participant recruitment will be enhanced, especially recruitment for studies of sensitive topics, rather than enhanced response rates to surveys.

HEALTH INSURANCE PORTABILITY AND ACCOUNTABILITY ACT (HIPAA)

As of January 10, 2005, the HIPAA became fully mandated for patients and their health care providers and extended privacy protections for protected health information (PHI). In general, use of the Dillman (1978, 2000) method for recruitment is compatible with HIPAA requirements. Health care agencies (covered entities) are able to distribute invitations to participate in a research study to their clients as described in this article. The individual, through signing and returning the informed consent, allows the researchers to access their PHI. A copy of the informed consent is placed in the patient's medical records held by the covered entity. Studies involving more than minimal risk, such as those of sensitive topics and using PHI, need a priori patient consent. The consent form must meet HIPPA requirements and specify an expiration date as well as the ability to withdraw consent. Complete information regarding HIPAA and research implications can be accessed

at http://privacyruleandresearch.nih.gov and http://www.hhs.gov/ocr/hipaa/privacy.html.

CURRENT STUDY

The parent study sought to determine the relationship between abuse and childbearing health outcomes using a retrospective chart review of hospital and prenatal records. Participants were 18 years of age, literate in Spanish or English, and had delivered their infants within the previous 18 months. The setting for the study was the central region of Washington State. The authors' previous pilot work demonstrated recruitment rates of 13% using a single mailing for the informed consent from physician offices (Records & Rice, 2004). Results of the current study have been reported elsewhere (Winn, Records, & Rice, 2003). This article will focus solely on the testing and evaluation of a modified version of Dillman's method for enhancing participant recruitment.

Procedure

Participating health care provider recruitment sites were obstetricians (n = 4), midwives (n = 2), or family practice physicians (n = 4). All recruitment sites identified potential participants (for age and recency of delivery) to whom addressed and bilingual (English and Spanish) informed consents were mailed. All patients who delivered within the previous 18 months were eligible to participate.

For the current study, we deviated from the recommendation to provide a different cover letter with each mailing (Dillman, 1978, 2000). The same brief cover letter was used for each mailing to minimize the workload of each recruitment site. Each recruitment site had its own procedure and timing for retrieval of client addresses, printing of labels, and mailing of consent invitations. Some sites had one person accomplish these study activities all at one time, whereas other sites took a week or longer, from retrieval of the first participant name and address through the final mailing, and used multiple people to accomplish the tasks. Different cover letters, already enclosed in the postage-paid envelopes and awaiting address labels, were likely to be mailed at the wrong time. We did follow Dillman's recommendation for using high-quality, colored letterhead from the college of nursing to facilitate name recognition and trust with our established agency. Potential participants received a business reply envelope to return the signed consent form documents to the investigators.

The informed consent described the intent of the investigators to review participants' prenatal and intrapartum medical records for data collection. The consent specified that we were looking "at social and psychological factors (such as the absence or presence of an abuse history and labor (length of labor)," as required by the institutional review board of our institution. After the informed consent was signed and returned to the investigators, there would be no further contact with the participants. Upon investigator receipt of a signed informed consent, a participant number was assigned. Repeat mailings were initiated to all nonresponders until a maximum of three mailings were completed.

We altered the timing of the mailings from the 2-week mailing schedule proposed by Dillman (1978, 2000). We used a longer period between mailings to avoid overlap of the mailings to potential participants with their returned (signed) informed consents to us. We received signed informed consents up to 3 weeks after a mailing. In part, this delay was due to local post office procedures whereby mail was held for delivery to the college of nursing until a sufficient amount needed delivery. Comparison of cancellation marks and receipt dates indicated that a delay of well over 7 days could occur. This problem could not be resolved and necessitated altering the mailing schedule to a longer period.

Postcard reminders, as recommended by Dillman (1978), were not used for three reasons. Because we received informed consents up to 3 weeks after a mailing, it did not appear necessary to include a 2-week postcard reminder. Of more concern was the increased workload postcard reminders would entail for office staff at the recruitment sites. In addition, as we expected some of the sample to be abused women, we could not guarantee the abuser would not intercept and read the postcard. We could not guarantee an abuser would not open a sealed envelope but felt this was a more conservative approach to sending a postcard that could be read by anyone intercepting the mail without the abused woman's knowledge. If an abuser intercepted and read a sealed mailed envelope, either the woman would not know it arrived or she would be aware that someone had opened it. The mailing envelope was clearly marked with the College of Nursing name and logo; we hoped the official mailing envelope would not generate suspicion.

Analysis

The first step of data analysis involved examining recruitment rates for each of the recruitment sites

TABLE 1. Number of Mailings and Returns per Time Period

Office/Practice	First Mailing M/U/E	Second Mailing M/U/E	Third Mailing M/U/E	Recruitment Rate (%)[a]
A	46/1/5	40/0/3	37/0/1	20
B	15/1/1	13/0/1	12/0/0	13
C	50/2/8	40/1/4	35/2/2	28
D	50/1/7	42/0/0	42/0/1	16
E	100/3/11	86/0/0	86/6/4	14
F	50/0/6	45/0/1	44/1/1	16
G	113/10/4	98/5/0	95/5/3	6
H	100/6/6	86/4/8	74/6/8	22
I	101/7/11	83/3/3	77/2/4	18
J	51/6/3	42/4/3	35/4/2	16
Total statistics:				
Mailings	676	577	537	
Undeliverable	37	17	24	
Enrolled	62	23	25	
Mean recruitment rate per mailing (%)	9	4	5	

Note: M = mailings; U = undeliverable; E = enrolled.
a. Recruitment rate = number sent at first mailing/number returned at mailing times 1 through 3.

TABLE 2. Mean Recruitment Rates for Mailing Time (in percentages)

	M	*SD*	Range[a]
First mailing	10.12	3.98	3.9-16.7
Second mailing	14.71	5.03	5.1-25.5
Third mailing	18.92	6.38	8.6-31.1

a. Statistics were calculated based on the recruitment rate for individual recruitment sites for each of the three time frames. Therefore, the range column indicates the recruitment sites with the lowest and highest recruitment rates.

(health care provider offices) at each of the mailing periods. Recruitment rates were calculated for each recruitment site, rather than for the sample as a whole, because of the different types of care providers participating in mailings as recruitment sites and potential differences in sample response. Recruitment rates were calculated for the percentage of participants who returned signed informed consents out of the total number of consents that were mailed after subtracting for the number of undeliverable mailings due to inaccurate or out-of-date addresses. An overall mean recruitment rate was calculated for the three mailings per recruitment site.

The next step involved examining the data per mailing for the recruitment sites as a single group. The mean recruitment rate was calculated for each mailing. Finally, *t* tests revealed whether significant differences existed in the proportion of the sample recruited over the three mailing periods.

RESULTS

The sample consisted of 110 women with an average age of 26.6 years (*SD* = 6.16). The majority were married (*n* = 72, 63%) and identified their ethnicity as Caucasian (*n* = 70, 61%). Single marital status (*n* = 33, 29%) and Hispanic/Latino ethnicity (*n* = 23, 20%) were the second most frequently chosen responses. Almost half of the participants had given birth to only one child (*n* = 48, 42%), whereas an almost equal percentage had given birth to their second or third child (*n* = 28, 25%; *n* = 23, 20%, respectively). Of those who responded to the mailed informed consents (*N* = 110), 16% (*n* = 18) of the sample had a history or current experience with abuse noted in their prenatal records.

As expected, recruitment rates differed by recruitment site (see Table 1). Recruitment rates varied from 6% (obstetrician office) to 28% (midwife office). There was also variability within practice settings, with obstetrician office recruitment rates varying from 6% to 22%, family practice from 13% to 16%, and midwife offices from 18% to 28%. Multiple mailings resulted in a 57% increase in sample size from 62 at the first mailing to 110 after the third mailing. There was no significant difference in the number of abused women recruited by each site.

There was also variability within each time for the number of participants recruited. The mean recruitment rates per mailing appear in Table 2. The recruitment rates increased from 10% after the first mailing to 19% after the third mailing.

TABLE 3. Test of Paired Differences Between Mailings

Mailing	*n*[a]	*M* (*SD*)	*M* (*SD*)	*t*	*df*
First-second	10	10.12 (4.0)	14.71 (5.0)	3.993	9*
Second-third	10	14.71 (5.0)	18.92 (6.4)	4.479	9*
First-third	10	10.12 (4.0)	18.92 (6.4)	4.828	9*

a. Denotes number of recruitment sites.
*$p < .01$. Two-tailed tests.

The increase in the number of participants over the three mailings was statistically significant (see Table 3). This is evidence that Dillman's method does enhance recruitment of participants, although recruitment rates for this study of sensitive topics are far below the survey response rates obtained on nonsensitive topics (Dillman, 1978, 2000).

DISCUSSION

Using Dillman's (1978, 2000) method for recruiting participants did result in an increased sample size. This is a new application of Dillman's method. Although the method was developed to increase response rates to surveys, this study provides the initial evidence that it can be used to increase recruitment rates for studies. Investigators may want to implement Dillman's method with their studies of other sensitive topics to gain further knowledge of its effectiveness.

Our final sample had an abuse prevalence rate of 16%. At best, we can state that the percentage of our sample reporting an abuse history is similar to the rates obtained by other studies but less than rates obtained with repeated face-to-face interviews (Gazmararian et al., 1996). It is not known if the characteristics of participants who responded to the first mailing differed significantly from those who responded later. It is not possible to know, then, whether repeated recruitment mailings result in a more or less heterogeneous group for the current study or whether repeated mailings were successful at increasing the percentage of abused participants. We conclude that although the Dillman method did help to increase the sample size, the percentage of the sample reporting abuse was not appreciably different from rates obtained by investigators not using the Dillman method for recruitment.

There was a significant difference in the return rates for different sites. Midwife offices had the highest recruitment rates whereas obstetrician offices had the lowest. This may reflect differences in the clients who choose midwife or obstetrician care. Findings reveal that differences in choice are not related to demographic variables as much as they are to attitudinal variables. Women who choose midwife care consider themselves to be more comfortable with "alternative" versus "traditional" models of care, more in control of the pregnancy decisions that need to be made, and have more spousal approval for their choice than do women who choose obstetricians (Galotti, Pierce, Reimer, & Luckner, 2000). The differences in recruitment rates by site may reflect these attitudinal differences that extend to participation in research studies or different exchange values for the patients. It would be interesting to test whether cover letters with particular exchange values result in better recruitment in one site as compared with the other.

The variability of recruitment rates within similar practice sites is not as easily explained. The smallest variance occurred for family practice offices, and the largest was for obstetricians. This may reflect the characteristics of the relationships between particular care providers and their patients. Patients experiencing close, supportive relationships may be more likely to respond to requests to participate in research studies than patients who are not as attached to their care providers. Future studies using the Dillman (1978, 2000) method might want to consider testing the effect of the patient-provider relationship on recruitment rates.

The inclusion in our consent materials of a phrase indicating we were studying "the absence or presence of an abuse history" may have decreased recruitment rates, particularly if an abused woman did not want this disclosed to anyone other than her health care provider. Full disclosure to participants about the sensitive data we were retrieving from their medical records was a requirement of our institutional review board. This requirement for full disclosure may be interpreted differently by other institutional review boards in the interest of participant safety. Removing the word *abuse* from the consent form may not generate the same emotional reaction from an abuser who intercepts the study materials and feels threatened at potential disclosure. We received no reports of adverse events during the study from our clinical agencies.

The decisions we made to alter the method as proposed by Dillman (1978, 2000) may have affected the recruitment rates. Our omission of the cover letters, each with different wording, did not maximize the social exchange value for potential participants. It is possible to devise a system that would not confuse office personnel, such as using different-colored

cover letters with matching envelopes and a color-coded calendar to indicate what color letter should be mailed at each time point. Perhaps retrieving all study materials that remain after a mailing, providing a period with no study materials present, and then introduction of the new materials for the next mailing would clarify procedures for office personnel. Deletion of the postcard reminder meant that we missed an opportunity to acknowledge the time it takes potential research participants to read the study materials and consider participating. Studies of response rates to surveys find that written reminders provided with a copy of the survey and contact numbers result in a 13% greater response rate than do studies not using this technique (Asch, Jedrziewski, & Christakis, 1997). Studies have not been conducted to see if the same result occurs when using written reminders to increase recruitment rates. A token of appreciation would have communicated this acknowledgment as well. Both of these changes to the method probably resulted in a decreased recruitment rate.

Additional Findings

There are four main issues we identified in using this modification of Dillman's (1978, 2000) method for participant recruitment in our study of sensitive topics. These issues are costs, recruitment site burden, nonparticipant annoyance, and the fact that the inherent dynamics of the specific phenomena, such as maintaining secrecy, make recruitment challenging.

The costs for repeated mailings, copies of bilingual informed consents on letterhead, and return postage can be prohibitive for small studies. However, when considering the cost for salary and benefits of personnel, mail survey costs are less than telephone or personal interviews (Camunas, Alward, & Vecchione, 1990). Another cost to consider in future studies is that of recruitment site incentives and participant incentives to enhance participant recruitment rates (Halpern, Ubel, Berlin, & Asch, 2002; Ulrich & Grady, 2004). Further study is needed using different client samples and testing various levels and types of incentives.

Recruitment site burden varied depending on the office setting involved. Some of the offices were able to accommodate the mailings quite easily into the normal workload. Providing informed consents in sealed and stamped envelopes ready for a mailing label decreased burden, but there was still a considerable amount of work for office staff as they screened potential participants against selection criteria by reviewing charts and generated mailing labels. Two offices required multiple follow-up contacts with the investigators, which delayed the initial mailings by 2 months because of either a shortage of personnel or a high volume of patients. Repeat mailings become particularly time-consuming as the original list has to be modified to eliminate names of participants who have returned signed consent forms.

Nonparticipant annoyance occurred when four women who received requests to participate asked to have their names removed from future mailings. Unfortunately, they did not supply the names to remove from the mailing list, and they continued to receive subsequent mailings. Using code numbers on the informed consents linked to mailing addresses and a master list would solve this problem but would also dramatically increase the burden on the recruitment site as it accepts responsibility for labeling of study materials with the code numbers, coding to the master list, and packaging study documents into mailing envelopes. This was not possible in our pilot study. A coded postcard mailed with study materials and returned separately from completed instruments (or informed consents) may effectively address this problem without dramatically increasing costs (Asch, 1996).

Sometimes technology interfered with the mailing protocol. Mailings to the clients from one of the recruitment sites resulted in extremely low response rates because of the number of nondeliverable addresses. The office personnel were asked to conduct a mailing to women who had delivered more recently. In the intervening period, the office manager and staff had received a new software package for mailing addresses and were unable to get it to function properly**.** A subsequent mailing could not be accomplished.

The population investigated in this study appears to be transitory. There were 78 potential participants (11.5%) who had moved between giving birth and the time of participant recruitment. In addition, anecdotal evidence from recruitment sites indicated that some of their clients provide nonexistent addresses because their real address is "no one's business." Similarly, for specific sensitive topics such as abuse, frequent moves or failure to respond may contribute to poor recruitment rates.

Limitations

It is likely that selection bias occurred. Holt, Martin, and LoGerfo (1997) studied selection bias by comparing demographic characteristics of prompted,

unprompted, and nonrespondents to a mailed obstetrical survey. Results indicated that differences between groups and sampling bias were evident. Using a modification of the Drane method (adjusting for race and socioeconomic status as predictors of nonparticipation), they concluded it was possible to obtain an accurate estimation of prevalence for the sample as a whole (Holt et al., 1997). The Drane method may result in less sampling bias without increasing costs, but further testing is needed, particularly with studies of sensitive topics.

We did not track whether respondents to the first mailing differed from respondents to the second or third mailing. Thus, we were unable to test whether the final sample was more or less heterogeneous than the sample obtained after the first mailing. Future investigations testing this method for participant recruitment should incorporate tracking of participant demographics per recruitment response time. The Dillman (1978, 2000) method is costly, time-consuming, and requires strong participant-tracking protocols by clinics and researchers. If these efforts result in more heterogeneous samples, future investigators will be able to better judge the cost:benefit ratio of using this method.

Findings of low recruitment rates for abused women may be related to the modifications of Dillman's (1978, 2000) method. Future investigations might build in a small token of appreciation for reading the cover letter and consent. As little as $2 may be enough to increase the social exchange value for potential participants. Developing different cover letters for each mailing should improve response rates as well.

SUMMARY

Participant enrollment in this sensitive topic study was increased by 57% by extending the use of Dillman's (1978, 2000) methodology for enhancing survey response rates to facilitating study recruitment. It only modestly improved recruitment of women with abuse histories, and the final percentage of the sample reporting abuse was far below the percentage obtained with repeated interviews. We are unable to state whether this method increases the likelihood of obtaining representative samples. Future studies using this methodology for participant recruitment might include tracking the demographic characteristics of participants responding at each mailing period to identify whether different groups respond to the second and third mailings as compared to the first mailing. Dillman's (1978, 2000) method does not solve all of the issues when researching sensitive topics but will help to increase recruitment rates.

REFERENCES

Asch, D. A. (1996). Use of a coded postcard to maintain anonymity in a highly sensitive mail survey: Cost, response rates, and bias. *Epidemiology*, *7*, 550-551.

Asch, D. A., Jedrziewski, M. K., & Christakis, N. A. (1997). Response rates to mail surveys in published medical journals. *Journal of Clinical Epidemiology*, *50*, 1129-1136.

Campbell, J. C., Webster, D., Koziol-McLain, J., Block, C., Campbell, D., Curry, M. A., et al. (2003). Risk factors for femicide in abusive relationships: Results from a multi-site case control study [Electronic version]. *American Journal of Public Health*, *93*, 1089.

Camunas, C., Alward, R. R., & Vecchione, E. (1990). Survey response rates to a professional association mail questionnaire. *Journal of the New York State Nurses Association*, *21*(3), 7-9.

Dillman, D. (1978). *Mail and telephone surveys*. New York: Wiley.

Dillman, D. (2000). *Mail and Internet surveys.* New York: Wiley.

Galotti, K. M., Pierce, B., Reimer, B. L., & Luckner, A. E. (2000). Midwife or doctor: A study of pregnant women making delivery decisions. *Journal of Midwifery & Women's Health*, *45*, 320-329.

Gazmararian, J. A., Lazorick, S., Spitz, A. M., Ballard, T. J., Saltzman, L. E., & Marks, J. S. (1996). Prevalence of violence against pregnant women. *Journal of the American Medical Association*, *275*, 1915-1920.

Greenfield, L. A., Rand, M. R., Craven, D., Klaus, P. A., Perkins, C. A., Ringel, C., et al. (1998). *Violence by inmates: Analysis of data on crimes by current or former spouses, boyfriends, and girlfriends*. Washington, DC: Department of Justice.

Halpern, S. D., Ubel, P. A., Berlin, J. A., & Asch, D. A. (2002). Randomized trial of $5 versus $10 monetary incentives, envelope size, and candy to increase physician response rates to mailed questionnaires. *Medical Care*, *40*, 834-839.

Holt, V. L., Martin, D. P., & LoGerfo, J. P. (1997). Correlates and effect of non-response in a postpartum survey of obstetrical care quality. *Journal of Clinical Epidemiology*, *50*, 1117-1122.

Lee, R. M. (1993). *Doing research on sensitive topics*. Newbury Park, CA: Sage.

McFarlane, J., Cristoffel, K., Bateman, L., Miller, V., & Bullock, L. (1991). Assessing for abuse: Self-report versus nurse interview. *Public Health Nursing*, *8*, 245-250.

Plichta, S., & Falik, M. (2001). Prevalence of violence and its implications for women's health. *Women's Health Issues, 11*, 244-258.

Records, K., & Rice, M. (2004). Labor patterns of abused and nonabused women. OBGYN.Net. MediSpecialty.com. Retrieved from http://www.obgyn.net/pb/pb.asp?page=/pb/articles/labor-abusedVSnon

Rice, M. J. (1998). *ONE VOICE: Assessment and intervention standards of domestic violence*. Santa Clara, CA: Concept Media.

Rodriguez, M., Bauer, H., McLoughlin, E., & Grumbach, K. (1999). Screening and intervention for intimate partner abuse: Practices and attitudes of primary care physicians. *Journal of the American Medical Association*, *282*, 468-474.

Sieber, J. E., & Stanley, B. (1988). Ethical and professional dimensions of socially sensitive research. *American Psychologist*, *43*, 49-55.

Singelmann, P. (1972). Exchange as symbolic interaction: Convergences between two theoretical perspectives. *American Sociological Review*, *37*, 414-442.

Thibaut, J. W., & Kelley, G. H. (1959). *The social psychology of groups*. New York: Wiley.

Ulrich, C. M., & Grady, C. (2004). Financial incentives and response rates in nursing research. *Nursing Research, 53*(2), 73-74.

Winn, N., Records, K., & Rice, M. (2003). Abuse, sexually transmitted diseases, and group B streptococcus. *MCN: The American Journal of Maternal Child Nursing*, *28*, 106-110.