

“Fracking” in the American Mind

Americans’ Views on Natural Gas Drilling Using Hydraulic Fracturing

September 2012



EXECUTIVE SUMMARY

BACKGROUND

- Demand for fossil fuels that emit less greenhouse gases than coal, along with new technology, has spurred an increase in oil and natural gas development in “unconventional” formations, such as shale rock.
- An important aspect of such development involves horizontal drilling and hydraulic fracturing. “Fracking,” as the process is commonly known, uses a pressurized mixture of water, sand, and chemicals to fracture the rock and allow oil and natural gas to flow more easily. This method has prompted expanded oil/gas development in the U.S., Europe, Asia, Australia, and elsewhere.
- Proponents of fracking contend that it will not only boost the economy but also provide more secure, domestic energy supplies and facilitate a transition from coal-based electricity generation. Opponents focus on potential adverse impacts to public health, the environment, and communities.

RESEARCH METHOD

- In this report, we use a nationally representative sample of Americans (N=1,061) to examine public perceptions of fracking. Questions on fracking were included as part of a national survey – *Climate Change in the American Mind* – conducted by the Yale Project on Climate Change Communication and the George Mason University Center for Climate Change Communication. The topic of fracking was introduced in the survey before any mention of climate change. Respondents were asked how much they had heard or read about it; whether they believed it was a “good” or “bad” thing; and what first came to mind when they heard the term. They were then given a brief definition of fracking and asked how much they supported or opposed it.

KEY FINDINGS

- The results suggest limited familiarity with fracking and its potential impacts as well as uncertainty about whether to support or oppose it. Fewer than half of American adults have developed an opinion – in support or in opposition – about fracking. The minority who has formed an opinion are more or less evenly split between supporters and opponents.
- Support varies by gender, age, political party, geographic region, and familiarity with the issue. In general, respondents who are female, younger, and liberal are more opposed. Those who are male, older, and conservative are more supportive.
- Americans who support fracking have different “top of mind” associations than those who oppose it. Economic and energy supply impacts are associated with greater support, while environmental impacts are associated with greater opposition.

Table of Contents

FRACKING AWARENESS, ATTITUDES, AND SUPPORT/OPPOSITION	5
1. Most Americans have heard little or nothing about fracking.	5
2. Among those with an opinion about fracking, a slim majority think it is bad.	6
3. Many Americans do not know or are undecided about fracking. Americans who have made a decision are evenly split between support and opposition.	7
4. Positive attitudes toward fracking are associated with strong support; negative attitudes are associated with strong opposition.	8
FRACKING SUPPORT/OPPOSITION VARIES BY GENDER, AGE, POLITICAL PARTY, REGION, AND FAMILIARITY	9
1. More men than women support fracking; women are more undecided.....	9
2. Hispanic/non-White respondents are more undecided about fracking than non-Hispanic/White respondents.	10
3. Older respondents are more supportive of fracking than younger respondents.	11
4. Those with more education are more likely to take a position on fracking.	12
5. Conservatives are more likely to support fracking; liberals are more likely to oppose it; moderates are the most unsure.	13
6. Greater familiarity with fracking is associated with divided views on support/opposition.	14
7. Northeastern, Western residents are more opposed to fracking than Midwestern, Southern residents; Midwestern residents are the most unsure.	15
AMERICANS’ “TOP OF MIND” ASSOCIATIONS RELATED TO FRACKING	16
1. Americans’ “top of mind” associations reflect unfamiliarity with fracking; few respondents mention economic, social, or environmental impacts.	16
2. Fracking opponents’ “top of mind” associations focus on environmental impacts; supporters focus on economics and energy supply/independence.	17
FRACKING AND “GLOBAL WARMING’S SIX AMERICAS”	18
1. Americans across all segments of the Six Americas are unfamiliar with fracking, although the Alarmed, Cautious, and Dismissive are most familiar.	18
2. Large proportions of Americans in every segment have not decided whether they support or oppose fracking.	19
Appendix I: List of Tables	20
Appendix II: Survey Method	27



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Fracking in the American Mind:

Americans' Views on Hydraulic Fracturing in September, 2012.

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This report is based on findings from a nationally representative survey – *Climate Change in the American Mind* – conducted by the Yale Project on Climate Change Communication and the George Mason University Center for Climate Change Communication (Principal Investigators: Anthony Leiserowitz³, Edward Maibach¹, Connie Roser-Renouf¹ and Geoff Feinberg³). Interview dates: August 31, 2012 – September 12, 2012. Interviews: 1,061 Adults (18+). Total average margin of error: +/- 3 percentage points at the 95% confidence level. The study was funded by the Surdna Foundation, the 11th Hour Project, the Grantham Foundation, and the V.K. Rasmussen Foundation.

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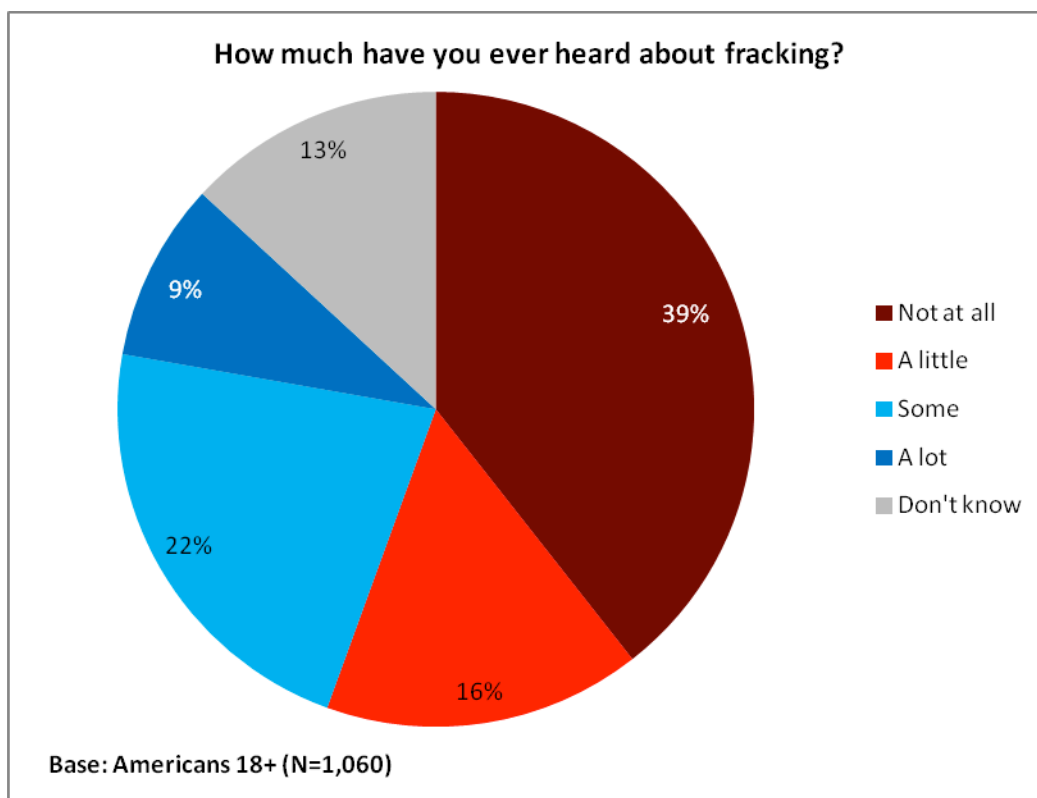
FRACKING AWARENESS, ATTITUDES, AND SUPPORT/OPPOSITION

1. Most Americans have heard little or nothing about fracking.

Fifty-four percent of Americans have heard nothing at all or only “a little” about fracking.

Twenty-two percent have heard “some.” Only 9% have heard “a lot.”

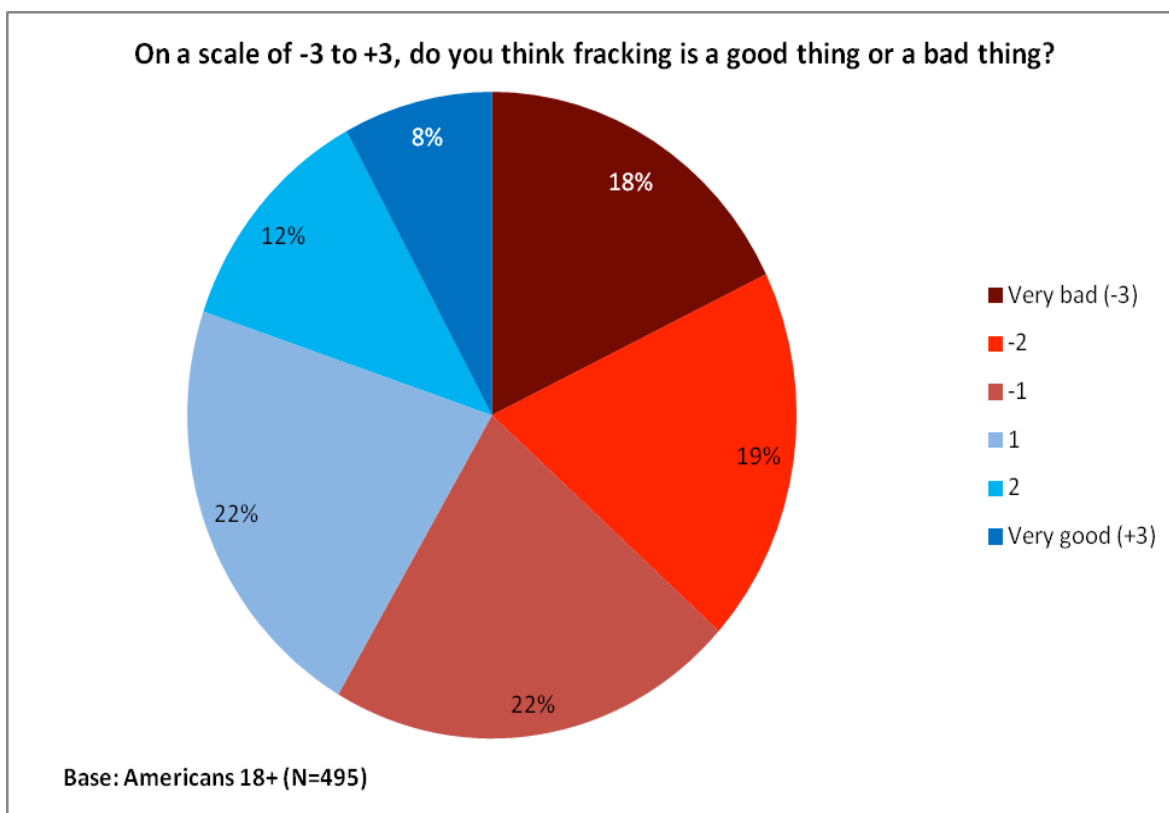
Thirteen percent say they “don’t know” how much they have heard.



2. Among those with an opinion about fracking, a slim majority think it is bad.

Respondents were asked to rate how good or bad they consider fracking to be, using a scale of -3 (very bad) to +3 (very good).

A majority of those who answered the question (59%) think fracking is bad (a response of -1, -2, or -3). By comparison, 42% think it is good (a response of +1, +2, and +3). More than twice as many Americans think fracking is “very bad” (18%) than think it is “very good” (8%).

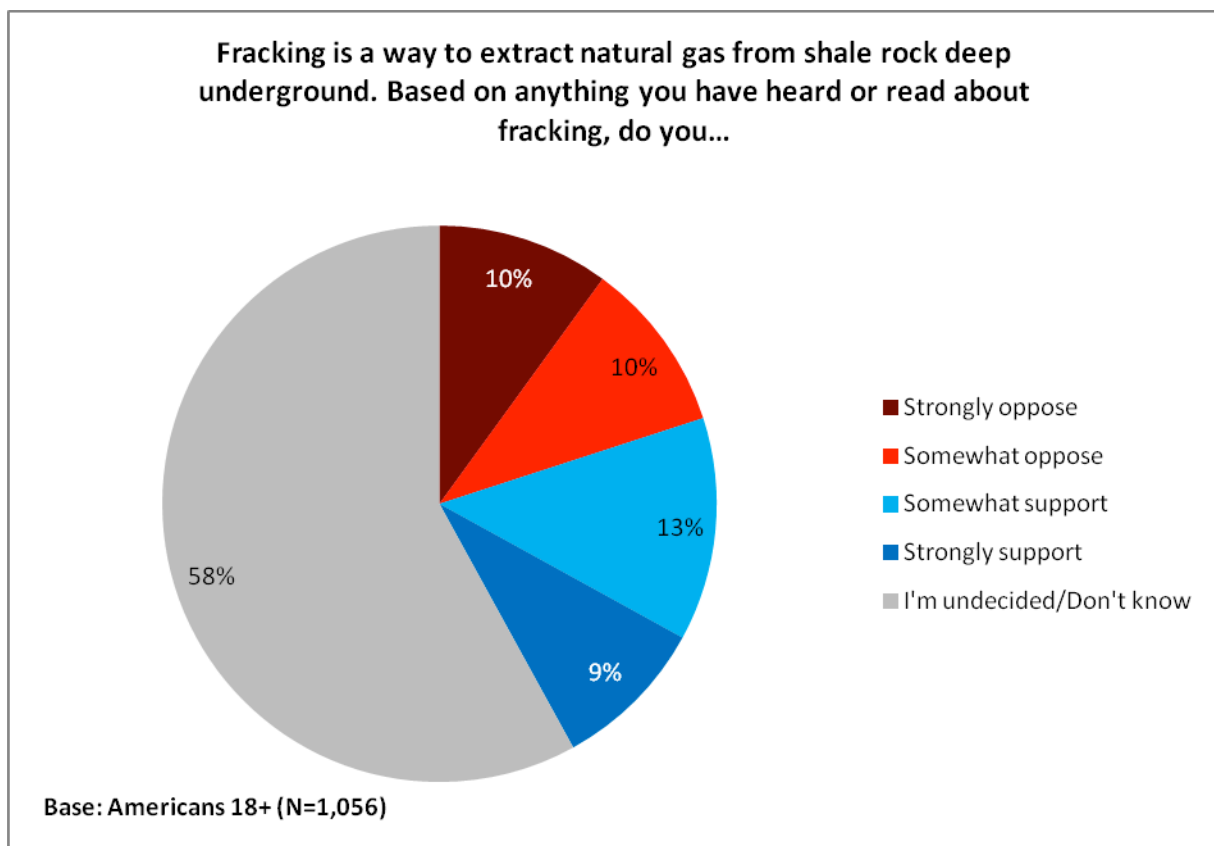


NOTE: Only individuals who indicated, in the previous question, that they had heard “a little,” “some,” or “a lot” about fracking were asked whether they thought it was good or bad. Those who hadn’t heard anything at all or didn’t know how much they had heard were not asked this question.

3. Many Americans do not know or are undecided about fracking. Americans who have made a decision are evenly split between support and opposition.

When asked to what extent they support or oppose fracking, many respondents do not know or are undecided (58%).

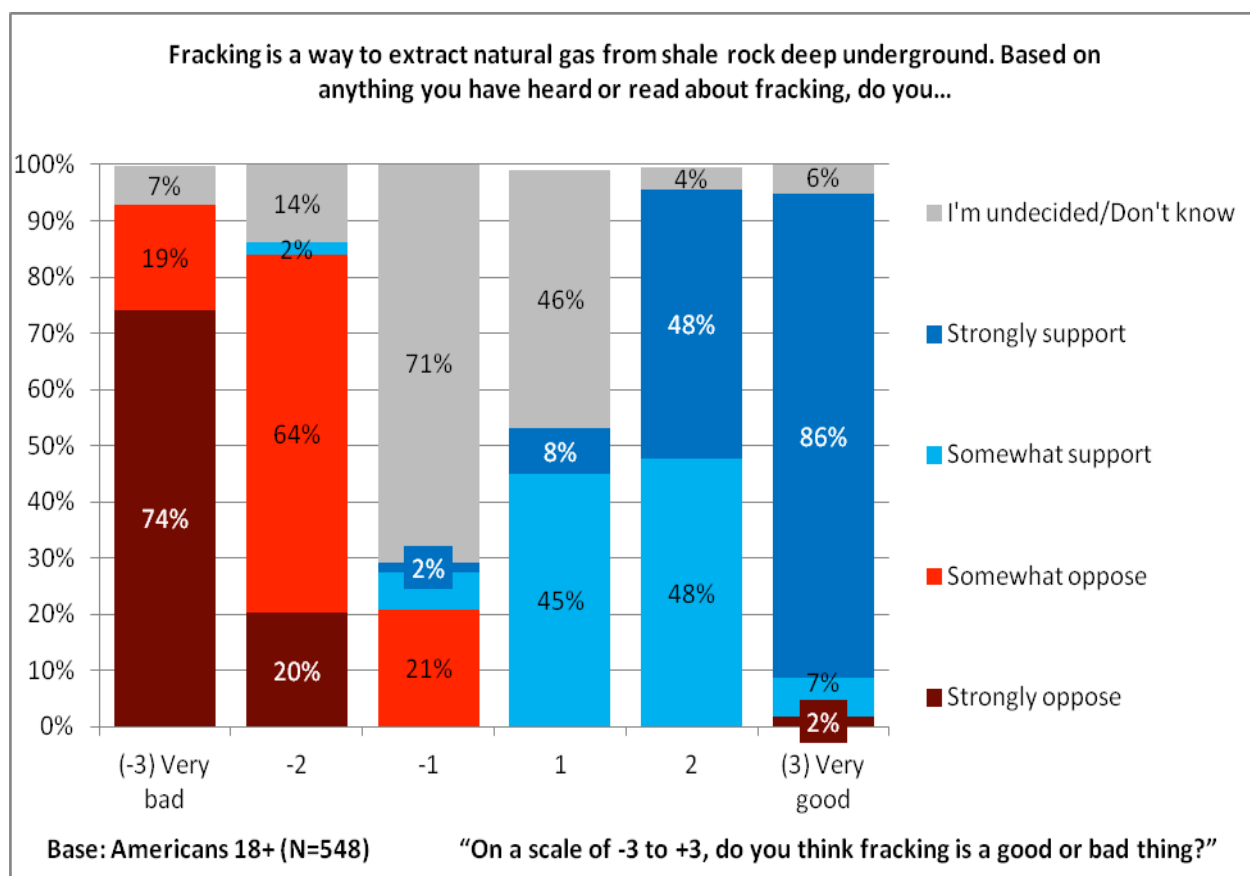
Those who have made a decision are relatively split: 10% strongly oppose it; 10% are somewhat opposed; 13% somewhat support it; and 9% are strongly supportive.



4. Positive attitudes toward fracking are associated with strong support; negative attitudes are associated with strong opposition.

In general, those who oppose fracking are much more likely to believe it is a bad thing (-1, -2, or -3 on the scale below). For example, 74% of those who gave fracking a -3 (very bad) strongly oppose it.

By contrast, those who support fracking are much more likely to believe it is a good thing (+1, +2, or +3 on the scale below). For example, 86% of those who gave fracking a +3 (very good) strongly support it.



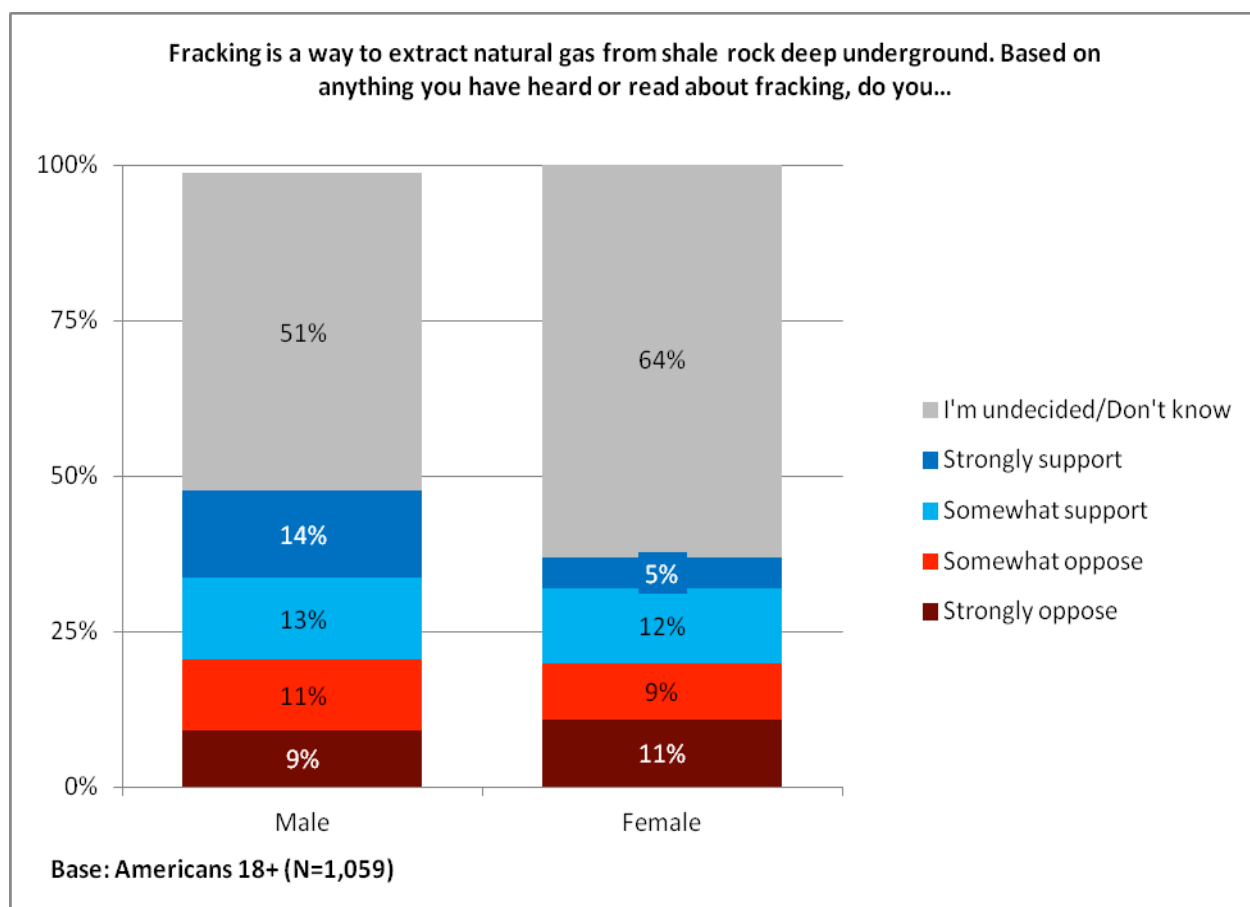
NOTE: Column totals may not add up to 100% because a small number of respondents selected the "prefer not to answer" option or did not provide any answer. Such responses are excluded from the chart.

FRACKING SUPPORT/OPPOSITION VARIES BY GENDER, AGE, POLITICAL PARTY, REGION, AND FAMILIARITY

1. More men than women support fracking; women are more undecided.

More women (64%) than men (51%) do not know whether they support/oppose fracking or are undecided.

Among those who have made a decision, more men strongly or somewhat support fracking (27%) than do women (17%). However, men and women are similar in terms of strongly or somewhat opposing fracking (20% for each group).

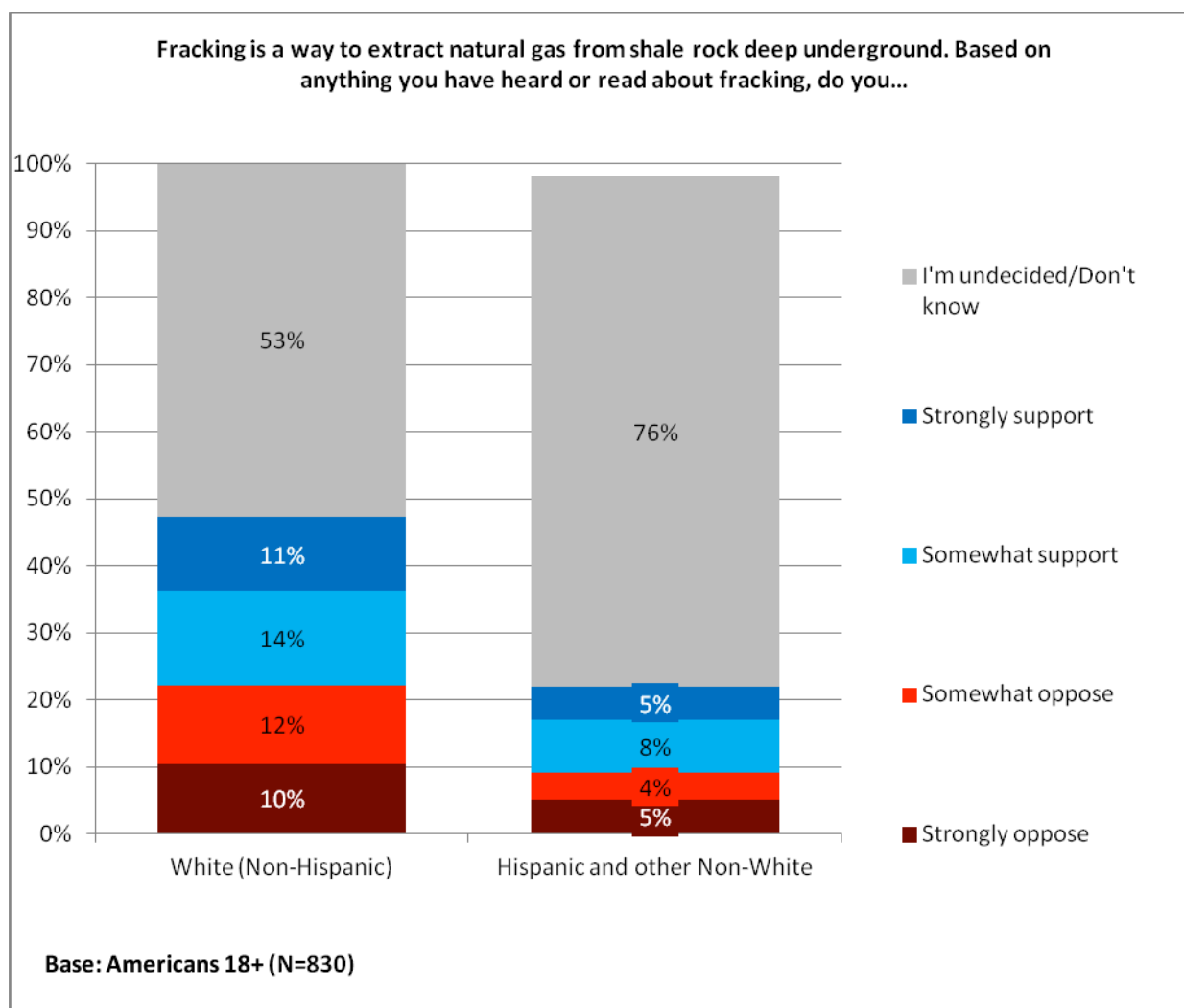


NOTE: The sample included 506 men and 553 women. Column totals may not add up to 100% because a small number of respondents selected the “prefer not to answer” option or did not provide any answer. Such responses are excluded from the chart.

2. Hispanic/non-White respondents are more undecided about fracking than non-Hispanic/White respondents.

Hispanic and other non-White respondents are more likely to be undecided about whether they support or oppose fracking or unsure how they feel (76%) compared to White (non-Hispanic) respondents (53%).

White (non-Hispanic) respondents are more likely to have a position on fracking, whether in terms of support or opposition.

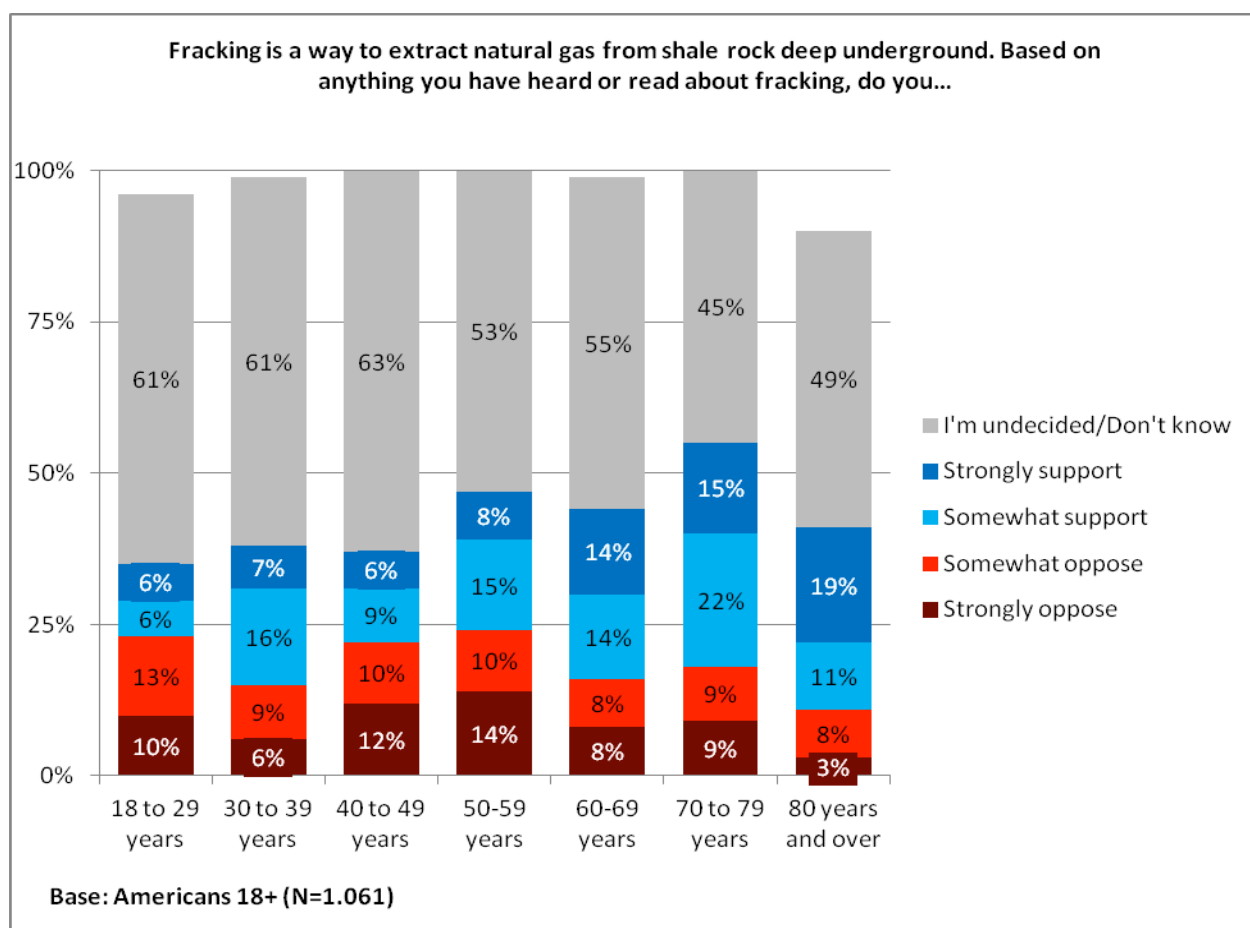


NOTE: The sample included 123 Hispanic and other non-White respondents, and 707 White (non-Hispanic) respondents. Column totals may not add up to 100% because a small number of respondents selected the “prefer not to answer” option or did not provide any answer. Such responses are excluded from the chart.

3. Older respondents are more supportive of fracking than younger respondents.

Overall, younger respondents are more likely to be undecided about fracking or unsure how they feel compared to older respondents. In most cases, the percentage of respondents who are unsure or undecided decreased across all age categories from younger to older. For example, 61% of those 18-29 years old are undecided or unsure versus 45% of those 70-79 years old.

Older respondents also are more likely to somewhat/strongly support fracking. For example, 12% of those 18-29 years old are somewhat/very supportive compared to 30% of those 80 years old and above.

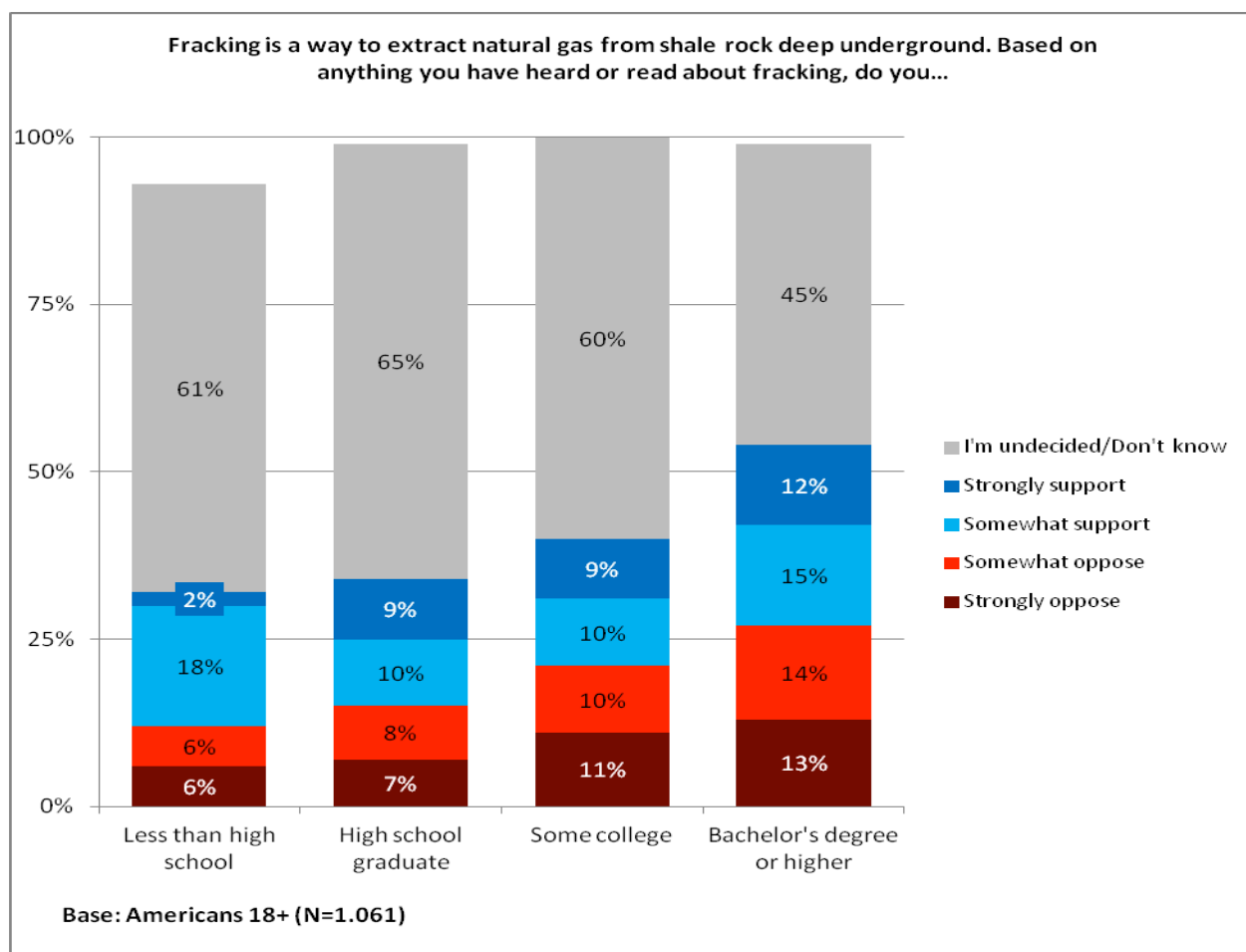


NOTE: The number of respondents in each group was as follows: 225 (18-29 years old); 167 (30-39 years); 180 (40-49 years); 218 (50-59 years); 169 (60-69 years); 65 (70-79 years); and 37 (80 years and above). Column totals may not add up to 100% because a small number of respondents selected the “prefer not to answer” option or did not provide any answer. Such responses are excluded from the chart.

4. Those with more education are more likely to take a position on fracking.

Respondents with more formal education are less likely to be undecided or unsure about whether they support/oppose fracking. Those without a high school diploma are the most undecided or unsure (61%); those with a Bachelor's degree or higher are the least undecided or unsure (45%).

Overall, as respondents acquire more years of formal education, they are more likely to “stake out” a position on fracking, although that position is somewhat divided.

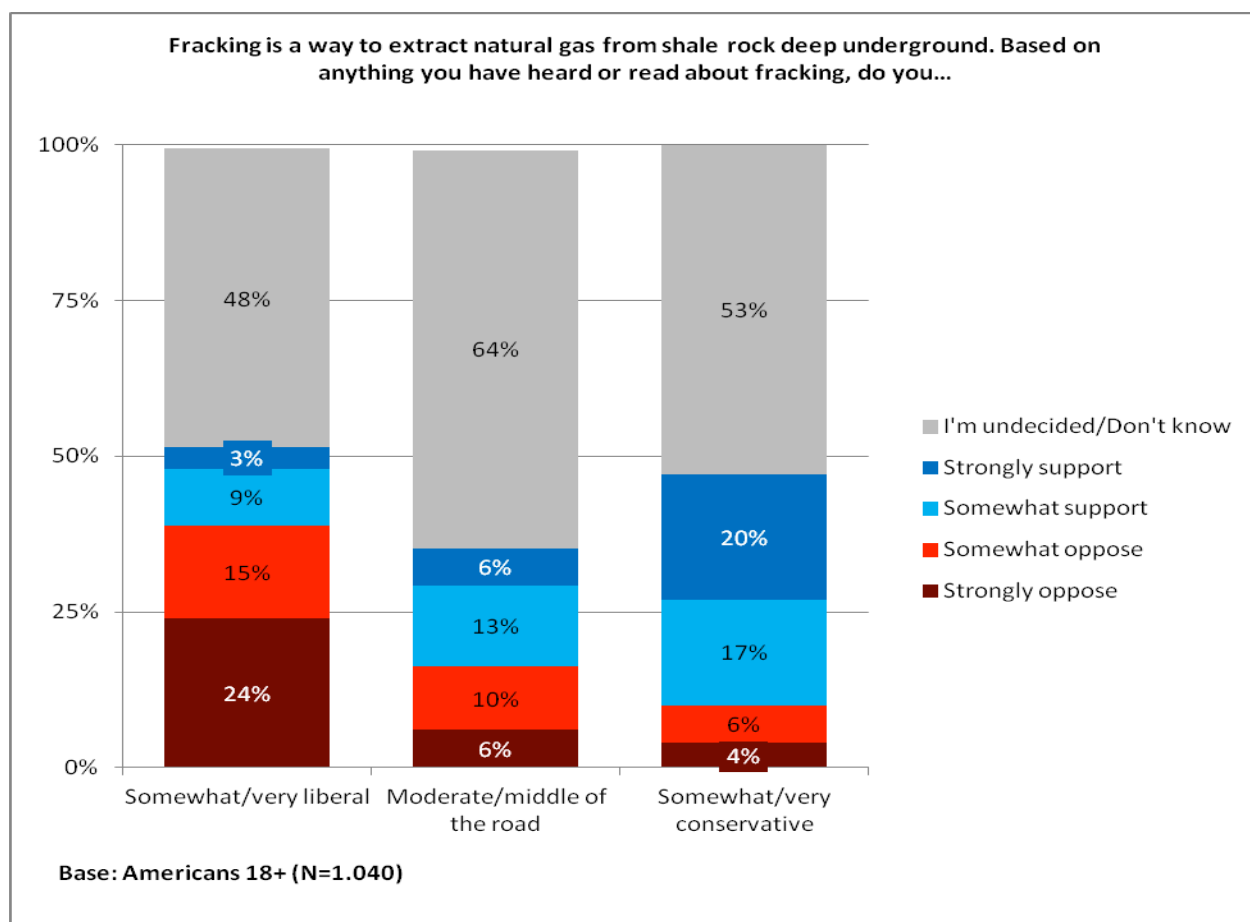


NOTE: The number of respondents in each group was as follows: 127 (less than high school); 322 (high school graduate); 305 (some college); and 307 (Bachelor's degree or higher). Column totals may not add up to 100% because a small number of respondents selected the “prefer not to answer” option or did not provide any answer. Such responses are excluded from the chart.

5. Conservatives are more likely to support fracking; liberals are more likely to oppose it; moderates are the most unsure.

Many liberals (48%), moderates (64%), and conservatives (53%) do not know whether they support/oppose fracking or are undecided. For those who made a decision, more conservatives strongly or somewhat support fracking (37%) than moderates (19%) and liberals (12%). By contrast, more liberals strongly or somewhat oppose fracking (39%) than moderates (16%) and conservatives (10%)

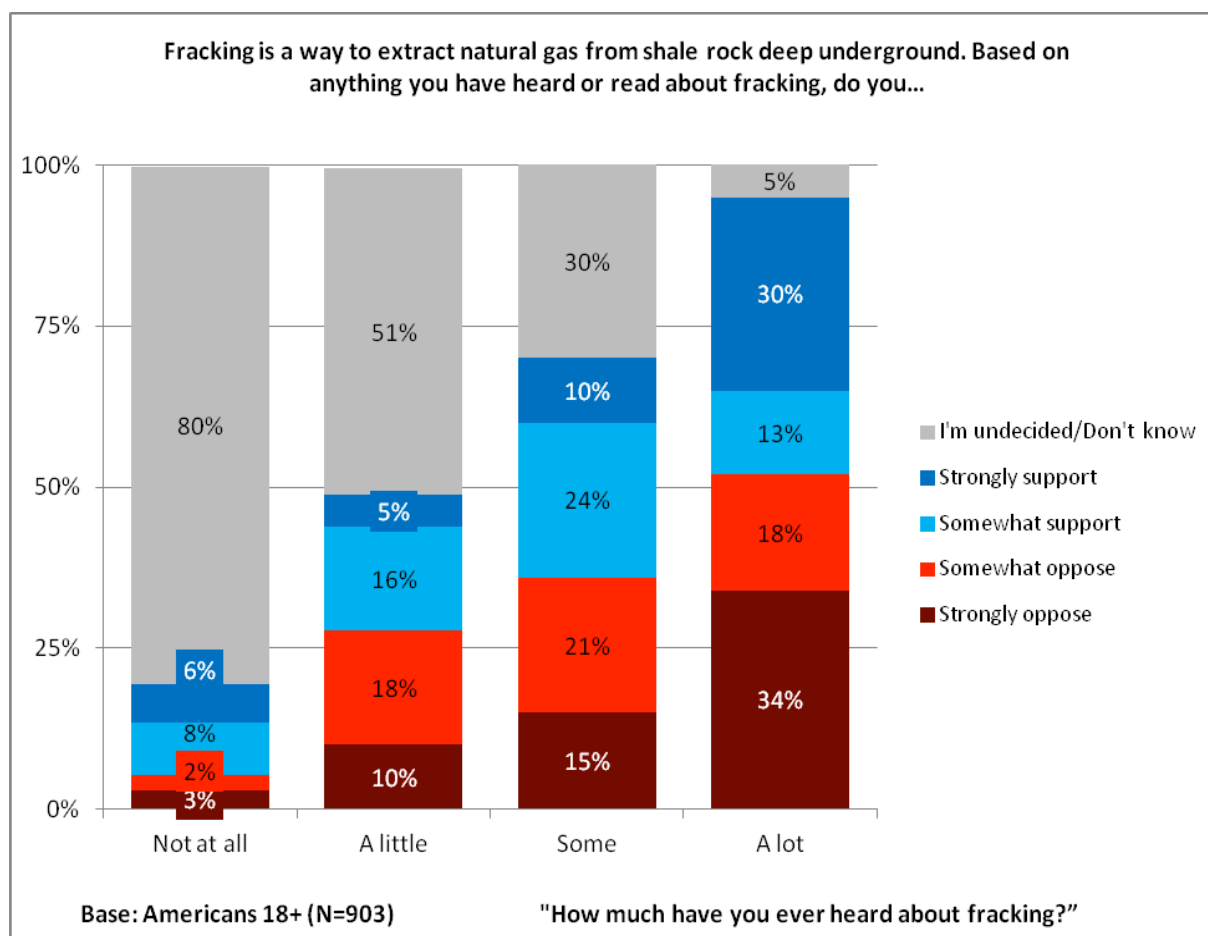
Thus, while many liberals, moderates, and conservatives are unsure whether they support/oppose fracking, comparatively more liberals and conservatives have made a decision (and differ strongly in that decision) than moderates.



NOTE: The number of respondents in each group was as follows: 268 (somewhat/very liberal); 457 (moderate/middle of the road); and 303 (somewhat/very conservative). Column totals may not add up to 100% because a small number of respondents selected the “prefer not to answer” option or did not provide any answer. Such responses are excluded from the chart.

6. Greater familiarity with fracking is associated with divided views on support/opposition.

A large majority of individuals who have not heard anything about fracking do not know if they support or oppose it, or are undecided (80%). These figures drop as people become more aware of fracking. Also, as familiarity increases, both support and opposition increase. For example, 43% of those who have heard “a lot” somewhat/strongly support it; 52% somewhat/strongly oppose it.

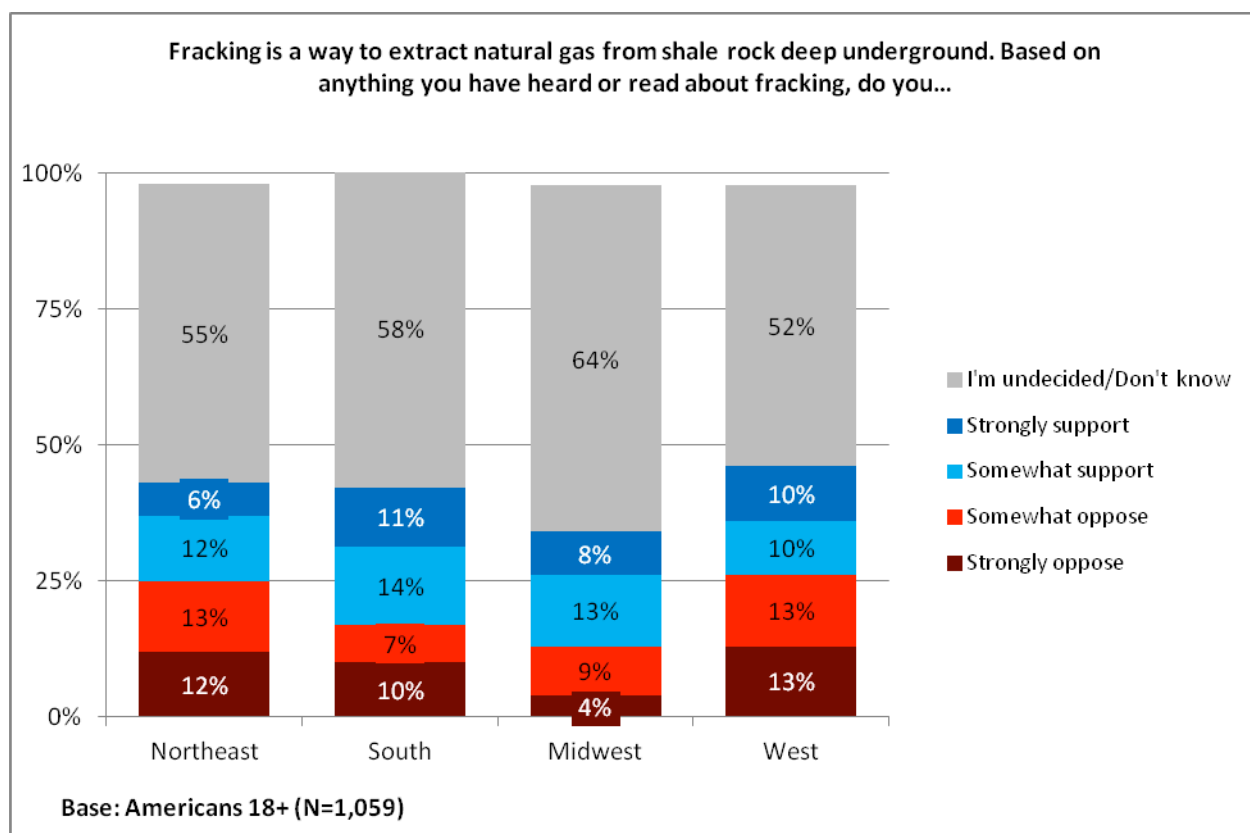


NOTE: The number of respondents in each group was as follows: 411 (not at all); 166 (a little); 230 (some); and 96 (a lot). Column totals may not add up to 100% because a small number of respondents selected the “prefer not to answer” option or did not provide any answer. Such responses are excluded from the chart.

7. Northeastern, Western residents are more opposed to fracking than Midwestern, Southern residents; Midwestern residents are the most unsure.

Northeastern and Western residents tend to be more somewhat/strongly opposed to fracking (25% and 26% respectively) than those in the Midwest (13%) and South (17%). However, respondents in all four regions express similar levels of somewhat/strong support (18% in the Northeast, 21% in the Midwest, 25% in the South, and 20% in the West).

There are differences across regions in the proportion of respondents who don't know whether they support/oppose fracking or are undecided. Those in the Midwest are more uncertain (64%) than those in other regions (55% in the Northeast, 58% in the South, and 52% West).



NOTE: The number of respondents in each group was as follows: 194 (Northeast); 391 (South); 226 (Midwest); and 248 (West). Column totals may not add up to 100% because a small number of respondents selected the “prefer not to answer” option or did not provide any answer. Such responses are excluded from the chart.

AMERICANS' "TOP OF MIND" ASSOCIATIONS RELATED TO FRACKING

1. Americans' "top of mind" associations reflect unfamiliarity with fracking; few respondents mention economic, social, or environmental impacts.

Respondents were asked what word first comes to mind when they think of "fracking". The most common response (58% of respondents) was "don't know" or statements nonspecific to the process of, or impacts associated with, fracking. Some of these statements are arguably irrelevant to fracking, such as comments related to the weather. Other statements may be related to fracking, but the respondent did not provide enough detail to make a determination ("cracking" and "breaking").

The next most common response was references to the process of fracking or to oil/natural gas (32% of respondents). Examples included "drilling for natural gas" and "mining."

Finally, few respondents mentioned specific impacts associated with oil/natural gas development using fracking, such as:

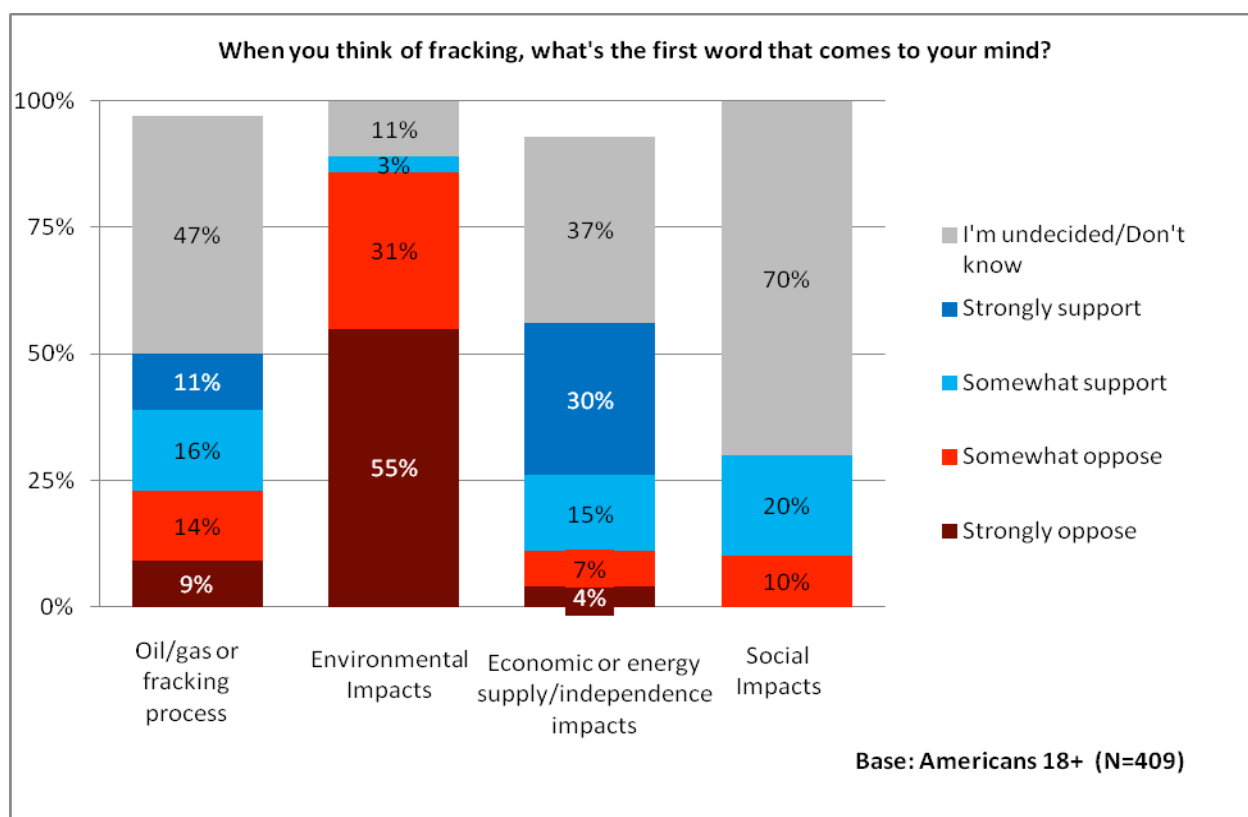
- The environment (7% of respondents); examples included water contamination/pollution;
- Economic effects in general or energy supply/independence issues specifically (3%); examples included job creation and increases in domestic oil and gas supply; and,
- Social issues (1%); such as impacts on communities in close proximity to gas development.

"Top of mind" associations related to fracking	
Don't know or irrelevant/non-specific statements	58%
References to oil/natural gas or fracking process	32%
Environmental impacts	7%
Economic or energy supply/independence impacts	3%
Social impacts	1%
Base: Americans 18+ (N=969)	

2. Fracking opponents' "top of mind" associations focus on environmental impacts; supporters focus on economics and energy supply/independence.

Respondents who mentioned oil/gas or the fracking process didn't know whether they support or oppose fracking or were undecided (47%). The same was also true for those who mentioned social impacts: more than 70% did not know or were undecided.

Respondents who mentioned environmental impacts, or economic or energy supply/independence impacts were more likely to take a position on fracking, although these positions differed noticeably. Respondents who mentioned environmental impacts tended to strongly oppose (55%) or somewhat oppose (31%). The reverse was true for economic or energy supply/independent impacts. Many of these respondents were somewhat supportive (15%) or strongly supportive (30%).



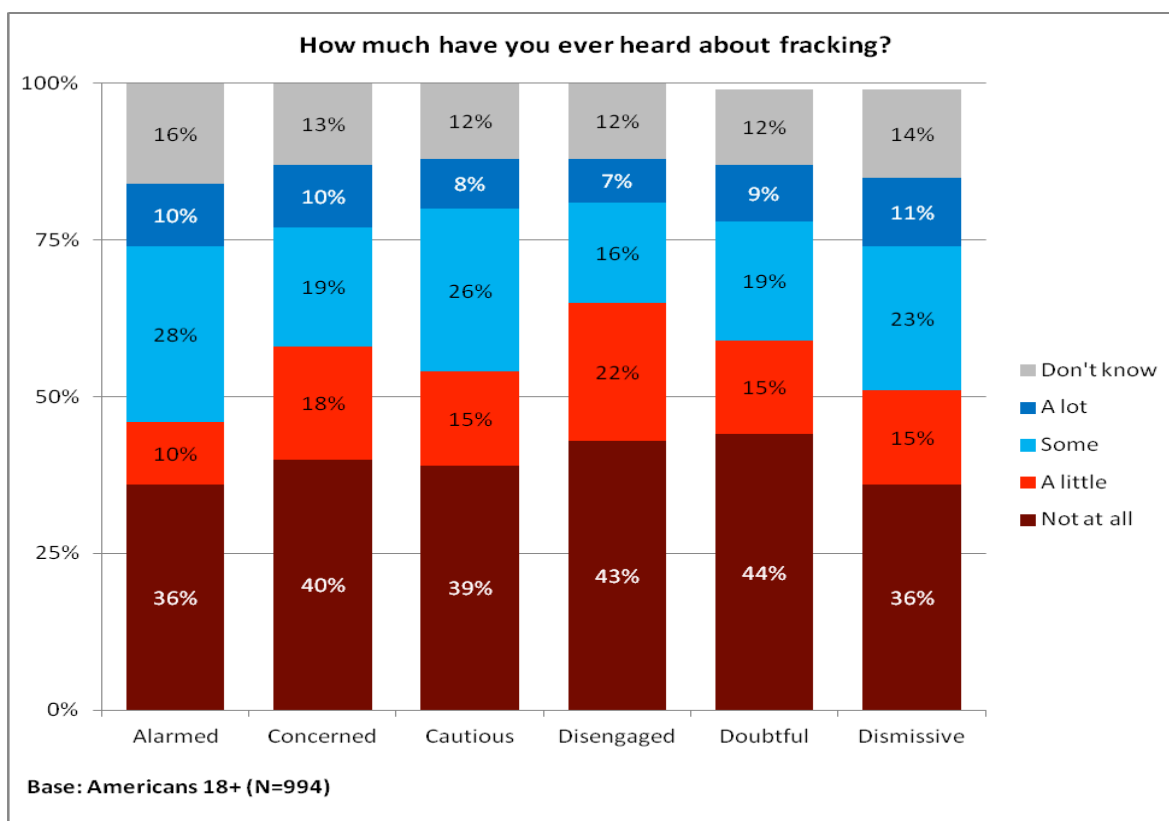
NOTE: The number of respondents who mentioned each association was as follows: 308 (references to fracking process, oil/gas); 64 (environmental impacts); 27 (economic and energy supply/independence impacts); and 10 (social impacts). Column totals may not add up to 100% because a small number of respondents selected the "prefer not to answer" option or did not provide any answer. Such responses are excluded from the chart.

FRACKING AND “GLOBAL WARMING’S SIX AMERICAS”

1. Americans across all segments of the Six Americas are unfamiliar with fracking, although the Alarmed, Cautious, and Dismissive are most familiar.

In 2008, using nationally representative survey data on global warming beliefs, behaviors and policy preferences in the United States, we identified six distinct groups of Americans – “Global Warming’s Six Americas.” Since then, we have tracked the size of these six audiences through a series of national surveys. The audiences differ in their concern about global warming and support for policies to address it. “Alarmed” are most concerned and supportive; *Dismissive* are least concerned and supportive.

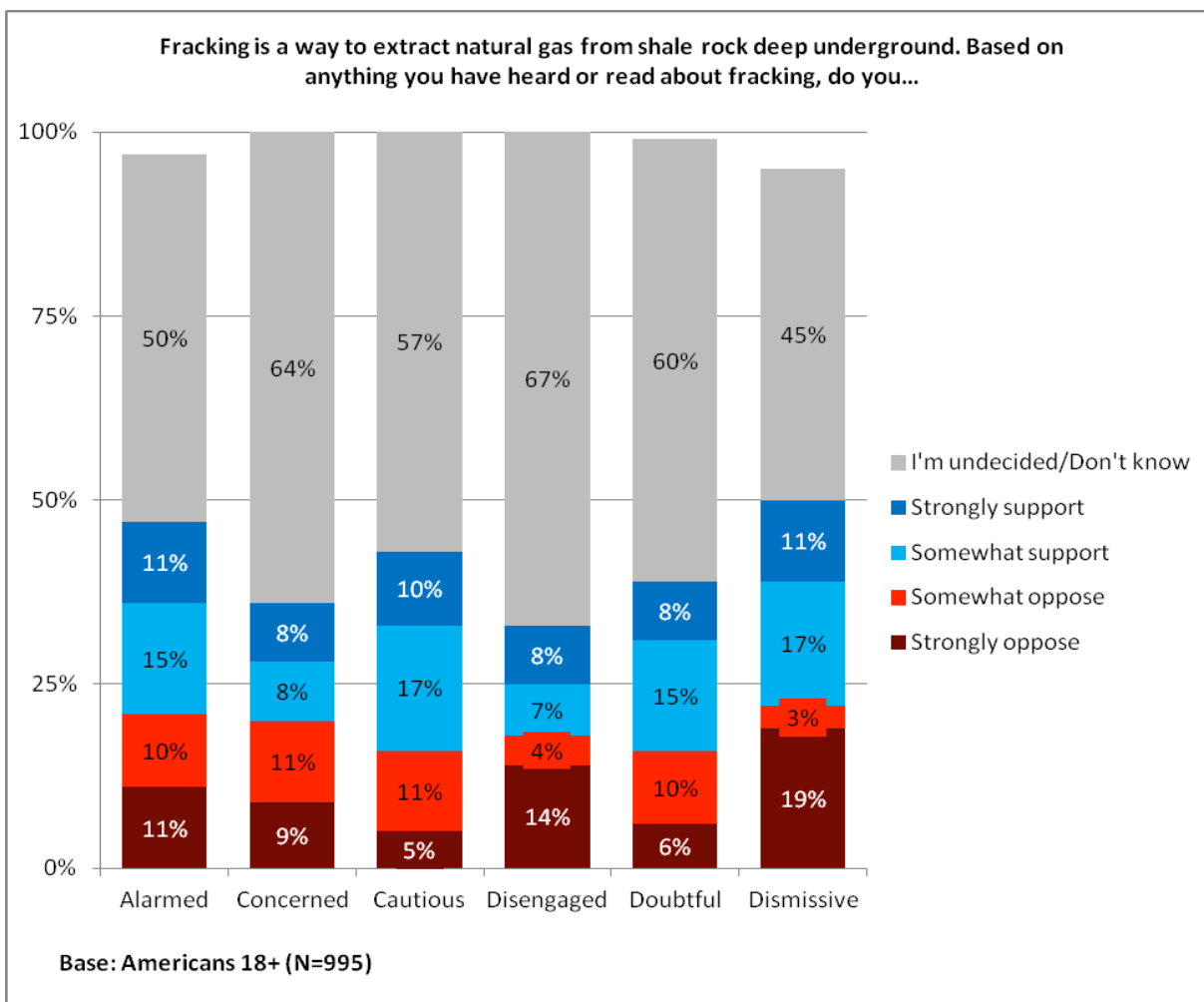
Large proportions of all segments have not heard about fracking or don’t know how much they have heard. The *Disengaged* heard the least (65% indicated nothing at all or “a little”). The *Alarmed*, *Cautious*, and *Dismissive* heard the most, in terms of “some” or “a lot” (38%, 34%, and 34% respectively).



NOTE: The number of respondents in each group was as follows: 169 (Alarmed); 313 (Concerned); 171 (Cautious); 93 (Disengaged); 157 (Doubtful); and 91 (Dismissive). Column totals may not add up to 100% because a small number of respondents selected the “prefer not to answer” option or did not provide any answer. Such responses are excluded from the chart.

2. Large proportions of Americans in every segment have not decided whether they support or oppose fracking.

Majorities or near majorities in each segment do not know whether they support/oppose fracking or are undecided. The *Disengaged* (67%) are the most unsure, and the *Dismissive* (45%) and *Alarmed* (50%) are the least unsure.



NOTE: The number of respondents in each group was as follows: 169 (Alarmed); 314 (Concerned); 172 (Cautious); 93 (Disengaged); 158 (Doubtful); and 89 (Dismissive). Column totals may not add up to 100% because a small number of respondents selected the “prefer not to answer” option or did not provide any answer. Such responses are excluded from the chart.

Appendix I: List of Tables

"How much have you ever heard or read about fracking?"

Sept 2012	
<i>Unweighted base</i>	1060
	%
Not at all	39
A little	16
Some	22
A lot	9
Don't know	13
Refused	*
Prefer not to answer	1

"On a scale from -3 to +3, do you think fracking is a good thing or a bad thing?"

Sept 2012	
<i>Unweighted base</i>	495
	%
Very bad (-3)	18
-2	19
-1	22
1	22
2	12
Very good (+3)	8

* = <1 %

"Fracking is a way to extract natural gas from shale rock deep underground. Based on anything you may have heard or read about fracking, do you ..."

Sept 2012	
<i>Unweighted base</i>	1056
	%
Strongly oppose	10
Somewhat oppose	10
Somewhat support	13
Strongly support	9
I'm undecided/Don't know	58
Refused	*
Prefer not to answer	1

Sept 2012		
	Male	Female
<i>Unweighted base</i>	506	553
	%	%
Strongly oppose	9	11
Somewhat oppose	11	9
Somewhat support	13	12
Strongly support	14	5
I'm undecided/Don't know	51	64
Refused	*	1
Prefer not to answer	3	*

* = <1 %

Fracking is a way to extract natural gas from shale rock deep underground. Based on anything you may have heard or read about fracking, do you...

Sept 2012		
	White (non-Hispanic)	Hispanic and other non-White
<i>Unweighted base</i>	707	123
	%	%
Strongly oppose	10	5
Somewhat oppose	12	4
Somewhat support	14	8
Strongly support	11	5
I'm undecided/Don't know	53	76
Refused	*	*
Prefer not to answer	*	2

Sept 2012							
	18-29 years	30-39 years	40-49 years	50-59 years	60-69 years	70-79 years	80 years and over
<i>Unweighted base</i>	225	167	180	218	169	65	37
	%	%	%	%	%	%	%
Strongly oppose	10	6	12	14	8	9	3
Somewhat oppose	13	9	10	10	8	9	8
Somewhat support	6	16	9	15	14	22	11
Strongly support	6	7	6	8	14	15	19
I'm undecided/Don't know	61	61	63	53	55	45	49
Refused	1	*	*	*	1	*	*
Prefer not to answer	2	1	1	1	*	*	11

* = <1 %

"Fracking is a way to extract natural gas from shale rock deep underground. Based on anything you may have heard or read about fracking, do you ..."

Sept 2012				
	Less than high school	High school graduate	Some college	Bachelor's degree or higher
<i>Unweighted base</i>	127	322	305	307
	%	%	%	%
Strongly oppose	6	7	11	13
Somewhat oppose	6	8	10	14
Somewhat support	18	10	10	15
Strongly support	2	9	9	12
I'm undecided/Don't know	61	65	60	45
Refused	*	1	*	*
Prefer not to answer	6	1	*	*

Sept 2012			
	Somewhat/very liberal	Moderate/middle of the road	Somewhat/very conservative
<i>Unweighted base</i>	268	457	303
	%	%	%
Strongly oppose	24	6	4
Somewhat oppose	15	10	6
Somewhat support	9	13	17
Strongly support	3	6	20
I'm undecided/Don't Know	48	64	53
Refused	*	1	*
Prefer not to answer	1	2	*

* = <1 %

"Fracking is a way to extract natural gas from shale rock deep underground. Based on anything you may have heard or read about fracking, do you ..."

Sept 2012				
	Heard – Not at all	Heard – A little	Heard - Some	Heard – A lot
<i>Unweighted base</i>	411	166	230	96
	%	%	%	%
Strongly oppose	3	10	15	34
Somewhat oppose	2	18	21	18
Somewhat support	8	16	24	13
Strongly support	6	5	10	30
I'm undecided/Don't Know	80	51	30	5
Refused	1	*	*	*
Prefer not to answer	2	*	*	*

Sept 2012				
	Northeast	South	Midwest	West
<i>Unweighted base</i>	194	391	226	248
	%	%	%	%
Strongly oppose	12	10	4	13
Somewhat oppose	13	7	9	13
Somewhat support	12	14	13	10
Strongly support	6	11	8	10
I'm undecided/Don't know	55	58	64	52
Refused	*	*	*	1
Prefer not to answer	1	1	2	2

* = <1 %

"Fracking is a way to extract natural gas from shale rock deep underground. Based on anything you may have heard or read about fracking, do you ..."

Sept 2012				
	References to fracking process or oil/gas	Environmental impacts	Economic or energy supply/independence Impacts	Social impacts
<i>Unweighted base</i>	308	64	27	10
	%	%	%	%
Strongly oppose	9	55	4	0
Somewhat oppose	14	31	7	10
Somewhat support	16	3	15	20
Strongly support	11	0	30	0
I'm undecided/Don't know	47	11	37	70
Refused	1	*	*	*
Prefer not to answer	2	*	7	*

Sept 2012						
	Alarmed	Concerned	Cautious	Disengaged	Doubtful	Dismissive
<i>Unweighted base</i>	169	314	172	93	158	89
	%	%	%	%	%	%
Strongly oppose	11	9	5	14	6	19
Somewhat oppose	10	11	11	4	10	3
Somewhat support	15	8	17	7	15	17
Strongly support	11	8	10	8	8	11
I'm undecided/Don't know	50	64	57	67	60	45
Refused	1	*	1	*	*	*
Prefer not to answer	1	1	*	1	*	5

* = <1 %

"How much have you ever heard or read about fracking?"

Sept 2012						
	Alarmed	Concerned	Cautious	Disengaged	Doubtful	Dismissive
<i>Unweighted base</i>	169	313	171	93	157	91
	%	%	%	%	%	%
Not at all	36	40	39	43	44	36
A little	10	18	15	22	15	15
Some	28	19	26	16	19	23
A lot	10	10	8	7	9	11
Don't know	16	13	12	12	12	14
Refused	*	1	*	*	*	*
Prefer not to answer	1	*	1	1	2	1

* = <1 %

Appendix II: Survey Method

The data in this report are based on a nationally representative survey of 1,061 American adults, age 18 and older, conducted from August 31 – September 12, 2012. All questionnaires were self-administered by respondents in a web-based environment. The survey took, on average, about 25 minutes to complete.

The sample was drawn from Knowledge Networks's KnowledgePanel,[®] an online panel of members drawn using probability sampling methods. Prospective members are recruited using a combination of random digit dial and address - based sampling techniques that cover virtually all (non-institutional) resident phone numbers and addresses in the United States. Those contacted who would choose to join the panel, but do not have access to the Internet, are loaned computers and given Internet access so they may participate.

The sample therefore includes a representative cross-section of American adults – irrespective of whether they have Internet access, use only a cell phone, *etc.* Key demographic variables were weighted, post survey, to match US Census Bureau norms.

The survey instrument was designed by Anthony Leiserowitz and Geoff Feinberg, of Yale University, and Edward Maibach and Connie Roser-Renouf, of George Mason University.

Margins of error

All samples are subject to some degree of sampling error – that is, statistical results obtained from a sample can be expected to differ somewhat from results that would be obtained if every member of the target population were interviewed. Average margins of error, at the 95% confidence level, are plus or minus 3 percentage points.

Rounding error

For tabulation purposes, percentage points are rounded off to the nearest whole number. As a result, percentages in a given chart may total slightly higher or lower than 100%.