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Medication Adherence in America

A National Report Card

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The National Report Card on Adherence is part of NCPA's Pharmacists Advancing Medication Adherence (PAMA) initiative, which is supported by educational grants from Cardinal Health Foundation, Merck and Pfizer.

Executive Summary

Americans with chronic medical conditions earn a troubling C+ grade in the first National Report Card on Adherence from the National Community Pharmacists Association (NCPA) – a weak score particularly given the risks and costs of failing to take prescription medications as directed.

Non-adherence can threaten patients' health individually as well as add vast costs to the health care system – an estimated $290 billion annually.[1] NCPA sponsored this random-sample national telephone survey to gauge the extent of prescription medication non-adherence in this country and to explore the attitudes and behaviors that promote or discourage the responsible use of medication.

The survey, produced for NCPA by the independent survey research firm Langer Research Associates, was conducted among American adults 40 and older who've been prescribed ongoing medication for a chronic condition—the group that uses prescription medication most regularly and therefore is at greatest risk if non-adherent. This population represents 30 percent of all adults, with a median age of 60 and an average of four ongoing prescriptions apiece.

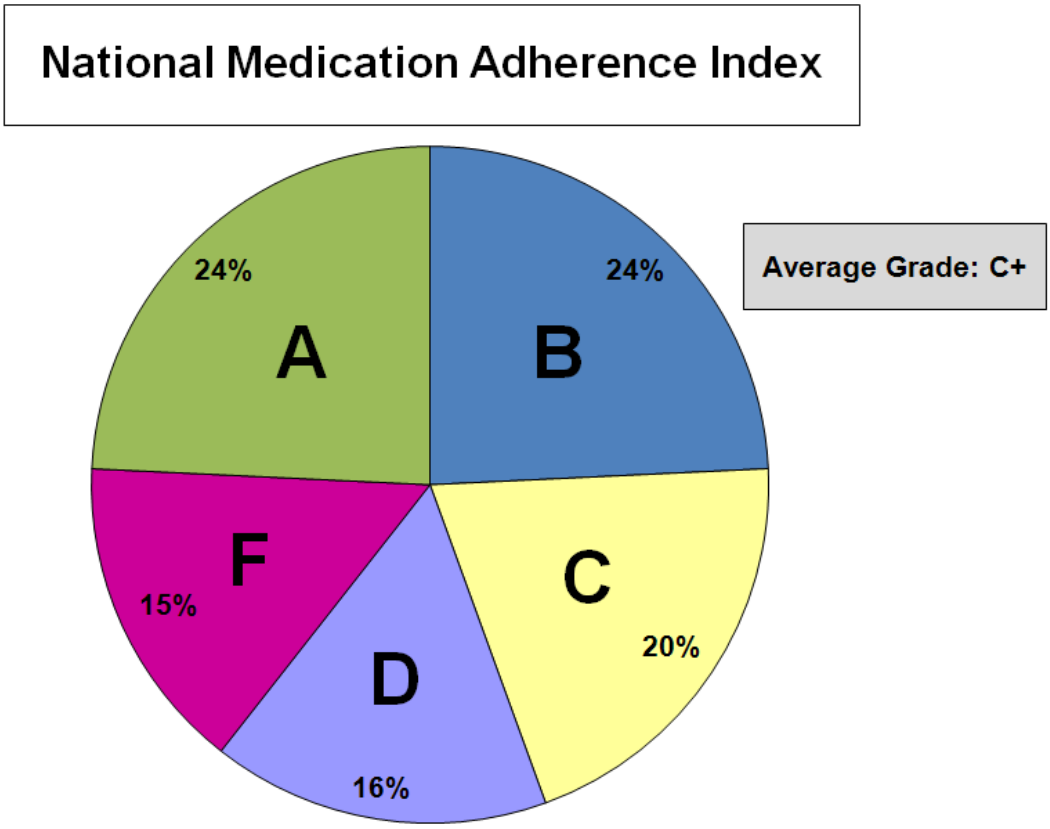
The National Report Card on Adherence is based on an average of answers to questions on nine non-adherent behaviors: whether or not, in the past 12 months, patients failed to fill or refill a prescription, missed a dose, took a lower or higher dose than prescribed, stopped a prescription early, took an old medication for a new problem without consulting a doctor, took someone else's medicine or forgot whether they'd taken a medication. The score can range from 0 (non-adherence on all nine behaviors) to 100 (perfect adherence). The average score is 79 (C+).

Grouping adherence levels, just 24 percent earn an A grade for being completely adherent. An additional 24 percent are largely adherent, reporting one non-adherent behavior out of nine (a grade of B). Twenty percent earn a grade of C and 16 percent a D for being somewhat non-adherent, with two or three such behaviors in the past year, respectively. The remaining 15 percent – one in seven adults with chronic conditions – are largely non-adherent, with four or more such behaviors, an F grade.

Survey results on a subject such as medication adherence can be influenced by potential reluctance among some respondents to admit to undesirable behaviors. Thus the grades in this survey if anything may understate non-adherence – underscoring cause for concern about the extent to which patients are following their medication instructions.

In addition to self-reported adherence, the survey assessed demographic, attitudinal and behavioral factors related to prescription drug compliance, including individuals' health and medical status; their ability to afford prescription medication; their feelings that their prescribed medications are safe, effective and easy to take; where they get their medications; and how informed they feel about their health, among other factors.

[1]"Thinking Outside The Pillbox: A System-wide Approach to Improving Patient Adherence for Chronic Disease." NEHI. 2009.



Predictors

Regression modeling, a statistical technique that assesses the independent strength of the relationship between two variables while holding other factors constant, identified the six key predictors of medication adherence. Those include – in order of magnitude:

- Patients' personal connection with a pharmacist or pharmacy staff;
- How easy it is for them to afford their medications;
- The level of continuity they have in their health care;
- How important patients feel it is to take their medication exactly as prescribed;
- How well informed they feel about their health; and
- The extent to which their medication causes unpleasant side effects.

These predictors, as well as other results of this survey, indicate a variety of avenues by which health care providers and pharmacists alike can address non-adherence – among them, better informing patients of the importance of adherence, strengthening a sense of personal connection and communication between patients and their health care and pharmacy providers and encouraging patients to discuss side effects with those providers.

The survey also found demographic as well as attitudinal and informational differences in adherence: older Americans indicate greater adherence than younger respondents, for example, and those with lung problems report lower adherence than those without this chronic condition.

When non-adherent respondents are asked their reasons for failing to comply with doctors' orders, the most commonly mentioned reason is simply forgetting, cited by more than four in 10 as being a major reason. Other top reasons include running out of medication, being away from home, trying to save money and experiencing side effects. These, as well as further details about the drivers of medication adherence, are outlined in the report that follows.

Methodological Summary

This survey was conducted Feb. 20-March 10, 2013, in English and Spanish, by landline and cellular telephone, among a national sample of 1,020 adults age 40 and older with an ongoing prescription to take medication for a chronic condition, with field work by Social Science Research Solutions of Media, Pa.[2] Results for the full sample have a margin of sampling error of plus or minus 3.5 percentage points, and all differences among results described in this report have been tested for statistical significance.

The survey was produced and analyzed, and this report written, by Langer Research Associates, of New York, N.Y., in accordance with the Code of Professional Ethics and Practices of the American Association for Public Opinion Research. This report, including its appendices on methodology, statistical analyses and the full questionnaire and topline results, complies with the Principles of Disclosure of the National Council on Public Polls.

[2] See Appendix C for details on the survey methodology.

Section I: Medication Adherence

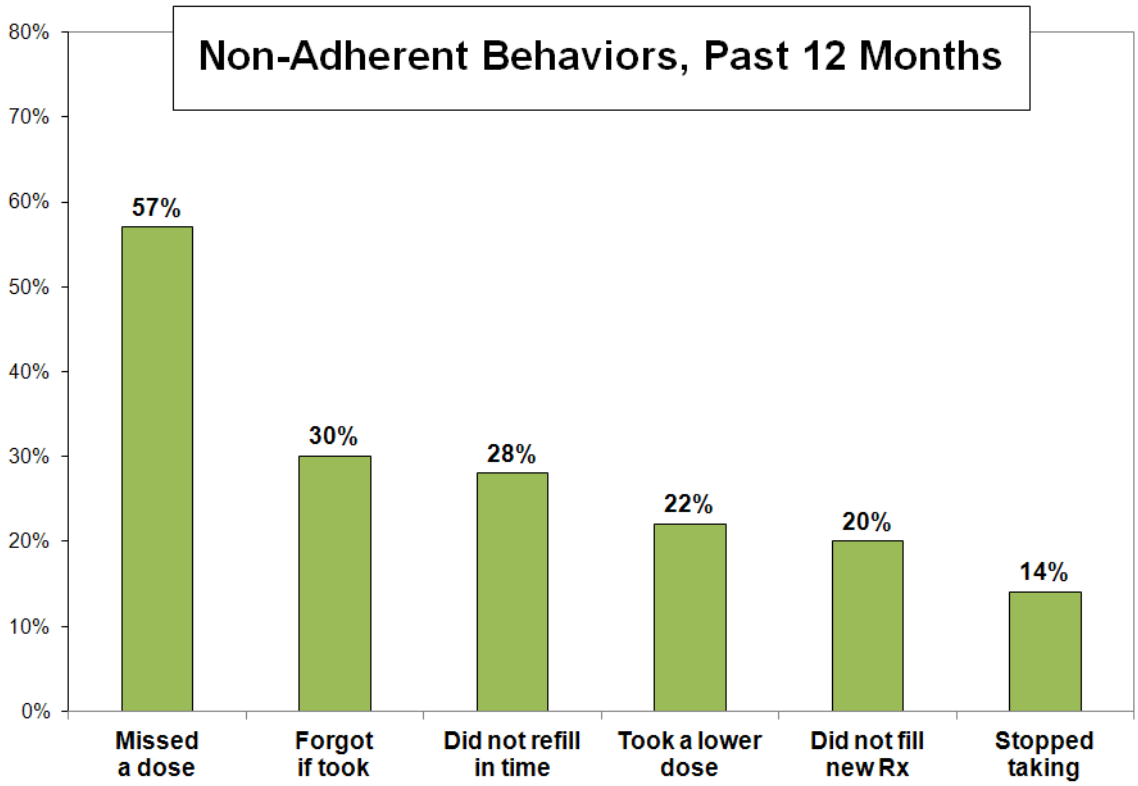
About three-quarters of adults 40 and older with a chronic condition concede at least one non-adherent behavior in the past 12 months, and more than half report multiple forms of non-compliance. The average is approximately two types of non-adherent behavior per patient.

Nearly six in 10 indicate that they missed a dose of prescription medication in the past year, by far the most common form of non-compliance. Almost half as many, 30 percent, report forgetting whether they had taken their medication, No. 2 on the non-adherence list.

About as many, 28 percent, say they failed to refill a prescription medication in time. About two in 10 say they've taken a lower dose than instructed (22 percent) or didn't fill a new prescription (20 percent). Fourteen percent say they stopped taking a medication without consulting a doctor.

Fewer, 7, 6, and 5 percent, respectively, report taking an old prescription medication for a new health problem without asking a doctor, taking more of a medication than prescribed or taking someone else's prescription medication.

Individual scores measured in this survey range from a low of 11 (indicating non-adherence on eight of the nine possible behaviors) to a high of 100 (indicating full adherence on all nine). As noted, the average score is 79, a C+ grade.[3]



[3] Letter grades are assigned as follows: A+, 97-100; A, 93-96; A-, 90-92; B+, 87-89; B, 83-86; B-, 80-82; C+, 77-79; C, 73-76; C-, 70-72; D+, 65-69; D, 60-64; F, less than 60.

Report card scores are relatively consistent regardless of where respondents get their medication, the number of medications they take, how long ago they first were prescribed ongoing medication and the number of medical appointments they've had in the past year. Even when significant group differences are found (described in Sections II and III), they're usually minor, with scores averaging in the B- to C- range. This suggests that non-adherence is a broadly based challenge, and that nearly every population group has significant room for improvement.

Section II: Modeling the Report Card

While many variables can influence prescription medication adherence, regression modeling offers key insights by identifying those that explain the most unique variance in adherence.[4]

One important attitudinal predictor is whether or not respondents report a sense of connectedness with their pharmacist or pharmacy staff. Overall, 63 percent of Americans aged 40+ with a chronic condition report that someone at their pharmacy knows them pretty well; they achieve a score of 80 (a B- grade), vs. 77 among those who lack this personal connection. While the difference is slight, it's statistically significant, and connectedness with a pharmacy increases in importance when controlling for other factors. Indeed it's the single strongest individual predictor of prescription medication adherence.

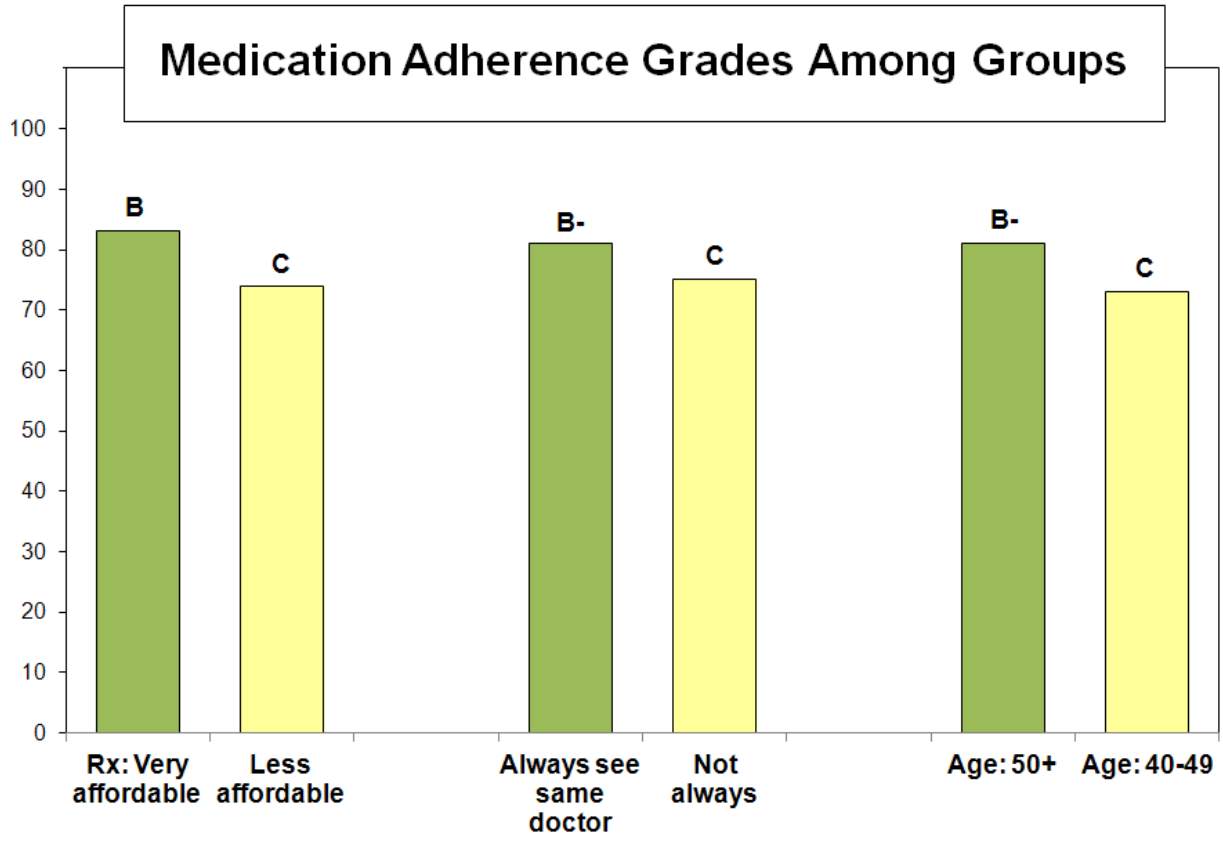
Similarly, adherence is higher among patients who see the same health care provider each time they have a medical appointment, compared with those who see the same provider less frequently. Among the nearly seven in 10 who see the same provider every visit, the average adherence score is 81. Among the third who see the same provider most of the time (25 percent) or less (7 percent), the adherence score average drops to 75.[5]

In tandem, these results suggest the power of patient/provider relationships in prescription drug adherence. Feeling connected with the pharmacist or pharmacy staff or having a continuous relationship with a health care provider likely facilitates communication, boosting greater adherence among these groups.

Modeling also finds that age is a significant predictor, with older adults more adherent than younger adults. Those 50 and older score significantly higher on the adherence grade than those younger than 50 (scores of 81 vs. 73). In addition, respondents who report lung problems (i.e., asthma, bronchitis or emphysema) are significantly less adherent than those without such problems, with scores of 73 vs. 81.

[4] While it does not establish causality, the linear regression used in this analysis reveals the strength of the relationship between potential predictors (e.g., how easy it is for respondents to afford their prescription) and the outcome variable (adherence), with all other possible predictors in the model held constant. See Appendix A.

[5] Though crosstabulated data are used to illustrate these results, all predictors identified in this section have a statistically significant independent linear relationship with the adherence index. This relationship holds when controlling for demographic and attitudinal variables including education, income, race, gender, the number of prescription medicines the respondent takes, their self-reported health status, where they get their prescriptions filled and the type of chronic conditions they have, among others.

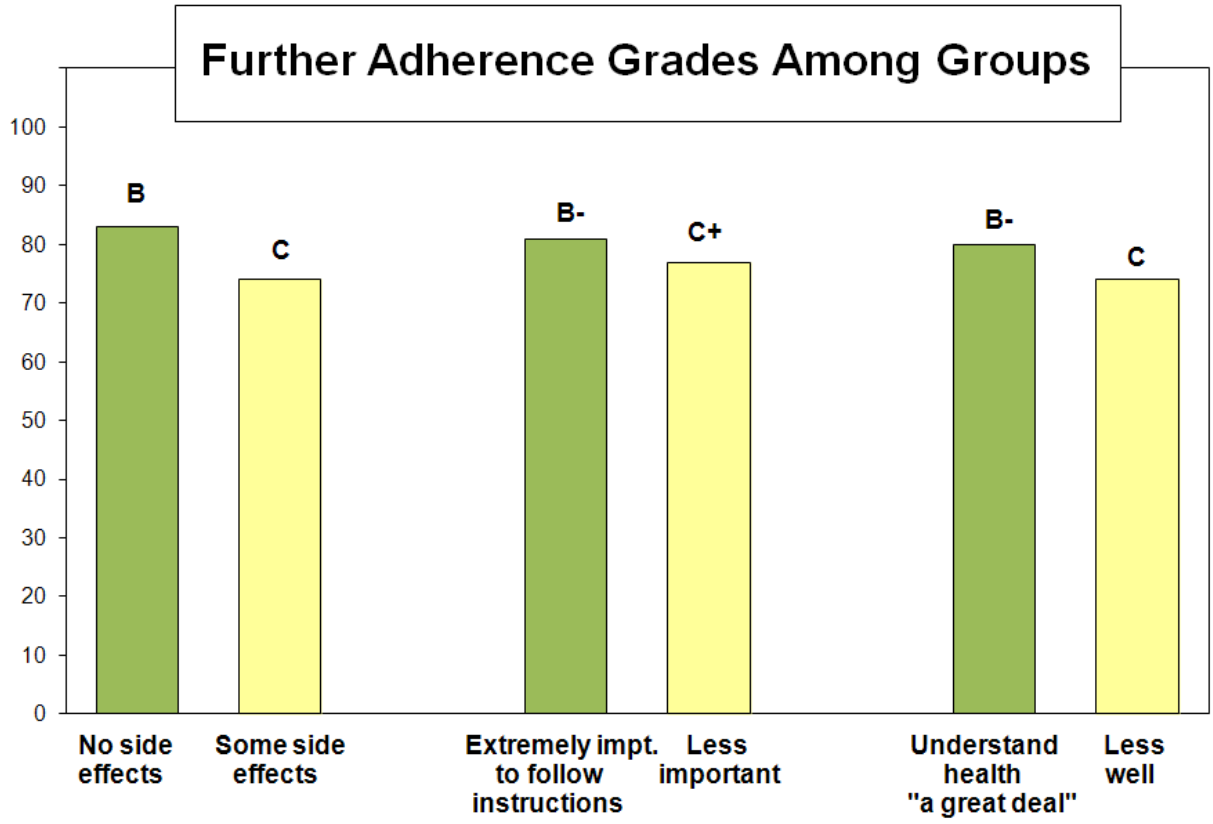


In terms of expenses, nearly two-thirds say it's easy to afford the cost of their medication, but only 36 percent say it's "very" easy to do so. About as many, 34 percent, say their medication is somewhat (25 percent) or very (10 percent) difficult to afford. The adherence score averages 9 percentage points higher among those who say their medication is very affordable than among those who report difficulty covering the costs, 83 vs. 74 – the difference between a B and a C grade.

In another significant difference, the average adherence score is 74 among the three in 10 Americans with chronic conditions who report having at least some unpleasant side effects from their medication. That compares with an average score of 83 among respondents (half this population) who report no such side effects at all.

It's perhaps not surprising that adherence also varies significantly depending on respondents' attitudes about the importance of following their doctor's instructions. Among the half who see it as extremely important to take their medication exactly as prescribed, the average score is 81; among those who assign it less importance, it's 77.

Finally, the regression model shows that feeling informed about one's health, a critical component of patient engagement more broadly, is a key predictor of medication adherence. Eight in 10 adults age 40+ with chronic conditions say they understand a great deal about their health; their adherence score is 80. It falls to 74 among those who feel less informed.



Avenues for increasing prescription medication adherence are apparent, if perhaps challenging to implement. Among them: Giving patients access to the resources they need to better understand their health, stressing the importance of taking medications exactly as prescribed, encouraging pharmacists and pharmacy staff to establish a personal connection with their clients and increasing continuity in patients' health care relationships.

Working with patients to find medications that are more affordable, perhaps through coupons, discount programs or the use of generics, may help to decrease non-adherence based on cost, as may expanded insurance coverage. Finally, encouraging patients to report side effects and helping to alleviate those side effects likewise show promise in reducing non-compliance.

Section III: Other Group Differences in Adherence

There are other statistically significant group differences, even if they don't rise to the level of independent predictors in the model of adherence when controlling for other factors. For example, respondents who report that they are in good or better health (64 percent of the population) score higher than those who say their health is fair or poor (average scores of 81 vs. 75).

Patients who find it more difficult to take their medication exactly as prescribed are less adherent than those who find compliance very easy to accomplish. More than eight in 10 describe their

prescription medication regimen as very simple, and their average adherence score is 80. Among those who report greater difficulty taking their medication as prescribed, it's 73.

Patients who feel strongly that their medication is working for them (three-quarters of this population) and that it helps them live a better life (seven in 10) also are more likely to be compliant than their counterparts. Specifically, the score averages 9 points higher among those who feel their prescription is working "a great deal" for them compared with those who say it is working less well, 81 vs. 72. And it's 81 among those who think their medication is greatly helping them live a better or longer life, vs. 74 among those who see less impact.

Further, patients divide on whether or not they're concerned about possible long-term consequences of regularly taking prescription medication, 52-48 percent. Adherence decreases steadily as concern about consequences increases – ranging from a score of 83 among those with no such concerns to a low of 73 among those who report being very concerned.

	Report Card Grade
Health:	
Excellent/very good/good	B-
Fair/poor	C
Taking Rx exactly as prescribed:	
Very simple	B-
Somewhat simple or less	C
Rx working for you?	
Great deal	B-
Somewhat or less	C-
Rx helps you live a better life?	
Great deal	B-
Somewhat or less	C
Long-term consequences:	
Not concerned at all	B
Very concerned	C

Section IV: Predicting Key Drivers of Adherence

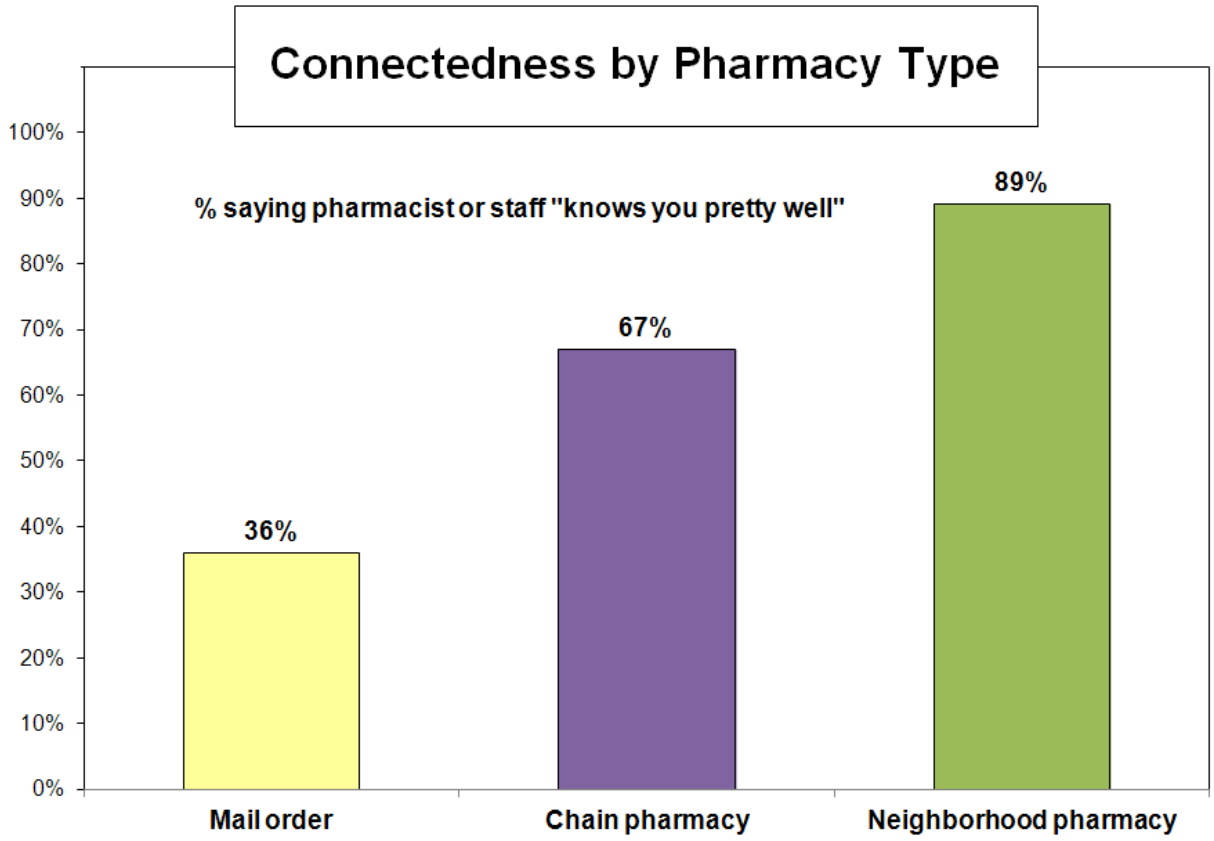
Further modeling explored each of the key attitudinal predictors of prescription medication adherence, revealing additional important factors and providing other avenues through which non-adherence can be understood and potentially addressed.[6] Among them:

Pharmacy connectedness. Holding other factors constant, patients who obtain their medication by mail are significantly less likely than others to feel that someone at their prescription provider

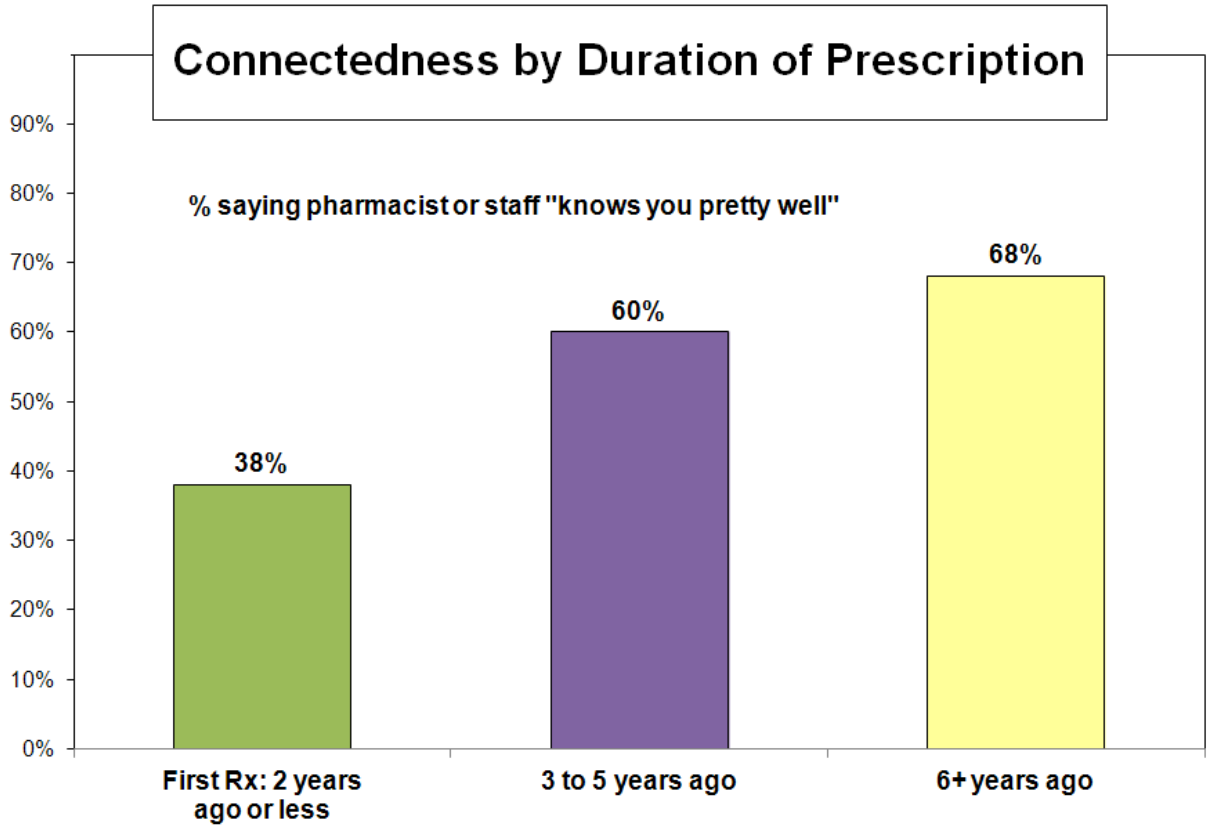
[6] The model predicting one of the six predictors, continuity of health care, did not reach statistical significance, indicating it's informed by factors not measured in this survey.

knows them pretty well, while connectedness peaks among those who use an independent neighborhood pharmacy.

Crosstabulated data illustrate this effect: Just 36 percent of mail-order respondents report a personal connection with their medication provider. That rises to 67 percent among those who go to a chain pharmacy, and further to 89 percent among neighborhood pharmacy customers.



The duration of having an ongoing prescription is another significant positive predictor of pharmacy connectedness, suggesting that those who have been filling prescriptions regularly for a long time have come to develop a personal relationship with pharmacy employees. Among patients who first received a prescription for a long-term medication more than five years ago, nearly seven in 10 feel someone at their pharmacy knows them pretty well. That falls to 54 percent of those who first received a regular prescription more recently. (People with five or more medications, and those who often see the same pharmacy staff, also are more apt to have a personal connection with their pharmacy, although these are not significant predictors of connectedness when controlling for other factors.)



Finally on pharmacy connectedness, patients living in the Northeast and the Midwest are slightly more likely than others to report a personal connection at their pharmacy, and those in urban areas are less likely to do so. For example, three-quarters of suburban and rural respondents report a connection with their pharmacy staff, vs. six in 10 urban patients.

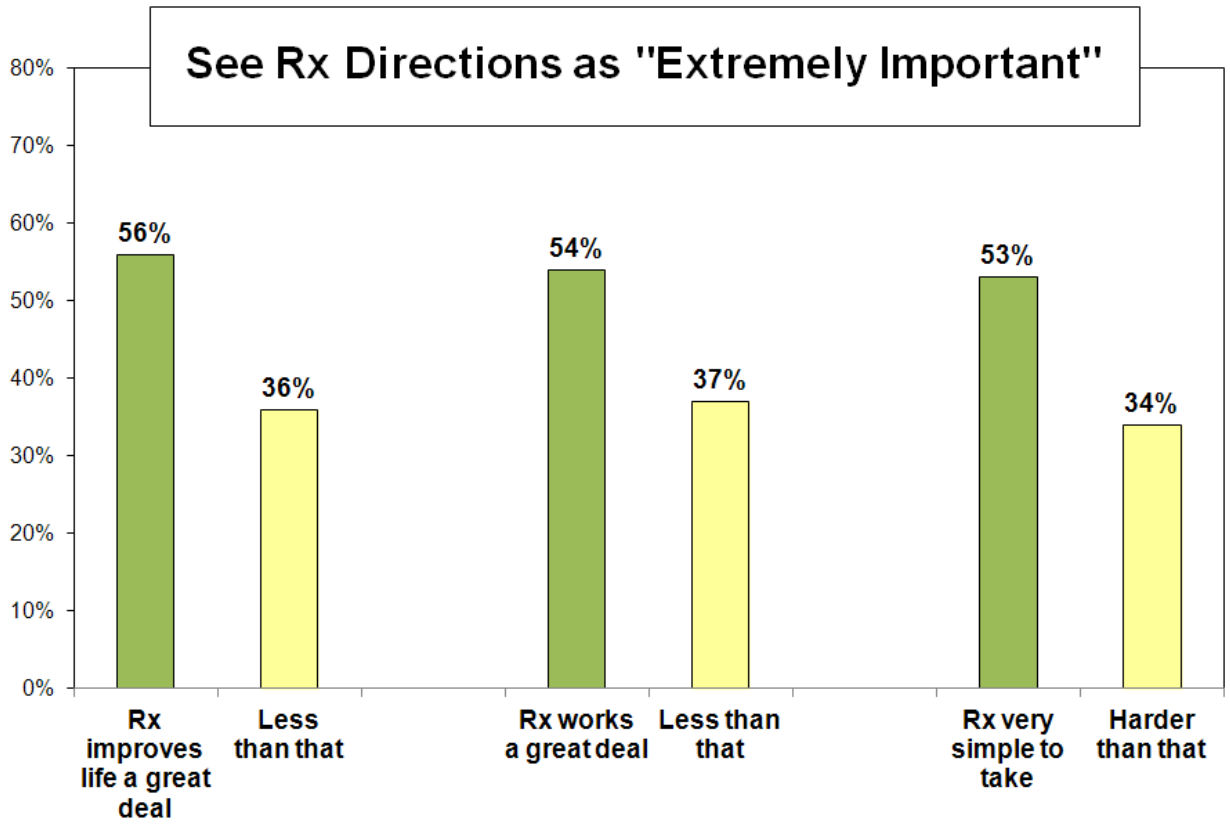
Affordability. Affordability of medication is simplest to explain: It's predicted best by three major factors – whether or not a patient's health insurance helps cover the cost of medication, overall health and income.[7]

Following prescription instructions. The perceived effectiveness of medication is an important factor in adherence attitudes. A sense that it's necessary to take medication exactly as prescribed is informed, in part, by how much patients feel that their medication is working for them and the extent to which they feel it's helping them live a better or longer life.

Illustratively, respondents who feel strongly that their medication is working for them, or helping them live better, are 17 and 20 points more likely than others to say that taking prescription medications exactly as prescribed is "extremely" important.

[7] Patients with private insurance are more likely than others to be able to afford their medication with ease, 73 vs. 58 percent. The regression model finds that private insurance is a negative predictor of affordability, but this is because the model controls for other factors, including income and whether or not the insurance covers medication.

The importance placed on taking medication exactly as prescribed also is tied to how easy it is to do so: It's predicted both by feeling that adherence is very simple to achieve, and by self-reported understanding of how much and when to take prescribed medications. Among those who say it's very simple to take their medication as prescribed or who understand their medication regimen a great deal, majorities see compliance as extremely important; among others this falls to about a third.

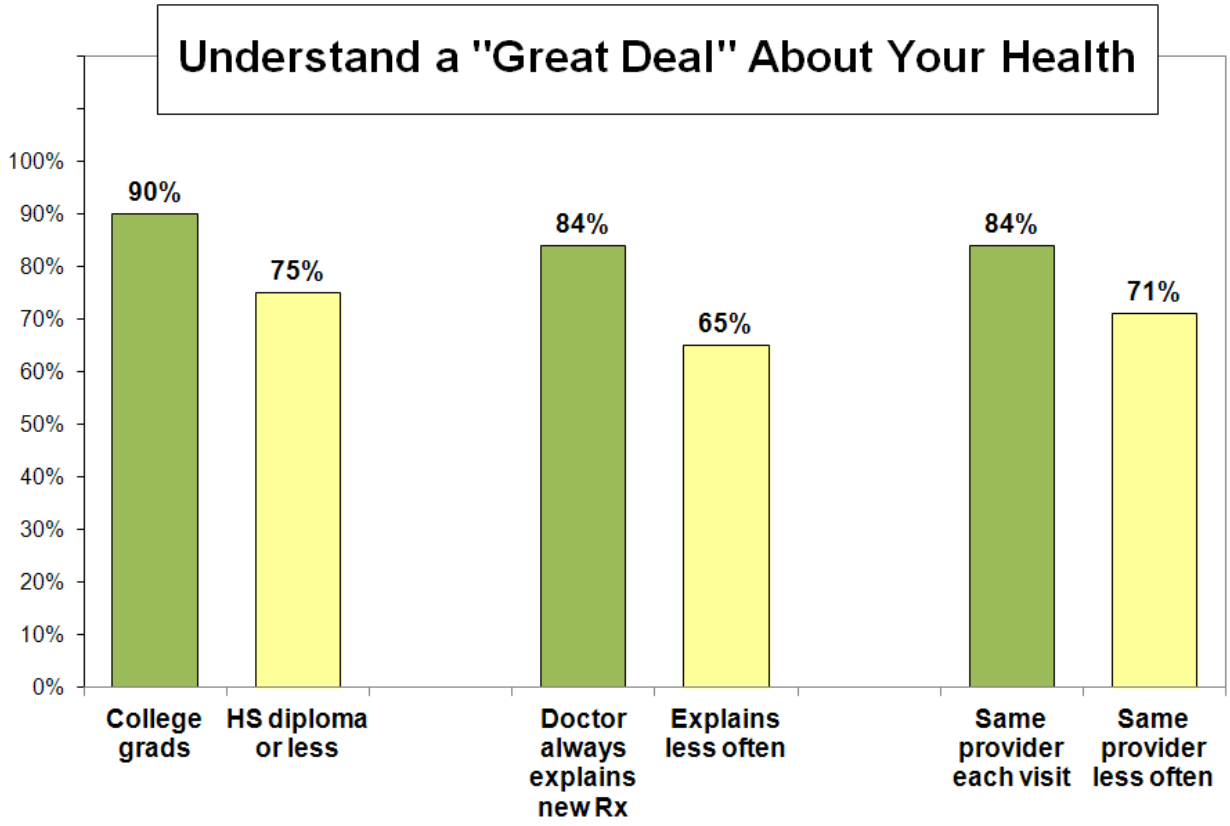


Concern about long-term effects of medication is another significant factor, with those who express greater concern about consequences down the road also more likely to assign greater importance to taking medications exactly as prescribed. This suggests that perceived long-term consequences motivate patients to be more cautious with their medications.

Connectedness with a health care facility also plays an important role in attitudes toward adherence. Those who feel that someone at their health care facility knows them well assign greater importance to following prescription instructions exactly; they're 18 points more likely than those who don't have this personal connection to say that following prescription instructions is extremely important, 52 vs. 34 percent.

Additionally, one condition – having high blood pressure or hypertension – positively predicts ratings of the importance of adherence. Fifty-five percent of those with this condition say following prescription instructions is extremely important, compared with 42 percent of others.

Understanding health and health problems. Education and continuity of care are top predictors of patients' understanding of their health and health problems.[8] Continuity of care is perhaps most interesting: Eighty-four percent of those who always see the same health care provider say they understand their own health a great deal, vs. 71 percent of those with less continuity of care. The differences are even starker when looking at respondents who only sometimes, rarely or never see the same provider, but the sample size of this group is too small for precise estimation.



By education, three-quarters of those who haven't gone beyond high school say they're very informed about their health; that rises to nine in 10 college graduates.

The frequency with which health care providers speak with patients about any new medication also is a predictor of health understanding. Those who say their doctor always speaks to them about a new medication are 19 points more likely than others to say they understand their health a great deal. Regardless of education, continuity of care or other factors, the more doctors do to explain a new prescription to their patients, the better informed patients feel about their health.

Side effects. A single factor emerges as an independent predictor of the sense among patients that their ongoing prescription medication causes unpleasant side effects: age. All else equal, older

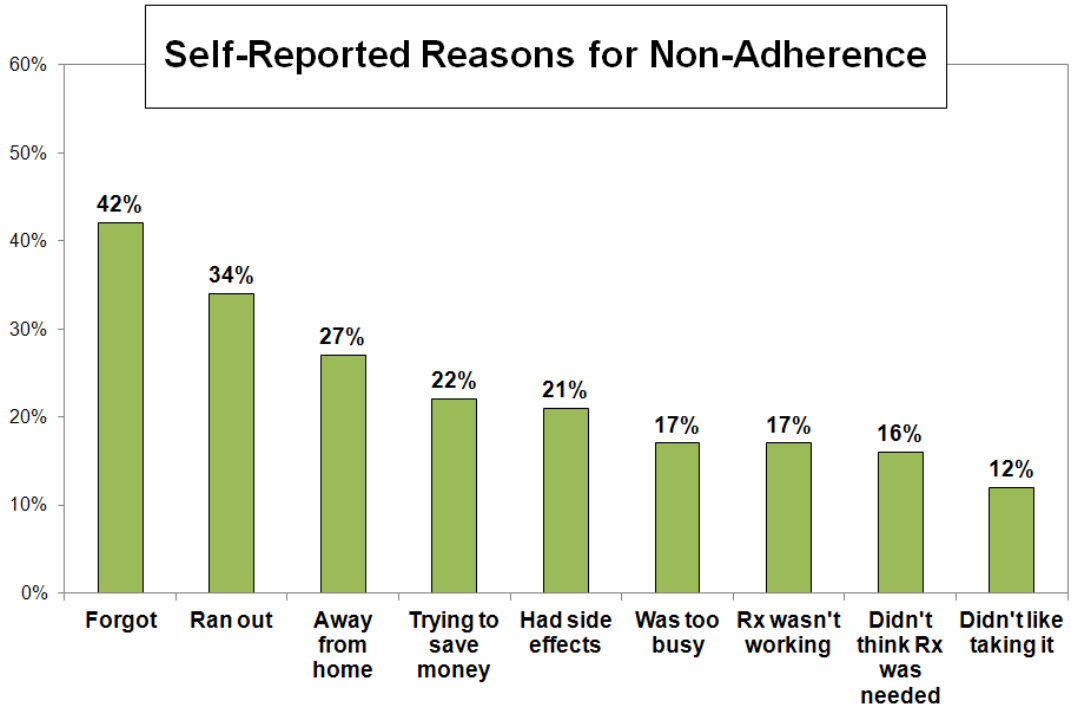
[8] The model also finds that having a full-time job is a negative predictor of health understanding. Given controls for other factors relating to employment, such as education, income and age, this result may reflect a time constraint issue: All else equal, those with full-time jobs may have less time than others to dedicate to better understanding their health and health problems.

respondents are significantly less likely to report negative side effects than are younger adults. While 58 percent of seniors with chronic conditions report no side effects from their ongoing prescriptions, that drops to just 41 percent of 40- to 49-year-olds with chronic health problems. Increased tolerance, or adjustment over time, may be factors.

Section V: Self-Reported Reasons for Non-Adherence

Respondents who report various forms of non-adherence were asked whether a series of 11 items were major reasons they had not filled or taken their medication as prescribed.[9] Most frequently cited is simply forgetting, indicated as a major reason for non-adherence by 42 percent. That rises among higher-income and more educated non-adherent respondents to 54 and 52 percent, respectively. (They're less likely to be noncompliant for other reasons, e.g., saving money.)

A third of respondents who missed a dose or stopped taking their medication without consulting a doctor say this was because they ran out of the medication. This reason is cited more frequently by adults under 60, those who make less than $50,000 a year and those with a high school education or less, compared with their counterparts. In addition, respondents who indicate that they see the same provider every time are significantly less likely than others to say they were non-adherent because they ran out of medication, 30 vs. 40 percent.



[9] Five of the 11 reasons were asked only among respondents for whom they were applicable. For example, patients who took a lower dose than prescribed were not asked "because you forgot" as a potential reason, and patients who did not fill a new prescription were not asked "because you felt it was not working" as a reason. See Appendix B.

Twenty-seven percent of respondents who had missed a dose of their medication say this was because they were away from home and didn't have it with them. Those who report unpleasant side effects are more likely to say they've traveled without their medication, suggesting that leaving medicine at home may not always be accidental.

Next, 22 and 21 percent, respectively, cite "trying to save money" or concerns about side effects as a major reason for their failure to fill or take their medication as prescribed.

Trying to save money is cited as a major reason for non-adherence by 42 percent of those who say it's difficult for them to afford the cost of their medications, falling to 10 percent of those who can afford their medications easily. This is critical, because a third overall report difficultly paying for their medications. The pattern is similar for those who lack insurance and for those with lower incomes.

Those who report unpleasant side effects at least some of the time are twice as likely as others to cite this as a cause for non-compliance, 30 vs. 16 percent. Apart from current side effects, concern about long-term consequences of taking an ongoing medication is a similar factor.

Among other reasons, roughly one in six non-adherent respondents say a major cause is because they were too busy (17 percent), because they felt their medication was not working (17 percent) or because they didn't think they needed the medication (16 percent).

Twelve percent say a major reason for non-adherence is because they didn't like taking their medication – an answer significantly more common among those who are highly concerned about long-term health consequences, don't feel strongly that their medication is working, have unpleasant side effects or don't feel strongly that their medication is helping them live a better or longer life, compared with others.

	% who report "don't like taking it" as a major reason for non-adherence
All	12%
Long-term effects:	
Very concerned	22
Less concerned	9
Experienced side effects:	
Yes	19
No	9
Think Rx improves your life:	
Somewhat or less	19
Great deal	9
Think Rx is working:	
Somewhat or less	18
Great deal	10

Encouragingly, the least cited reasons for these types of non-compliance are "because you didn't know what it was for" and "because you got confused about what to do" – chosen by just six percent of non-compliant respondents apiece.

Section VI: Frequency

Self-reported frequency of non-compliance is not high, although again reluctance to report undesirable behavior can't be ruled out. While 57 percent say they've missed a dose of medication in the past year, nine in 10 of them say they did so only occasionally or rarely.

Similarly, while 30 percent say that at some point they'd forgotten whether or not they'd taken their medication in the past year, nearly all say this happened just occasionally or rarely. And among the 28 percent who failed to refill a prescription in time, again most by far say this was occasional or rare.

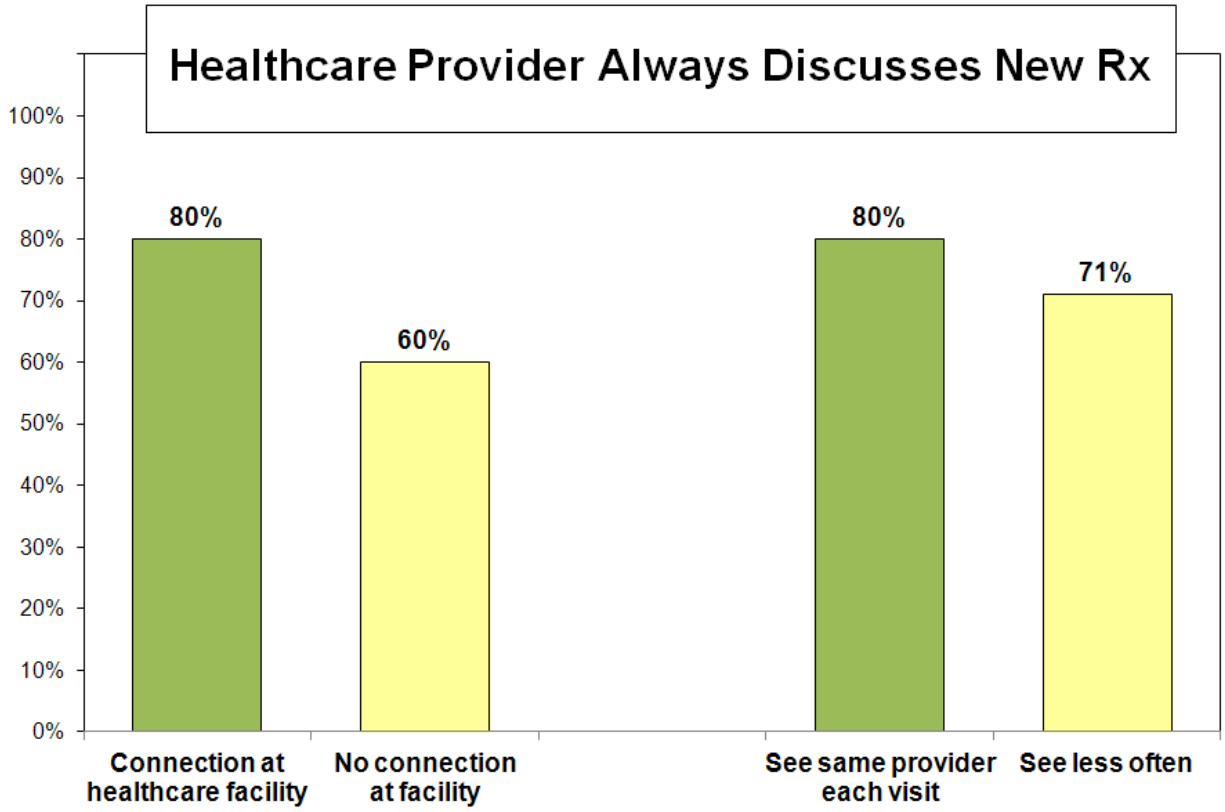
Results on less-prevalent non-adherence behaviors are similar, with two exceptions: Among the 22 percent who've taken a lower dose than they were supposed to, 36 percent say they've done this very or somewhat frequently; and among the 14 percent who had stopped taking a medication entirely without consulting a doctor, three in 10 say they did so at least somewhat frequently.

Among those who missed a dose, doing so frequently is 10 points more common among women than among men, 9 points higher among 40- to 59-year-olds vs. those 60+, 8 points higher among those in fair or poor health compared with those in better health and 7 points higher among those who haven't gone beyond high school, compared with more educated patients.

Section VII: Adherence Attitudes

In addition to adherence behavior, the survey assessed attitudes about adherence and patients' information about their health in general and their prescription medication in particular. In one key question, more than nine out of 10 say it's important to take their medication exactly as prescribed. But fewer, 50 percent, call this "extremely" important – a view that rises among those taking more medications than others, those who strongly feel their medications are improving their lives, those who see the same provider on each visit and those who say that their doctor always talks to them about new prescriptions.

Helpfully, instructions from doctors are common: Nearly nine in 10 patients say their doctor or other health care provider usually speaks to them about how and when to take a newly prescribed medicine. But fewer, 77 percent, say their provider always does so – leaving a considerable level of omission on a topic of this importance. Getting directions from a provider consistently is higher among patients who report having a personal connection with someone at their care facility and among those who always see the same health care provider.

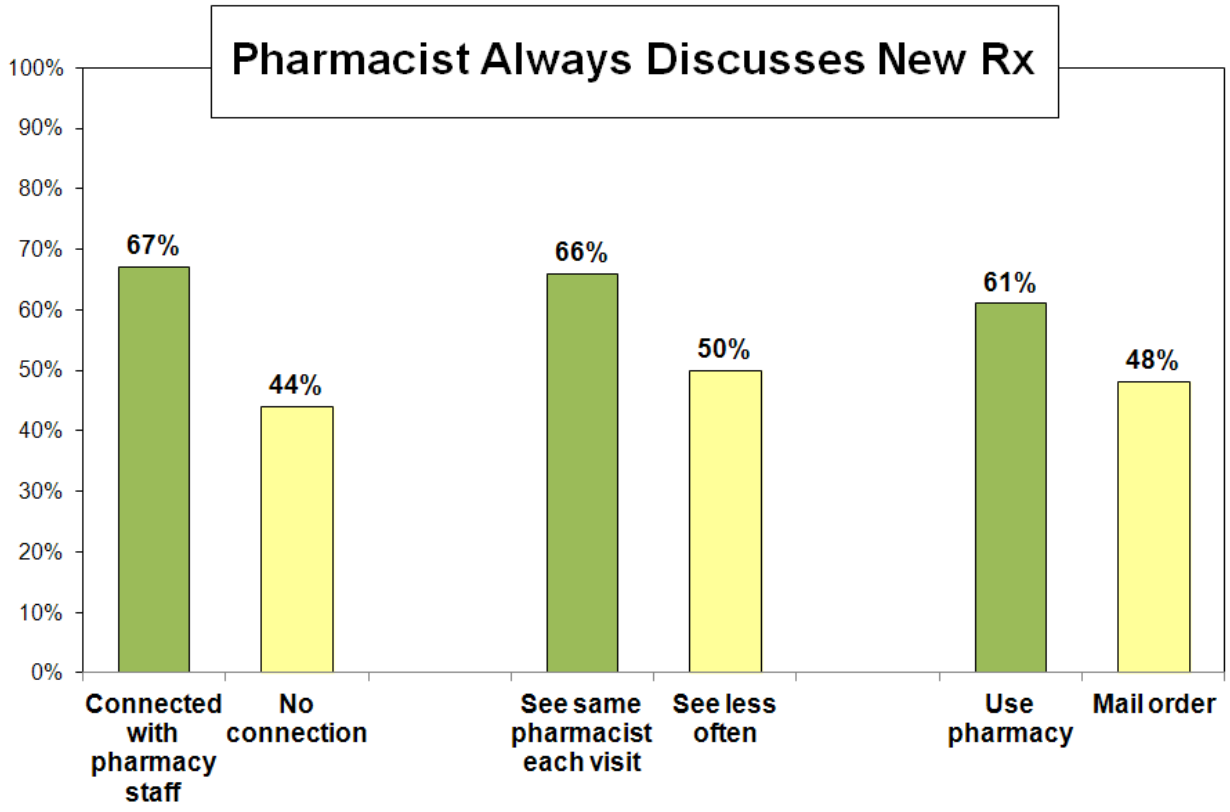


Despite noncompliance levels, nearly everyone, 96 percent, says it's at least somewhat simple to take their medication exactly as prescribed; more than eight in 10 say it's very simple to do so. Seeing it as very simple rises among patients who say their doctor always speaks to them about how and when to take new medications, as well as among those who take fewer medications overall and who are in better health.

Pharmacists are less likely than doctors to speak with their clients about a new prescription, but still 73 percent of patients say their pharmacists usually do this; nearly six in 10 say they always do. Again, that suggests room for improvement.

Not surprisingly, respondents who get some or all of their prescriptions filled by mail are substantially less likely to say that a pharmacist or staff member always gives them instructions when they have a new prescription (48 percent) compared with those who get their prescriptions from a pharmacy (61 percent), with no difference between chain or independent pharmacies.

Related to this result, those who have a personal connection with someone at the place where they get their medication, and those who report seeing the same pharmacist or staff on a regular basis, are significantly more apt than others to say that a pharmacist always talks to them about a new prescription.



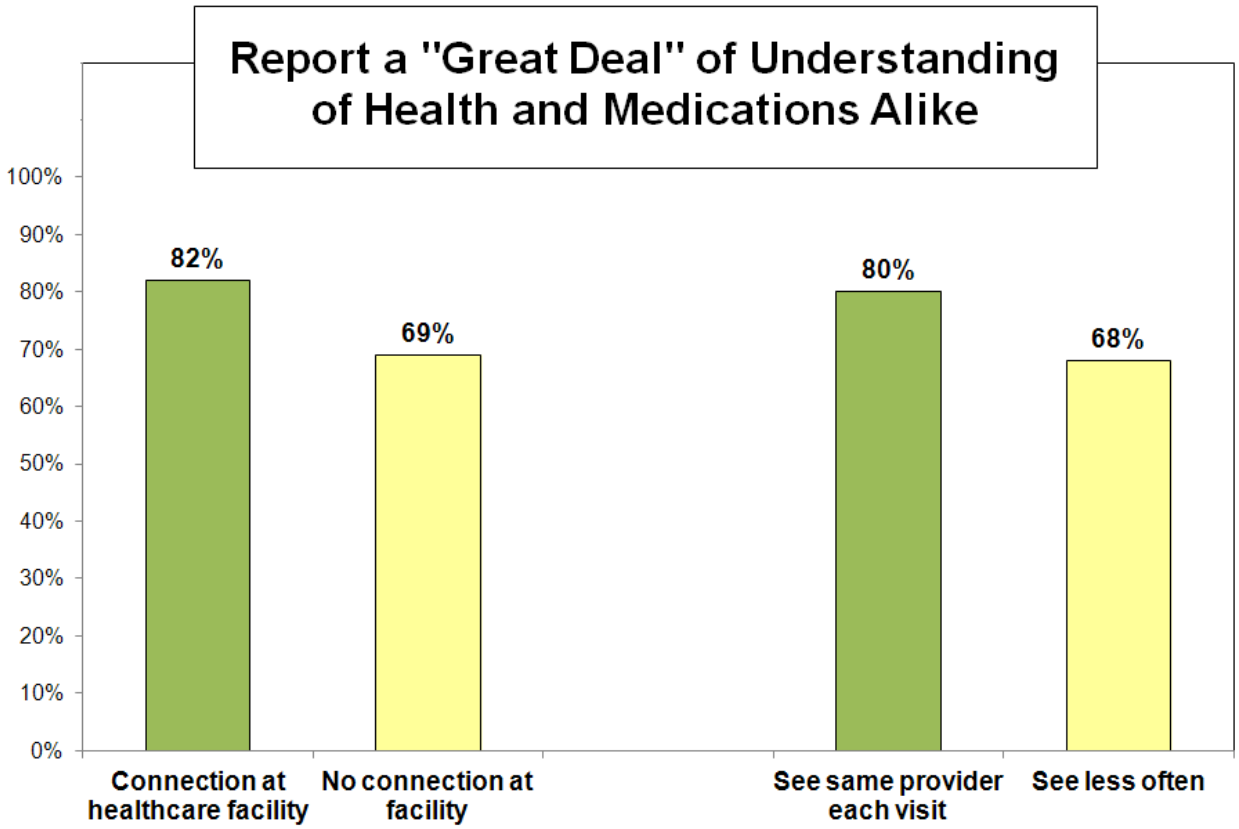
Section VIII: Patient Information

Virtually all Americans age 40+ with prescriptions for chronic health problems feel at least somewhat informed about their health overall and when/how much medication they're supposed to take (98 and 99 percent). Eighty and 94 percent, respectively, say they understand their health or their medication "a great deal" and 78 percent report having a great understanding of both.

Respondents who've attended college are significantly more likely than those who haven't gone beyond high school to report understanding both their health and their medication a great deal (89 vs. 73 percent). Self-reported health status also is related to understanding – among those in excellent or very good health, 88 percent say they understand both topics a great deal. That drops to 72 percent among those in fair or poor health.

Patient-provider communication appears to be essential for patient understanding – among respondents who say their doctor always talks to them about a new prescription, 83 percent say they understand their health and their prescription medications a great deal. Among those who say their doctor speaks with them less frequently about a new medication, strong understanding is 21 points lower.

Continuity and connectedness with care have similar effects. Strong understanding is 13 and 12 points higher, respectively, among respondents who always see the same provider or who feel that someone at the health care facility knows them well.



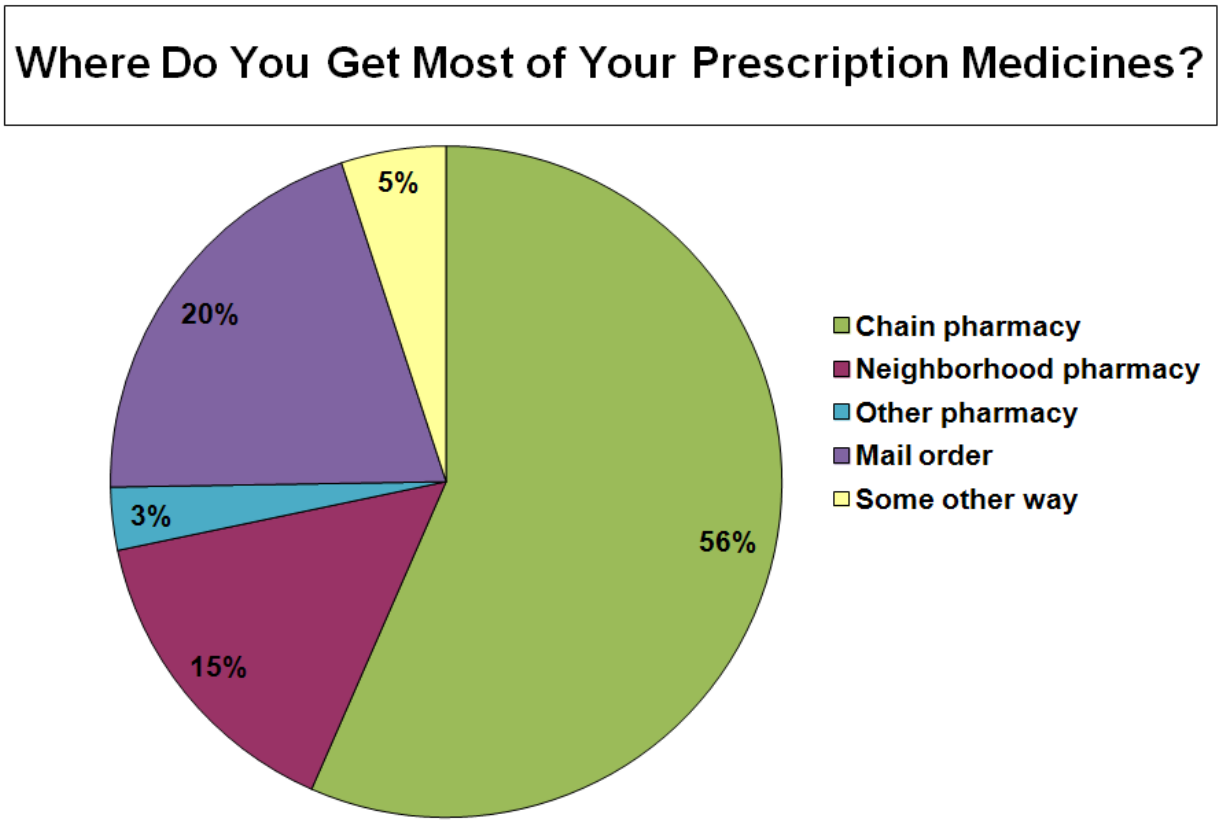
Section IX: Population Profile

Sixty-one percent of adult Americans are age 40 or older, and 48 percent of them report having been prescribed a medication to take on an ongoing basis for a chronic condition – that is, approximately 30 percent of all adults. On average, as noted, they report taking about four different prescription medications.[10] That includes 35 percent who report five or more ongoing medications, another third who take three to four and 32 percent who take one or two.

Two-thirds say they first were prescribed medication to take on a regular basis at least six years ago; 23 percent report it was three to five years ago and 10 percent say they received their first ongoing prescription within the last two years.

Most, three-quarters, say they get their medications at pharmacies (including 2 percent who say that they use a combination of pharmacy and mail order). That includes 56 percent who report using a chain pharmacy, 15 percent who use an independent neighborhood pharmacy and 3 percent who use some other type of pharmacy (e.g., in a clinic or hospital). Twenty percent exclusively get their medication by mail order; 5 percent, another way.

[10] Mean = 4.4, standard deviation = 3.6.



There are differences among groups in where patients obtain their prescription medicines (see table, next page). Older adults, age 60 and up, are more apt to buy their medication by mail than are those age 40 to 59. Men are 8 points more likely than women to buy their medication by mail, and doing so is more prevalent among better-off and more educated adults and among whites compared with nonwhites.

Chain pharmacy use slips in the Northeast compared with elsewhere and peaks among younger adults and nonwhites. And reported use of independent neighborhood pharmacies is higher in the Northeast than in the Midwest or West, higher among women than men, higher among less well-off and less-educated patients and higher among those with more ongoing prescriptions.

Main pharmacy type by group

	Chain pharmacy	By mail	Independent pharmacy
All	56%	20	15
Men	55	25	11
Women	57	17	18
Northeast	49	24	21
Midwest	59	21	11
South	59	17	17
West	55	22	10
40-49	66	11	12
50-59	66	16	13
60-69	46	27	19
70+	49	25	16
<$25K	64	9	17
$25-50K	53	23	15
$50-75K	61	23	12
$75K+	52	30	11
HS/less	59	14	18
Some coll.	56	24	12
College+	50	29	11
Whites	54	23	15
Nonwhites	62	12	17
<3 Rxs	63	19	11
3-4 Rxs	59	20	14
5+ Rxs	49	21	19

Nearly two-thirds overall, 65 percent, say they personally request refills of their ongoing prescriptions, while 31 percent have automatic refill orders. (Four percent say it varies by medication.) Those who get their prescriptions by mail are somewhat more likely than others to have automatic refills, 38 vs. 29 percent.

In terms of health status, 23 percent say they are in very good health, but just 7 percent report excellent health. A third (34 percent) say their health is good; 26 percent describe their health as fair and 10 percent say it's poor. As expected, those are less positive self-assessments than those given by the American public more broadly.[11]

[11] Excellent, 23 percent; very good, 30 percent; good, 27 percent; fair, 16 percent; and poor, 5 percent. Poll by Kaiser Family Foundation, Harvard School of Public Health and Robert Wood Johnson Foundation Jan. 3-9, 2013.

The most common chronic condition in this population is high blood pressure or hypertension, reported by 57 percent. Nearly half (47 percent) report high cholesterol, while one third has diabetes or high blood sugar. Heart problems afflict 23 percent of respondents, while asthma, bronchitis and other lung conditions are reported by 22 percent. Thirty-eight percent say they have other chronic conditions not specifically measured.

Most say they have seen a doctor or other health care provider four or fewer times in the past 12 months, including 29 percent who've been twice or fewer and 30 percent who've been three to four times. Four in 10 have been to a doctor's office at least five times, including 20 percent who have seen a provider 10 or more times in the past year.

Respondents largely are self-reliant in managing their medication regimen: Nine in 10 say they don't rely much on others, such as a family member or caregiver, to remind them when to take their prescription medications, including 83 percent who say they don't rely on anyone else at all. Just 5 percent say they rely on others a great deal.

Nine in 10 have health insurance, 11 points higher than in a recent estimate of coverage among all Americans.[12] Forty-seven percent are insured privately and an additional four in 10 through public programs such as Medicare and Medicaid.

Among those with health insurance, 89 percent say their insurance helps cover the cost of prescription medications. Still, a sizable minority, one-third of adults 40 and older with chronic conditions, say it's difficult to afford the cost of their prescription medications, and for 10 percent, it's very difficult.

Section X: Conclusions and Recommendations

The first National Report Card on Adherence finds troubling levels of medication non-adherence among some of the most frequent ongoing medication users in the United States. Millions of adults age 40 and older with chronic conditions are departing from doctors' instructions in taking their medications – skipping, missing or forgetting whether they've taken doses, failing to fill or refill prescriptions, under- or over-dosing or taking medication prescribed for a different condition or to a different person.

An overall C+ grade underscores the problem; the F grades earned by one in seven of these medication users – the equivalent of more than 10 million adults – should heighten alarm.

This survey not only establishes the breadth of the problem but evaluates factors that influence medication non-adherence, suggesting paths to attempt to address the problem. Chief predictors of non-adherence, as noted, include the presence or absence of a personal connection with a pharmacist or pharmacy staff; the affordability of prescribed medications; a belief in the importance of following instructions in taking medications; patients' general levels of health information; and the presence of side effects.

[12] Ibid.

Pharmacists have a role at the forefront of addressing prescription medication non-adherence. The results of this survey indicate that much depends on the extent to which pharmacists and pharmacy staff establish a personal connection with their customers and engage with them to encourage fuller understanding of the importance of taking medications as prescribed. Independent pharmacists may be particularly well-placed to boost adherence, given their greater personal connection with patients.

Health care providers have a vital role to play in stressing the importance of taking medications as prescribed, in monitoring and helping patients avoid or reduce unpleasant side effects that may compromise adherence and in helping to keep patients more generally well-informed about their health conditions. Both health care providers and pharmacists, moreover, can help reduce non-adherence by assisting economically vulnerable patients in finding the most affordable medication options.

Better information, communication and patient support have been shown in previous studies to increase patients' engagement and involvement in their health care, their satisfaction with their care and their loyalty to their health care providers. This survey shows yet another potential positive benefit of increased patient engagement – a reduction in the currently high levels of prescription medication non-adherence in the United States, and its associated costs and health risks alike.

Appendix A: Statistical Modeling

Key Variables

Number of prescription medications (Q1). A continuous variable indicating the number of different ongoing medications respondents are prescribed to take (*Mean* = 4.4, *Standard Deviation* = 3.2).

Time since first prescription (Q2). A continuous variable indicating when respondents first received a prescription to take a medication on a regular basis, on a scale from 1 = within the past year to 5 = more than 10 years ago (*M* = 4.0, *SD* = 1.1).

Pharmacy type (Q3-4). The type of pharmacy used by each respondent was coded using a series of binary variables indicating, separately, whether they receive most of their medications by mail, or not; from independent pharmacies, or not; and from chain pharmacies, or not. For each pharmacy type, responses were coded 1 if that facility were used, 0 if not.

Automatic refills (Q5). A binary variable indicating whether respondents say their prescription medications get refilled automatically or not (0 = not automatically refilled, 1 = automatically refilled).

National Report Card on Adherence (Q6, Q7a-d, Q11a-d). A continuous variable indicating patients' average adherence in the past year on nine adherence behaviors including: failing to fill a new prescription, failing to refill a prescription in time, missing a dose, taking a lower dose than prescribed, stopping taking a medication without consulting a doctor, taking a higher dose than prescribed, taking an old medication for a new problem, taking someone else's prescription medication, and forgetting whether or not you've taken a prescription medication. For each of the non-adherent behaviors, respondents were given a 100 if they were adherent and a 0 if they were non-adherent. The grade is the average of those nine scores (*M* = 79, *SD* = 19).

Health rating (Q13). A continuous variable reflecting respondents' self-reported health status with 1 = poor health and 5 = excellent health (*M* = 2.9, *SD* = 1.1).

Chronic conditions (Q14). The specific type of chronic condition respondents reported was coded using a series of binary variables indicating, separately, whether they have diabetes, or not; high blood pressure, or not; asthma or other lung conditions, or not; heart problems, or not; high cholesterol, or not; some other chronic health problem, or not. For each chronic condition, responses were coded 1 for having the condition, 0 for not.

Number of doctor visits (Q15). A continuous variable indicating the number of times respondents went to see their provider (i.e., doctor, nurse or other health care provider) in the past 12 months (*M* = 8.4, *SD* = 19.7).

Facility connectedness (Q16). A binary variable indicating whether or not respondents say there is someone at their health care facility who knows them well (0 = no, 1 = yes).

Continuity with a care provider (Q17). A continuous variable reflecting how frequently respondents see the same health care provider when they go in for an appointment, on a scale from 1 = never to 5 = every time (*M* = 4.6, *SD* = 0.7).

Pharmacy connectedness (Q18). A binary variable indicating whether or not respondents say there is someone at the place where they get most of their prescription medications who knows them well (0 = no, 1 = yes).

Continuity with a pharmacy staff member (Q19). A continuous variable among only respondents who get most of their medications from a pharmacy or a combination of pharmacy and by mail, reflecting how frequently respondents see the same pharmacist or pharmacy staff member when they go for their ongoing prescription medications, on a scale from 1 = never to 5 = every time (*M* = 3.1, *SD* = 1.6).

Informed about own health (Q20a). A continuous variable reflecting how well respondents think they understand their health and any health problems they might have, ranging from 1 = not at all to 4 = great deal (*M* = 3.8, *SD* = 0.5).

Informed about prescriptions (Q20b). A continuous variable indicating how well respondents think they understand how much and when they're supposed to take their prescription medications, ranging from 1 = not at all to 4 = great deal (*M* = 3.9, *SD* = 0.3).

Very simple to take medications as prescribed (Q21). A binary variable indicating whether respondents find it very simple to take their ongoing prescriptions exactly as prescribed, or not (0 = not very simple, 1 = very simple).

Importance of taking medications exactly as prescribed (Q22). A continuous variable reflecting how important respondents think it is to take their medications exactly as prescribed, on a scale from 1 = not so important to 4 = extremely important (*M* = 3.4, *SD* = 0.6).

Doctor always discusses new prescriptions (Q23a). A binary variable indicating whether or not respondents say when they get a new prescription their doctor or provider always speaks to them about how and when to take it (0 = provider doesn't always discuss new prescriptions, 1 = provider always discusses new prescriptions).

Pharmacist always discusses new prescriptions (Q23b). A binary variable indicating whether or not respondents say when they get a new prescription their pharmacist or a pharmacy staff member always speaks to them about how and when to take it (0 = pharmacist doesn't always discuss new prescriptions, 1 = pharmacist always discusses new prescriptions).

Rely on others (Q24). A binary variable indicating whether or not respondents rely on someone else, such as a family member or caregiver to help them with their medications (0 = doesn't rely on anyone else, 1 = relies on others at least a little).

Prescriptions work (Q25a). A continuous variable indicating the extent to which respondents think their prescription medications are working for them, on a scale from 1 = not at all to 4 = a great deal (*M* = 3.7, *SD* = 0.5).

Prescriptions cause side effects (Q25b). A continuous variable indicating the extent to which respondents think their prescription medications cause unpleasant side effects, on a scale from 1 = not at all to 4 = a great deal (*M* = 1.9, *SD* = 1.0).

Prescriptions improve life (Q25c). A continuous variable indicating the extent to which respondents think their prescription medications help them live a better or longer life, on a scale from 1 = not at all to 4 = a great deal (*M* = 3.7, *SD* = 0.6).

Concern about long-term effects (Q26). A continuous variable reflecting how concerned respondents are about possible long-term consequences of taking prescription medications regularly, on a scale from 1 = not concerned at all to 4 = very concerned (*M* = 2.4, *SD* = 1.1).

Ease of affording prescriptions (Q31). A continuous variable indicating the extent to which respondents say it's easy for them to afford the cost their prescription medications, on a scale from 1 = very difficult to 4 = very easy (*M* = 2.9, *SD* = 1.0).

Demographic variables: In addition to the variables listed above, the following demographic variables were included in all models: insurance status, insurance coverage for prescription medication, marital status, parental status (of minor children), gender, age, race, education, income, employment status, region and metro status. All variables were coded as binary variables by category except for age, education and income.

Modeling Details and Results

Model 1: National Report Card on Adherence

To determine what factors independently predict respondents' adherence, we conducted a regression with the National Report Card on Adherence entered as the outcome variable and the following variables included as predictor variables (see above for definitions): number of prescription medications, time since first prescription, pharmacy type, automatic refills, health rating, chronic conditions, number of doctor visits, facility connectedness, pharmacy connectedness,[13] continuity with a care provider, continuity with a pharmacy staff member, informed about own health, informed about prescriptions, very simple to take medications as prescribed, importance of taking medication exactly as prescribed, doctor always discusses new prescriptions, pharmacist always discusses new prescriptions, rely on others, prescriptions work, prescriptions cause side effects, prescriptions improve life, concern about long-term effects, and ease of affording prescriptions. All demographic variables listed above also were included. Table 1 shows the results of this model.

[13] An interaction term between connectedness to health care facility and to pharmacy also was included in the model.

Table 1. Significant predictors of the National Report Card on Adherence

	Standardized coefficient (β)	Significance test (*t*)
Personal connection w pharmacy	.23	2.66*
Age	.20	4.17**
Asthma or other lung conditions	-.19	5.57**
Ease of affording Rx	.17	4.69**
Continuity w care provider	.14	4.31**
Importance of taking medication exactly as prescribed	.13	4.05**
Informed about own health	.10	2.81*
Rx causes side effects	-.09	2.65*

Model R^2 = .28, $p < .001$
Here and below: $**p < .001$, $*p < .01$, $+p < .05$

Model 2: Pharmacy Connectedness

To determine what factors independently predict whether or not respondents feel someone at the place where they get their prescriptions filled knows them pretty well, we conducted a regression with pharmacy connectedness entered as the outcome variable and the following variables included as predictor variables (see above for definitions): number of prescription medications, time since first prescription, pharmacy type, automatic refills, health rating, chronic conditions, number of doctor visits and rely on others. All demographic variables listed above also were included. Table 2 shows the results of this model.

Table 2. Significant predictors of pharmacy connectedness

	Standardized coefficient (β)	Significance test (*t*)
Pharmacy type: By mail	-.18	3.35**
Pharmacy type: Independent	.17	3.45**
Time since first Rx	.11	3.46**
Area of residence: Urban	-.10	3.22**
Region: Midwest	.10	2.46+
Region: Northeast	.09	2.44+

Model R^2 = .23, $p < .001$

Model 3: Ease of Affording Prescriptions

To determine what factors independently predict how easy or difficult respondents find it to afford their prescriptions, we conducted a regression with ease of affording prescriptions entered as the outcome variable and the following variables included as predictor variables (see above

for definitions): number of prescription medications, time since first prescription, pharmacy type, automatic refills, health rating, chronic conditions, number of doctor visits and rely on others. All demographic variables listed above also were included. Table 3 shows the results of this model.

Table 3. Significant predictors of ease of affording prescriptions

	Standardized coefficient (β)	Significance test (*t*)
Insurance helps cover Rx cost	.23	5.47**
Overall health rating	.23	5.98**
Income	.18	4.07**
Insurance type: Private	-.11	2.71*

Model R^2 = .23, p < .001

Model 4: Importance of Taking Medication Exactly as Prescribed

To determine what factors independently predict how important respondents think it is to take their medication exactly as prescribed, we conducted a regression with importance of taking medication exactly as prescribed entered as the outcome variable and the following variables included as predictor variables (see above for definitions): number of prescription medications, time since first prescription, pharmacy type, automatic refills, health rating, chronic conditions, number of doctor visits, facility connectedness, pharmacy connectedness, continuity with a care provider, continuity with a pharmacy staff member, informed about own health, informed about prescriptions, very simple to take medications as prescribed, doctor always discusses new prescriptions, pharmacist always discusses new prescriptions, rely on others, prescriptions work, prescriptions cause side effects, prescriptions improve life, concern about long-term effects, and ease of affording prescriptions. All demographic variables listed above also were included. Table 4 shows the results of this model.

Table 4. Significant predictors of importance of taking medication exactly as prescribed

	Standardized coefficient (β)	Significance test (*t*)
Prescriptions improve life	.13	3.41*
Very simple to take medications as prescribed	.12	3.27*
High blood pressure	.11	3.21*
Informed about prescriptions	.11	2.89*
Concern about long-term effects	.10	2.67*
Prescriptions work	.10	2.66*
Facility connectedness	.10	2.63*

Model R^2 = .20, p < .001

Model 5: Informed About Own Health

To determine what factors independently predict how informed respondents feel about their own health, we conducted a regression with informed about own health entered as the outcome variable and the following variables included as predictor variables (see above for definitions): number of prescription medications, time since first prescription, pharmacy type, automatic refills, health rating, chronic conditions, number of doctor visits, facility connectedness, pharmacy connectedness,[14] continuity with a care provider, continuity with a pharmacy staff member, very simple to take medications as prescribed, importance of taking medication exactly as prescribed, doctor always discusses new prescriptions, pharmacist always discusses new prescriptions, rely on others, prescriptions work, prescriptions cause side effects, prescriptions improve life, concern about long-term effects, and ease of affording prescriptions. All demographic variables listed above also were included. Table 5 shows the results of this model.

Table 5. Significant predictors of being informed about own health

	Standardized coefficient (β)	Significance test (*t*)
Employed: Full-time	-.13	2.60*
Education	.11	2.80*
Continuity with a care provider	.10	2.72*
Doctor always discusses new prescriptions	.09	2.43+

Model R^2 = .17, p < .001

Model 6: Prescriptions Cause Side Effects

To determine what factors independently predict the extent to which respondents feel that their prescriptions cause side effects, we conducted a regression with prescriptions cause side effects entered as the outcome variable and the following variables included as predictor variables (see above for definitions): number of prescription medications, time since first prescription, pharmacy type, automatic refills, health rating, chronic conditions, number of doctor visits and rely on others. All demographic variables listed above also were included. Table 6 shows the results of this model.

Table 6. Significant predictors of extent prescriptions cause side effects

	Standardized coefficient (β)	Significance test (*t*)
Age	-.19	3.65**

Model R^2 = .09, p < .001

[14] An interaction term between connectedness to health care facility and to pharmacy also was included in the model.

Appendix B: Questionnaire and Topline Results

*= less than 0.5 percent

The next questions are about prescription medications you take on an ongoing, regular basis. They are not about any over-the-counter or herbal medicine you might take, or prescription medication you might be taking for a short-term problem. We are only interested in ongoing, long-term prescription medications.

1. How many different ongoing medications are you currently prescribed to take?

1-2	3-4	5+	No opinion	Mean	Median
32	33	35	*	4.37	3.00

2. When did you first get a prescription to take medication on a regular basis – was it 1 to 2 years ago, 3 to 5 years ago, 6 to 10 years ago, or more than 10 years ago ?

------- 2 yrs or less --------				-------- 6+ yrs --------			
NET	Within past yr	1-2 yrs	3-5 yrs	NET	6-10 yrs	11+ yrs	No opinion
10	4	6	23	67	25	42	*

3. Where do you get (your prescription medication/most of your prescription medications)? Is it (from a pharmacy), (by mail) or some other way?

-------- From a pharmacy -------					
NET	Pharmacy	Pharmacy & mail	By mail	Other way	No opinion
75	73	2	20	5	*

4. (IF PHARMACY OR A COMBINATION OF PHARMACY AND MAIL) What type of pharmacy do you use to get (this medication/most of these medications)? Is it (a chain pharmacy), (a grocery store pharmacy), (a pharmacy in a retail store), or (an independent neighborhood pharmacy)?

Chain	Grocery	Retail	Independent neighborhood	Military hosp (vol.)	Other (vol.)	No opinion
41	16	18	20	2	3	*

3/4 NET:

From a pharmacy/pharmacy and mail NET	75
Chain/grocery/retail/military/other NET	60
Chain pharmacy	31
Grocery store pharmacy	12
Retail store pharmacy	14
Pharmacy in a military hospital/clinic	1
Other pharmacy	2
Independent neighborhood pharmacy	15
By mail	20
Some other way	5
No opinion	*

5. In most cases, (is/are) your ongoing prescription medication(s) refilled automatically, or do you have to personally request refills?

Automatically	Upon request	Depends on the medication (vol.)	Never filled prescription (vol.)	No op.
31	65	4	*	*

6. In the past 12 months, have you (gotten a new prescription for an ongoing medical condition that you have NOT filled for one reason or another), or have you (filled every new prescription you've received)?

Not filled Rx	Filled Rx	No new Rx (vol.)	No opinion
20	72	8	1

7. In the past 12 months, have you ever [ITEM] for one reason or another, or has that not happened?

	Yes	No	No opinion
a. not had a prescription refilled in time	28	72	*
b. missed a dose of your prescription medication	57	42	1
c. taken a lower dose of your prescription medication than you were supposed to	22	78	*
d. stopped taking a medication entirely without consulting a doctor	14	86	*

6/7 NET:

Ever not filled or taken medication as prescribed	Always fill and take medication as prescribed	No new Rx (vol.)	No opinion
68	24	8	1

8. (IF HAS NOT TAKEN MEDICATION AS PRESCRIBED) Would you say that's happened very frequently, somewhat frequently, occasionally, or rarely?

	-- Frequently --- NET	Very	Smwt	--- Occas./rarely --- NET	Occas.	Rarely	No op.
a. not had a prescription refilled in time	23	8	14	77	27	50	*
b. missed a dose of your prescription medication	10	4	6	90	37	53	0
c. taken a lower dose of your prescription medication than you were supposed to	36	17	18	64	34	30	0
d. stopped taking a medication entirely without consulting a doctor	30	12	19	70	18	52	0

7a/8a NET:

--- Not had a prescription refilled in time ---								
	-- Frequently ---			--- Occas./rarely ---				
NET	NET	Very	Smwt	NET	Occas.	Rarely	Not happened	No opinion
28	6	2	4	21	7	14	72	*

7b/8b NET:

-Missed a dose of your prescription medication-								
	-- Frequently ---			--- Occas./rarely ---				
NET	NET	Very	Smwt	NET	Occas.	Rarely	Not happened	No opinion
57	6	2	4	51	21	30	42	1

7c/8c NET:

- Taken a lower dose than you were supposed to-

	-- Frequently ---			--- Occas./rarely ---				
NET	NET	Very	Smwt	NET	Occas.	Rarely	Not happened	No opinion
22	8	4	4	14	7	7	78	*

7d/8d NET:

- Stopped a medication w/out consulting a doc -

	---Frequently ---			--- Occas./rarely ---				
NET	NET	Very	Smwt	NET	Occas.	Rarely	Not happened	No opinion
14	4	2	3	10	2	7	86	*

9. (IF HAS NOT FILLED A PRESCRIPTION OR NOT TAKEN MEDICATION AS PRESCRIBED) Now I'm going to list some reasons people may not fill or take their medication as prescribed. For each, please tell me if this is or is not a major reason in your own case. The first is [ITEM] – would you say this is or is not a major reason that you personally did not fill or take a medication as prescribed? What about [NEXT ITEM]?

	Major reason	Not a major reason	No opinion
a. Because you had side effects or were worried about having them	21	78	1
b. Because you didn't think you needed the medication	16	83	2
c. Because you were too busy or didn't have the time	17	82	1
d. Because you didn't know what it was for	6	94	1
e. Because you got confused about what to do	6	94	*
f. Because you were trying to save money	22	78	*

10. (IF HAS NOT FILLED A PRESCRIPTION OR NOT TAKEN MEDICATION AS PRESCRIBED) Thinking about some other possible reasons people may not fill or take their medication as prescribed, how about [ITEM] - would you say this is or is not a major reason you personally did not fill or take a medication as prescribed? What about [NEXT ITEM]?

a. (IF HAS NOT FILLED A PRESCRIPTION, NOT REFILLED A PRESCRIPTION IN TIME, MISSED A DOSE OR STOPPED WITHOUT CONSULTING A DOCTOR) Because you forgot

Major reason	Not a major reason	No opinion
42	58	*

b. (IF HAS NOT REFILLED A PRESCRIPTION IN TIME, MISSED A DOSE, TAKEN A LOWER DOSE OR STOPPED WITHOUT CONSULTING A DOCTOR) Because you didn't like taking it

Major reason	Not a major reason	No opinion
12	87	1

c. (IF HAS NOT REFILLED A PRESCRIPTION IN TIME OR STOPPED WITHOUT CONSULTING A DOCTOR) Because you felt it was not working

Major reason	Not a major reason	No opinion
17	82	1

d. (IF MISSED A DOSE OR STOPPED WITHOUT CONSULTING A DOCTOR) Because you ran out of the medication

Major reason	Not a major reason	No opinion

34	66	*

e. (IF MISSED A DOSE) Because you were away from home and didn't have it with you

Major reason	Not a major reason	No opinion
27	73	*

11. In the past 12 months, have you ever [ITEM] for one reason or another, or has that not happened? How about… [NEXT ITEM]?

	Yes	No	Never filled Rx (vol.)	No op.
a. taken more of a prescribed medication than you were supposed to	6	94	-	0
b. taken an old prescription medication for a different health problem without asking the doctor	7	93	-	*
c. taken someone else's prescription medication	5	95	-	*
d. forgotten whether or not you've taken a prescription medication	30	70	*	*

12. (IF YES TO ANY ITEM IN Q11) Would you say that's happened very frequently, somewhat frequently, occasionally, or rarely?

	-- Frequently --- NET	Very	Smwt	--- Occas./rarely --- NET	Occas.	Rarely	No op.
a. taken more of a prescribed medication than you were supposed to	12	3	9	88	34	54	0
b. taken an old prescription medication for a different health problem without asking the doctor	9	3	6	91	22	69	0
c. taken someone else's prescription medication	11	8	2	89	37	52	0
d. forgotten whether or not you've taken a prescription medication	10	4	6	90	31	59	0

11a/12a NET:

---- Taken more of a prescribed medication ----								
	-- Frequently ---			--- Occas./rarely ---				
NET	NET	Very	Smwt	NET	Occas.	Rarely	Not happened	No opinion
6	1	*	1	5	2	3	94	0

11b/12b NET:

----- Taken an old prescription medication ---- for a different health problem								
	-- Frequently ---			--- Occas./rarely ---				
NET	NET	Very	Smwt	NET	Occas.	Rarely	Not happened	No opinion
7	1	*	*	7	2	5	93	*

11c/12c NET:

- Taken someone else's prescription medication-								
	-- Frequently ---			--- Occas./rarely ---				

NET	NET	Very	Smwt	NET	Occas.	Rarely	Not happened	No opinion
5	1	*	*	4	2	2	95	*

11d/12d NET:

------- Forgotten whether or not you've taken a prescription medication -------									
-- Frequently ---				--- Occas./rarely ---			Not	Never	No
NET	NET	Very	Smwt	NET	Occas.	Rarely	happened	filled Rx	op.
30	3	1	2	27	9	18	70	*	*

13. In general, would you say your overall health is excellent, very good, good, fair or poor?

--- Excellent/very good ---				--- Fair/poor ---			No
NET	Excellent	Very good	Good	NET	Fair	Poor	opinion
30	7	23	34	36	26	10	*

14. Please tell me if you currently have any of the following health conditions as diagnosed by a doctor, or not. First is [ITEM]- do you have that, or not? And what about... [NEXT ITEM]?

	Yes	No	No opinion
a. diabetes or high blood sugar	33	66	*
b. high blood pressure or hypertension	57	43	0
c. asthma, bronchitis, emphysema, or any other lung condition	22	77	*
d. heart disease, heart failure or any other heart problem	23	77	*
e. high cholesterol	47	52	*
f. any other chronic health problem	38	61	1

15. Overall, about how many times in the past 12 months have you seen a doctor, nurse or other health care provider?

- Twice or less -				- 3-4 times-			------- 5+ times -------					No		
NET	None	1	2	NET	3	4	NET	5	6	7-9	10+	op.	Mean	Med.
29	2	10	17	30	12	18	39	5	10	5	20	2	8.38	4.00

16. Thinking about the place where you (usually go/last went) for care, do you feel like it's a place where they know you pretty well, or not really?

Yes	No	No opinion
86	13	1

17. How often do you see the same health care provider when you go in for a health care appointment – every time, most of the time, some of the time, rarely or never?

------ Usually -------				--- Rarely/never ---			
NET	Every time	Most of the time	Some of the time	NET	Rarely	Never	No opinion
93	68	25	4	3	2	1	0

18. Thinking about where you get (most of) your prescription medication(s), do you feel like it's a place where they know you pretty well, or not really?

Yes	No	Never filled an Rx (vol.)	No opinion

63 35 1 1

19. (IF GETS MEDICATION FROM PHARMACY OR A COMBINATION OF PHARMACY AND MAIL) When you go to the drugstore for ongoing prescription medication, how often do you see the same pharmacist or pharmacy staff – every time, most of the time, some of the time, rarely or never?

------ Usually -------							
NET	Every time	Most of the time	Some of the time	NET	--- Rarely/never --- Rarely	Never	No opinion
71	34	37	15	12	7	6	2

20. In general, how well do you think you understand [INSERT ITEM] - a great deal, somewhat, not so much or not at all?

	-- Great deal/smwt -- NET	Grt deal	Smwt	-- Not so much/at all - NET	Not much	At all	No op.
a. your health and any health problems you may have	98	80	18	2	1	1	*
b. how much and when you're supposed to take your prescription medication(s)	99	94	5	1	1	*	*

21. Again, thinking only about prescription medications you take on an ongoing, regular basis, how simple or complicated would you say it is to take your medication(s) exactly as prescribed? Is it very simple, somewhat simple, somewhat complicated, or very complicated?

---- Simple -----			-- Complicated --			
NET	Very	Smwt	NET	Smwt	Very	No opinion
96	82	14	4	4	1	*

22. How important do you think it is to take your medication(s) exactly as prescribed? Is it extremely important, very important, somewhat important, not so important, or not important at all?

- Extremely/very imp -			Smwt	--- Not important ---			
NET	Extremely	Very	imp.	NET	Not so	At all	No opinion
93	50	43	7	1	1	0	0

23. When you've been prescribed a new medication, how often has a [ITEM] spoken with you about how and when to take it – do they always do this, sometimes, occasionally, rarely, or never? How about [NEXT ITEM]?

a. doctor or other health care provider

-- Always/sometimes --				--- Rarely/never ---			Never filled	No.
NET	Always	Smtimes	Occas.	NET	Rarely	Never	Rx (vol.)	op.
88	77	11	5	6	3	2	*	1

b. pharmacist or pharmacy staff member

-- Always/sometimes --				--- Rarely/never ---			Never filled	No.
NET	Always	Smtimes	Occas.	NET	Rarely	Never	Rx (vol.)	op.

73	58	15	6	20	6	14	*	1

24. How much do you rely on someone else, such as a family member or caregiver, to remind you when to take your prescription medication(s) – a great deal, somewhat, not so much or not at all?

--- Great deal/somewhat ---			--- Not so much/at all ---			No
NET	Great deal	Somewhat	NET	Not so much	At all	opinion
11	5	6	89	6	83	0

25. How much do you feel that your prescription medication(s) [ITEM] – a great deal, somewhat not so much or not at all?

a. (is/are) working for you

-- Great deal/smwt --			-- Not so much/at all -			Depends on	No
NET	Grt deal	Smwt	NET	Not much	At all	med (vol.)	op.
96	76	20	2	2	1	*	1

b. (causes/cause) unpleasant side effects

-- Great deal/smwt --			-- Not so much/at all -			Depends on	No
NET	Grt deal	Smwt	NET	Not much	At all	med (vol.)	op.
30	8	22	70	19	51	*	1

c. will help you live a better or longer life

-- Great deal/smwt --			-- Not so much/at all -			Don’t take	No
NET	Grt deal	Smwt	NET	Not much	At all	Rx (vol.)	op.
93	69	23	4	3	1	*	3

26. How concerned are you, if at all, about possible long-term consequence of taking prescription medication(s) on an ongoing basis – are you very concerned about this, somewhat concerned, not so concerned or not concerned at all?

----- Concerned -----			--- Not concerned ---			
NET	Very	Somewhat	NET	Not so	At all	No opinion
52	21	30	48	19	29	*

27/28. Do you have health insurance, or not? (IF HAS HEALTH INSURANCE) How do you obtain your health insurance? Is it through your or your spouse’s employer; directly from a health plan or insurance company; or through public programs, such as Medicare or Medicaid?

Have health insurance NET	90
Private insurance NET	47
Through your or your spouse’s employer	39
Directly from a health plan or insurance company	9
Through public programs, such as Medicare or Medicaid	39
Other	4
Does not have health insurance	10
No opinion	0

29. (IF 65 OR OLDER) Are you covered by Medicare, the main health insurance program for people 65 years old and older?

Yes	No	No opinion
94	5	1

30. (IF INSURED) Does your insurance help cover the cost of prescription medication(s), or not?

Yes	No	No opinion
89	10	1

31. How easy or difficult is it for you to afford the cost of your prescription medication(s) – very easy, somewhat easy, somewhat difficult or very difficult?

----- Easy ------			--- Difficult ---			
NET	Very	Smwt	NET	Smwt	Very	No opinion
65	36	29	34	25	10	*

Appendix C: Methodology

This survey for the National Community Pharmacists Association was conducted Feb. 20-March 10, 2013, among a national random sample of 1,020 adults 40 or older with ongoing, long-term medical conditions for which they have been prescribed one or more medications. Results for the full sample have a 3.5-point error margin, including a design effect due to weighting of 1.48.

This survey was written, produced and analyzed by Langer Research Associates of New York, N.Y.; the lead author of this report is Senior Research Analyst Julie E. Phelan, with Damla Ergun, Gary Langer and Gregory Holyk. Sampling, data collection and tabulation were conducted by Social Science Research Solutions of Media, Pa., via its Enhanced Excel omnibus survey.

Excel consists of 1,000 random-sample telephone interviews per week, including 300 completed among respondents on their cell phones and a minimum of 30 in Spanish. Calls are made to a fully replicated, stratified, single-stage, random-digit-dialed sample of landline telephone households and randomly generated cell phone numbers designed to represent the adult population of the continental United States.

Within each landline household, interviewers ask to speak with the youngest adult male at home; if no men are at home, interviewers ask to speak with the youngest adult female. Cell phone interviews are conducted with the adult answering the phone.

Excel data are weighted to represent the study's target population via a multistage process. This initially corrects for unequal probabilities of selection depending on the number of adults in the household and the nature of telephone service in use. The final weighting stage involves post-stratification adjustment to correct for systematic nonresponse using known demographic parameters; the sample undergoes iterative proportional fitting ("raking") to match the most recent March Supplement of the U.S. Census Bureau's Current Population Survey by age (by gender), education, race/ethnicity, and Census region (by gender). Respondents' telephone status (cell phone only, landline only or mixed user) also is included, based on the most recent estimates available from the U.S. Centers for Disease Control's National Health Interview Survey.