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Collecting Data by Telephone from Low-Income African Americans

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Telephone interviews are a popular and widely used means of collecting research data. There are many practical advantages to telephone interviewing including lower costs compared to face-to-face interviewing, convenience for both the researcher and respondent, the possibility of quick turnaround time, and the potential for closer supervision of interviewers to assure greater standardization of administration (Holbrook, Green, & Krosnick, 2003; Worth & Tierney, 1993). Non response rates and rates of missing data have been reported to be significantly lower for telephone respondents compared to mail questionnaire respondents (Pruchno & Hayden, 2000).

Unfortunately, there are disadvantages of telephone interviewing that need to be considered. Problematic issues include: older participants or those who are ill not understanding the questions asked if an interviewer speaks quickly, impatiently or unclearly; vigilant family members blocking contact with the study participant; inability to use questions with a large number of response categories since interviewees may have trouble remembering the response categories; and the use of show cards that are used to present response choices is more difficult, requiring advance contact, mailing of cards to respondents and respondent responsibility for manipulating the cards during the interview (Holbrook, Green, & Krosnick, 2003; Musselwhite, Cuff, McGregor, & King, 2006; Wilson, Roe, & Wright, 1998; Worth & Tierney, 1993). The proliferation of answering machines, caller-ID, and use of the telephone for sales and solicitation of charitable donations may lead individuals to screen calls, thus accessibility to participants can be restricted (Scudds & Pederson, 1996; Tuckel & Feinberg, 1991). Moreover, about 6% of Americans do not have a telephone, prohibiting them from participating in research by telephone. That rate climbs to almost 10% among Hispanics and almost 13% among African Americans (Belinfante, 2004).

Eliminating health disparities in the U. S. will in part be dependent on collecting data from minorities and those with low income. Recently researchers have examined strategies to recruit and maintain contact with African American participants (Dilworth-Anderson & Williams, 2004; Wilbur et al., 2006), and investigated whether self-report accuracy differs between African American participants contacted by telephone vs. those contacted by mail (Armstrong, Long, & Shea, 2004). Few researchers, however, have examined the process of telephone data collection in an African American sample. Although research suggests minorities and

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individuals with low incomes are hard to reach by telephone (Dietrich et al., 2006; Lorig, Gonzalez, Ritter, & Nacif de Brey, 1997; Pesata, Pallija, & Webb, 1999), we need more specific knowledge about characteristics of this population to guide plans for telephone data collection and related resource allocation. Are there individuals in this population that are easier to reach than others?

The purposes of this study were to: (a) describe challenges associated with collecting data by telephone from a sample consisting largely of low-income urban African Americans; and (b) describe characteristics of easy to reach participants. The following questions were addressed:

1. How many participants were actually contacted during each of the four call periods?
 - a. How many telephone number changes and disconnections were there in the sample over the course of a year?
 - b. How many telephone call attempts were made during each of the four call periods before contact with the participant was made?
2. What factors characterize the “easy to reach” participants?

Methods

Design

Data for this secondary analysis were collected as part of a larger randomized clinical trial that compared usual care with nurse-managed blood pressure telemonitoring in order to estimate the efficacy of the intervention on blood pressure control in a sample of African Americans with hypertension. In addition to the in-person follow-up assessments for the trial, four brief telephone interviews were conducted over the course of a year to collect data on hypertension medication changes. Analyses reported here are limited to those data. The Wayne State University Human Investigation Committee approved the study protocol. Written informed consent was obtained for all participants.

Sample

The clinical trial recruited African Americans with hypertension through free community-based blood pressure screenings. Inclusion criteria were African American ≥ 18 years; systolic blood pressure (SBP) ≥ 140 mm Hg and/or diastolic blood pressure (DBP) ≥ 90 mm Hg (unless diabetic or with a kidney disease, then SBP ≥ 130 mm Hg and/or DBP ≥ 80 mm Hg); ownership or rental of a home or apartment with a land-based telephone (requisite of the clinical trial telemonitoring intervention); oriented to person, time, and place; and spoke English. Exclusion criteria were: arm circumference > 17.5 inches (to ensure that an appropriate sized BP cuff was available for BP measurement); history of dementia, mental illness, terminal cancer, advanced liver disease, and/or hemodialysis; and self-reported illicit drug use and/or alcohol abuse as measured by the CAGE (Cut, Annoyed, Guilty, Eye-opener) questions (Buchsbbaum, Buchanan, Centor, Schnoll, & Lawton, 1991).

Data Collection

All trial participants participated in four 2-hour in-person interviews and a brief physical exam over the course of the 12-month clinical trial. In addition, data about changes in hypertensive medications and in medication dosing were collected by telephone at periods in-between the in-person interviews. There were four telephone calls (1.5, 4.5, 8 and 10 months after baseline) to all participants over the course of one year. During the process of making telephone calls, data about the number of call attempts and information about telephone number changes or disconnections were recorded. It is these data that were used for analyses in this study.

No “cold calls” (i.e., calls without prior notice) were made. At the baseline in-person interview participants were provided with a 12-month calendar that identified all project-related activities for the year, thus participants knew in advance when to expect a telephone call from the investigators. Detailed contact information was collected from each participant. Telephone numbers for close family members and a church contact were also obtained to assist with tracking participants over the year. On average, calls were about five minutes in length. Only two questions were asked at each call: (a) Have there been any changes in your blood pressure medication since the last time we contacted you? and, (b) If yes, what were the changes (both changes in medication name and dose were addressed)?

One registered nurse with a Master’s of Science in Nursing degree made all follow-up telephone calls. A minimum of four call attempts per participant per time period were made. Call attempts varied by day and times of day. The nurse interviewer was provided with a telephone calling card to facilitate making telephone calls at varied times/days from locations other than the university research office.

Operational Definitions

In order to conduct the analyses for research question five, we distinguished between “easy to reach” versus “hard to reach” participants. Participants were considered “easy to reach” if the investigator made contact with the participant through 8 or fewer telephone call attempts over the course of a year (on average, ≤ 2 attempts per call period). Conversely, participants were considered “difficult to reach” if the investigator needed to make greater than 8 telephone call attempts over the course of the year.

Results

Description of Sample

Table 1 describes the demographic characteristics of the sample, which contained 368 African Americans—234 (64%) females and 134 (36%) males. Participants’ ages ranged from 22 to 89 years with a mean of 59.5 ± 12.7 . Sixty-seven percent of the sample lived with one or more individuals. Low income was defined as having an annual household income below the median household income for the area. The sample for this study was drawn from an urban city with a median household income of \$29,526 compared to the state’s median household income of \$45,793 (U. S. Census Bureau, 2006; Wikipedia, 2007). In 2003, the poverty threshold for two persons in a household under 65 years was \$12,384 (U. S. Census Bureau, 2003). A little more than a third of the sample ($n = 130$, 35.3%) lived below this threshold and 221 (60.0%) reported an annual household income below \$20,000. Of those 221 participants, 77 (34.8%) lived alone, 59 (26.7%) lived with one other person, and 85 (38.5%) lived with more than one person.

Participant Contact

Telephone number changes and disconnections—Although at baseline all participants reported having a working land-based telephone (a requirement for participating in the trial of telemonitoring effectiveness), over a year’s time, 55 (15.0%) participants had at least one phone number change. Seventy-five (20.4%) participants had their telephone disconnected.

Telephone Call Attempts—The number of attempted telephone calls per call period before the investigator made contact with the participant ranged from 0 to 9 with a mean of 2.4 attempts per time period. The number of attempted telephone calls/participant over the year study period ranged from 1 to 21 with a mean of 9.5 times (± 4.0).

Participant Contact Rates—Despite several call attempts, about one-third of the sample was never reached during each call period. Figure 1 depicts the number and percent of calls that were successfully completed at each call period. Figure 2 shows the number of times participants were reached by telephone over the course of one year.

Characteristics of the “Easy to Reach”

Forty-six percent of participants (n=170) were “easy” to reach, requiring eight or fewer attempts to reach them four times during the 12-month follow-up period. Note that this is different from those who were reached at all 4 call periods (n=141). In fact, 32 (22.7%) of these participants who were contacted on all 4 occasions were not easy to reach. Those who were easy to reach were older (62 vs. 58 years, $t=3.0$, $p=0.003$), more likely female (118 (62%) vs. 52 (31%), $\chi^2=4.6$, $p=0.03$), and currently not working (128 (75%) vs. 42(25%), $\chi^2=7.9$, $p=0.005$).

Among those easy to reach and not working, 60 (35%) were retired, 37 (22%) were disabled, and 31 (18%) were not working for some other reason. Those who were disabled and not working for some other reason were significantly younger than those not working due to retirement, thus age was not a proxy for working status, with each variable independently influencing being easy to reach by telephone. Among the 118 who were working, 51 (43%) had incomes < \$20,000. Of the 250 who were not working, 170 (68%) had incomes < \$20,000. Income, as well as, blood pressure, marital status, household density, education, and depression were unrelated to ease or difficulty in reaching participants by telephone.

Discussion

This study identified some of the challenges associated with collecting data by telephone from a sample of largely low-income African Americans by describing the number of telephone number changes and disconnections that occurred over the course of the year. The number of call attempts required to reach research participants, as well as, characteristics of those more easily reached were also described. In this sample 15.0% of the participants had at least one phone number change and approximately 20% had their telephone disconnected. These findings highlight the importance of using several strategies to prevent the phenomenon of lost-to-follow-up, or an inability to locate research participants despite best efforts. Requesting participants to provide telephone numbers and addresses for several alternate contact persons e.g., family member, friend minister, work, or doctor, may help ensure that data collection opportunities are not lost. Letters to participants requesting them to call you is another useful strategy.

On average, at least 2 call attempts were made to make contact with each participant. Multiply call attempts by the number of participants, and it becomes clear that investigators need to plan sufficient time and manpower for maintaining contact with participants. Telephone interviewers need to be available 7 days per week, including weekends and holidays and days and evenings. The greater number of calls to be made and the greater the number of participants, the greater the personnel costs. Although participants would provide us with best times to call, life circumstances would change, and participants would not be reachable at the designated time. Personnel need to understand in advance that it will take effort to reach participants, and not to be discouraged or give up. Telephone calling cards may enhance an interviewer’s flexibility of where calls can be made without incurring personal costs, but calling cards can be associated with a potential problem. Anecdotally, the nurse interviewer heard from some participants that they almost did not answer the telephone call since they did not recognize the area code or telephone number from calls initiated with the calling card. To minimize participants not answering calls, it may be useful to inform them in advance of the use of a calling card, and if they are using caller-ID, they may not recognize the telephone number.

Unfortunately, only 63% to 70% of the planned telephone calls were completed over the course of the year follow-up and 8% were never reached. Missed calls translate into missing data for that particular data collection period. Following up missed calls with written questionnaires may be a solution, however missing data is also high with this data collection mode (Morrison, Leigh, & Gillmore, 1999). Increasing the number of call attempts may be another solution, although investigators have reported only 53% to 67% response rates with as many as 10–12 call backs (Hepner, Brown, & Hays, 2005; Pridemore, Damphousse, & Moore, 2005).

Forty-six percent (n=170) of the sample was considered easy to reach by telephone, with the majority being difficult to reach requiring greater than 2 call attempts each call period or greater than eight call attempts over the course of the year follow-up. Even more time and manpower resources need to be budgeted for those who are more difficult to reach. Income level was not related to difficulty in reaching participants, thus telephone data collection can be considered a viable data collection mode in this population.

Older age, female gender and employment status (i.e., currently not working) were each associated with being easy to reach by telephone, thus should be kept in mind when evaluating data collection modes for a low-income minority population. The telephone interview has been found to be a feasible alternative to the traditional in-person interview for older White women; it appears the telephone interview is also feasible for older African American women (Pruchno & Hayden, 2000). It is important to keep in mind however, that all participants met investigators for the first time in a previous face-to-face interview, and that telephone contact related to follow-up data collection. Research suggests lower responses rates among older adults contacted for the first time by telephone (Herzog & Rodgers, 1988).

It is not clear why women were easier to reach by telephone in this sample. Other studies have found that gender was not associated with days missed in telephone data collection (Morrison, Leigh, & Gillmore, 1999), and that telephone interviewing was a feasible way of collecting data from fathers (Kirsch & Brandt, 2002). Those not working were easy to reach, possibly due to having more time available to answer a telephone call. Low income individuals who are working are often in service or labor positions where on the job phone access is not available.

In summary, less than a quarter of the sample experienced a telephone number change or telephone number disconnection and was at risk for lost-to-follow-up. At least two call attempts were required to reach participants for each scheduled telephone call, the majority requiring more attempts and considered difficult to reach. Sufficient resources need to be budgeted or another data collection mode may need to be considered among low-income African Americans who are younger, male, or who are working.

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Figure 1.
Telephone calls successfully completed at each call period (n=368).

Figure 2.
Number of times participants were reached over the course of one year with 4 call periods
(n=368).

Table 1
Demographic characteristics of the sample at baseline (n=368)

Characteristic	Number	Percent
Education (years)		
< 12 years	88	24.0%
12 or GED	132	36.0%
13–15	112	30.5%
16+	35	9.5%
Employment status		
Working	118	32.1%
Retired	112	30.4%
Disabled	77	20.9%
Not working	61	16.6%
Income		
< \$5,000	46	12.5%
\$5,000–\$9,999	84	22.8%
\$10,000–\$19,999	91	24.7%
\$20,000–\$29,999	46	12.5%
\$30,000–\$49,999	41	11.1%
> \$50,000	21	5.7%
Missing/refused	39	10.6%
Marital status		
Single/never married	99	26.9%
Married/significant other	86	23.4%
Divorced/separated	105	28.5%
Widowed	78	21.2%
Number of household occupants		
Lives alone	122	33.2%
Lives with 1 other	98	26.6%
Lives with > 1 other	148	40.2%