

What's Missing from National RDD Surveys? The Impact of the Growing Cell-Only Population

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Revised version of paper presented at the 2007 annual conference of the American Association for Public Opinion Research, Anaheim, California, May 17-20

Abstract

The number of cell-phone-only households has continued to grow – 12.8% of all households by the end of 2006, according to the National Health Interview Survey. To assess the extent and nature of the potential bias in landline telephone samples created by the absence of cell-only households, the Pew Research Center conducted four independent dual-frame studies in 2006, three of which included at least 200 interviews with cell-only respondents. Across the four surveys with different substantive content, we find that including a cell-only sample with a landline RDD sample produces general population estimates that are nearly identical to those from the landline sample alone. Yet while the noncoverage problem is currently not damaging estimates for the entire population, we find evidence that it does create biased estimates on certain variables for young adults, 25% of whom are cell-only according to the most recent government estimate.

Introduction

The potential impact of the growing number of cell-phone-only households on poll estimates burst into public consciousness and gained heightened interest in the survey research community during the 2004 U.S. presidential campaign. Were random digit dial (RDD) telephone surveys conducted only on landline phones suffering noncoverage bias – and underestimating Democrat John Kerry’s support – by excluding adults who only can be reached by cell phone? A question about telephone status on the face-to-face 2004 national exit poll of voters by the National Election Pool (a consortium of The Associated Press, ABC, CBS, CNN, FOX and NBC) found 7 percent of Election Day voters could be reached only by cell phone, but while young people were far more likely to be cell-only, they were similar to other voters in their age cohort. This provided initial evidence that pre-election telephone polls, which generally performed well in 2004 in forecasting national and state election outcomes, did not suffer significant noncoverage bias because of the absence of cell-only respondents, as long as the surveys weighted data from landline samples appropriately by age (Keeter 2006). There were few dual-frame studies of landline and cell-phone samples at that time, however, and those that were conducted focused largely on the feasibility of surveying cell phone numbers, which poses logistical and legal challenges (Steeh 2004, Brick et al. 2007).

Since 2004 the number of cell-phone-only households has continued to grow – 12.8% of all households by the end of 2006, according to the National Health Interview Survey. And recently wireless substitution has happened at an accelerated pace, with the incidence of cell-only households increasing by about 1 percentage point every six months from 2003 through 2005 but more than 2 percentage points in each half of 2006 (Blumberg and Luke, 2007). In his 2006 AAPOR presidential address, Cliff Zukin identified the growth of cell phones, particularly among young people, as a “serious coverage problem” and a “particular challenge” to the representativeness of industry-standard RDD samples. With increasing concern has come an

accelerated pace of study of the issue, as evidenced by the Cell Phone Summit organized by Paul Lavrakas in 2005, numerous papers presented at the Second International Conference on Telephone Survey Methodology organized by Clyde Tucker and Jim Lepkowski in 2006 and at 2007 Annual Conference of the American Association for Public Opinion Research.

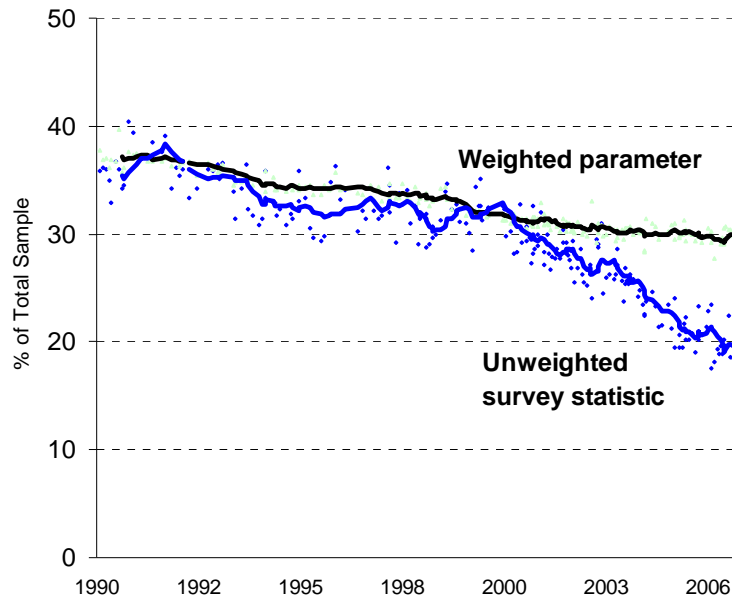


Figure 1. Weighted and Unweighted Estimates of the Proportion of Adults Ages 18-34 based on Pew Research Center Surveys Conducted 1990 - 2007

As the cell-only population has grown, telephone surveys by Pew and other organizations that rely on landline samples have experienced a sharp decline in the percentage of younger respondents interviewed in their samples. In Pew Research Center surveys over the past five years, the average percentage of respondents ages 18-34 in unweighted samples declined from 32% in 2000 to 21% in surveys conducted in 2005, 20% in 2006, and 19% thus far in 2007. This decline is consistent with the fact that the cell-only population is heavily tilted toward young people.

What is the consequence of this change in the composition of survey samples? Does the absence of the cell-only adults create a significant bias in national estimates on variables of interest in social and political surveys? The short answer is no, not now – or yet.

This paper will describe the basic differences between the cell-only and landline respondents across variables including numerous demographics, social and political attitudes, voting and other behaviors. It will also describe the consequences of including cell-only

respondents in the overall survey samples and the practical issues and cost implications of including cell-only respondents.

In 2006 the Pew Research Center conducted four independent dual-frame studies, three of which included at least 200 interviews with cell-only respondents. These studies provide evidence for an updated assessment of whether noncoverage of cell-phone-only households significantly biases landline survey estimates. And because they covered a wide range of topics, the surveys allow for an expanded examination of the differences and similarities between cell-only adults and those with landlines.¹

The four projects were conducted between March and October, 2006. Here is a brief overview of the surveys:

- **Cell Phone Study:** The Pew/Associated Press/AOL Cell Phone Study examined the public's use of and attitudes toward cell phones. Questions included how and how much respondents use their cell phones, how cell phones have affected their lives, likes and dislikes about cell phones, awareness of and use of features and services of cell phones beyond voice calling, and a small module of political and values questions. Telephone interviews were conducted March 8-28, 2006, among a sample of 1,503 adults age 18 and older. Of these, 1,286 were cell phone users. Approximately half of the interviews (752) were conducted using a landline number frame, with the remainder (751) conducted from a cell phone number frame including 200 who only had cell phones. Those interviewed from the cell phone frame were offered an incentive of \$10 for completing the survey.
- **2006 Biennial Media Consumption:** The Pew Biennial Media Survey measures the public's use of and attitudes toward the news media. Questions include how respondents receive news, attitudes toward news including enjoyment and appetite for following news stories, credibility of print and broadcast media outlets, and the use of technology for communication, entertainment, and news consumption. The 3,454 telephone interviews were conducted from a standard list-assisted RDD landline sample and a RDD sample of cell phones. The 3,204 landline interviews were conducted from April 27 to May 22, 2006. Supplemental interviews were conducted using a cell phone RDD sample (N=250) among who do not have access to a landline at their residence. These cell phone only (CPO) interviews were conducted from May 15 to June 3, 2006.
- **GenNext Survey:** The GenNext Survey, conducted in association with MacNeil-Lehrer Productions, explored lifestyle, attitudes, and values of young adults (ages 18-25). Questions included many aspects of public opinion including topics such as world views, use of technology and lifestyle, news consumption, and politics and policy issues.

¹ Response rates and question wording for cell phone questions are shown in the appendix.

Interviews were conducted by telephone September 6-October 2, 2006 with a nationally representative sample of 1,501 adults (including an oversample of young people); 250 of the interviews were conducted with cell-only respondents ages 18-25.

- **Turnout Survey:** The Turnout Poll conducted at the height of the 2004 congressional election campaign includes measures about the political candidates and campaigns, as well as political engagement. Questions include vote intention and congressional party preference as well as views of and overall attentiveness to the campaigns. The telephone survey of 2,004 adults was conducted September 21 through October 4, 2006 in conjunction with The Associated Press. The sample included 200 cell phone only interviews.

Table 1. Summary of Survey Sources

Survey:	<i>Pew/AP/AOL:</i> Cell Phone Survey	2006 Biennial Media Consumption Survey	<i>Pew/MacNeil-Lehrer:</i> GenNext Survey	<i>Pew/AP:</i> Turnout Survey
Topic:	Use of/attitudes toward cell phones/political attitudes	Use of/attitudes toward media	Values/beliefs/lifestyle	Candidate/campaign/engagement
Field dates:	March 8-28, 2006	May 15-June 3, 2006	Sept. 6-Oct. 2, 2006	Sept. 21-Oct. 4, 2006
Sample size:	Cell=751 (cell only=200); Landline=752	Cell only =250; Landline=3,204	Cell=250 (cell-only=130); Landline=1,251	Cell only=200; Landline=1,804
Other features of cell sample	\$10 incentive; all ages	\$10 incentive; all ages	\$10 incentive; ages 18-25	\$10 incentive; all ages

Analysis of all four studies produce the same conclusion: Although cell-only respondents are different from landline respondents in important ways, they were neither numerous enough nor different enough on the key dependent variables to produce a significant change in overall general population survey estimates when included with the landline samples and weighted according to U.S. Census parameters on basic demographic characteristics. However, certain survey topics and sampling frames may be vulnerable to significant, even dramatic, noncoverage bias if they exclude respondents who only can be reached by cell. This paper concludes with evidence regarding the potential for bias in survey estimates for certain variables among young people.

Feasibility

In addition to providing a look at how cell-phone users compare with landline respondents socially, politically, and demographically, collectively these studies also allow us to assess the feasibility of conducting a telephone survey in a cell phone sampling frame. The conclusion is that cell phone surveys are feasible, but are considerably more difficult and expensive to conduct than landline surveys.

Interviewing people on cell phones presents unique challenges that require new procedures and have implications for overall costs. Cell phones are often used by people while they are driving or otherwise distracted, presenting potential safety hazards or, at a minimum, potentially reducing the attention of the respondent to the survey tasks. The surveys reported here always asked respondents if they were in a place where it was safe to talk, a question that also provides reluctant respondents with an opportunity to terminate the call. Even if respondents are willing to do the interview at another time, this consideration necessitates the establishment of an appointment for a follow up call. An important cost consideration is that federal law prohibits the use of automated dialing devices when calling cell phones so each number in the cell phone sample must be dialed manually. Balancing this is the fact that fewer numbers in the cell phone frame are unassigned.

There are also known issues associated with the effectiveness of contacting respondents and gaining cooperation. While the percentage of working numbers is somewhat better among the cell samples, this does not necessarily translate into improved accessibility. The contact rates for the cell phone samples proved to be much lower than in the landline sample.

Another important difference occurs in eligibility rates. If the goal is to interview cell-*only* respondents, rather than everyone in the cell phone frame, significant amounts of screening are necessary. In the two studies that screened for cell-only respondents, just 16% were eligible. (In the Pew/AP/AOL Cell Phone Study, 26% of those interviewed in the cell frame said they had no landline phone. The reason for the difference is unclear.) In addition, most cell users incur some type of usage charge or loss of pre-paid minutes that discourages cooperation. While cooperation rates in the cell samples were somewhat higher than in the landline samples, this

slight advantage might be a result of the monetary incentive offered to cell-only respondents. While the \$10 inducement may encourage participation it also increases the costs associated with conducting cell phone surveys.

As a result of these differences between landline and cell phone samples, data collection costs (apart from overall study design, programming, and analysis costs) are substantially higher for the cell phone samples. Adding in the costs of administering and paying the \$10 incentive, the per-interview costs from a cell phone frame are estimated to be approximately 2.4 times the costs from a landline frame; for cell-only interviews, the per-interview costs are four to five times as large.

Comparing and Blending Landline and Cell-Only Samples

Across three of the four surveys, we selected for analysis 46 measures of media use, political and social attitudes, and electoral engagement (the GenNext survey will be analyzed separately in the next section). For most indicators, the category chosen for analysis was the one most central to the original purpose of the study; for example, for most measures of media use, we chose the percentage regularly using a given source. Where the choice of a category was not obvious, we selected the substantive category with the *largest* difference between the landline and cell-only samples.

Across these 46 indicators, the mean difference between point estimates for the weighted landline sample and the unweighted cell-only sample was 7.8 percentage points. For most comparisons, differences this large or larger are statistically significant. But no survey estimate would change by more than 2 percentage points with the inclusion of respondents from a cell-only sampling frame, and the average change was 0.7 percentage points. Thus, the absence of the cell-only respondents from the landline sampling frames creates only a minimal amount of bias in the weighted general population estimates.

This felicitous result is a product of the fact that the cell-only population remains a *relatively* small part of the total population and the fact that they are not dramatically different on most measures from landline respondents, especially those with the same age cohort. At 11.8% of all adults, they are significant but still a small minority. While distinct, they are not so different that their presence or absence can shift the total estimates by a noticeable amount.

The differences between the landline and cell-only samples are largest on measures that tend to vary strongly by age. Indicators of political engagement show very large differences, topped by voter registration (78% in the landline sample, 49% in the cell-only sample). Awareness that the Republican Party held the majority in the House of Representatives (at the time of the survey) was much greater among the landline sample (71%) than among the cell-only respondents (49%). Similarly, cell-only respondents were much less likely to report closely following the election or reading a newspaper yesterday, and more likely to say they are sometimes too busy to vote.

Differences on attitudinal measures tended to be considerably smaller than on measures of political engagement, though cell-only respondents were 14 points more likely to approve of gay marriage (51% vs. 37%). They were also 8 points less likely to describe their political ideology as “conservative.” In March, they were 7 points less likely to say they would vote Republican in the congressional elections, but in October the difference between the cell-only and landline respondents was just 4 points. Other substantive political differences were similarly modest: cell-only respondents were slightly more likely to disapprove of President Bush’s performance but also to say the war in Iraq was the right decision.

While newspaper readership is considerably lower among the cell-only, differences in other media measures are more modest. Internet news sources are as commonly cited by cell-only respondents as by landline respondents. The cell-only are 4 points more apt to say they regularly watch cable TV news (38% vs. 34%) and 6 points more likely to say they regularly watch the Daily Show. More than twice as many cell-only respondents report ever getting news on some type of portable electronic device such as a cell phone, PDA, or podcast (15% vs. 7%).

Although the point is relatively trivial, 100% of the cell-only sample has a cell phone, compared with only 74% of the landline sample, but the addition of the cell-only respondents to the overall sample changes the total survey estimate of cell phone ownership by only 2 percentage points.

Table 2. Summary of Survey Estimates by Sampling Frame

	Landline sample	Cell only	Blended sample (landline + cell only)	Diff., landline minus cell only	Diff., landline minus blended sample
Registered to vote***	78	49	76	29	2
Has a cell phone**	74	100	76	-26	-2
^Ever voted in your precinct***	90	67	88	23	2
Aware of GOP majority***	71	49	69	22	2
Sometimes too busy to vote***	21	38	22	-17	-1
Newspaper yesterday: print only**	34	19	33	15	1
^Closely following election***	66	52	65	14	1
Approve of gay marriage*	37	51	37	-14	0
Read newspaper yesterday**	40	27	40	13	0
^First time voter***	5	17	6	-12	-1
Regularly watch local TV news**	54	43	53	11	1
^"Always vote" ***	47	36	47	11	0
Got news on one or more devices**	7	15	8	-8	-1
Regularly visit local TV station sites**	6	14	7	-8	-1
Conservative***	38	30	37	8	1
Feel guilty when I don't vote***	62	54	61	8	1
Voting doesn't change things***	22	30	23	-8	-1
Regularly watch network news**	28	21	27	7	1
Got news on cell phone**	4	11	5	-7	-1
^Know where to vote***	88	81	88	7	0
House vote: Republican (March)*	37	30	37	7	0
Regularly watch network AM news**	23	17	22	6	1
Regularly watch Daily Show**	6	12	7	-6	-1
Washington issues don't affect me***	24	30	24	-6	0
Went online from home yesterday**	42	37	41	5	1
Total online yesterday**	53	48	51	5	2
Iraq war was right decision*	39	44	40	-5	-1
Regularly watch cable TV news**	34	38	35	-4	-1
Listened to radio news yesterday**	36	32	36	4	0
Newspaper yesterday: web only**	5	9	6	-4	-1
Regularly visit local newspaper sites**	8	12	9	-4	-1
Regularly visit blogs about news**	4	8	5	-4	-1
House vote: Republican (Oct)***	38	34	38	4	0
Disapprove of Pres. Bush*	54	58	53	-4	1
Got news online yesterday**	23	26	23	-3	0
Regularly visit national newsp. Sites**	8	11	8	-3	0
Don't know enough to vote***	60	63	60	-3	0
Party ID: Independent/Other*	21	18	20	3	1
Watched television news yesterday**	57	59	58	-2	-1
Got news on PDA**	2	4	2	-2	0
Got news from podcast**	2	4	2	-2	0
Reg. visit search engine news sites **	18	19	18	-1	0
Went online from work yesterday**	25	24	25	1	0
Thought quite a lot about election***	51	52	51	-1	0
Regularly visit TV network news sites**	14	14	14	0	0
Generally bored by Washington***	36	36	36	0	0

Source: *Cell phone study Mar. 8-28, 2007. ** Media Consumption Survey Apr. 22-May 22, 2007. *** Voter turnout survey Sept. 21-Oct. 4, 2007. ^ based on registered voters.

Estimates for Young Adults

While the noncoverage problem is currently not damaging estimates for the entire population, it may very well be damaging estimates for subgroups in which using only a cell phone is more common. This concern is particularly relevant for young adults. According to the most recent government estimate, over 25% of those under age 30 use only a cell phone (Blumberg and Luke 2007). In addition to age, Tucker, Brick, and Meekins (2007) report that cell-only status is associated with race/ethnicity, employment, marital status, and home ownership. Age, however, is by far the most powerful factor in multivariate models predicting cell-only status.

A high noncoverage rate, however, does not necessarily result in biased subgroup estimates. If young adults accessible through landline samples are similar on the key survey measures to those who are excluded, then a landline-only sample design is sufficient. To assess the similarities between young adults with a landline and their cell-only peers, we compared unweighted results on demographic, lifestyle, and attitudinal questions. Data for this analysis come from the GenNext survey, which included an oversample of 18-25 year olds in the landline sample and a cell sample of an additional 250 adults in this age group.

Young adults who have a landline and young adults who are cell-only differ on several dimensions. One stark difference is their living arrangements. Half of the 18-25 year olds in the landline sample reported living with their parents. This compares with fewer than one-in-five (19%) of their cell-only peers. The majority (57%) of cell-only young adults, by contrast, are renters, compared with 29% of their landline peers. These differences, and all those discussed in this section, are significant at least at the .05 level.

Table 3. Living Situation of Adults Ages 18-25
by Telephone Service

<i>Living situation</i>	Landline sample	Cell only
Live with parents	50	19
Rent	29	57
Own	14	10
Live in a dorm	2	12
Other/Refused	5	2
	100%	100%
	(329)	(130)

Source: Pew/MacNeil-Lehrer GenNext Survey
Figures are unweighted

Telephone status has a loose but perceptible association with certain behaviors and mores among young adults. Replicating a result from the NHIS (Blumberg and Luke 2007), we find

that cell-only adults in this age group are more likely to report drinking alcohol in the past seven days (57% versus 36%). They are also more likely to say that it is okay for people to smoke marijuana (52% versus 38%). No significant differences were observed for self-reported smoking or illegal drug use.

With respect to social values, young adults with landlines tend to be more traditional. They are significantly more likely to attend religious services at least once a week relative to their cell-only peers (30% versus 20%) and to believe that homosexuality should be discouraged by society (37% versus 25%). Fewer adults 18-25 with landlines say they have ever dyed their hair an untraditional color, compared with those who are cell-only (20% versus 29%).

There is some evidence that young adults with landlines are less technology savvy than their cell-only peers. They are significantly less likely to report having sent or received an e-mail (49% versus 65%), text message (42% versus 74%), or instant message (28% versus 38%) in the previous 24 hours. Similarly, about half (52%) of the young adults with landlines have used social networking websites like Facebook or MySpace, compared with roughly six-in-ten (62%) of those who are cell-only.

Table 4. Logistic Regression Model for Predicting Cell-only Telephone Status within the 18-25 Age Group (n = 579)

Predictor of cell-only telephone status	Estimate	SE	Odds ratio
Live with parents	-1.75	0.26	0.17
Married	-1.23	0.37	0.29
Income	-0.02	0.04	0.98
Population density	0.11	0.08	1.11
Employed or student	0.25	0.34	1.29
Male	0.28	0.22	1.33
Hispanic	0.40	0.29	1.49
Own home	-0.69	0.35	0.50
Likelihood Ratio Chi-Square	66.21	$p < 0.001$	

Source: Pew/MacNeil-Lehrer GenNext Survey

A logistic regression model based only on those 18-25 shows that, within this age group, the most significant drivers of cell-only status are having moved away from parents and not being married. Beyond that, the only marginally significant factor is income, with those earning more being less likely to have only a cell phone. These results support the hypothesis that cell-only status has more to do with life cycle effects than with stable individual characteristics such as gender, race or ethnicity.

Thus far we have established that young adults reached in landline samples differ on a number of dimensions from those reachable only in a cell sample. A key question for researchers is whether this difference affects weighted subgroup estimates. To attempt to answer this, we

computed two sets of weighted estimates for young adults – estimates based only on the landline sample and blended estimates based on both the landline and cell samples. In this section, blended estimates are based on the full sample, which includes persons reached through the cell sample who had both a cell and a landline phone, as well as cell-only individuals.

The weighted estimates for young adults based only on the landline sample are significantly different from the corresponding blended estimate for several measures. The results are presented in Table 5. The landline sample estimates appear to understate this age group's approval of alcohol consumption and marijuana use. Perhaps not surprisingly, the landline sample design also yields lower estimates of technological sophistication. The blended estimate for the proportion of 18-25 year olds using social networking sites is 57%, while this estimate based only on the landline sample is 50%. Landline sample estimates for the proportion in this age group sending and receiving email, text messages, and instant messages are also lower than the blended estimates.

Absent gold standard measures, it is difficult if not impossible to determine with certainty whether the blended or the landline sample estimates are more accurate. The American Community Survey (ACS), a massive national area-probability study conducted by the U.S. Census Bureau, provides benchmark estimates for young adults on a handful of the items in this analysis. According to the ACS, both the landline sample and the blended estimates slightly understate the true proportion of 18-25 year old who are married (17%). On income, both of the Pew survey estimates overstate the proportion in the age group with an annual income under \$20,000 (19%), although the blended sample comes closer. Lastly, the landline sample estimate for the proportion enrolled in school (41%) is closer to the ACS mark of 42% for this age group than the blended sample estimate (48%). It should be noted that the ACS is a mixed mode study with somewhat different question wording than the Pew GenNext study. Consequently, the differences noted here may, in part, be attributable to measurement or nonresponse error rather than solely due to coverage error.

No such gold standard estimates are available for items pertaining to political ideology and party affiliation. The results are mixed in the GenNext survey concerning the effect of including a cell sample on subgroup estimates for these items. The blended estimate of the proportion of those 18-25 who are Republican is larger than the corresponding landline sample estimate. The blended estimate for the proportion of 18- to 25-year-olds who are conservative, however, is somewhat lower than the corresponding landline sample estimate. On specific policy questions, the two estimates are comparable except for one notable exception. The blended estimate suggests that 62% of young adults believe homosexuality should be accepted by society, compared to 57% based on the landline sample.

The absence of a consistent effect for sample design on political items corroborates the Keeter (2006) finding that vote preference is at least currently robust to this methodological issue. That is, it appears that explicitly political attitudes are generally unrelated to telephone status. We also see from this analysis, however, that other measures such as use of alcohol and

new technologies *are* related to this telephone status – leading to a problematic dependency of the estimate on the sample design.

Discussion

Across four surveys with different substantive content, we find that including a cell-only sample with a landline RDD sample produces general population estimates that are nearly identical to those from the landline sample alone. Thus there is little evidence here that landline samples produce more bias than dual frame samples, a finding consistent with those reported by Brick et al. (2006).

Given the logistical and cost implications associated with dual-frame designs, the utility of including cell-only or cell-frame respondents with landline samples appears marginal, at least at present. Yet the rapid growth in the size of the cell-only population and its continued concentration among younger people means that its potential impact warrants continued study. And the fact that landline-based estimates of certain characteristics and behaviors among young people are biased by the absence of the cell-only population means that the choice of whether to employ a dual frame design must be guided by a study's target population and subject matter.

Table 5. Differences Between Estimates for 18-25 Year Olds by Sample Design

	Landline sample	Cell only	Blended sample (landline+cell sample)	Difference, landline minus cell only	Difference, landline minus blended sample
DEMOGRAPHICS					
Married	15	8	15	7	0
Have children	28	19	24	9	4
Own home	13	10	13	3	0
Income under \$20,000	28	22	23	6	5
LIFESTYLE					
Attend religious services weekly or more	29	20	25	9	4
Currently enrolled in school	41	59	48	-18	-7
Has health insurance	67	72	67	-5	0
Rely on family for financial assistance	46	42	48	4	-2
Has a tattoo	35	35	33	0	2
Smoke (past week)	29	30	27	-1	2
Drink alcohol (past week)	33	57	42	-24	-9
Play video games (past week)	34	36	36	-2	-2
Exercise (past week)	77	88	83	-11	-6
Take illegal drugs (past week)	9	11	8	-2	1
TECHNOLOGY USAGE					
Use Facebook, MySpace	50	62	57	-12	-7
Dated someone met online	11	15	11	-4	0
In the last 24 hours...					
Sent or received an email	44	65	50	-21	-6
Sent or received a text message	36	74	55	-38	-19
Sent or received an instant message	26	38	33	-12	-7
POLITICAL ATTITUDES & BEHAVIORS					
Registered to vote	53	56	48	-3	5
Republican/Lean Republican	31	40	37	-9	-6
Conservative	32	28	28	4	4
Agree that...				0	
Gov't is wasteful and inefficient	42	40	42	2	0
Military strength is best way to peace	26	29	26	-3	0
Homosexuality should be accepted	57	68	62	-11	-5
I'm satisfied financially	48	53	52	-5	-4
Gov't should protect morality more	46	40	45	6	1
Technology makes people more isolated	68	66	69	2	-1
Say it's okay for people to...					
Drink a lot of alcohol	26	36	30	-10	-4
Gamble	62	71	64	-9	-2
Have sex outside marriage	56	63	58	-7	-2
Have a baby outside marriage	55	55	52	0	3
Smoke marijuana	37	52	40	-15	-3
Pirate online music or videos	47	52	44	-5	3
Use cable/wireless without paying	21	23	20	-2	1
Sample Size	(329)	(130)	(579)		

Source: Pew/MacNeil-Lehrer GenNext Survey

Missing data excluded from the analysis

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APPENDIX

Summary of Landline and Cell Phone Samples Response Rates

Survey	Response Rates ²	
	Cell	Landline
<i>Pew/AP/AOL: Cell Phone Survey</i>	20%	30%
2006 Biennial Media Consumption Survey	24%	29%
<i>Pew/MacNeil-Lehrer: GenNext Survey</i>	29%	25%
<i>Pew/AP: Turnout Survey</i>	25%	28%

Pew/AP/AOL Cell Phone Survey:

ASK LANDLINE SAMPLE ONLY:

Do you happen to have a cell phone or not?

- 1 Yes
- 2 No
- 9 Don't know/Refused

CELL SAMPLE & L-LINE REACHED ON CELL (IF CELL SAMPLE OR '1' IN Q12 ASK):

Is the cell phone your only phone or do you also have a regular telephone at home?

- 1 Cell is only phone
- 2 Has regular phone at home
- 9 Don't know/Refused

L-LINE AND CELL USER (IF [CELL SMPL & Q13=2] OR [L-LINE SMPL & Q2=1] ASK):

Thinking about all the phone calls you make, do you make more calls with your cell phone or more calls with your regular home phone?

- 1 More with cell phone
- 2 More with home phone
- 3 About equal (VOL.)
- 9 Don't know/Refused

USE CELL PHONE MORE (IF ANSWERED '1' IN Q19 ASK):

Would that be a LOT MORE or just a FEW more with your cell phone?

- 1 A lot more
- 2 A few more
- 9 Don't know/Refused (VOL.)

² Figures reported correspond with the American Association for Public Opinion Research response rate 3.

USE REGULAR PHONE MORE (IF ANSWERED '2' IN Q19 ASK):
Would that be a LOT MORE or just a FEW more with your regular home phone?

- 1 A lot more
- 2 A few more
- 9 Don't know/Refused (VOL.)

2006 Biennial Media Consumption Survey:

Is the cell phone your only phone or do you also have a regular telephone at home?

- 1 Cell is only phone
- 2 Has regular phone at home
- 9 Don't know/Refused

Pew/MacNeil-Lehrer GenNext Survey:

ASK CELL SAMPLE:

Is the cell phone your only phone or do you also have a regular telephone at home?

- 1 Cell is only phone
- 2 Has regular phone at home
- 9 Don't know/Refused

ASK LANDLINE SAMPLE ONLY:

Do you happen to have a cell phone or not?

- 1 Yes
- 2 No
- 9 Don't know/Refused

IF R HAS BOTH CELL AND LANDLINE, ASK:

Of all the phone calls that you receive, about how many are received on a cell phone? Would you say...

- 1 All or almost all
- 2 More than half
- 3 Less than half, or
- 4 Very few or none
- 9 Don't know/Refused (VOL.)

Pew/AP Turnout Survey:

Is a cell phone your only phone, or do you also have a regular phone where you currently live?

- 1 Only phone
- 2 Have regular phone at home
- 9 Don't know/Refused