Differential Access to Digital Communication Technology: Association with Health and Health Survey Recruitment within an African-American Underserved Urban Population

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ABSTRACT *Digital communication technologies (DCT), such as cell phones and the internet, have begun to replace more traditional technologies even in technology-poor communities. We characterized access to DCT in an underserved urban population and whether access is associated with health and study participation. A general probability community sample and a purposive high-turnover housing sample were recruited and re-interviewed after 3 months. Selected characteristics were compared by sample type and retention. Associations between DCT access and self-reported health were examined using multivariable logistic regression. Of 363 eligible individuals, 184 (general community=119; high-turnover housing=65) completed the baseline survey. Eighty-four percent of respondents had a cell phone and 62% had ever texted. Ever use of the internet was high (69%) overall, but frequency and years of internet use were higher in the general community sample. Self-reported fair or poor health was more common for residents of cell phone-only households and those with less frequent internet use. Technology use was similar for those retained and not retained. Overall, access to DCT was high in this underserved urban population but varied by sample type. Health varied significantly by DCT use, but study retention did not. These data have implications for incorporating DCT into health-related research in urban populations.*

KEYWORDS *Technology and health, Recruitment and retention, Health survey research*

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Digital communication technologies (DCT) such as cell phones and the internet are rapidly becoming ubiquitous even in technology-poor communities. In 2009, nearly 80% of American homes reported having at least one cell phone and 74% of Americans reported use of the internet.^{1,2} That such technologies have begun to replace traditional communication technologies is evident by the rapidly increasing number of homes with only a cell phone (no landline), which grew from 7.3% in 2005 (January to June) to 20.2% in 2008 (July to December).¹

DCT presents both opportunities and challenges for health care and research in disease management, survey-based health data collection and health interventions. DCT can overcome barriers in traditional health care and research methodologies, including facilitator issues (i.e., discomfort with topics, incomplete implementation) and participation obstacles (i.e., transportation, insurance, physical limitations, the need for child care). In addition, interventions such as health education can be individually tailored, increasing relevance, and content can be quickly and easily updated.³ By using DCT to overcome these barriers, providers and researchers are able to reach a larger and more geographically dispersed audience. DCT has been used in health care and research for disease management⁴ and provision of psychosocial service,⁵ and has been especially useful in the prevention and management of HIV infection.³ DCT is currently being intensely investigated for use in other resource-restricted settings internationally.⁶

DCT use in health care and research is not without challenges. It requires that individuals either have access to DCT and the technical skills needed to use it, or are provided equipment and training on its use. Importantly, prior studies have found variation in DCT access by respondent characteristics.⁷ Using a telephone-based survey, a study commissioned by the City of Chicago found that, similar to national polls, 75% of Chicagoans are using the internet; however, those who were older, Latino, African-American, low-income, and less educated were less likely to be doing so. Due to increased de-linking of telephone exchanges with geography, local phone survey studies such as these may severely under-represent cell phone-only households. Additionally, studies of DCT access and use typically do not measure baseline associations between DCT and health, information that is needed to determine any pre-intervention effects that DCT may have on health (e.g., access to health information, purchase of health products online, etc.) nor have they examined the association between DCT and retention of study participants. Accurately describing these associations may be essential in setting up valid health research processes, and could promote new strategies to impact health status.

With changing and variable access to traditional technologies and DCT, acquisition of representative health-related information will require changes in survey methodology to overcome barriers such as coverage bias which can occur with relatively inexpensive random-digit-dialing survey methods.⁸⁻¹⁰ A combination of recruitment and retention modalities, including traditional approaches (e.g., in-person and landline telephone) and newer DCT approaches (e.g., cell phone and internet) are likely necessary for recruitment and retention of study participants representative of a larger population. However, the data necessary to inform researchers as to which modalities will achieve recruitment and retention of a representative sample are limited.¹¹

In this study we aim to (1) further the understanding of household variations in DCT in an underserved urban community, (2) evaluate the relationship between DCT and retention of study participants, and (3) explore the relationship between DCT and health status.

METHODS

Sampling

Samples were taken from two regions of Chicago's South Side, a 95 square mile region comprised of 34 of the city's 77 community areas: one region in the mid-South Side and one further from the city's center. The South Side represents one of the largest contiguous urban localities with a majority African-American population (72%) and includes nine of the ten poorest communities in the City of Chicago (unpublished 2007 data from Metro Chicago Information Center). Two samples were drawn from each of the two regions based on census tracts. The "general community" sample was an address-based probability sample designed to represent individuals who would typically be recruited for survey research with "gold standard" sampling methodology (address-based recruitment, not telephone number-based). The "high turnover housing" sample was a purposive sample of registered single residency occupancy (SRO) units and high-turnover rental buildings drawn in part to test our ability to (1) track a sample of residents thought to be particularly mobile over time and (2) characterize DCT in a population thought to be less accessible to community health researchers.

A sample of 2,000 address lines was purchased from Marketing Systems Group's Genesys Division¹² to generate the general community sample. From these 2,000 address lines, an initial sample of 100 addresses was randomly selected and considered the "core probability" sample. Next, larger sub-samples, or "replacement probability" samples, were randomly selected. These larger replicates were recruited less intensively, supplying additional completed cases needed for study objectives without incurring the higher costs associated with multiple follow-up home visits.* Core cases that proved ineligible (vacant, etc.) were replaced with randomly selected cases from the larger pool of the replacement probability sample.

A list of registered SROs was obtained from the City of Chicago to generate the high-turnover housing sample. These buildings are often designated for monthly or weekly leasing, and cater to those in mobile living situations. Specific units within these SRO buildings were randomly selected for inclusion. Due to scarcity of SRO buildings in some community areas, this sample was supplemented with addresses displaying permanently posted vacancy signs, and other small-unit, low-income rental buildings, specifically those addresses identified as high-turnover through qualitative interviews with postal carriers."

Participants

Eligible participants included individuals currently living in the household who were 18 years or older. Only one individual per household was interviewed; a systematic screening mechanism gave each eligible adult within a household an equal chance of selection into the study.

*Mean number of attempts in the recruitment phase was 5.7 for core cases vs. 2.4 for replacement cases. Two thirds (66%) of core cases had at least one field attempt compared with about a fifth (19%) for replacement cases. About half of the core cases (52%) had contact attempts in each of three modes (phone, field, and mail) compared with just 8% of replacement cases. Response rate is significantly higher for the core cases, but cost per case is significantly higher as well. Additional details about the study methods are available upon request.

Data Collection

Interviewer-administered surveys were conducted in English by phone or in person at baseline and 3-month follow-up between August 2009 and February 2010. An advance letter with a “precentive” of a \$2 or \$5 bill was sent to all eligible addresses for both sample types requesting that the respondent phone in to complete a baseline survey. For the baseline survey, the team attempted contact by phone and in-person for households that did not call in. The baseline survey collected phone numbers to be used in the 3-month follow-up. The follow-up survey included mail and phone contact attempts only. All study participants provided oral informed consent and the protocol was approved by the Institutional Review Board at the University of Chicago.

The 15–20-minute baseline survey included questions about basic demographics, health insurance status, self-reported health, recent healthcare use,¹³ access to and use of DCT including landline, cell phone, computer and internet,⁷ participation in previous health surveys, and permission to re-contact for the 20-minute follow-up survey. In addition, “locator information” such as phone numbers (landline and/or cell phone), addresses, and e-mail addresses belonging to the respondent or others close to the respondent was collected from willing respondents to be used to re-contact respondents during follow-up. The 3-month follow-up survey repeated baseline survey questions, obtained additional information mainly on exposure to violence,¹⁴ recent use of digital communication technology,⁷ community representation, and changes in the residence or household composition since the first survey.

Incentives

In addition to the \$2 or \$5 bill distributed with the introduction letter, respondents were given the option of a \$15 check or a \$15 gift card for completing the baseline interview. As a pre-incentive for completing the 3-month follow-up, respondents interviewed in-person were given the option of receiving a cell phone followed by a \$10 incentive at the time of the 3-month interview; alternately, in-person respondents could forgo the immediate cell phone incentive and instead receive a \$20 incentive at the end of the follow-up interview. The cell phones were equipped with unlimited texting and push-to-talk, a service that allowed unlimited instant connections to other push-to-talk phones, and could be kept by respondents at the end of the study period. The texting and push-to-talk services were disconnected approximately 3 months after completion of the baseline survey.

Statistical Analysis

We calculated descriptive statistics for respondent sociodemographic and health characteristics, then compared these by sample type using the chi-square statistic; likewise, we compared descriptive statistics for DCT use by sample type and retention using the chi-square statistic. Multivariable logistic regression was used to determine the association between DCT and health, modeling the likelihood of self-reporting “fair or poor” health compared to “excellent, very good, or good” health, adjusted for age and sample type. Using these models, we calculated adjusted odds ratios and estimated 95% confidence intervals. All analyses were completed using Stata 11.0.¹⁵

RESULTS

Recruitment and Retention

The response rate* was 28% for the general community sample (51% for the core general community sample and 21% for the replacement general community sample) and 41% for the high-turnover housing sample (Figure 1). In total, 363 individuals were eligible for this study; 69% ($n=249$) were drawn from the general community sample and the remaining were from the high-turnover housing sample. Of those eligible, 184 (general community $n=119$, high-turnover housing= 65) completed the baseline survey, a participation rate of 51%. During the recruitment phase, 34% of individuals completed the survey by calling the research team in response to a mailed or hand-delivered invitation to participate, 46% completed the survey by phone during a phone call initiated by the research team, and 20% completed the survey during an in-person interview. Interview mode varied significantly by sample type: individuals from the general community sample were more likely to respond to a call initiated by the research team (55% vs. 29%), those from the high-turnover sample were more likely to complete the survey in person (35% vs. 11%), and both samples were equally likely to call in (34% vs. 34%).

Of the 184 baseline respondents, 84% ($n=155$) were retained and completed the follow-up survey. Of those baseline respondents lost to follow-up, three respondents refused follow-up during the baseline survey, 2 respondents died between surveys, 2 refused to complete the survey when successfully contacted during follow-up, 6 were successfully contacted but did not complete the follow-up survey, and 16 could not be contacted. Individuals who provided locator information were more likely to complete the follow-up survey compared to those who did not (data not shown). Also, those in the general community sample were more likely to complete the follow-up survey compared to those in the high-turnover housing sample (88% vs. 77%, $p=0.04$). In contrast to the baseline survey, all but one of the 155 respondents completed the follow-up survey by phone; 10% of respondents called the research team in response to the mailed request and a majority of those remaining completed the survey during a phone call initiated by the research team. There were no significant differences between those who did and did not participate in the follow-up in terms of age, gender, partner status, income, household size, housing type, and years at current residence (data not shown).

Incentives

Baseline participation did not vary by pre-incentive, with 52% of participants receiving \$2 bills and 48% receiving \$5 bills ($p=0.34$). Overall, 67% of respondents chose the \$15 check as an incentive as opposed to the \$15 gift card. Of the 36 respondents who completed the baseline survey in person, making them eligible to receive a cell phone as an incentive, 17 (47%) chose to take the cell phone. Of those who received the cell phone, 13 (76%) completed the follow-up survey by phone and 4 did not complete the follow-up survey. Of the 13 individuals who completed

*Response rate calculated using RR3, a standard response rate formula provided by the American Association for Public Opinion Research. The numerator equals completed cases. The denominator equals all cases fielded, less out-of-scope cases, and less that proportion of unknown eligible cases that corresponds to the rate of ineligibility for cases in which eligibility was determined.

FIGURE 1. Eligibility, recruitment, and retention; 2009–2010 recruitment and retention study, baseline, and 3-month follow-up survey.

follow-up, 11 (84%) texted at least once whereas only 2 of the 4 (50%) who did not complete follow-up texted at least once. Number of texts (sent and/or received) per month ranged from 0 to 1916; the overall average was higher for those who completed the follow-up survey compared to those who did not complete the follow-up, 372 versus 252, respectively.

Selected Respondent Characteristics by Sample Type

Table 1 summarizes selected respondent characteristics by sample type. Respondents from each sample type were similar in age, gender, education, income, household size, and years at current residence. Respondents from the general community sample were more likely to be married ($p=0.02$) than those in the high-turnover housing sample. Reflecting the demographics of the sample communities, the majority of respondents (95%) were African Americans; small numbers precluded comparisons by race/ethnicity.

Twenty-nine percent of respondents self-reported their general health as fair or poor, while the remainder reported excellent, very good, or good health. Respondents in the general community sample were more likely to self-report excellent, very good, or good health compared to those in the high-turnover housing sample (74.6% vs. 63.1%, respectively; $p=0.10$; Table 1). Compared to those who reported excellent, very good, or good health, those who reported fair or poor health were less likely to have completed at least some college ($p<0.01$), but health did not vary by age, gender, partner status, household size, or years at current residence (data not shown).

TABLE 1 Sociodemographic and health characteristics by sample type in an underserved urban population; Recruitment and Retention Study, baseline, and 3-month follow-up, 2009–2010

	Total n=184	General Community Sample		High-Turnover Housing Sample		p Value
		n=119	64.7%	n=65	35.3%	
Age (years)						
18–34	28	19	16.1	9	14.1	0.54
35–50	47	27	22.9	20	31.3	
51–70	74	48	40.7	26	40.6	
70+	33	24	20.3	9	14.1	
Gender						
Male	63	37	31.1	26	40.0	0.22
Female	121	82	68.9	39	60.0	
Race						
African American	171	106	92.2	65	100.0	NC ^b
Other	9	9	7.8	0	0.0	
Partner status ^a						
Married or cohabitation	33	28	26.9	5	10.0	0.0
Single, widowed, or divorced	121	76	73.1	45	90.0	
Education						
Some high school or less	36	22	18.5	14	21.5	0.6
High school diploma or GED	44	24	20.2	20	30.8	
AA or some college	69	44	37.0	25	38.5	
Bachelor's degree or higher	35	14	12.2	7	10.9	
Income						
Far below neighborhood average	20	13	11.3	7	10.9	0.77
Below neighborhood average	53	31	27.0	22	34.4	
Above neighborhood average	85	57	49.6	28	43.8	
Household size						
1	82	46	38.7	36	56.3	0.07
2	46	30	25.2	16	25.0	

TABLE 1 (continued)

	Total <i>n</i> =184	General Community Sample		High-Turnover Housing Sample		<i>p</i> Value
		<i>n</i> =119	64.7%	<i>n</i> =65	35.3%	
3	24	19	16.0	5	7.8	
4 or more	31	24	20.2	7	10.9	
Years at current residence						
<1	22	13	10.9	9	13.9	0.33
1–2	34	20	16.8	14	21.0	
3–5	32	18	15.1	14	21.5	
6+	96	68	57.1	28	43.1	
Self-reported health						
Excellent, very good, or good	129	88	74.6	41	63.1	0.10
Fair or poor	54	30	25.4	24	36.9	

^aData collected in 3-month follow-up; general community *n*=105; high turnover housing *n*=50

^bNC, not calculated due to small cell size

Technology and Sample Types

Overall, 84% ($n=151$) of respondents had a cell phone; however, those from the general community sample were significantly more likely to have both a landline and a cell phone compared to those in the high-turnover housing sample (Table 2, 73% vs. 45%, $p<0.01$). Of those with a cell phone, only 31% reported being able to access the internet on their phone, a frequency that was similar between sample types. More than 60% ($n=112$) of individuals reported having ever sent or received a text message and, of those who had sent or received a text message, 43% reported texting daily. Texting behavior was similar between the two sample types.

Sixty-one percent of respondents reported having a home computer; those from the general community sample were significantly more likely to have a computer than those in the high-turnover housing sample (72% vs. 40%, $p<0.01$). Over 70% of home computers were connected to the internet. More than two thirds of respondents had ever used the internet (69%, $n=127$). Although report of having ever used the internet was similar among sample types ($p=0.77$), compared to the high-turnover housing sample, the community sample reported higher frequency of use (65% daily use vs. 39% daily use; $p<0.001$) and number of years of use (74% with 5 or more years compared to 34%; $p<0.01$). Of those respondents who reported ever using the internet, 54% had used the internet in a public library, 64% had obtained health information from the internet, and 40% reported getting help to use the internet. These internet use behaviors were similar among the two sample types.

Technology Use and Health

There were few differences in DCT use between those who reported excellent, very good, or good health compared to those who reported fair or poor health, when adjusted for age and sample type (Table 2). The likelihood of self-reporting fair or poor health was higher for those with only cell phones compared to those with cell phones and landlines (aOR: 2.7; 95% CI: 1.1, 6.5). Risk estimates for fair or poor health were elevated but non-significant with no or less frequent text messaging. Having a phone to search the internet produced estimates near unity.

Those who reported fair or poor health were less likely to use the internet daily than those who reported better health (35.5% vs. 62.1%, $p=0.01$), and marginally less likely to have a home computer (50.0% vs. 65.1%, $p=0.06$). However, there were no differences by self-reported health status in other aspects of technology use queried.

Technology Use and Study Retention

Individuals who used the internet for 5 or more years (64% vs. 31%, $p=0.01$) and those who had ever sent or received a text message were significantly more likely to participate in the 3-month follow-up (Table 3, 66% vs. 41%, $p=0.01$). Study retention was not associated with ever having used the internet, frequency of texting, or phone type.

DISCUSSION

We recruited an address-based community sample and a purposive sample of residents of high-turnover rental units from urban communities where the majority of residents were African American. While the recruitment rates were moderate (about 50% for the core probability group), the retention rates were high. Members of the high-turnover housing sample were less likely to be married and to continue

TABLE 2 Use of digital communication technologies by sample type and self-reported health in an underserved urban population; Recruitment and Retention Study, baseline, and 3-month follow-up, 2009–2010

Sample Type				Self-Reported Health			
				Excellent, Very Good, or Good Health		Fair or Poor Health	
Total	General Community	High Turnover Housing	<i>p</i> Value	<i>n</i> = 129 (70.5%)	<i>n</i> = 54 (29.5%)	aOR ^b	CI
<i>n</i> = 184	<i>n</i> = 119	<i>n</i> = 65					
Telephone and cell phone technology							
Has a cell phone and/or landline							
Cell only	10 (8.5)	27 (43.6)	0.00	20 (16.0)	17 (31.5)	2.7	1.1, 6.5
Cell and landline	86 (72.9)	28 (45.2)		87 (69.6)	26 (48.2)	Ref	
Landline only	22 (18.9)	7 (11.3)		18 (14.4)	11 (20.4)	2.0	0.8, 4.8
Ever sent or received a text message							
Yes	72 (61.0)	40 (63.5)	0.74	82 (65.1)	29 (53.7)	Ref	
No	46 (39.0)	23 (36.5)		44 (34.9)	25 (46.3)	1.6	0.7, 3.7
Frequency of text message							
Daily	30 (41.7)	19 (74.5)	0.55	38 (34.5)	10 (34.5)	Ref	
Less than daily	42 (73.3)	71 (52.5)		44 (65.5)	19 (65.5)	2.1	0.7, 5.8
Has a phone to use to search the internet							
Yes	28 (26.7)	9 (18.0)	0.24	28 (25.9)	8 (17.4)	Ref	
No	77 (73.3)	41 (82.0)		80 (74.1)	38 (82.6)	1.0	0.4, 2.8
Computer and internet technology							
Ever use the internet							
Yes	83 (69.7)	44 (67.3)	0.77	95 (73.6)	31 (57.4)	Ref	
No	36 (30.3)	21 (32.3)		34 (26.4)	23 (42.9)	2.2	0.9, 5.2
Years using the internet							
1 to 5 years	21 (25.6)	29 (65.9)	0.00	35 (37.2)	15 (48.4)	Ref	
More than 5 years	61 (74.4)	15 (34.1)		59 (62.8)	16 (51.6)	0.8	0.3, 2.0
Frequency internet use							
Daily	54 (65.1)	17 (38.6)	0.00	59 (62.1)	11 (35.3)	Ref	
Less than daily	29 (34.9)	27 (61.4)		36 (37.9)	20 (64.5)	2.8	1.2, 6.7

Ever used the internet at a Chicago Public Library									
Yes	68	43 (51.8)	25 (56.8)	0.59	52 (54.7)	15 (48.4)	Ref		
No	59	40 (48.2)	19 (43.2)		43 (45.3)	16 (51.6)	1.5	0.6, 3.4	
Has a home computer									
Yes	112	86 (72.3)	26 (40.0)	0.00	84 (65.1)	27 (50.0)	Ref		
No	72	33 (27.7)	39 (60.0)		45 (34.9)	27(50.)	1.5	0.7, 3.0	
Current computer connection									
Dial-up or High speed	87	68 (82.9)	20 (76.9)	0.49	69 (84.1)	18 (72.0)	Ref		
No connection	20	14 (17.1)	6 (23.1)		13 (15.9)	7 (28.0)	1.9	0.6, 6.1	
Ever gets health information from the internet ^a									
Yes	72	50 (64.1)	22 (64.7)	0.95	54 (63.5)	18 (69.2)	Ref		
No	40	28 (35.9)	12 (35.3)		31 (36.5)	8 (30.8)	0.7	0.3, 2.0	
Ever gets help from someone to use the internet ^a									
Yes	45	28 (35.9)	17 (50.0)	0.16	31 (36.5)	14 (53.9)	Ref		
No	67	50 (64.1)	17 (50.0)		54 (63.5)	12 (46.1)	0.6	0.2, 1.4	

^aData collected during 3-month follow-up; general community, *n*=105; high-turnover housing, *n*=50

^bAdjusted odds ratios (aORs); adjust for age (continuous) and sample type

TABLE 3 Study retention and use of digital communication technologies in an underserved urban population; Recruitment and Retention Study, baseline, and 3-month follow-up 2009–2010

	Total	Retained		Loss to follow-up ^a		
	<i>n</i> = 184	<i>n</i> = 155	85.2%	27	14.8%	<i>p</i> Value
Telephone and cell phone technology						
Has a cell phone and/or landline						
Cell only	37	31	20.3	6	24.0	0.37
Cell and landline	113	100	65.4	13	52.0	
Landline only	28	22	14.4	6	24.0	
Ever sent or received a text message						
Yes	111	100	65.8	11	40.7	0.01
No	68	52	34.2	16	59.3	
Frequency of text message						
Daily	49	43	43.0	6	54.6	0.46
Less than daily	62	57	57.0	5	45.4	
Computer and internet technology						
Ever use the internet						
Yes	126	110	71.0	16	59.3	0.22
No	56	45	29.0	11	40.7	
Years using the internet						
1–5 years ago	50	39	35.8	11	68.8	0.01
More than 5 years	75	70	64.2	5	31.3	
Frequency of internet use						
Daily	70	64	58.2	6	37.5	0.12
Less than daily	56	46	41.8	10	62.5	
Ever used the internet at a Chicago Public Library						
Yes	68	60	54.6	8	50.0	0.73
No	58	50	45.5	8	50.0	
Has a home computer						
Yes	111	95	61.3	16	59.3	0.84
No	71	60	38.7	11	40.7	
Current computer connection						
Dial-up or High speed	87	76	82.6	11	73.3	0.17
No connection	20	16	17.4	4	26.7	

^aAt 3-month follow-up, 2 respondents were deceased and have been excluded from this analysis

Data collected during 3-month follow-up; general community, *n* = 105; high-turnover housing, *n* = 50

into follow-up. Nonetheless, the relatively small incentives we offered appeared to be effective in enrolling and retaining subjects over 3 months. We found a high level of DCT use among respondents; while there were fewer respondents in the high-turnover housing sample who themselves owned a personal computer, we found evidence that they were able to compensate by using informal or public resources, such as libraries, to access information including health information. In addition, once participants agreed to take part in the baseline survey, they were retained in the study and participated in the follow-up survey, with few discernable differences in . DCT use or self-reported health between those retained and those lost to follow-up. Using multiple recruitment modalities (mail, phone, and in-person), participation was similar among those in the general community sample and those in the high-turnover housing sample; however, the most frequently successful recruitment modality varied by sample type. These results suggest that inclusion of multiple

recruitment modalities— in particular, cell phones and texting— may improve recruitment of individuals from populations less accessible to researchers.

We designed the study specifically to uncover barriers to population-based research for marginalized urban residents, by focusing on underserved urban communities and oversampling residents of high-turnover housing. Retention was high using the described methods, which required less effort during 3-month follow-up as compared to baseline recruitment. However, the smaller sample size as well as limited information on covariates precluded adjustment beyond age and sample type. The observation that most participants use cell phones supports the findings of others that the conventional random-digit dialing approach to assembling a representative sample results in questionable coverage,¹⁶ particularly among the more mobile residents of underserved communities. It is clear that DCT represents a fruitful strategy for conducting survey research among such populations. We were further encouraged to find that even among presumably hard-to-reach individuals, internet use is common and comfort levels with DCT are high. That being said, DCT use did differ by sample type. The significantly increased odds of self-reporting poor or fair health for those with less frequent internet use could be explained by covariates this study did not include, for example, employment or literacy.

While this was a small study, we are encouraged that new survey and intervention approaches using DCT may improve participation in health research among groups typically considered highly mobile and less accessible to providers and researchers. The high percentage of text users, and higher use among those who were retained over 3 months, points to the potential value of DCT in population-based health studies. Similarly, high access to the internet and large numbers of homes with computers even in an inner-city sample may facilitate community health interventions.

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