Pew Research Center

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Trust and Mistrust in Americans' Views of Scientific Experts

More Americans have confidence in scientists, but there are political divides over the role of scientific experts in policy debates

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More Americans have confidence in scientists, but there are political divides over the role of scientific experts in policy issues

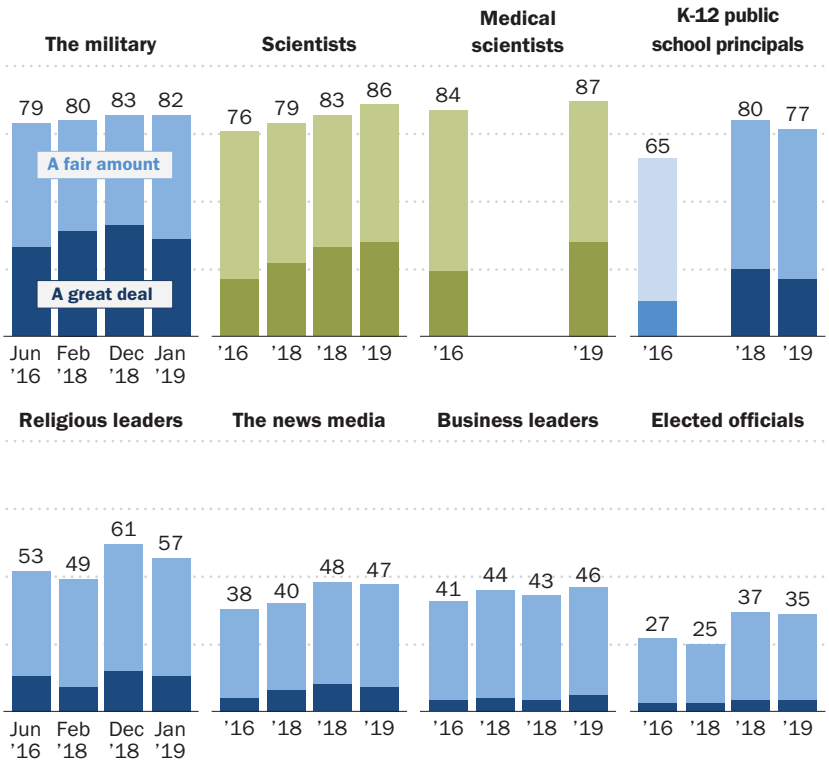
In an era when science and politics often appear to collide, public confidence in scientists is on the upswing, and six-in-ten Americans say scientists should play an active role in policy debates about scientific issues, according to a new Pew Research Center survey.

The survey finds public confidence in scientists on par with confidence in the military. It also exceeds the levels of public confidence in other groups and institutions, including the media, business leaders and elected officials.

At the same time, Americans are divided along party lines in terms of how they view the value and objectivity of scientists and their ability to act in the public interest. And, while political divides do not carry over to views of all scientists and scientific issues, there are particularly sizable gaps between Democrats and Republicans when it comes to trust in scientists whose work is related to the environment.

Americans' confidence that scientists act in the public interest is up since 2016

% of U.S. adults who say they have a great deal or fair amount of confidence in each of the following groups to act in the best interests of the public



Note: In 2016, question asked about confidence in K-12 public school principals and superintendents. Respondents were randomly assigned to rate either their confidence in "scientists" or "medical scientists" in 2016 and 2019. Respondents who gave other responses or who did not give an answer are not shown.
Source: Survey conducted Jan 7-21, 2019.
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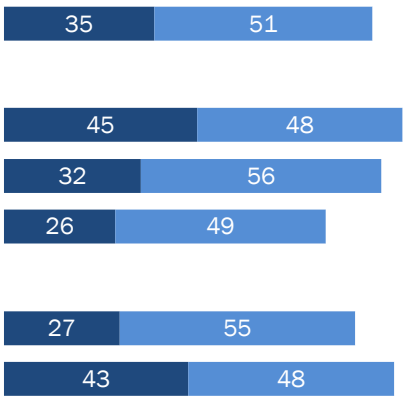
Higher levels of familiarity with the work of scientists are associated with more positive and more trusting views of scientists regarding their competence, credibility and commitment to the public, the survey shows.

Overall, 86% of Americans say they have at least "a fair amount" of confidence in scientists to act in the public interest. This includes 35% who have "a great deal" of confidence, up from 21% in 2016.

But a partisan divide persists. More Democrats (43%) than Republicans (27%) have "a great deal" of confidence in scientists – a difference of 16 percentage points. The gap between the two parties on this issue (including independents who identify with each party, respectively) was 11 percentage points in 2016 and has remained at least that large since.

Confidence in scientists is stronger among those with high science knowledge and among Democrats

% of U.S. adults who say they have a great deal or a fair amount of confidence in scientists to act in the best interests of the public



Note: Respondents who gave other responses or who did not give a response are not shown. See Methodology for details on index of science knowledge.
Source: Survey conducted Jan. 7-21, 2019.
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There are also clear political divisions over the role of scientific experts in policy matters, with Democrats more likely to want experts involved and to trust their judgment. Most Democrats (73%) believe scientists should take an active role in scientific policy debates. By contrast, a majority of Republicans (56%) say scientists should focus on establishing sound scientific facts and stay out of such policy debates. The two political groups also differ over whether scientific experts are generally better at making decisions about scientific policy issues than other people: 54% of Democrats say they are, while 66% of Republicans think scientists' decisions are no different from or worse than other people's. Finally, Democrats and Republicans have different degrees of faith in scientists' ability to be unbiased; 62% of Democrats say scientists' judgments are based solely on facts, while 55% of Republicans say scientists' judgments are just as likely to be biased as other people's.

The Center's new survey highlights the degree to which the public values scientific expertise and how those perceptions are sometimes shaped by the crosscurrents of politics as well as familiarity with scientists and their work. More specifically, it shines a spotlight on trust and potential sources of mistrust connected with scientists who work in three fields: medicine, nutrition and the environment. They include medical research scientists, medical doctors, nutrition research scientists, dietitians, environmental research scientists and environmental health specialists.

The survey of 4,464 adults was conducted in January 2019 using Pew Research Center's American Trends Panel, a nationally representative panel of randomly selected U.S. adults.

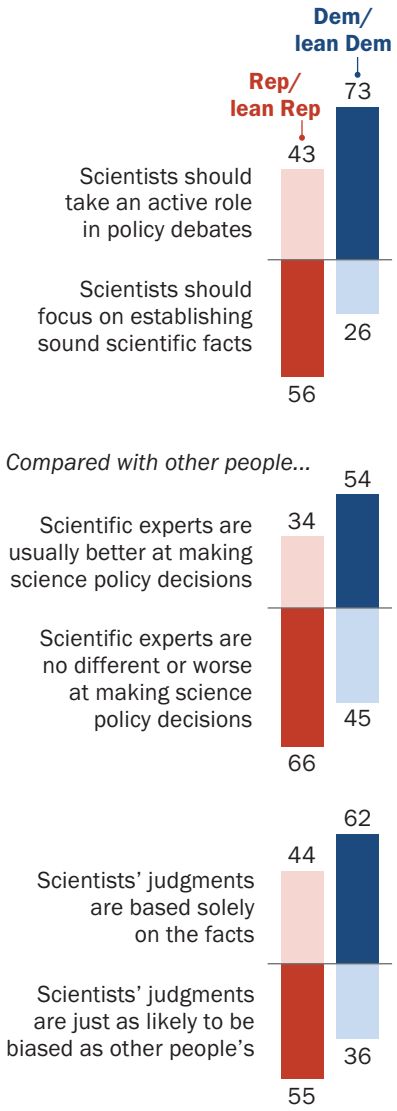
The survey probed for people's trust in scientists, along with potential sources of mistrust. To capture trust, the survey asked respondents how often they can count on scientists to perform their jobs with competence, to show care or concern for the public and to present their findings or recommendations in a fair and accurate way. The survey also asked for views about scientific integrity, including the extent to which misconduct is a problem, the degree to which scientists are open about potential conflicts of interest, and whether they accept accountability for mistakes.

Among other important findings:

- Despite generally positive views about scientists across all six specialties, most Americans are skeptical about key areas of scientific integrity. No more than two-in-ten Americans believe scientists across these groups are transparent about potential conflicts of interest with industry all or most of the time. Similarly, minorities (ranging from 11% to 18%) say scientists regularly admit their mistakes and take responsibility for them. Between about a quarter and half of Americans consider misconduct a "very big" or "moderately big"

Political differences over scientific experts

% of U.S. adults



Note: Respondents who did not give a response are not shown.
Source: Survey conducted Jan. 7-21, 2019. "Trust and Mistrust in Americans' Views of Scientific Experts"

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problem, with the public generally skeptical that those engaged in misconduct routinely face serious consequences.

- Americans tend to trust science *practitioners*, who directly provide treatments and recommendations to the public, more than *researchers* working in the same areas. For example, 47% say dietitians provide fair and accurate information about their recommendations all or most of the time, compared with 24% for nutrition scientists discussing their research. There is a similar gap when it comes to information from medical doctors and medical research scientists (48% and 32%, respectively, say they provide fair and accurate information all or most of the time). However, trust in environmental health specialists – practitioners who offer recommendations to organizations and community groups – is about the same as that for environmental research scientists.
- When Americans gauge the kinds of things that would influence their faith in scientific findings, their verdict is clear: Open public access to data and independent committee reviews inspire the most confidence in scientists and boost their trust in research findings.
- A majority of U.S. adults (54%, including equal shares of Democrats and Republicans) believe the public should play an important role in guiding policy decisions on scientific issues; 44% say public opinion should not play an important role because the issues are too complex for the average person to understand.
- Public confidence in medical scientists is similar to that for scientists overall; 87% report either a great deal (35%) or a fair amount (52%) of confidence in medical scientists to act in the best interests of the public.
- Americans with more factual science knowledge have greater confidence than those with less science knowledge that scientists act in the public interest. (For more information about the science knowledge index, see "What Americans Know About Science.")
- Black and Hispanic adults are more likely than whites to see professional or research misconduct as a very or moderately big problem. For doctors, for example, 71% of blacks and 63% of Hispanics say misconduct is at least a moderately big problem, compared with 43% of whites. A larger percentage of blacks (59%) and Hispanics (60%) than whites (42%) say misconduct by medical research scientists is a very big or moderately big problem.

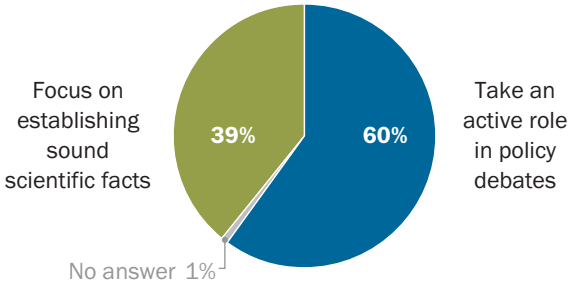
1. Partisanship influences views on the role and value of scientific experts in policy debates

A majority of U.S. adults support the participation of scientific experts in policy debates, but Democrats are more likely than Republicans to think scientists should be involved and are more likely to value their decisions. Partisan divisions also arise in beliefs about the value of the scientific method and the likelihood of bias in scientists' judgments.

Overall, 60% of Americans say scientists should play an active role in policy debates about scientific issues, the Center's new survey shows. A smaller share (39%) says scientists should "focus on establishing sound scientific facts and stay out of public policy debates."

Six-in-ten in U.S. say scientists should take an active role in policy debates

% of U.S. adults who say scientists should ____ when it comes to public policy debates about scientific issues



Source: Survey conducted Jan. 7-21, 2019.
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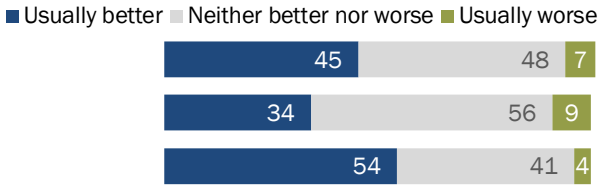
But there are dueling perspectives along party lines about the role and value of scientific experts in science-related policy debates, with most Democrats (73%, including leaners) saying scientists should take an active role. In contrast, a majority of Republicans (56%, including leaners) say scientists should focus on their research and stay out of policy debates, while a smaller percentage (43%) say scientists should play an active role in such debates.

Democrats also are more inclined than Republicans to value the opinions of scientific experts in policy matters. Some 54% of Democrats think scientific experts are usually better at making decisions about scientific issues than other people. In contrast, 34% of Republicans say the same.

More Democrats than Republicans say scientific experts make better science-related policy decisions

% of U.S. adults who say that scientific experts are ____ at making good policy decisions about scientific issues than other people



Note: Respondents who did not give an answer are not shown.
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How much people know about science can also impact their perspectives on these topics, but the findings show the influence of people's science knowledge on their views depends on their partisan lens. For example, 84% of Democrats with high science knowledge say scientists should play an active role in science policy debates, compared with 58% of Democrats with low science knowledge. No such pattern exists among Republicans. Four-in-ten Republicans with high science knowledge (40%) – and 52% of those with low science knowledge – say scientists should play an active role in science policy debates. Past Pew Research Center surveys have found a similar pattern on a range of views related to climate and energy issues.

More Democrats than Republicans trust the objectivity of scientists and the scientific method

Most Americans believe the processes of science – namely, the scientific method of observing and collecting empirical evidence – are fundamentally sound.

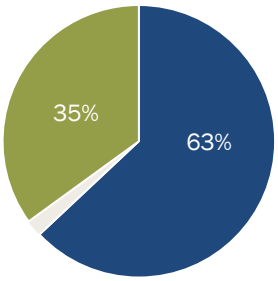
Overall, 63% of Americans say the scientific method generally produces accurate conclusions, while a smaller share (35%) says it can be manipulated to produce a desired conclusion.

Further, a majority of U.S. adults (55%) believe scientists' judgments are "based solely on the facts," as opposed to scientists being "just as likely to be biased" in their judgments as other people (44%).

On average, however, more Democrats than Republicans (including independents who identify with each party) are inclined to express confidence in both the scientific method and scientists' conclusions.

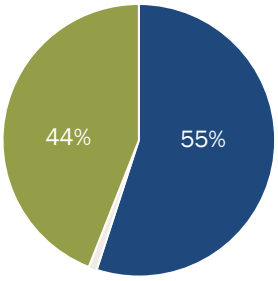
Roughly six-in-ten Americans trust the scientific method

% of U.S. adults who say the scientific method ...



A majority says scientists' judgments are based solely on facts

% of U.S. adults who say scientists' judgments are ...



Source: Survey conducted Jan. 7-21, 2019.
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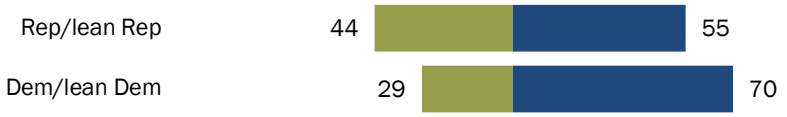
Seven-in-ten Democrats (70%) say the scientific method generally produces accurate conclusions. Opinion among Republicans is more divided, with 55% saying the scientific method produces accurate conclusions and 44% saying the scientific method can be manipulated by researchers to produce desired results.

About six-in-ten Democrats (62%) say scientists make judgments based solely on the facts. By comparison, 44% of Republicans say scientists' judgments are based on facts, while 55% say scientists' opinions are just as likely to be biased as other people's.

Science knowledge levels also influence people's views on these issues, but the correlation depends on their partisanship.

More Democrats than Republicans say the scientific method produces accurate conclusions

% of U.S. adults in each group who say the scientific method ...



Note: Respondents who did not give an answer are not shown.
Source: Survey conducted Jan. 7-21, 2019.
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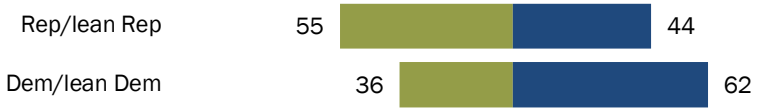
Republicans are more likely than Democrats to view scientists as susceptible to bias

% of U.S. adults who say scientists' judgments are ...



Note: Respondents who did not give an answer are not shown.
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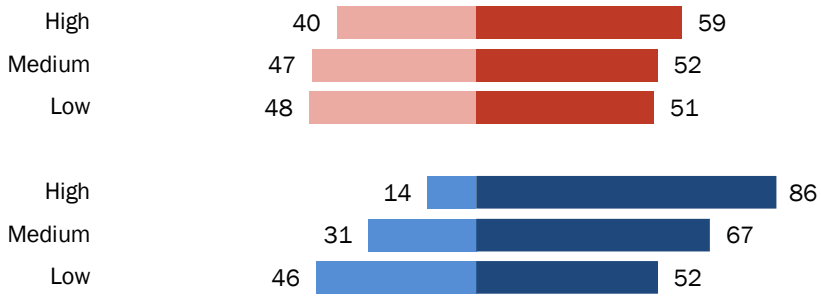
Among Democrats, an overwhelming majority of those with high science knowledge (86%) think the scientific method generally produces accurate conclusions. In contrast, about half of Democrats with low science knowledge (52%) say the scientific method produces accurate conclusions. Differences are modest by comparison among Republicans with high, medium and low science knowledge levels.

But when it comes to questions of susceptibility to bias, 64% of Republicans with high science knowledge say scientists are just as likely to be biased as other people, while 42% of Republicans with low science knowledge agree. Democrats with low, medium and high science knowledge are all about equally likely (in the 34% to 39% range) to view scientists as susceptible to bias.

Thus, knowledge and information can influence beliefs about these matters, but it does so through the lens of partisanship, a tendency known as motivated reasoning.

Democrats with high science knowledge have more confidence in the scientific method

% of U.S. adults in each group who say the scientific method ...



Note: Respondents who did not give an answer are not shown. See Methodology for details on index of science knowledge.
Source: Survey conducted Jan. 7-21, 2019.
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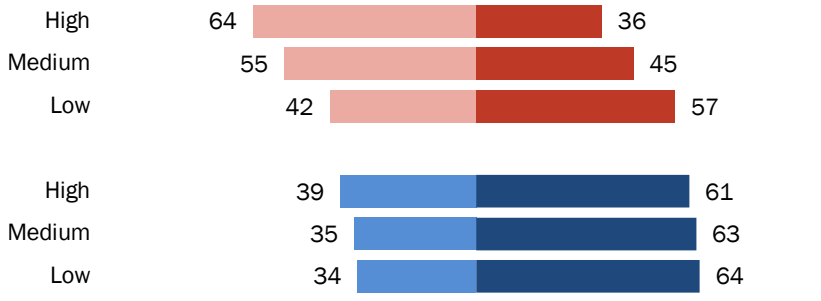
Republicans with high science knowledge are particularly likely to see scientists as open to bias

% of U.S. adults in each group who say scientists' judgments are ...



Note: Respondents who did not give an answer are not shown. See Methodology for details on index of science knowledge.
Source: Survey conducted Jan. 7-21, 2019.
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Public trust in scientists is only sometimes correlated with political party

Despite political differences over the role and value of scientific experts, public support for and trust in scientists is not uniformly connected with politics, but rather differs depending on the field of scientific study. The Center's survey looks at public trust in scientists specializing in the environment, medicine and nutrition. Democrats have more trust than Republicans in environmental scientists – whether researchers or environmental health specialists – to perform their jobs with competence, to show concern for the public interest and to present their findings or recommendations in a fair and accurate way. There are also some partisan differences in views of nutrition researchers, but there are no such differences when it comes to medical doctors, medical researchers or dietitians. For details, see "Partisan differences in overall views of and trust in scientists occur primarily for environmental scientists."

Prior Pew Research Center studies have shown wide political divides on public attitudes related to climate, energy and the environment but no differences or only modest ones when it comes to a host of other science-related issues, including beliefs about the safety of childhood vaccines and the health risks of eating genetically modified foods.

2. Americans often trust practitioners more than researchers but are skeptical about scientific integrity

The Center's survey takes a multifaceted approach to understanding public trust in scientists.[1] Respondents were asked whether scientists in each of six specialties can be counted on to act with competence, to present their recommendations or research findings accurately, and to care about the public's best interests – or, in some cases, patients'. In addition, respondents were asked about potential sources of mistrust, including issues of transparency and accountability for mistakes or misconduct.

Together, their responses provide a rich and complex portrait of trust in scientists, suggesting that the public generally has more confidence in practitioners than researchers and that greater familiarity with these groups, as well as greater factual knowledge about science, correlates with higher levels of trust. But there is widespread skepticism of scientists when it comes to issues of transparency and accountability for mistakes. The survey also highlights concerns about misconduct, with black and Hispanic respondents more likely than whites to see it as a big problem.

Americans are often more trusting of dietitians and medical doctors than of nutrition and medical researchers, respectively

Overall, Americans tend to trust science practitioners, who directly provide treatments and recommendations to the public, more than researchers working in the same domains. Public trust in dietitians, for instance, is nearly double that of nutrition research scientists. Similarly, trust in medical doctors is considerably stronger than trust in medical research scientists.

For example, there are wide differences in the degree to which Americans see dietitians and nutrition researchers as competent in their jobs. A majority (54%) say dietitians do a good job providing recommendations about healthy eating all or most of the time, compared with 28% who say nutrition scientists do a good job conducting research all or most of the time.

In addition, 47% say dietitians provide fair and accurate information about their recommendations all or most of the time, compared with 24% for nutrition scientists discussing their research. Six-in-ten Americans (60%) think dietitians care about the best interests of their

[1] There are a number of approaches to thinking about trust and how best to measure it. For examples, see the workshop summary from the National Academies of Sciences, Engineering and Medicine, "Trust and Confidence at the Interfaces of the Life Sciences and Society" (2015), and "Guidelines for Measuring Trust" from the Organization for Economic Cooperation and Development (2017).

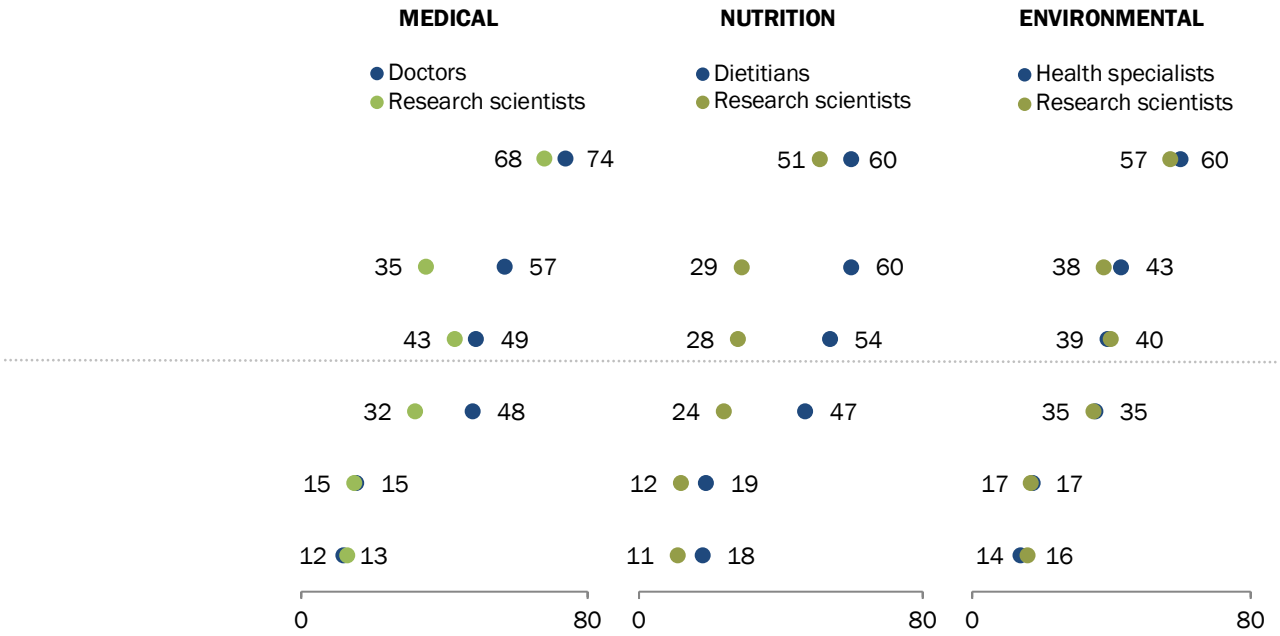
patients all or most of the time, while about half as many (29%) believe that about nutrition researchers when it comes to concern for the public.

Similarly, the public tends to view medical doctors more positively than medical researchers when it comes to their concern for the public's interests and providing trustworthy information. For example, 57% of Americans say doctors care about the best interests of their patients all or most of the time, compared with 35% for medical researchers. About half the public (48%) believes that medical doctors provide fair and accurate treatment information all or most of the time, compared with 32% who say this about medical researchers in discussing their findings.

In contrast, public levels of trust in environmental health specialists and environmental research scientists are roughly the same. For instance, 39% of U.S. adults say environmental health specialists do a good job versus 40% for researchers, and 35% say each provides fair and accurate information all or most of the time.

Americans trust medical and food science practitioners more than researchers

% of U.S. adults who say the following about each of these groups



Note: Respondents who gave other responses or who did not give an answer are not shown. Respondents were asked whether medical doctors and dietitians care about the best interests of "their patients," whether environmental health specialists care about the best interests of "people in the community," and whether research scientists care about the best interests of "the public."
Source: Survey conducted Jan. 7-21, 2019.
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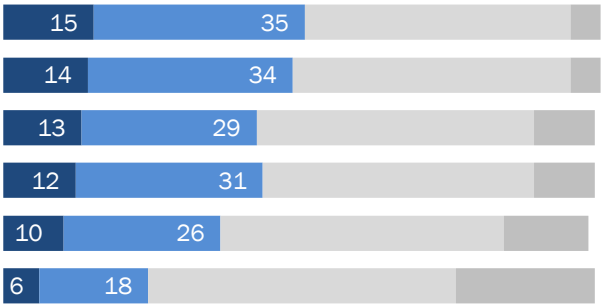
Most say scientists routinely lack transparency and accountability, but views about misconduct vary

Integrity in research and practice is often considered foundational for public trust in science. The Center's survey finds most Americans tend to be skeptical of both practitioners and researchers when it comes to potential sources of mistrust.

No more than 19% say that scientists across these six specialties are transparent in revealing potential conflicts of interest with industry all or most of the time. A larger share – ranging from 27% to 37% – believes scientists are transparent only a little or none of the time. Similarly, fewer than two-in-ten Americans say that scientists admit and take responsibility for their mistakes all or most of the time.

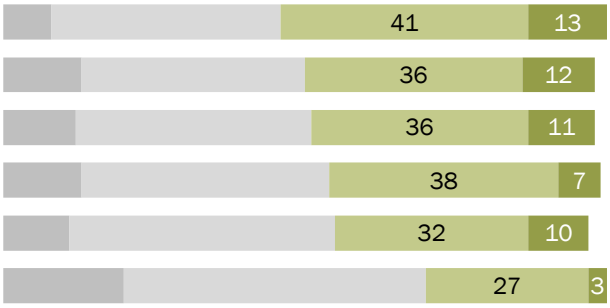
The public is divided over whether misconduct by medical professionals is a big problem

% of U.S. adults who say misconduct among each group is a ...



Many Americans are skeptical that scientists who engage in misconduct face serious consequences

% of U.S. adults who say when misconduct occurs, each group faces serious consequences ...



Note: Respondents who did not give an answer are not shown.
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Americans vary in their assessments of whether misconduct is a big problem for scientists. There is relatively more concern about misconduct among medical professionals; about half of U.S. adults say misconduct is at least a "moderately big" problem among medical doctors (50%) and medical researchers (48%). The public is less concerned about misconduct among dietitians (24% call it a very or moderately big problem). Judgments about misconduct among the other scientific groups fall somewhere in between.

To the extent that such problems occur, the public is generally skeptical that scientists typically face serious consequences for misconduct. No more than two-in-ten say scientists from any of the six specialties face serious consequences for misconduct all or most of the time.

Roughly four-in-ten or more U.S. adults say nutrition researchers (53%), dietitians (47%), environmental researchers (48%), medical researchers (45%) and environmental health specialists (42%) face serious consequences for misconduct “only a little” or “none of the time.” By comparison, only 30% say medical doctors rarely face consequences for professional misbehavior.

Public trust in scientists is linked with familiarity of their work and factual knowledge about science

People's level of familiarity with scientists and their level of factual knowledge about science can be consequential for public trust in scientists, the Center's survey finds. A key challenge for science communication has long centered around the relative invisibility of scientists and their work. Those who report knowing more about the work of scientists have more positive and more trusting views about them.

In addition, people with higher levels of factual knowledge about science tend to hold more positive and trusting views of scientists. (It is important to note that familiarity with scientists is not the same as factual science knowledge.)

These factors, however, have a more limited effect on public skepticism about how often scientists are transparent about potential conflicts of interest, admit to mistakes or are held accountable for misconduct.

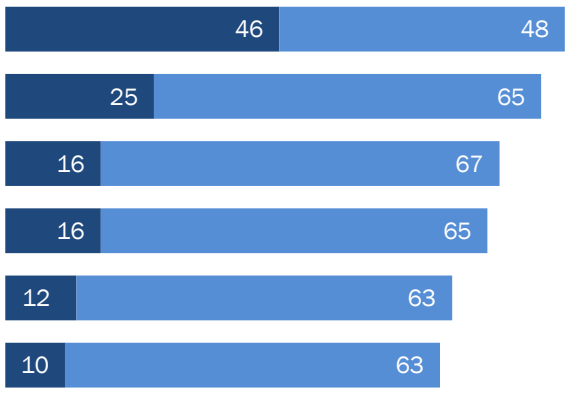
Americans learn about scientists from a range of information sources

The Center's survey finds a wide range of familiarity with scientists. Some 46% of U.S. adults say they know a lot about what medical doctors do, another 48% say they know "a little" and only 6% say they know "nothing at all." In contrast, just 10% of U.S. adults report knowing a lot about what nutrition research scientists do, while most know a little (63%) and about a quarter (26%) say they know nothing at all.

Familiarity with these specialties stems from a range of information sources. News reports are the most common

Americans have varying degrees of familiarity with scientists and their work

% of U.S. adults who say they know ___ about what each of the following groups do



Note: Respondents who gave other responses or who did not give an answer are not shown.
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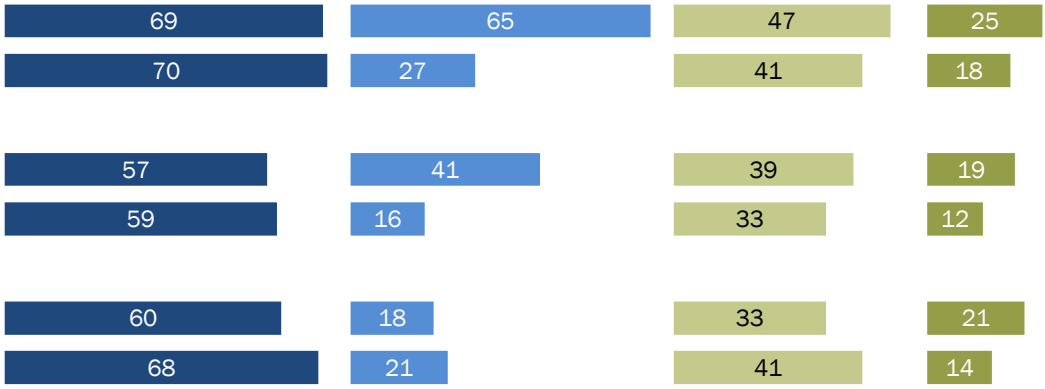
source. Majorities of Americans say they know at least a little about each of these scientists because they have heard or read about their work in the news. Personal contact with these groups varies from 65% for medical doctors to 16% for nutrition research scientists. Other potential sources of information about scientists considered in the survey include school and work.

News media is most common source for information about scientists

% of U.S. adults who say they know about each of the following groups because they ...



Note: Based on all U.S. adults. Respondents who gave other responses or who did not give an answer are not shown.
Source: Survey conducted Jan. 7-21, 2019.
"Trust and Mistrust in Americans' Views of Scientific Experts"

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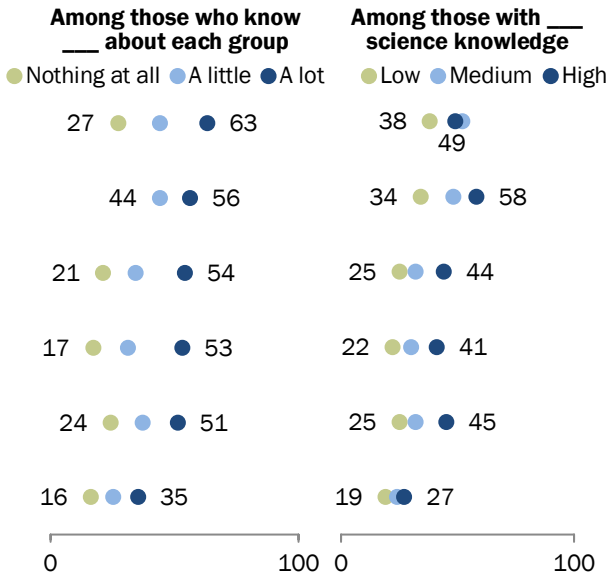
People who have higher levels of familiarity with scientists' work are more confident that scientists can be counted on to do their job with competence, to show concern for the public and to provide accurate information. One example: 63% of those who know a lot about dietitians say they provide fair and accurate information all or most of the time, compared with 27% of those who know nothing about dietitians – a difference of 36 percentage points.

There is a less pronounced tendency for people with high factual science knowledge to trust scientists more than those with low science knowledge. Note that factual science knowledge is not the same as familiarity with each profession.[2]

People with more familiarity and factual knowledge of science are more trusting of scientists to provide fair and accurate information

% of U.S. adults who say each group provides fair and accurate information about their research/recommendations all or most of the time



Note: Not enough respondents knew nothing at all about medical doctors for separate analysis. Respondents who gave other responses or who did not give an answer are not shown. See Methodology for details on index of science knowledge.
Source: Survey conducted Jan. 7-21, 2019.
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[2] An exploratory factor analysis suggests that familiarity measures and science knowledge items do not map onto a single, underlying dimension. Instead, the analysis finds a two-factor solution. One underlying factor is closely correlated with the factual science knowledge items and the second factor is closely correlated with the self-perceived familiarity with scientists. These findings are in keeping with past research on these concepts. For example, Ladwig, Pete, Kajsa E. Dalrymple, Dominique Brossard, Dietram A. Scheufele, and Elizabeth A. Corley, 2012, "Perceived familiarity or factual knowledge? Comparing operationalizations of scientific understanding," Science and Public Policy found that predictors of self-perceived familiarity and factual science knowledge tend to differ. Rose, Kathleen M., Emily L. Howell, Leona Y.-F Su, Michael A. Xenos, Dominque Brossard and Dietram A. Scheufele, 2019, "Distinguishing scientific knowledge: The impact of different measures of knowledge on genetically modified food attitudes," Public Understanding of Science highlights differences in the relationship between self-perceived familiarity and factual science knowledge in predicting people's views about genetically modified foods.

Partisan differences in overall views and trust in scientists occur primarily for environmental scientists

There are political differences in people's views about scientists for some, but not all, specialties. In particular, wide political differences emerge in public support for and trust of environmental researchers and environmental health specialists.

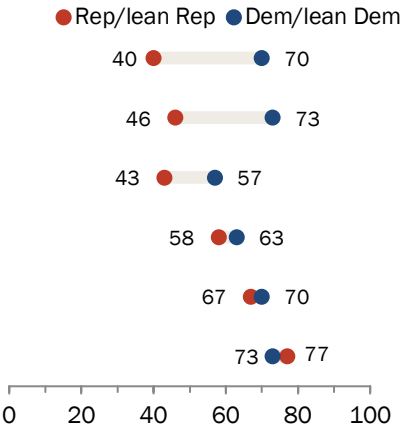
Democrats and independents who lean to the Democratic Party have more favorable views of environmental researchers and environmental health specialists than their Republican and Republican-leaning counterparts. For example, 70% of Democrats have a positive view of environmental researchers compared with 40% of Republicans.

Democrats are also more inclined than Republicans to have overall positive views of nutrition research scientists, although the magnitude of difference is modest by comparison (57% vs. 43%, respectively).

There are no significant differences by political party in views of medical researchers, medical doctors or dietitians.

More Democrats than Republicans view environmental scientists positively

% of U.S. adults who say they have a mostly positive view of each of the following groups



Note: Respondents who gave other responses or who did not give an answer are not shown.
Source: Survey conducted Jan. 7-21, 2019.
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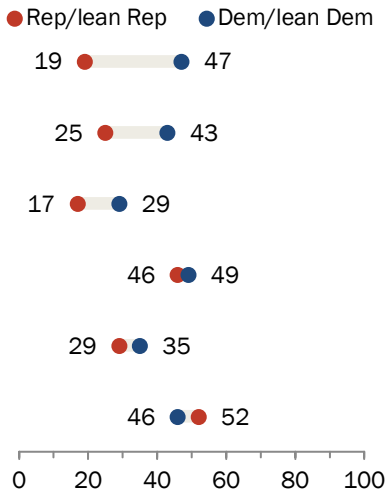
Similarly, Democrats are more trusting of environmental scientists than Republicans when it comes to their competence, concern for the public and the accuracy of information they provide. For instance, 47% of Democrats trust environmental scientists to provide fair and accurate information about their work all or most of the time, compared with 19% of Republicans.

There are modest partisan differences when it comes to trust in nutrition research scientists, but both party groups have about the same levels of trust in medical doctors, medical researchers and dietitians.

And party groups tend to share skeptical views of scientists' transparency, responsibility for mistakes and accountability for misconduct.

Democrats trust environmental scientists more than Republicans do to provide fair and accurate information

% of U.S. adults who say each group provides fair and accurate information all or most of the time



Note: Respondents who gave other responses or who did not give an answer are not shown.
Source: Survey conducted Jan. 7-21, 2019.
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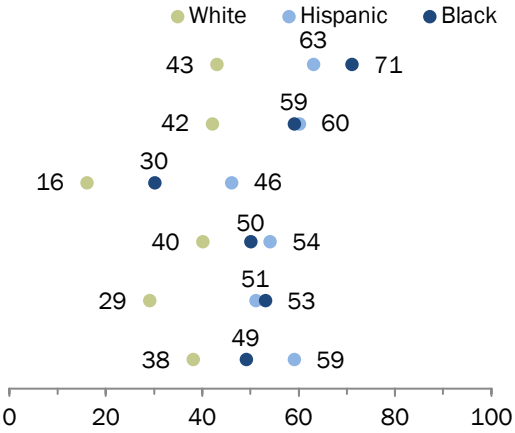
Blacks, Hispanics more likely than whites to consider scientific misconduct a big problem

Black and Hispanic adults stand out as more likely than whites to see professional or research misconduct as a very or moderately big problem.

A large majority of black Americans (71%) say misconduct by medical doctors is a very/moderately big problem, compared with 43% of whites – a gap of 28 percentage points. Hispanics (63%) are also more likely than whites to describe doctors' misconduct as a big problem. In addition, a larger percentage of blacks (59%) and Hispanics (60%) say misconduct by medical research scientists is a very big or moderately big problem, compared with 42% of whites.

Blacks and Hispanics are more likely than whites to say scientific misconduct is a big problem

% of U.S. adults who say professional or research misconduct by each of these groups is a very/moderately big problem



Note: Respondents who gave other responses or who did not give an answer are not shown. Whites and blacks include those who report being only one race and are non-Hispanic. Hispanics are of any race.
Source: Survey conducted Jan. 7-21, 2019.
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These findings could be related to inequities in health care and outcomes, among other issues faced by black people and other nonwhite Americans in medical treatment and research. Examples include the "Tuskegee Study of Untreated Syphilis in the Negro Male"[3] and the case of Henrietta Lacks, both of which involved individuals who were subject to research studies without their knowledge or consent.

[3] See "45 years ago, the nation learned about the Tuskegee Syphilis Study. Its repercussions are still felt today," USA Today, July 26, 2017.

3. Americans say open access to data and independent review inspire more trust in research findings

The Pew Research Center survey asked about several factors that could potentially increase – or decrease – trust in research findings and recommendations. The two steps that inspire the most confidence among members of the public are open access to data and an independent review.

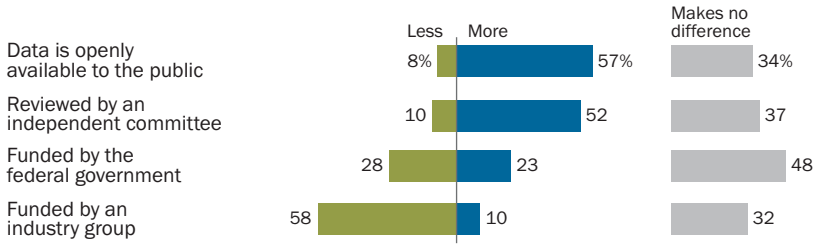
A majority of U.S. adults (57%) say they trust scientific research findings *more* if the researchers make their data publicly available. Another 34% say that makes no difference, and just 8% say they are less apt to trust research findings if the data is released publicly.

About half the public (52%) say they trust scientific findings more if the findings have been reviewed by an independent committee.

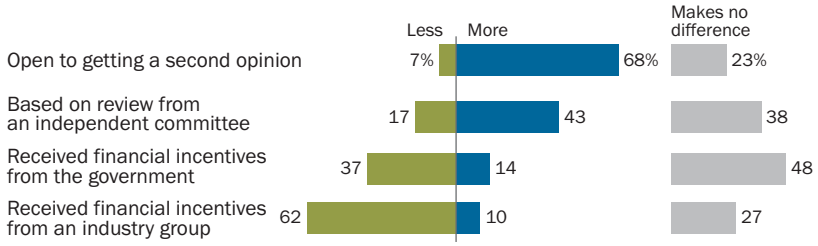
Industry funding stands out as a factor Americans say leads to lower trust. A majority of Americans (58%) say they trust scientific findings less if they know the research was funded by industry groups.

Majority of Americans say they are more apt to trust research when the data is openly available

% of U.S. adults who say when they hear each of the following, they trust scientific research findings ...



% of U.S. adults who say when they hear each of the following, they trust a science practitioner's recommendation ...



Note: Respondents who did not give an answer are not shown.
Source: Survey conducted Jan. 7-21, 2019.
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The effect of government-funded research is less clear. About half of U.S. adults (48%) say learning that a study has been funded by the federal government has no impact on whether they trust its findings. The remainder is closely divided between those who say government funding decreases their trust (28%) and those who say it increases their trust (23%).

Similar factors inspire public trust in practitioners. About two-thirds of the public (68%) say they are more likely to trust practitioners' recommendations more if that practitioner is open to getting a second opinion. About one-quarter (23%) say a practitioner's willingness to get a second opinion makes no difference, and just 7% say it decreases their trust.

In addition, 43% of Americans say they trust practitioner recommendations more if they have been reviewed by an independent committee. And a majority (62%) say they have less trust in recommendations from practitioners who receive financial incentives from industry groups.

The effect of government-based financial incentives for practitioners on public trust is less clear. Some 37% of Americans say they have less trust in recommendations from a practitioner who has received financial incentives from the federal government, while 14% say this increases their trust in such recommendations. Another 48% say government funding has no effect.

People with higher levels of science knowledge are especially likely to say that open access to data and an independent review boost their confidence in research findings. For example, 69% of those with high science knowledge say that having data publicly available makes them trust research findings, versus 40% of those with low science knowledge.

About the survey

Survey respondents answered a series of questions about either practitioners (medical doctors, dietitians and environmental health specialists) or researchers (medical research scientists, nutrition research scientists and environmental research scientists). See the Topline for question wording.

Findings at a glance for each group:

- Medical doctors
- Medical research scientists
- Dietitians
- Nutrition research scientists
- Environmental health specialists
- Environmental research scientists

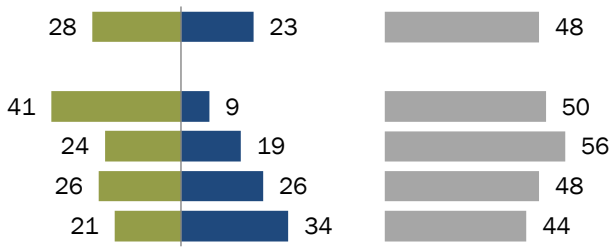
Those high in science knowledge are especially wary of industry financing for research. Eight-in-ten (80%) say knowing that research has been funded by an industry group reduces their trust in the findings, compared with 55% of those with medium knowledge and 30% of people with low science knowledge.

Opinions about government-funded research differ by politics. Among conservative Republicans, just 9% say that government funding increases their trust in research findings, while 41% say it decreases their trust. In contrast, liberal Democrats are more inclined to say government funding increases (34%) rather than decreases (21%) their trust in scientific research.

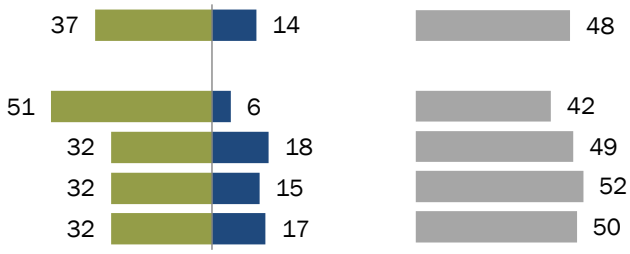
These findings are in keeping with political divides over support for federal spending on scientific research and an array of other government policy and spending priorities.

Conservative Republicans are less inclined to trust scientific research funded by the federal government

% of U.S. adults who say when they hear about scientific research that has been funded by the federal government, they trust the research findings ...



% of U.S. adults who say when they hear a science practitioner has received financial incentives from the government related to their work, they trust the practitioner's recommendation ...



Note: Republicans and Democrats include independents and others who "lean" toward the parties. Respondents who did not give an answer are not shown.
Source: Survey conducted Jan. 7-21, 2019.
"Trust and Mistrust in Americans' Views of Scientific Experts"

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4. Americans generally view medical professionals favorably, but about half consider misconduct a big problem

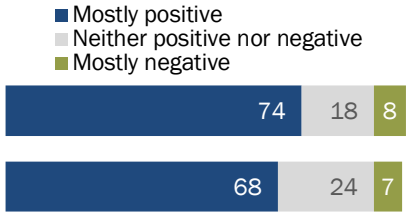
Most Americans have positive overall views of medical doctors and medical research scientists. But they have more mixed assessments when it comes to trust-related judgments, especially for medical researchers. Fewer than half the public believes medical researchers do a good job, provide fair and accurate information about their findings or care about the public interest all or most of the time. Public trust in medical doctors is higher by comparison.

About half of the public sees misconduct by medical researchers or doctors as at least a moderately big problem; many are skeptical that misconduct, particularly that by medical researchers, usually leads to serious consequences.

People less familiar with the role of these medical professionals and those with lower levels of science knowledge are generally more critical of both medical doctors and researchers. Blacks and Hispanics stand out as more likely than whites to see misconduct among medical doctors and researchers as a big problem.

Most Americans have positive views of medical doctors and research scientists

% of U.S. adults who say they have a ____ view of ...



Note: Respondents who did not give a response are not shown.
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About three-quarters (74%) of Americans say they have positive views of medical doctors, while just 8% say they have negative views. Another 18% say their opinion of doctors is neutral. A sizable

According to the Bureau of Labor Statistics, as of May 2018, the U.S. had an estimated 679,280 medical doctors and 120,320 medical research scientists.

The Center's survey asked respondents about *either* medical doctors *or* medical research scientists. Respondents were given brief definitions prior to answering questions about each group. These were:

- "**Medical doctors** provide patients with diagnoses of disease and/or treatment recommendations to promote, maintain or restore a patient's health."
- "**Medical research scientists** conduct research to investigate human diseases, and test methods to prevent and treat them."

majority (68%) sees medical research scientists in an overall positive light. A small share of Americans (7%) view them negatively, and 24% have a mixed view.

Americans say they have some familiarity with the work of medical practitioners and researchers. The vast majority say they know either a little (48%) or a lot (46%) about what medical doctors do. A smaller percentage of the public is at least somewhat familiar with what medical research scientists do: Two-thirds say they know a little (67%), and another 16% say they know a lot.

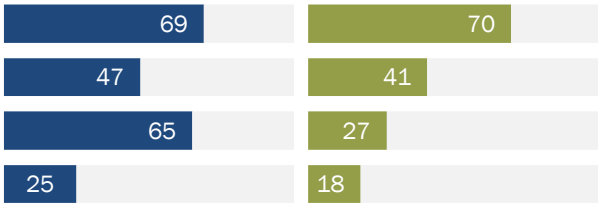
The news media is the most common source of information about these specialties, the survey shows. A large majority of Americans say they are familiar with medical doctors (69%) or medical research scientists (70%) because they have heard or read about their work in the news.

Not surprisingly, many Americans (65%) say they have learned about what medical doctors do through knowing a practitioner personally. Far fewer adults (27%) say they are familiar with the work of medical research scientists because of a personal relationship.

News reports are the most common source of information about medical doctors and researchers

% of U.S. adults who say they know a lot/a little about what ____ do

% of U.S. adults who say they know about ____ because they ...



Note: Respondents who gave other responses or who did not give an answer are not shown.
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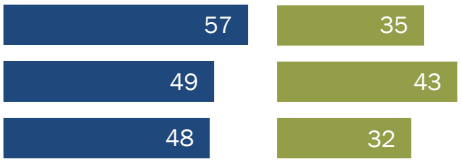
Other sources of information about medical professionals include school (47% medical doctors and 41% for medical researchers) or work (25% for doctors and 18% for medical researchers).

More Americans believe doctors than medical researchers care about people's best interests all or most of the time

While most Americans hold an overall positive view of medical professionals, public trust in these doctors and researchers is mixed. People express less optimism about how often they can count on medical scientists to do a good job, to provide fair and accurate information, and to show concern for the public's or patients' interests, particularly when it comes to medical researchers versus doctors.

Only about one-third of Americans trust medical researchers to care about public's best interests

% of U.S. adults who say medical doctors/medical research scientists ____ all or most of the time



Note: Respondents who gave other responses or who did not give an answer are not shown.
Source: Survey conducted Jan. 7-21, 2019.
"Trust and Mistrust in Americans' Views of Scientific Experts"

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The majority of Americans (57%) say medical doctors care about the best interests of their patients all or most of the time. A third (33%) say this occurs some of the time and 9% say this occurs only a little or none of the time. About half say medical doctors do a good job providing diagnoses and treatment recommendations (49%) or providing fair and accurate information about their recommendations (48%) all or most of the time.

The public tends to have less trusting views when evaluating medical research scientists. About one-third (35%) say these researchers care about the best interests of the public all or most of the time, compared with 57% who say doctors care about patients. Americans also rate researchers more negatively than practitioners when it comes to the trustworthiness of their information; about one-third (32%) say medical research scientists provide fair and accurate information all or most of the time, compared with 48% for doctors. Of these three criteria, medical research scientists receive the highest marks for their perceived competence: 43% of the public says researchers regularly do a good job conducting research.

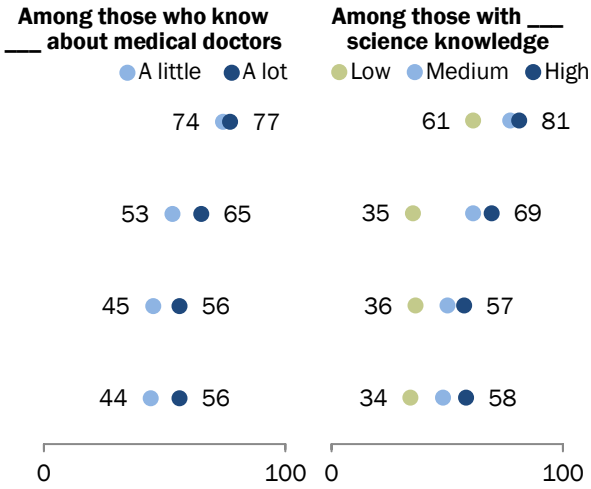
People who are more familiar with physicians and medical researchers and have high levels of factual science knowledge hold more positive views of those professions

Roughly three-quarters of adults who say they know a lot (77%) or a little (74%) about what medical doctors do have a positive view of them. (The 6% of Americans who say they know nothing at all about the work of medical doctors do not make up a large enough group for separate analysis.)

Among those who say they know a lot about the role of medical research scientists, 84% have a positive view. In contrast, 41% of those who say they do not know anything about medical research scientists have a positive opinion of them.

People more familiar with doctors are more likely to consider them caring and competent

% of U.S. adults who say the following about medical doctors



Note: Not enough respondents knew nothing at all about medical doctors for separate analysis. Respondents who gave other responses or who did not give an answer are not shown. See Methodology for details on index of science knowledge.
Source: Survey conducted Jan. 7-21, 2019.
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Trust-related judgments in terms of competence, accuracy of information and concern for the public also vary by people's familiarity with the work of scientists. Among the 46% of U.S. adults who say they know a lot about the work of medical doctors, most say doctors routinely care about the best interests of their patients (65%), do a good job providing diagnoses and treatment information (56%) and provide fair and accurate information (56%). Trust in medical doctors is 11 to 12 percentage points lower on these assessments among those who report knowing a little about medical doctors.

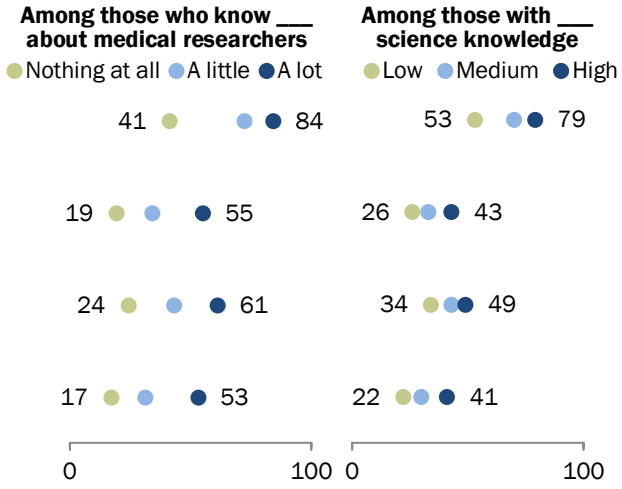
Among the minority of Americans (16%) who say they know a lot about the work of medical researchers, most (61%) say they do a good job conducting research all or most of the time. People who know only a little or nothing about medical researchers' work are less likely to say they routinely do a good job at it (43% and 24%, respectively). Familiarity with medical research also is related to how people view researchers' empathy and ability to remain unbiased: Those who know a lot about medical research scientists are far more likely than people who know nothing to say

medical researchers care about the public's interests (55% vs. 19%, respectively) and provide fair and accurate information (53% vs. 17%) all or most of the time.

Factual science knowledge also correlates with Americans' views of these professionals. Adults who have more general knowledge of science, based on an 11-item index, tend to hold more positive views of doctors and researchers and to see them as caring, competent and fair in providing information.

People more familiar with medical research scientists are more likely to describe them as competent

% of U.S. adults who say the following about medical research scientists



Note: Respondents who gave other responses or who did not give an answer are not shown.
See Methodology for details on index of science knowledge.
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For example, 81% of those with high science knowledge have a positive view of medical doctors, compared with 61% of those with low science knowledge. About seven-in-ten Americans with high science knowledge (69%) believe doctors care about patients' best interests all or most of the time, compared with 35% of those with low knowledge. And while majorities of high-knowledge Americans say doctors do a good job providing diagnoses and treatment recommendations and providing fair and accurate information, about one-third of people with low science knowledge say the same.

The same pattern is seen in Americans' assessments of medical research scientists. Adults with high levels of factual science knowledge are overwhelmingly likely to have a positive view (79%) of medical researchers. Among those with low science knowledge, 53% say they have a positive view of medical researchers – a difference of 26 percentage points.

Those with low science knowledge are particularly skeptical of medical research scientists. For instance, 22% say medical researchers usually provide fair and accurate information about their

research, compared with 41% of Americans with high knowledge. Americans with low levels of science knowledge are significantly more likely to say medical researchers provide fair and accurate information only a little or never (22%, vs. 7% of those with high science knowledge).

Older Americans express more trust in medical scientists

Americans ages 50 and older are more likely than younger adults to trust medical doctors and researchers. For example, about two-thirds (65%) of adults 50 and older say medical doctors care about the best interests of their patients all or most of the time, compared with about half (49%) of those under age 50. A majority of adults ages 50 and older (56%) say doctors routinely do a good job providing diagnoses and treatment options, compared with 42% of 18- to 49-year-olds who say the same.

Differences by age in people's views about medical doctors are significant even after controlling for people's level of science knowledge and other demographics in statistical modeling.

There are modest differences by age in assessments of medical research scientists.

Older Americans view medical doctors more positively than younger adults

% of U.S. adults in each age group who say …

	18-49	50+	Older-younger diff
They have a mostly positive view of medical doctors	70	78	+8
Medical doctors ___ all or most of the time			
Care about patients' best interests	49	65	+16
Do a good job providing diagnoses and treatment recommendations	42	56	+14
Provide fair and accurate information	42	55	+13

Note: Respondents who gave other responses or who did not give an answer are not shown.
Source: Survey conducted Jan. 7-21, 2019.
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A third of older and younger adults trust medical researchers to provide fair and accurate information

% of U.S. adults in each age group who say …

	18-49	50+	Older-younger diff
They have a mostly positive view of medical research scientists	66	72	+6
Medical researchers ___ all or most of the time			
Care about the best interests of the public	33	37	+4
Do a good job conducting research	40	46	+6
Provide fair and accurate information	32	32	0

Note: Respondents who gave other responses or who did not give an answer are not shown.
Source: Survey conducted Jan. 7-21, 2019.
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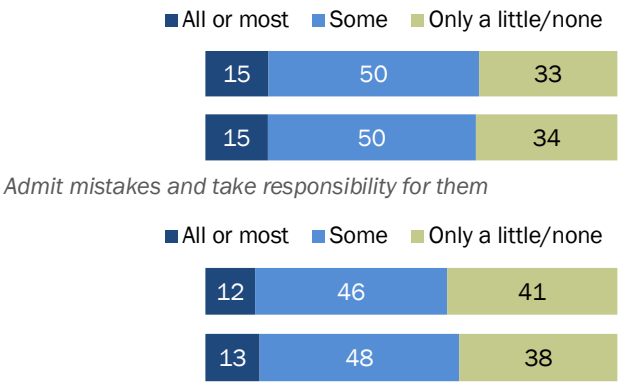
Most Americans believe medical doctors and research scientists are rarely candid about potential conflicts of interest or making errors

Most Americans express some degree of skepticism as to whether physicians and medical researchers are transparent about potential conflicts of interest with industry groups. Few Americans (15%) say medical doctors are transparent about this all or most of the time. The same percentage of the public (15%) says this about medical research scientists. About twice as many believe medical professionals are transparent only a little or none of the time (33% and 34% for doctors and medical researchers, respectively).

Most Americans do not believe medical professionals usually admit and take responsibility for their mistakes: Just over one-in-ten say doctors (12%) or medical researchers (13%) do this all or most of the time. Almost half of the public says these groups take responsibility for their mistakes some of the time (46% and 48% for doctors and medical researchers, respectively), and about four-in-ten say doctors and medical research scientists take responsibility for their mistakes only a little or none of the time (41% and 38%, respectively).

Most Americans are skeptical that medical professionals are transparent about potential conflicts of interest

% of U.S. adults who say medical doctors/medical research scientists do each of the following ____ of the time



Note: Respondents who did not give an answer are not shown.
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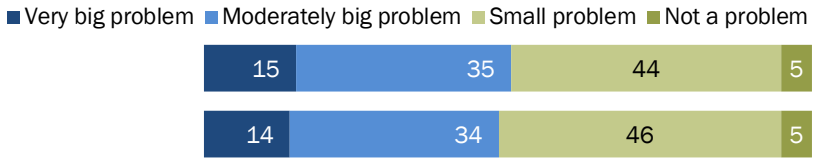
Americans are closely divided over the extent to which misconduct is a big problem among medical professionals

About half of adults consider misconduct among doctors or medical researchers to be at least a moderately big problem (50% and 48%, respectively). Just 5% say misconduct is not a problem for either group, while others consider it a small problem (44% and 46% for doctors and medical researchers, respectively).

To the extent that misconduct occurs, the public is generally skeptical that scientists face serious consequences. Just two-in-ten (20%) U.S. adults say doctors who engage in professional misconduct face serious consequences all or most of the time, while 13% say the same about medical scientists who engage in research misconduct.

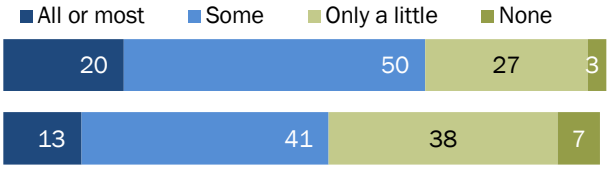
Half of U.S. adults say misconduct by doctors is a big problem

% of U.S. adults who say misconduct by medical doctors/medical research scientists is a ...



Few believe medical professionals regularly face serious consequences for misconduct

% of U.S. adults who say medical research scientists/medical research scientists who engage in misconduct face serious consequences ____ of the time



Note: Respondents who did not give an answer are not shown.
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Sizable shares of Americans – 30% for medical doctors and 45% for medical researchers – believe these groups face serious consequences for misconduct only a little or none of the time.

In thinking of news stories about misconduct, most Americans maintain an overall positive view of medical research in the U.S. Some 57% of Americans say they think of these stories as isolated incidents, rather than signs of a broader problem (42%). Public views about misconduct by doctors are similar. Six-in-ten (60%) say they usually consider news about misconduct as isolated incidents, while 39% see it as indicative of a broader problem.

Even when misconduct occurs, most Americans report giving scientists the benefit of the doubt. Two-thirds (66%) say that when they hear about research misconduct they believe the medical researchers have good intentions, while 30% see the researchers as the problem.

Most U.S. adults see cases of medical research misconduct as isolated events

% of U.S. adults who say the following when they hear about research misconduct among medical research scientists

Note: Respondents who did not give an answer are not shown.
Source: Survey conducted Jan. 7-21, 2019.
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The patterns are similar for views of medical doctors. A large majority (72%) say most doctors have good intentions, and 26% say doctors are the problem.

Black and Hispanic U.S. adults are more likely than whites to consider misconduct a big problem for medical doctors and medical researchers.

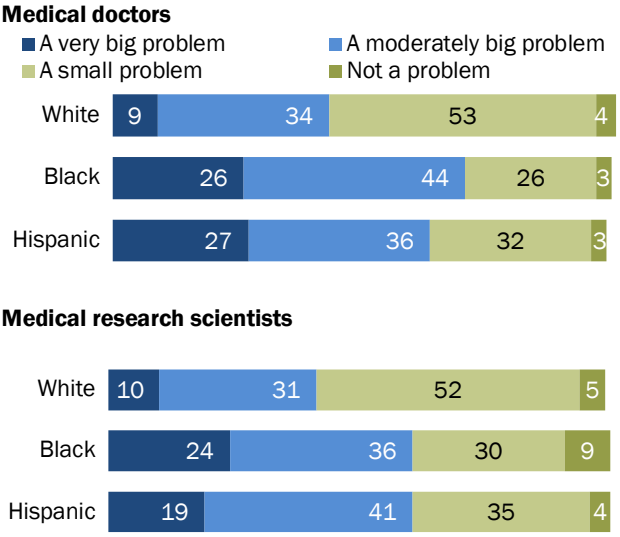
Majorities of blacks (71%) and Hispanics (63%) say professional misconduct by doctors is at least a moderately big problem. This includes about one-quarter of each group who say it is a *very* big problem (26% and 27%, respectively). In contrast, 43% of whites say medical misconduct is a very (9%) or moderately big (34%) problem.

There are similar race- and ethnicity-related differences in views of misconduct among medical researchers. Black (59%) and Hispanic (60%) adults are more likely than whites (42%) to say research misconduct by medical scientists is as at least a moderately big problem.

These findings could be related to a number of factors. (The differences persist in statistical models controlling for education, science knowledge and other factors.)[4] Some have suggested that lingering concerns among black Americans over mistreatment, such as in the Tuskegee study, contributes to lower trust.[5] And long-standing concerns about inequalities in health outcomes for blacks and Hispanics as compared with whites could play a role in these perceptions.

Blacks, Hispanics are more likely than whites to view medical misconduct as a very big problem

% of adults who think professional/research misconduct by each of these groups is ...



Note: Respondents who did not give an answer are not shown.
Whites and blacks include those who report being only one race and are non-Hispanic. Hispanics are of any race.
Source: Survey conducted Jan. 7-21, 2019.
"Trust and Mistrust in Americans' Views of Scientific Experts"

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[4] Ordered logistic models found a significant effect for blacks and for Hispanics as compared with whites in beliefs about the extent to which misconduct is a problem for medical doctors as well as medical researchers; modeling included controls for gender, age, education, level of science knowledge, familiarity, political party and ideology.
[5] Plutzer, Eric. 2014. "The Racial Gap in Confidence in Science: Explanations and Implications." Bulletin of Science, Technology and Society.

5. Americans trust dietitians more than nutrition researchers but are skeptical of both groups' transparency, accountability

When it comes to evaluating scientists associated with food and healthy eating, Americans tend to hold more positive views of practitioners (namely, dietitians) than nutrition research scientists. At least half or more of the public trusts dietitians to perform their job well, to provide fair and accurate information and to care about their patients' interests all or most of the time. Nutrition researchers stand out among the six specialties for low marks among the public when it comes to competence, trustworthiness of information and concern for public interest.

Americans tend to be skeptical of both groups when it comes to whether they can be counted on for transparency and taking responsibility for their mistakes. Most people also do not believe these scientists are likely to routinely face serious consequences for misconduct.

Familiarity with these groups makes a difference, however. People who are more familiar with the jobs of dietitians or nutrition researchers tend to hold more positive and trusting views of these groups. Those with higher levels of factual science knowledge, too, are more positive and trusting of scientists working in these areas.

Dietitians and nutrition research scientists

The Bureau of Labor Statistics reports approximately 64,670 dietitians and nutritionists were employed in the U.S. as of May 2018. Dietitians commonly must register with a state regulatory body in order to practice. Several terms may be used for nutrition research scientists. The Bureau of Labor Statistics defines "food scientists and technologists" as those who "use chemistry, biology, and other sciences to study the basic elements of food. They analyze the nutritional content of food, discover new food sources, and research ways to make processed foods safe and healthy …." In May 2017, approximately 15,020 food scientists and technologists were employed in the U.S.

The Center's survey asked respondents about *either* dietitians or nutrition research scientists. Respondents were given brief definitions prior to answering questions about each group. These were:

"**Dietitians** advise people on what to eat using their training in nutrition in order to promote health and manage disease."

"**Nutrition research scientists** conduct research about the effects of food on health."

Overall, six-in-ten Americans (60%) say they have a positive view of dietitians. Another 32% say they have a neither positive nor negative view, while just 7% have a negative view of this group.

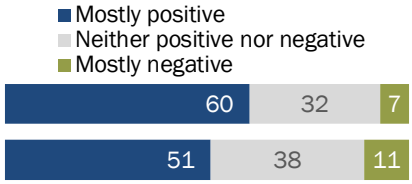
By comparison, Americans are somewhat less positive about nutrition research scientists. Half of the public (51%) holds an overall favorable view of nutrition research scientists, while 38% are neither positive nor negative, and 11% have a negative view.

Most Americans say that they know at least a little about the roles of dietitians (89%) or nutrition research scientists (74%).

Majorities of Americans say they have been exposed to these jobs through the news media. Roughly six-in-ten say they know about nutrition research scientists or dietitians because they have heard or read about their work in the news (59% and 57%, respectively). About four-in-ten (41%) say they know someone who is a dietitian, while just 16% claim to know a nutrition research scientist.

Most Americans have a positive view of dietitians

% of U.S. adults who say they have a ____ view of ...



Note: Respondents who did not give a response are not shown.
Source: Survey conducted Jan. 7-21, 2019.
"Trust and Mistrust in Americans' Views of Scientific Experts"

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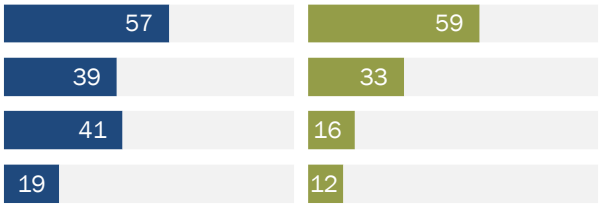
Majorities of Americans say they learned about nutrition scientists or dietitians from news reports

% of U.S. adults who say they know a lot/a little about what ____ do

% of U.S. adults who say they know about ____ because of the following



Note: Respondents who gave other responses or who did not give an answer are not shown.
Source: Survey conducted Jan. 7-21, 2019.
"Trust and Mistrust in Americans' Views of Scientific Experts"

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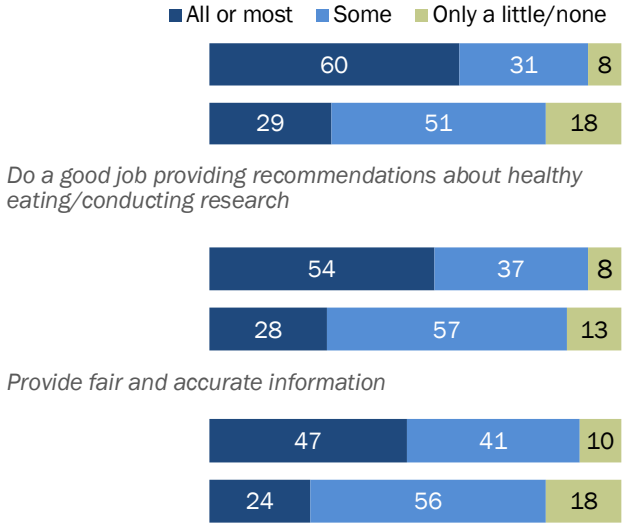
More trust dietitians than nutrition researchers when it comes to competence, commitment to people's interests, trustworthiness of information

More than half of U.S. adults say dietitians care about the best interests of their patients (60%) or do a good job providing recommendations about healthy eating (54%) all or most of the time. About half (47%) also say dietitians provide fair and accurate information when giving treatment recommendations with the same frequency.

By contrast, about three-in-ten Americans say nutrition research scientists care about the best interests of the public (29%) or do a good job conducting research all or most of the time (28%). And about a quarter (24%) believe nutrition research scientists provide fair and accurate information about their research as often.

Six-in-ten Americans say dietitians care about their patients' best interests all or most of the time

% of U.S. adults who say dietitians/nutrition research scientists do each of the following ____ of the time



Note: Respondents who did not give an answer are not shown.
Source: Survey conducted Jan. 7-21, 2019.
"Trust and Mistrust in Americans' Views of Scientific Experts"

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Greater familiarity with work of dietitians and nutrition research scientists correlates with higher confidence in their competence, accuracy of information

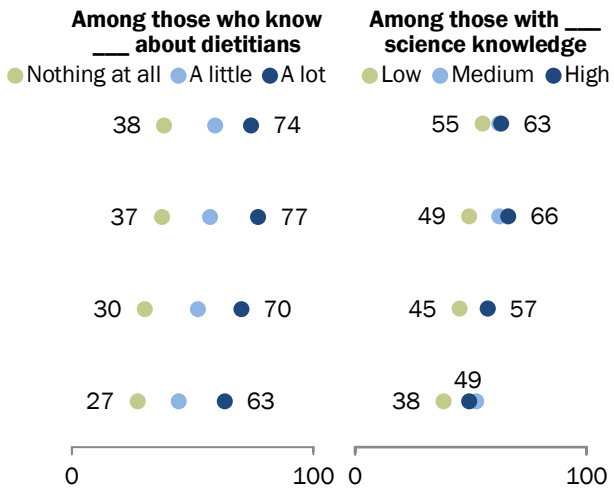
People who are more familiar with dietitians or nutrition research scientists tend to express more favorable opinions of these groups and their conduct.

About three-quarters (74%) of Americans who know a lot about dietitians' jobs report a mostly positive view of this group, compared with 59% of those who know a little and 38% of those who know nothing at all.

Familiarity with these jobs is also connected with a tendency to judge these researchers and practitioners as competent and accurate nutrition information sources.

People more familiar with dietitians are more inclined to say they are competent and caring

% of U.S. adults who say the following about dietitians



Note: Respondents who gave other responses or who did not give an answer are not shown.
See Methodology for details on index of science knowledge.
Source: Survey conducted Jan. 7-21, 2019.
"Trust and Mistrust in Americans' Views of Scientific Experts"

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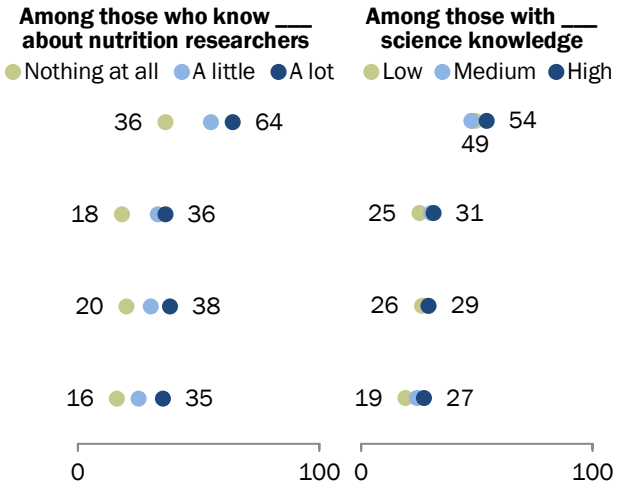
Roughly three-quarters (77%) of Americans who know a lot about dietitians say they care about the best interests of their patients all or most of the time, compared with 37% of those who know nothing at all about dietitians – a difference of 40 percentage points. And 70% of those most familiar with this group say dietitians do a good job providing recommendations about healthy eating all or most of the time, while just 30% of those who are unfamiliar with dietitians say the same.

People's level of familiarity with nutrition research scientists also tends to correlate with their views. Roughly two-thirds of those who are most familiar with nutrition research scientists (64%) say they have a mostly positive view of the group, while 36% of those who are unfamiliar hold the same view. In addition, 38% of those who know a lot about nutrition research scientists say they care about the best interests of the public all or most of the time, compared with 20% of those who are unfamiliar with this profession.

Americans with high levels of factual science knowledge judge dietitians somewhat more positively than those with low science knowledge when it comes to three key facets of trust. Two-thirds (66%) of those with high science knowledge say dietitians care about the best interests of their patients all or most of the time, while about half of those with low science knowledge (49%) say the same. And 57% of those with high science knowledge think dietitians do a good job all or most of the time, compared with 45% of those with low science knowledge. Similarly, 49% of those with high science knowledge say dietitians regularly provide fair and accurate information when making treatment recommendations, compared with 38% of those with low science knowledge. People's level of science knowledge, however, is not similarly linked to their views about nutrition research scientists on these matters.

People most familiar with nutrition researchers are more likely to say they are competent

% of U.S. adults who say the following about nutrition research scientists



Note: Respondents who gave other responses or who did not give an answer are not shown.
See Methodology for details on index of science knowledge.
Source: Survey conducted Jan. 7-21, 2019.
"Trust and Mistrust in Americans' Views of Scientific Experts"

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Americans ages 50 and older tend to have more positive views of dietitians than younger adults

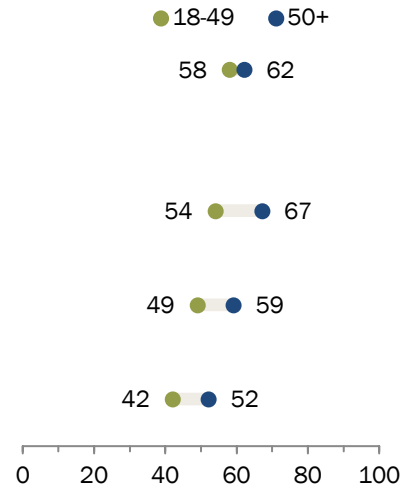
Age and gender tend to correlate with views of dietitians.

Americans ages 50 and older are more likely than their younger counterparts to say dietitians are competent, caring or a fair and accurate information source all or most of the time. For example, 67% of adults ages 50 and older say dietitians care about the best interests of their patients all or most of the time, compared with 54% of those under 50 who say the same.

There are also modest differences by gender in judgments of dietitians, with women somewhat more likely to express a positive overall view of dietitians (63% compared with 57% of men). Almost two-thirds of women (64%) see dietitians as caring about the best interests of their patients all or most of the time, while 55% of men say the same. And 60% of women, compared with 47% of men, say dietitians do a good job providing healthy eating recommendations with the same frequency.

Most Americans ages 50 and older say dietitians care about patients' interests

% U.S. adults who say the following about dietitians



Note: Respondents who gave other responses or who did not give an answer are not shown.
Source: Survey conducted Jan. 7-21, 2019.
"Trust and Mistrust in Americans' Views of Scientific Experts"

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There are no differences by gender and modest differences by age (ranging from 3 to 6 percentage points) on these judgments of nutrition research scientists.

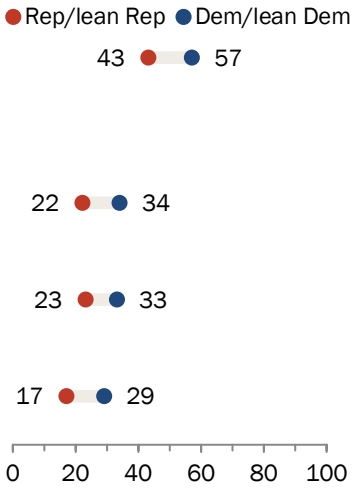
There are also some differences in views by political party for nutrition researchers, but not dietitians. A majority of Democrats and independents who lean to the Democratic Party (57%) say they have an overall positive view of nutrition research scientists, compared with 43% of Republicans (including leaners).

Further, Democrats tend to have more confidence than Republicans when it comes nutrition researchers' competence, concern for the public interest and accuracy of information. For example, 34% of Democrats say nutrition research scientists care about the best interests of the public all or most of the time, compared with 22% of Republicans.

There are no such partisan differences in views of dietitians.

A majority of Democrats hold a mostly positive view of nutrition researchers

% of U.S. adults who say the following about nutrition research scientists



Note: Respondents who gave other responses or who did not give an answer are not shown.
Source: Survey conducted Jan. 7-21, 2019.
"Trust and Mistrust in Americans' Views of Scientific Experts"

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Few Americans believe nutrition professionals regularly admit mistakes or are open about potential conflicts of interest with industry

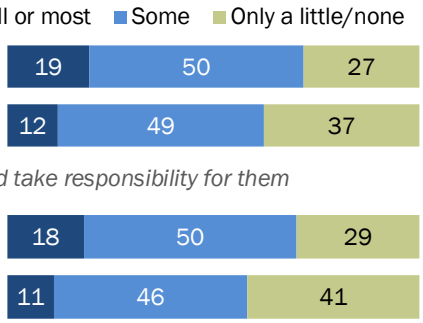
Americans are skeptical about whether nutrition research scientists and dietitians are transparent about potential conflicts of interest or take responsibility for their mistakes. At the same time, less than half of the public thinks misconduct is a big problem among each of these groups.

A minority of 19% say dietitians are transparent about potential conflicts of interest with industry groups all or most of the time; a similar share (18%) say they admit and take responsibility for their mistakes with the same frequency.

Just 12% say nutrition research scientists are transparent about potential conflicts of interest with industry groups all or most of the time; 11% say they take responsibility for their mistakes with the same frequency.

Few Americans say nutrition scientists are transparent about potential conflicts of interest all or most of time

% of U.S. adults who say dietitians/nutrition research scientists do each of the following ____ of the time



Note: Respondents who did not give an answer are not shown.
Source: Survey conducted Jan 7-21, 2019.
"Trust and Mistrust in Americans' Views of Scientific Experts"

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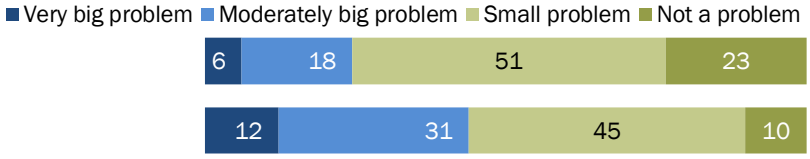
On the flip side, some 37% say nutrition researchers are transparent about potential conflicts of interest only a little or none of the time. And 41% say the same when it comes to nutrition researchers admitting and taking responsibility for their mistakes.

Most say misconduct is not a big problem among dietitians or nutrition researchers; about half say repercussions are infrequent

The survey asked Americans to consider the magnitude of the problem of research misconduct among nutrition research scientists or professional misconduct among dietitians. On that score, fewer than half consider misconduct to be at least a moderately big problem. About two-in-ten Americans (23%) say misconduct by dietitians is a very or moderately big problem. About twice as many (43%) say misconduct is at least a moderately big problem for nutrition research scientists.

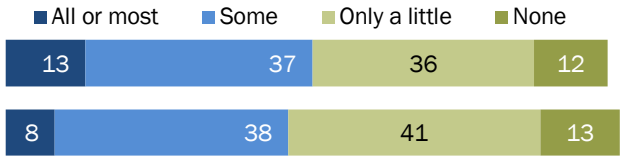
A minority of U.S. adults say misconduct by nutrition researchers is a big problem

% of U.S. adults who say misconduct by dietitians/nutrition research scientists is a ...



Half of Americans believe nutrition researchers rarely face serious consequences for misconduct

% of U.S. adults who say dietitians/nutrition research scientists who engage in misconduct face serious consequences ____ of the time



Note: Respondents who did not give an answer are not shown.
Source: Survey conducted Jan. 7-21, 2019.
"Trust and Mistrust in Americans' Views of Scientific Experts"

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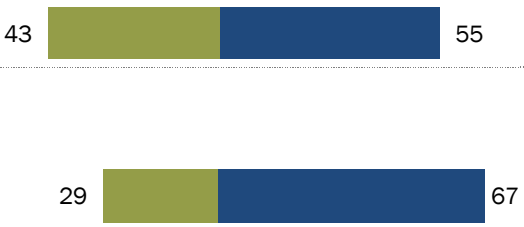
Few Americans believe those who work in nutrition science regularly face serious consequences for misdeeds when they occur. Small shares of the public – 13% for dietitians and 8% for nutrition research scientists – say these groups face serious consequences for misconduct all or most of the time. Roughly half of the public says nutrition research scientists (53%) and dietitians (47%) face consequences only a little or none of the time.

At the same time, Americans are inclined to give nutrition scientists the benefit of the doubt. A 55% majority say they consider misconduct cases to be isolated incidents, while 43% view such cases as signs of a broader problem. About two-thirds of the public (67%) say they generally believe that in cases of misconduct "most nutrition research scientists have good intentions; it's the research system that's broken." A smaller share (29%) says, "The research system can work fine; it's the nutrition research scientists that are the problem."

For the most part, Americans tend to see dietitians' role in professional misconduct similarly. Three-quarters of the public (75%) considers these misconduct cases as isolated incidents, while 22% view them as signs of a broader problem. And when it comes to identifying the source of the misconduct, 72% fall on the side of the dietitians, saying most have good intentions and it's the system that is broken.

The public tends to believe most nutrition researchers are well-intentioned

% of U.S. adults who say the following when they hear about research misconduct among nutrition research scientists



Note: Respondents who did not give an answer are not shown.
Source: Survey conducted Jan. 7-21, 2019.
"Trust and Mistrust in Americans' Views of Scientific Experts"

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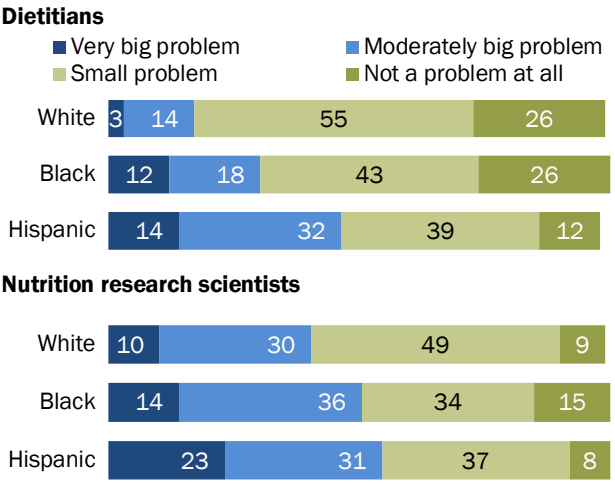
Concerns about the prevalence of misconduct are stronger among blacks and Hispanics than among whites. Slightly less than half of Hispanics (46%) say professional misconduct among dietitians is at least a moderately big problem; three-in-ten blacks (30%) say the same. In contrast, 16% of whites say misconduct is a big problem.

There is a similar pattern in beliefs about the prevalence of misconduct by nutrition research scientists. About half of Hispanics (54%) and blacks (50%) view misconduct by these scientists as at least a moderately big problem, compared with 40% of whites.

Hispanic, black Americans more likely to say misconduct by nutrition researchers is a big problem

% of U.S. adults who say misconduct among each of these groups is a ...



Note: Respondents who did not give an answer are not shown. Whites and blacks include those who report being only one race and are non-Hispanic. Hispanics are of any race.
Source: Survey conducted Jan. 7-21, 2019.
"Trust and Mistrust in Americans' Views of Scientific Experts"

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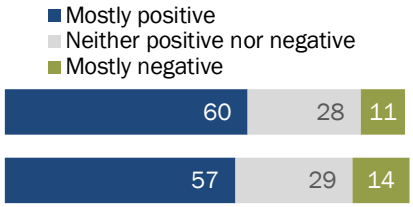
6. A majority of Americans have positive views of environmental scientists, but trust in them varies by politics

Majorities of U.S. adults have positive overall views of environmental health specialists and environmental research scientists. But public views are less rosy when it comes to key facets of trust, including how often these environmental scientists – whether researchers or health specialists – are competent at their jobs, provide accurate information or show concern for the public interest. Perceptions of environmental researchers tend to be similar to those for environmental health specialists, a relatively small occupational group that offers advice to organizations about potential health hazards in the environment such as air or water pollution.

Democrats are more trusting of environmental researchers and environmental health specialists than are Republicans. But both political groups tend to be skeptical of environmental scientists when it comes to transparency and accountability for mistakes.

A majority in U.S. have a positive view of environmental research scientists

% of U.S. adults who say they have a ____ view of ...



Note: Respondents who did not give a response are not shown.
Source: Survey conducted Jan. 7-21, 2019.
"Trust and Mistrust in Americans' Views of Scientific Experts"

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Some 60% of Americans say they have a mostly positive view of environmental health specialists. A similar share (57%) has a positive view of environmental researchers.

Environmental health specialists and environmental research scientists

The Bureau of Labor Statistics estimates that 80,480 adults were employed in occupations listed as "environmental scientists and specialists, including health" as of May 2018.

The Center's survey asked respondents about *either* environmental health specialists *or* environmental research scientists. Respondents were given brief definitions prior to answering questions about each group. These were:

"**Environmental health specialists** often advise organizations in a local community about environmental risks to human health such as air and water pollution and how to clean up polluted areas."

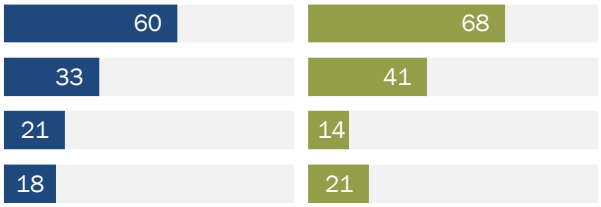
"**Environmental research scientists** conduct research on the environment and how plants, animals and other organisms are affected by it."

Most Americans say they know at least a little about what environmental research scientists (81%) or environmental health specialists (74%) do. But only 16% say they know *a lot* about the work of environmental research scientists and just 12% say they know a lot about environmental health specialists.

News reports are the most common source of information about environmental scientists

% of U.S. adults who say they know a lot/a little about what ____ do

% of U.S. adults who say they know about ____ because of the following



Note: Respondents who gave other responses or who did not give an answer are not shown.
Source: Survey conducted Jan. 7-21, 2019.
"Trust and Mistrust in Americans' Views of Scientific Experts"

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The most common way for Americans to say they learn about these science-related occupations is through the news. About two-thirds of Americans (68%) say they know at least a little about environmental research scientists through news reports, and six-in-ten say they know about environmental health specialists through the news. Smaller percentages say they know about environmental research scientists or environmental health specialists through school, work or personal contact.

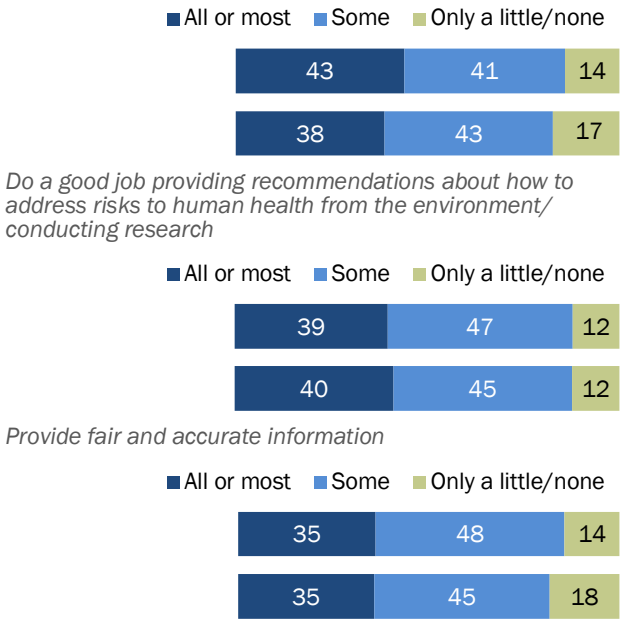
Roughly a third of Americans say environmental scientists can be relied on to provide fair, accurate information about their research

Public trust in environmental researchers and environmental health specialists appears to be generally lukewarm. The Center's survey finds 43% of Americans believe environmental health specialists care about the best interests of the public all or most of the time. About four-in-ten (39%) say environmental health specialists do a good job providing recommendations about how to address risks to human health all or most of the time. And a slightly smaller percentage (35%) says environmental health specialists provide fair and accurate information about their recommendations all or most of the time.

Americans have similarly tepid views of environmental research scientists. For example, 35% say environmental research scientists provide fair and accurate information all or most of the time, equal to the share who say this about environmental health specialists.

About four-in-ten say environmental researchers care about the public's best interests all or most of the time

% of U.S. adults who say environmental health specialists/environmental research scientists do each of the following ____ of the time



Note: Respondents who did not give an answer are not shown.
Source: Survey conducted Jan. 7-21, 2019.
"Trust and Mistrust in Americans' Views of Scientific Experts"

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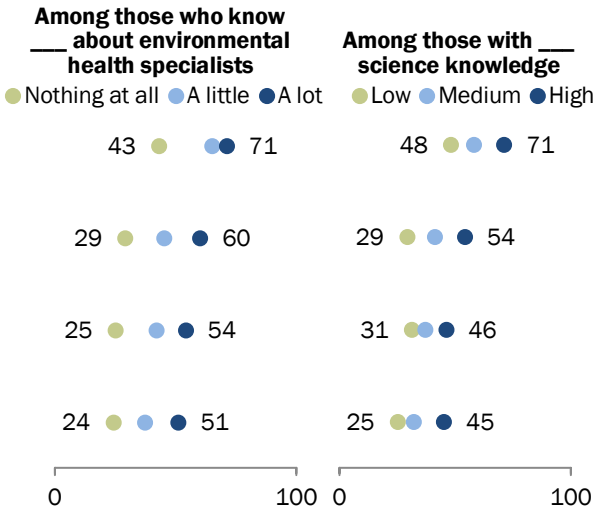
People more familiar with environmental health specialists, research scientists have more confidence these groups routinely provide fair and accurate information

Those who are more familiar with environmental health specialists and environmental researchers have more positive and trusting views about them. For example, a 71% majority of those who know a lot about environmental health specialists say they have a positive view of this group. In contrast, 43% of those who know nothing at all about environmental health specialists say they have a mostly positive view of this group.

Those who are more familiar with these environmental science occupations also tend to trust people who hold them more than those who lack familiarity. For example, some 54% of those who know a lot about environmental health specialists say they do a good job all or most of the time. In comparison, one-quarter of those who know nothing at all about environmental health specialists (25%) say they do a good job. Those who are very familiar with environmental health specialists also are more likely than those who are not to say these specialists care about the community's best interests (60% vs. 29%, respectively) or to trust them to provide fair and accurate information all or most of the time (51% vs. 24%).

People who are more familiar with environmental health specialists see them in a more positive light

% of U.S. adults who say the following about environmental health specialists



Note: Respondents who gave other responses or who did not give an answer are not shown.
See Methodology for details on index of science knowledge.
Source: Survey conducted Jan. 7-21, 2019.
"Trust and Mistrust in Americans' Views of Scientific Experts"

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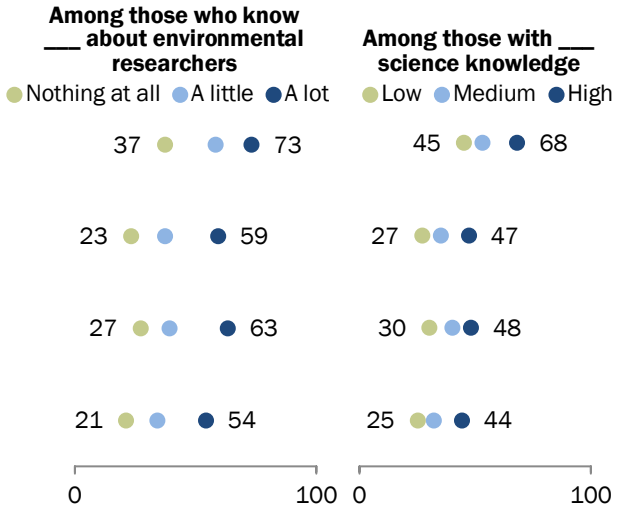
There is a similar connection between familiarity with environmental research scientists and trust-related judgments about them. For example, Americans who report knowing a lot about environmental research scientists are about twice as likely (63% vs. 27%) as those not familiar with them to say environmental researchers do a good job all or most of the time.

People more familiar with environmental researchers have more trust in their competence

% of U.S. adults who say the following about environmental research scientists



Note: Respondents who gave other responses or who did not give an answer are not shown.
See Methodology for details on index of science knowledge.
Source: Survey conducted Jan. 7-21, 2019.
"Trust and Mistrust in Americans' Views of Scientific Experts"

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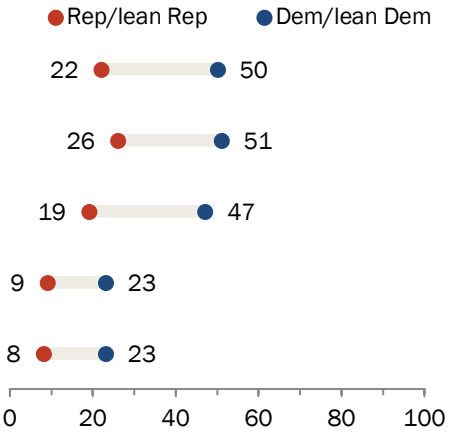
Democrats trust environmental research scientists more than Republicans do

Democrats are more trusting than Republicans of environmental health specialists and environmental research scientists. For example, about half of Democrats and Democratic-leaning independents (47%) say environmental research scientists provide fair and accurate information all or most of the time. In comparison, 19% of Republicans and independents leaning to the GOP agree. Democrats are also far more likely than Republicans to say environmental researchers care about the best interests of the public (50% vs. 22%) or do a good job conducting research (51% vs. 26%) all or most of the time.

Democrats are about twice as likely as Republicans to say environmental researchers regularly do a good job

% of U.S. adults in each group who say environmental research scientists do the following all or most of the time



Note: Respondents who gave other responses or who did not give an answer are not shown.
Source: Survey conducted Jan. 7-21, 2019.
"Trust and Mistrust in Americans' Views of Scientific Experts"

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There is a similar partisan difference in views of environmental health specialists.

Past Pew Research Center surveys have found wide political differences on attitudes related to the environment, climate change and energy. For instance, a 2016 survey showed large divides between Democrats and Republicans on judgments related to climate sciences.

Science knowledge is closely related to trust judgments of environmental scientists among Democrats, but not Republicans

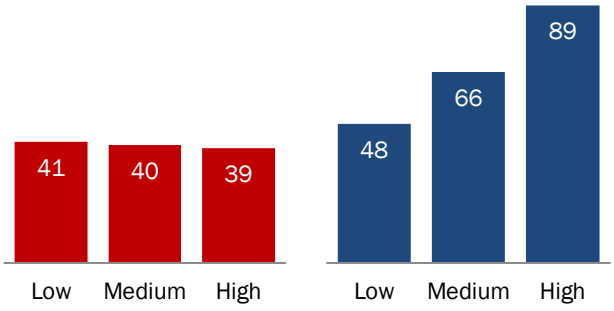
Among Democrats, those with high science knowledge are far more likely than those with low science knowledge to hold mostly positive views of environmental research scientists. About nine-in-ten Democrats with high science knowledge (89%) say their view of environmental research scientists is positive, compared with about half of Democrats with low science knowledge (48%). Among Republicans, those with high and low science knowledge are equally likely to say their view of environmental researchers is positive (39% and 41%, respectively).

There is a similar relationship between science knowledge and political party when it comes to trust in these environmental scientists. For example, Democrats with high science knowledge are about twice as likely as Democrats with low science knowledge to say environmental research scientists give fair and accurate information about their research all or most of the time (65% vs. 29%). There are no differences among Republicans on how often environmental researchers can be relied on to provide fair and accurate information; 18% of those with both high and low science knowledge say environmental research scientists do this all or most of the time.

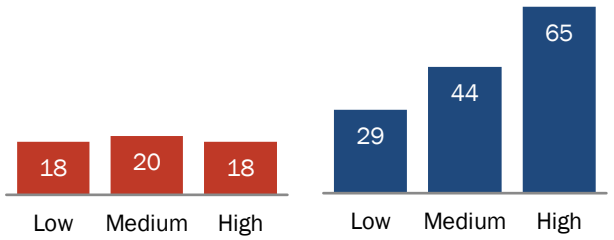
There is a similar pattern in views of environmental health specialists.

Democrats with high science knowledge are especially likely to have positive views of environmental researchers

% of U.S. adults in each group who say their view of environmental research scientists is mostly positive



% of U.S. adults in each group who say environmental research scientists provide fair and accurate information all or most of the time



Note: Respondents who gave other responses or who did not give an answer are not shown. See Methodology for details on index of science knowledge.
Source: Survey conducted Jan. 7-21, 2019.
"Trust and Mistrust in Americans' Views of Scientific Experts"

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These findings are in keeping with the idea that the role of information in people's judgments can depend on their identity as a partisan, a tendency known as motivated reasoning. Past Pew

Research Center surveys have found a similar pattern on a range of views related to climate and energy issues.

Fewer than two-in-ten are confident environmental health specialists or environmental research scientists are regularly transparent, accountable for mistakes

U.S. adults are skeptical that environmental health specialists or environmental researchers are regularly transparent about conflicts of interest or admit and take responsibility for mistakes.

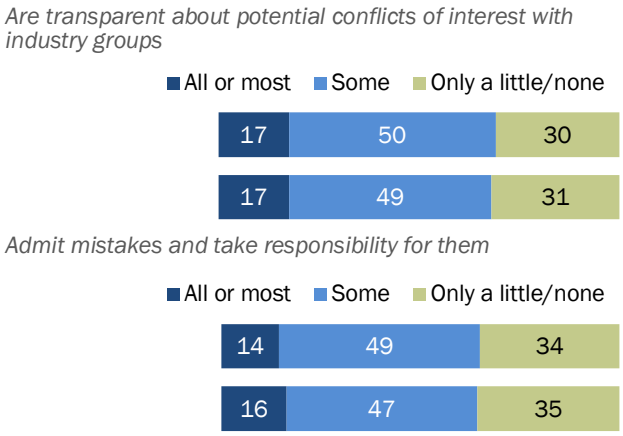
Only 17% of Americans say environmental health specialists are transparent about potential conflicts of interest with industry groups all or most of the time. A larger share – 31% – says environmental health specialists are transparent a little or none of the time.

Further, only 14% of U.S. adults say environmental health specialists admit and take responsibility for their mistakes all or most of the time, while 34% say environmental health specialists never or rarely admit mistakes.

The pattern is similar for environmental research scientists. For example, roughly one-third (35%) of Americans say environmental researchers rarely or never admit mistakes and take responsibility, similar to the share who say this about environmental health specialists.

Many are skeptical that environmental scientists usually admit their mistakes

% of U.S. adults who say environmental health specialists/environmental research scientists do each of the following ____ of the time



Note: Respondents who did not give an answer are not shown.
Source: Survey conducted Jan 7-21, 2019.
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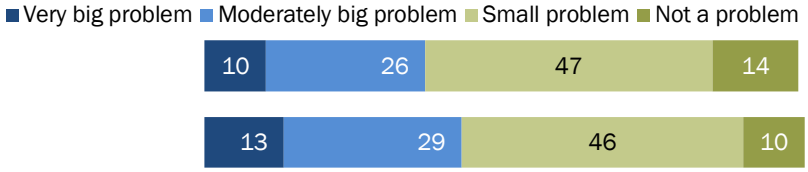
Less than half of the public thinks misconduct among these environmental science groups is at least a moderately big problem. Some 36% say misconduct is a very big or moderately big problem among environmental health specialists, while 43% say the same about misconduct among environmental research scientists.

Hispanic and black Americans are more likely than whites to see misconduct by environmental scientists as a big problem. For example, about six-in-ten Hispanics (59%) and half of blacks (49%) say research misconduct by environmental research scientists is at least a moderately big problem. In contrast, just 38% of whites say this.

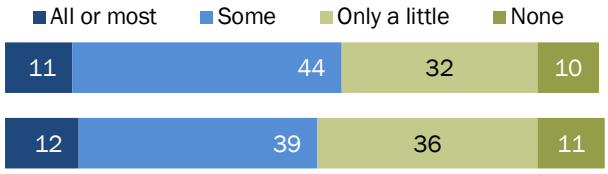
A minority of U.S. adults consider misconduct by environmental scientists a big problem

% of U.S. adults who say misconduct by environmental health specialists/environmental research scientists is a ...



Few U.S. adults believe misconduct by environmental scientists regularly leads to serious consequences

% of U.S. adults who say environmental health specialists/environmental research scientists who engage in misconduct face serious consequences ____ of the time



Note: Respondents who did not give an answer are not shown.
Source: Survey conducted Jan. 7-21, 2019.
"Trust and Mistrust in Americans' Views of Scientific Experts"

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Few Americans think misconduct routinely leads to serious consequences. Only 11% of Americans say environmental health specialists who engage in professional misconduct face serious consequences all or most of the time, while 42% believe there are serious consequences for misconduct only a little or none of the time. Views about the ramifications of misconduct among environmental researchers are similar.

Most Americans give environmental research scientists the benefit of the doubt, saying they consider cases of misconduct as isolated incidents (56%) rather than signs of a broader problem (42%). About two-thirds (65%) say most environmental research scientists have good intentions but the system is broken, while one-third (32%) say the environmental researchers are the problem.

Views of misconduct by environmental health specialists are similar. Some 62% say they consider stories of misconduct to be isolated incidents, while 35% call them signs of a broader problem. About seven-in-ten (72%) believe most environmental health specialists have good intentions and blame systemic issues when misconduct occurs, while about a quarter (24%) blame the specialists for misconduct.

Majority of U.S. adults see misconduct by environmental researchers as isolated incidents

% of U.S. adults who say the following when they hear about research misconduct among environmental research scientists

Note: Respondents who did not give an answer are not shown.
Source: Survey conducted Jan. 7-21, 2019.
"Trust and Mistrust in Americans' Views of Scientific Experts"

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Methodology

The American Trends Panel survey methodology

The American Trends Panel (ATP), created by Pew Research Center, is a nationally representative panel of randomly selected U.S. adults. Panelists participate via self-administered web surveys. Panelists who do not have internet access at home are provided with a tablet and wireless internet connection. The panel is managed by Ipsos.

Data in this report are drawn from the panel wave conducted Jan. 7 to Jan. 21, 2019. A stratified random sample of 5,817 panelists was selected from the full panel. Of these, 4,464 panelists responded for a response rate of 77%. The subsample was selected by grouping panelists into five strata so demographic groups that are underrepresented in the panel had a higher probability of selection than overrepresented groups:

American Trends Panel recruitment surveys

Recruitment dates	Mode	Invited	Joined	Active panelists remaining
Jan. 23 to March 16, 2014	Landline/ cell RDD	9,809	5,338	2,515
Aug. 27 to Oct. 4, 2015	Landline/ cell RDD	6,004	2,976	1,471
April 25 to June 4, 2017	Landline/ cell RDD	3,905	1,628	806
Aug. 8 to Oct. 31, 2018	ABS/web	9,396	8,778	8,777
	Total	**29,114**	**18,720**	**13,569**

Note: Approximately once per year, panelists who have not participated in multiple consecutive waves or who did not complete an annual profiling survey are removed from the panel. Panelists also become inactive if they ask to be removed from the panel.

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- Stratum A consists of panelists who are non-internet users. They were sampled at a rate of 100%.
- Stratum B consists of panelists with a high school or less education. They were sampled at a rate of 100%.
- Stratum C consists of panelists that are Hispanic, unregistered or non-volunteers. They were sampled at a rate of 54%.
- Stratum D consists of panelists that are black or 18 to 34 years old. They were sampled at a rate of 16%.
- Stratum E consists of the remaining panelists. They were sampled at a rate of 5%.

Panelists were grouped into these strata in hierarchical order from A to E. For example, a panelist who is not registered to vote and has a high school education or less would be in Stratum B rather than in Stratum C.

Accounting for nonresponse, the cumulative response rate to the recruitment surveys and attrition is 5.6%. The margin of sampling error for the full sample of 4,464 respondents is plus or minus 1.9 percentage points.

The ATP was created in 2014, with the first cohort of panelists invited to join the panel at the end of a large national landline and cellphone random-digit-dial survey that was conducted in both English and Spanish. Two additional recruitments were conducted using the same method in 2015 and 2017, respectively. Across these three surveys, a total of 19,718 adults were invited to join the ATP, of whom 9,942 agreed to participate.

In August 2018, the ATP switched from telephone to address-based recruitment. Invitations were sent to a random, address-based sample (ABS) of households selected from the U.S. Postal Service's Delivery Sequence File. In each household, the adult with the next birthday was asked to go online to complete a survey, at the end of which they were invited to join the panel. For a random half-sample of invitations, households without internet access were instructed to return a postcard. These households were contacted by telephone and sent a tablet if they agreed to participate. A total of 9,396 were invited to join the panel, and 8,778 agreed to join the panel and completed an initial profile survey.

Of the 18,720 individuals who have ever joined the ATP, 13,569 remain active panelists and continue to receive survey invitations.

Weighting dimensions

Variable	Benchmark source
Gender	2017 American Community Survey
Age	
Education	
Internet access	
Race/Hispanic origin	
Hispanic nativity	
Region x Metropolitan status	2018 CPS March Supplement
Volunteerism	2015 CPS Volunteer Supplement
Voter registration	2016 CPS Voting and Registration Supplement
Party affiliation	Average of the three most recent Pew Research Center telephone surveys.

Note: Estimates from the ACS are based on non-institutionalized adults. Voter registration is calculated using procedures from Hur, Achen (2013) and rescaled to include the total US adult population.

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Weighting

The ATP data were weighted in a multistep process that begins with a base weight incorporating the respondents' original survey selection probability and the fact that in 2014 and 2017 some respondents were subsampled for invitation to the panel. The next step in the weighting uses an iterative technique that aligns the sample to population benchmarks on the dimensions listed in the accompanying table.

Sampling errors and statistical significance tests take into account the effect of weighting. Interviews are conducted in both English and Spanish, but the American Trends Panel's Hispanic sample is predominantly U.S. born and English-speaking.

In addition to sampling error, one should bear in mind that question wording and practical difficulties in conducting surveys can introduce error or bias into the findings of opinion polls.

The margin of error for the full sample of 4,464 U.S. adults at the 95% level of confidence is plus or minus 1.9 percentage points. The following table shows the unweighted sample sizes and the error attributable to sampling that would be expected at the 95% level of confidence for different groups in the survey for the full sample.

Respondents were also randomly assigned to complete one of two forms or sets of questions on the survey. The tables on the following pages show the unweighted sample sizes and the error attributable to sampling that would be expected at the 95% level of confidence for different groups for form 1 and form 2.

Sample sizes and sampling errors for other subgroups are available upon request.

Margins of error – Full sample

	Sample size	Margin of error in percentage points
U.S. adults	4,464	+/- 1.9
Men	1,960	+/- 2.9
Women	2,500	+/- 2.6
18-29	738	+/- 4.8
30-49	1,449	+/- 3.3
50-64	1,295	+/- 3.6
65+	978	+/- 4.0
Race/Ethnicity		
White, Non-Hispanic	2,891	+/- 2.3
Black, Non-Hispanic	506	+/- 5.5
Hispanic	718	+/- 5.3
Rep/Lean Rep	1,785	+/- 3.0
Dem/Lean Dem	2,459	+/- 2.6
Among those with ___ science knowledge		
High	1,805	+/- 3.0
Medium	1,484	+/- 3.3
Low	1,175	+/- 3.8

Note: The margins of error are reported at the 95% level of confidence and are calculated by taking into account the average design effect for each subgroup.
Source: Survey conducted Jan 7-21, 2019.
"Trust and Mistrust in Americans' Views of Scientific Experts"

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Margins of error by form split

	Form 1 sample size	Form 1 margin of error in percentage points	Form 2 sample size	Form 2 margin of error in percentage points
U.S. adults	2,226	+/- 2.7	2,238	+/- 2.7
Men	983	+/- 4.0	977	+/- 4.1
Women	1,241	+/- 3.7	1,259	+/- 3.6
18-49	1,081	+/- 3.9	1,106	+/- 3.9
50+	1,142	+/- 3.8	1,131	+/- 3.8
Race/Ethnicity				
White Non-Hispanic	1,450	+/- 3.3	1,441	+/- 3.3
Black Non-Hispanic	266	+/- 7.8	240	+/- 7.8
Hispanic	349	+/- 7.6	369	+/- 7.5
Rep/Lean Rep	919	+/-4.2	866	+/ 4.4
Dem/Lean Dem	1,200	+/- 3.7	1,259	+/- 3.6
Among those with ___ science knowledge				
High	905	+/- 4.2	900	+/- 4.3
Medium	738	+/- 4.7	746	+/- 4.7
Low	583	+/- 5.4	592	+/- 5.3

Note: The margins of error are reported at the 95% level of confidence and are calculated by taking into account the average design effect for each subgroup.
Source: Survey conducted Jan 7-21, 2019.
"Trust and Mistrust in Americans' Views of Scientific Experts"

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Margins of error by form split (continued)

	Form 1 sample size	Form 1 margin of error in percentage points	Form 2 sample size	Form 2 margin of error in percentage points
Among those who know ___ about what medical research scientists do				
A lot	369	+/- 6.7		
A little	1,528	+/- 3.3		
Nothing at all	322	+/- 7.1		
Among those who know ___ about what nutrition research scientists do				
A lot	221	+/- 8.9		
A little	1,471	+/- 3.3		
Nothing at all	527	+/- 5.6		
Among those who know ___ about what environmental research scientists do				
A lot	352	+/- 6.8		
A little	1,467	+/- 3.4		
Nothing at all	398	+/- 6.5		
Among those who know ___ about what medical doctors do				
A lot			1,099	+/- 3.9
A little			1,028	+/- 4.0
Among those who know ___ about what dietitians do				
A lot			590	+/- 5.3
A little			1,451	+/- 3.4
Nothing at all			195	+/- 9.2
Among those who know ___ about what environmental health specialists do				
A lot			277	+/- 7.8
A little			1,410	+/- 3.4
Nothing at all			544	+/- 5.4

Note: The margins of error are reported at the 95% level of confidence and are calculated by taking into account the average design effect for each subgroup. There are too few respondents who said they know nothing at all about medical doctors for separate analysis.
Source: Survey conducted Jan 7-21, 2019.
"Trust and Mistrust in Americans' Views of Scientific Experts"

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Measurement properties of the science knowledge scale

Pew Research Center's survey on science knowledge covers knowledge of facts connected with life sciences, earth and other physical sciences, numeracy and understanding of scientific processes.

The following criteria are used to evaluate how well the 11 items can used as a scale or index of science knowledge more broadly: 1) the degree to which responses are internally consistent 2) the degree to which the questions reflect a single underlying latent dimension, and 3) the degree to which the scale discriminates between people with high and low knowledge, providing information about people with varying levels of science knowledge.

The internal reliability of the scale as measured by Cronbach's alpha is 0.86. Cronbach's alpha does not increase if any of the items are dropped.

Scale reliability and factor analysis

Science knowledge scale		Alpha for scale 0.86	Common variance explained by first factor 81%
	Item-rest correlation	Alpha if item is dropped	Factor loadings
KNOW1. Oil, natural gas and coal are examples of fossil fuels	0.56	0.84	0.61
KNOW2. Example showing the importance of a control group	0.53	0.84	0.58
KNOW3. Inserting a gene into plants that makes them resistant to insects is an example of genetic engineering	0.64	0.84	0.69
KNOW4. Tilt of the Earth's axis in relation to the sun is the main cause of seasons	0.52	0.85	0.56
KNOW5. Chicago, Illinois, has the greatest annual range of temperatures (with charts)	0.51	0.85	0.55
KNOW6. Identify an example of a hypothesis	0.51	0.85	0.55
KNOW7. Identify the definition of an incubation period	0.55	0.84	0.61
KNOW9. Increased erosion occurs due to deforestation	0.54	0.84	0.59
KNOW10. Antacids relieve an overly acidic stomach because the main components are bases	0.56	0.84	0.61
KNOW11. The major concern of the overuse of antibiotics is it can lead to antibiotic-resistant bacteria	0.55	0.84	0.61
KNOW12. A car traveling at a constant speed of 40 mph travels 30 miles in 45 minutes	0.54	0.84	0.58

Source: Survey conducted Jan. 7-21, 2019.
"Trust and Mistrust in Americans' Views of Scientific Experts"

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An exploratory factor analysis finds that the first common factor explains 81% of the shared variance in the items. The second common factor explains only 9% of the common variance. The factor loadings show that each of the 11 items is at least moderately correlated with the first common factor. This suggests that the set of items is the result of a single underlying dimension.

Note that all the science knowledge items are coded as binary variables (either correct or incorrect). Both Cronbach's alpha and factor analysis are based on a Pearson's correlation matrix. Pearson's correlations with binary variables are restricted to a limited range, underestimating the association between two variables. We do not anticipate the use of a Pearson's correlation matrix will affect the unidimensional factor solution for the scale.

Two-parameter item response theory analysis

	% correct	Difficulty	Discrimination
KNOW1. Oil, natural gas and coal are examples of fossil fuels	68	-0.62	2.08
KNOW2. Example showing the importance of a control group	60	-0.34	1.82
KNOW3. Inserting a gene into plants that makes them resistant to insects is an example of genetic engineering	56	-0.18	2.74
KNOW4. Tilt of the Earth's axis in relation to the sun is the main cause of seasons	63	-0.46	1.74
KNOW5. Chicago, Illinois, has the greatest annual range of temperatures (with charts)	59	-0.34	1.65
KNOW6. Identify an example of a hypothesis	52	-0.07	1.76
KNOW7. Identify the definition of an incubation period	76	-0.85	2.86
KNOW9. Increased erosion occurs due to deforestation	60	-0.34	1.95
KNOW10. Antacids relieve an overly acidic stomach because the main components are bases	39	0.34	2.44
KNOW11. The major concern of the overuse of antibiotics is it can lead to antibiotic-resistant bacteria	79	-0.93	2.93
KNOW12. A car traveling at a constant speed of 40 mph travels 30 miles in 45 minutes	57	-0.25	1.81

Source: Survey conducted Jan. 7-21, 2019.
"Trust and Mistrust in Americans' Views of Scientific Experts"

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We conducted item response modeling for the scale to evaluate how well it discriminates between people at different levels of knowledge. The analysis fits a two-parameter logistic model, allowing discrimination and difficulty to vary across items.[6] Discrimination shows the ability of the question to distinguish between those with higher and lower science knowledge. Difficulty shows how easy or hard each question is for the average respondent.

All the items have acceptable discrimination estimates. Two of the easiest items also have the two highest discrimination estimates: KNOW11 (the major concern of the overuse of antibiotics is it can lead to antibiotic-resistant bacteria) and KNOW7 (identify the definition of an incubation period). But one medium-difficulty item (KNOW3 – inserting a gene into plants that makes them resistant to insects is an example of genetic engineering) and one hard difficulty item (KNOW10 –

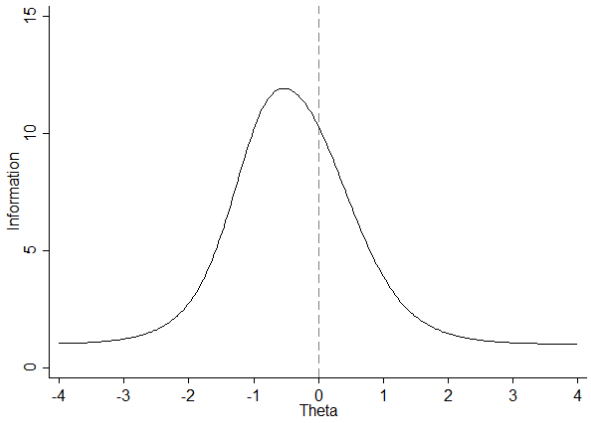
[6] A three-parameter model allowing for a pseudo-guessing parameter somewhat improves model fit compared with a two-parameter model. However, the other parameters are nearly identical in the two- and three-parameter models; we present the two-parameter model for simplicity and parsimony.

antacids relieve an overly acidic stomach because the main components are bases) also have large discrimination estimates.

The difficulty parameter estimates are negative for 10 of the 11 items, and positive for one of the items. This shows that the average respondent had a good chance of getting the correct answer on most of the items.

The test information function shows the amount of information the scale provides about people with different levels of science knowledge. The test function approximates a normal curve and is centered below zero (Theta) at about -0.5. This indicates that the scale provides the most information about those with slightly below-average science knowledge. The scale provides comparatively less information about those with high science knowledge, especially those with *very* high levels of knowledge.

Test information function for science knowledge scale



Source: Survey conducted Jan. 7-21, 2019.
"Trust and Mistrust in Americans' Views of Scientific Experts"

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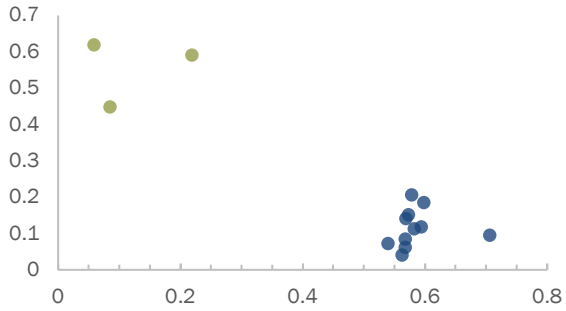
The Center's survey finds that people's self-reported familiarity with scientists is distinct from their factual science knowledge. Of the six measures of familiarity, the most highly correlated with the 11-item index of science knowledge are self-perceived familiarity with environmental researchers (r=0.31) and with medical doctors (r=0.30) and medical researchers (r=0.29).

An exploratory factor analysis finds a two-factor solution. One underlying factor is closely correlated with the factual science knowledge items and the second underlying factor is closely correlated with levels of familiarity with scientists. Such findings suggest the two measures are tapping different concepts.

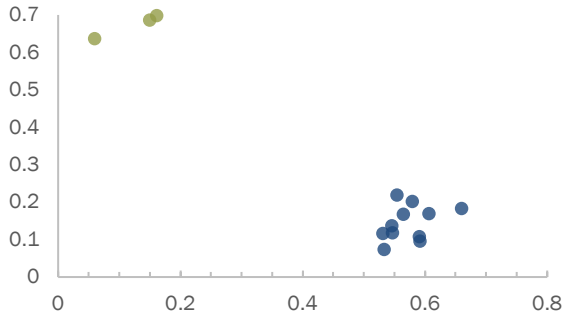
Self-reported familiarity and factual knowledge about science are distinct

Variable loadings on each factor based on an exploratory factor analysis

Practitioners



Research scientists



Notes: Data are factor loadings based on an exploratory factor analysis with two factors and orthogonal rotation of factors.
Source: Survey conducted Jan. 7-21, 2019.
"Trust and Mistrust in Americans' Views of Scientists"

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Survey question wording and topline

2019 PEW RESEARCH CENTER'S AMERICAN TRENDS PANEL
WAVE 42 JANUARY
FINAL TOPLINE
JANUARY 7-21, 2019
TOTAL N=4,464

OTHER QUESTIONS HELD FOR FUTURE RELEASE

ASK ALL:

CONF How much confidence, if any, do you have in each of the following to act in the best interests of the public? **[RANDOMIZE ITEMS, SPLIT OVER TWO SCREENS]**

	A great deal	A fair amount	Not too much	No confidence at all	No Answer
a. Elected officials					
Jan 7-21, 2019	4	32	50	14	<1
Nov 27-Dec 10, 2018	4	33	48	15	<1
Jan 29-Feb 13, 2018	3	22	52	23	<1
May 10-June 6, 2016	3	24	54	19	1
b. The news media					
Jan 7-21, 2019	9	38	34	19	<1
Nov 27-Dec 10, 2018	10	38	33	19	<1
[Form 1 or 4, N=5,267]					
Jan 29-Feb 13, 2018	8	32	35	25	<1
May 10-June 6, 2016	5	33	40	21	1
c. The military					
Jan 7-21, 2019	36	46	14	4	<1
Nov 27-Dec 10, 2018	41	41	12	4	1
Jan 29-Feb 13, 2018	39	41	15	4	<1
May 10-June 6, 2016	33	46	15	5	1
d.F1 Medical scientists **[FORM 1 ONLY]**					
Jan 7-21, 2019	35	52	11	2	<1
[Form 1, N=2,226]					
May 10-June 6, 2016	24	60	12	3	1
[Form 1, N=1,549]					
d.F2 Scientists **[FORM 2 ONLY]**					
Jan 7-21, 2019	35	51	11	2	<1
[Form 2, N=2,238]					
Nov 27-Dec 10, 2018	33	49	14	3	<1
Jan 29-Feb 13, 2018	27	52	17	5	<1
May 10-June 6, 2016	21	55	18	4	1
[Form 2 or 3, N=3,014]					
e. Religious leaders					
Jan 7-21, 2019	13	44	30	12	<1
Nov 27-Dec 10, 2018	15	47	27	11	1
Jan 29-Feb 13, 2018	9	40	34	16	1
May 10-June 6, 2016	13	39	32	14	1

CONF continued …

f. Public school principals for grades K-12					
Jan 7-21, 2019	21	56	18	4	1
Nov 27-Dec 10, 2018	25	55	16	4	<1
[Form 2 or 3, N=5,351]					
TRENDS FOR COMPARISON[7]:					
Nov 27-Dec 10, 2018	*22*	*55*	*17*	*5*	*1*
[Form 1 or 4, N=5,267]					
May 10-June 6, 2016	*13*	*53*	*27*	*7*	*1*
g. Business leaders					
Jan 7-21, 2019	6	40	43	11	<1
Nov 27-Dec 10, 2018	4	39	43	14	<1
Jan 29-Feb 13, 2018	5	40	42	13	<1
May 10-June 6, 2016	4	37	44	14	1

ASK ALL:

POLICY1 Which of these statements comes closer to your own view, even if neither is exactly right? **[RANDOMIZE]**

Jan 7-21 2019	
60	Scientists should take an active role in public policy debates about scientific issues
39	Scientists should focus on establishing sound scientific facts and stay out of public policy debates
1	No answer

ASK ALL:

POLICY2 Which of these statements comes closer to your own view, even if neither is exactly right? **[DO NOT RANDOMIZE]**

Jan 7-21 2019	
54	Public opinion should play an important role to guide policy decisions about scientific issues
44	Public opinion should NOT play an important role to guide policy decisions about scientific issues because these issues are too complex for the average person to understand
1	No answer

[7] For forms 1 and 4 in a December 2018 survey and for a June 2016 survey, the wording of this item was "public school principals and superintendents for grades K-12."

TREND FOR COMPARISON:
Pew Research Center survey conducted by telephone: Which of these statements best describes your views, even if neither is exactly right?

	Aug 15-25 2014
(One) Public opinion should play an important role to guide policy decisions about scientific issues, [OR]	*60*
(Two) Public opinion should NOT play an important role to guide policy decisions about scientific issues because these issues are too complex for the average person to understand	*35*
*Neither/Both **(VOL.)***	*2*
*Don't know/Refused **(VOL.)***	*2*

ASK ALL:
POLICY3 In general, would you say scientific experts are… **[DO NOT RANDOMIZE]**

Jan 7-21 2019	
45	Usually BETTER at making good policy decisions about scientific issues than other people
7	Usually WORSE at making good policy decisions about scientific issues than other people
48	NEITHER BETTER NOR WORSE at making good policy decisions about scientific issues than other people
1	No answer

RANDOMIZE SECTIONS F1A, F1B AND F1C AND RANDOMIZE SECTIONS F2A, F2B, AND F2C
ASK FORM 1 [N=2,226]:
RQ1_F1A Medical research scientists conduct research to investigate human diseases, and test methods to prevent and treat them.
In general, would you say your view of medical research scientists is…
ASK FORM 2 [N=2,238]:
PQ1_F2A Medical doctors provide patients with diagnoses of disease and/or treatment recommendations to promote, maintain or restore a patient's health.
In general, would you say your view of medical doctors is…

	Medical research scientists	Medical doctors
Mostly positive	68	74
Mostly negative	7	8
Neither positive nor negative	24	18
No answer	1	<1

ASK FORM 1 [N=2,226]:
RQ2_F1A How much, if anything, do you know about what medical research scientists do?
ASK FORM 2 [N=2,238]:
PQ2_F2A How much, if anything, do you know about what medical doctors do?

	Medical research scientists	Medical doctors
A lot	16	46
A little	67	48
Nothing at all	17	6
No answer	<1	<1

ASK KNOW A LOT/A LITTLE ABOUT MEDICAL RESEARCH SCIENTISTS (RQ2_F1A=1,2) [N=1,897]:
RQ3_F1A Is what you know about medical research scientists because you … **[RANDOMIZE ITEMS; MAINTAIN SAME ORDER FOR EACH TYPE OF SCIENTIST]**
ASK KNOW A LOT/A LITTLE ABOUT MEDICAL DOCTORS (PQ2_F2A=1,2) [N=2,127]:
PQ3_F2A Is what you know about medical doctors because you … **[RANDOMIZE ITEMS; MAINTAIN SAME ORDER FOR EACH TYPE OF SCIENTIST]**

Based on those who know a lot/a little about medical research scientists [N=1,897]; medical doctors [N=2,127]:
a. Know someone who does this

	Based on those asked	
	Medical research scientists	Medical doctors
Yes, know someone who does this	32	69
No, do not know someone who does this	67	29
No answer	1	1

Based on total [N=4,464]:

	Based on U.S. adults	
	Medical research scientists	Medical doctors
Know a lot/a little about this group	83	94
Yes, know someone who does this	27	65
No, do not know someone who does this	55	28
No answer to RQ3_F1Aa/PQ3_F2Aa	1	1
Know nothing at all about this group	17	6
No answer to RQ2_F1A/PQ2_F2A	<1	<1

RQ3_F1A and PQ3_F2A continued …

Based on those who know a lot/a little about medical research scientists [N=1,897]; medical doctors [N=2,127]:

b. Learned about this in school

	Based on those asked	
	Medical research scientists	Medical doctors
Yes, learned about this in school	50	51
No, did not learn about this in school	49	49
No answer	1	1

Based on total [N=4,464]:

	Based on U.S. adults	
	Medical research scientists	Medical doctors
Know a lot/a little about this group	83	94
Yes, learned about this in school	41	47
No, did not learn about this in school	40	45
No answer to RQ3_F1Ab/PQ3_F2Ab	1	1
Know nothing at all about this group	17	6
No answer to RQ2_F1A/PQ2_F2A	<1	<1

Based on those who know a lot/a little about medical research scientists [N=1,897]; medical doctors [N=2,127]:

c. Learned about this in your job

	Based on those asked	
	Medical research scientists	Medical doctors
Yes, learned about this in my job	22	27
No, did not learn about this in my job	77	72
No answer	1	1

Based on total [N=4,464]:

	Based on U.S. adults	
	Medical research scientists	Medical doctors
Know a lot/a little about this group	83	94
Yes, learned about this in my job	18	25
No, did not learn about this in my job	64	67
No answer to RQ3_F1Ac/PQ3_F2Ac	1	1
Know nothing at all about this group	17	6
No answer to RQ2_F1A/PQ2_F2A	<1	<1

RQ3_F1A and PQ3_F2A continued …

Based on those who know a lot/a little about medical research scientists [N=1,897]; medical doctors [N=2,127]:

d. Have heard or read about this in the news

	Based on those asked	
	Medical research scientists	Medical doctors
Yes, have heard or read about this in the news	85	74
No, have not heard or read about this in the news	15	24
No answer	1	2

Based on total [N=4,464]:

	Based on U.S. adults	
	Medical research scientists	Medical doctors
Know a lot/a little about this group	83	94
Yes, have heard or read about this in the news	70	69
No, have not heard or read about this in the news	12	23
No answer to RQ3_F1Ad/PQ3_F2Ad	<1	1
Know nothing at all about this group	17	6
No answer to RQ2_F1A/PQ2_F2A	<1	<1

ASK FORM 1 [N=2,226]:
RQ4_F1A Thinking about medical research scientists, how often would you say they … **[RANDOMIZE ITEMS, MAINTAIN SAME ORDER FOR EACH TYPE OF SCIENTIST]**
ASK FORM 2 [N=2,238]:
PQ4_F2A Thinking about medical doctors, how often would you say they … **[RANDOMIZE ITEMS, MAINTAIN SAME ORDER FOR EACH TYPE OF SCIENTIST]**

a. **ASK FORM 1:** Do a good job conducting research
ASK FORM 2: Do a good job providing diagnoses and treatment recommendations

	Medical research scientists	Medical doctors
All or most of the time	43	49
Some of the time	47	42
Only a little of the time	8	7
None of the time	2	2
No answer	1	1

RQ4_F1A and PQ4_F2A continued …

b. **ASK FORM 1:** Provide fair and accurate information when making statements about their research
ASK FORM 2: Provide fair and accurate information when making recommendations

	Medical research scientists	Medical doctors
All or most of the time	32	48
Some of the time	53	43
Only a little of the time	12	6
None of the time	2	2
No answer	1	<1

c. Admit mistakes and take responsibility for them

	Medical research scientists	Medical doctors
All or most of the time	13	12
Some of the time	48	46
Only a little of the time	30	32
None of the time	9	9
No answer	1	1

d. Are transparent about potential conflicts of interest with industry groups in their work

	Medical research scientists	Medical doctors
All or most of the time	15	15
Some of the time	50	50
Only a little of the time	27	24
None of the time	7	9
No answer	1	2

e. **ASK FORM 1:** Care about the best interests of the public
ASK FORM 2: Care about the best interests of their patients

	Medical research scientists	Medical doctors
All or most of the time	35	57
Some of the time	47	33
Only a little of the time	14	7
None of the time	3	2
No answer	1	1

ASK FORM 1 [N=2,226]:
RQ5_F1A Overall, do you think research misconduct by medical research scientists is…
ASK FORM 2 [N=2,238]:
PQ5_F2A Overall, do you think professional misconduct by medical doctors is…

	Medical research scientists	Medical doctors
A very big problem	14	15
A moderately big problem	34	35
A small problem	46	44
Not a problem at all	5	5
No answer	1	1

ASK FORM 1 [N=2,226]:
RQ6_F1A When you hear or read news stories about research misconduct by medical research scientists, do you think of these cases as… **[RANDOMIZE, MAINTAIN SAME ORDER FOR EACH TYPE OF SCIENTIST]**
ASK FORM 2 [N=2,238]:
PQ6_F2A When you hear or read news stories about professional misconduct by medical doctors, do you think of these cases as… **[RANDOMIZE, MAINTAIN SAME ORDER FOR EACH TYPE OF SCIENTIST]**

	Medical research scientists	Medical doctors
Isolated incidents	57	60
Signs of a broader problem	42	39
No answer	1	1

ASK FORM 1 [N=2,226]:
RQ7_F1A When you hear about problems with research misconduct among medical research scientists, which comes closer to your view, even if neither is exactly right? **[RANDOMIZE, MAINTAIN SAME ORDER FOR EACH TYPE OF SCIENTIST]**

	Medical research scientists
Most medical research scientists have good intentions, it's the research system that's broken	66
The research system can work fine, it's the medical research scientists that are the problem	30
No answer	3

ASK FORM 2 [N=2,238]:
PQ7_F2A When you hear about problems with professional misconduct among medical doctors, which comes closer to your view, even if neither is exactly right? **[RANDOMIZE, MAINTAIN SAME ORDER FOR EACH TYPE OF SCIENTIST]**

	Medical doctors
Most medical doctors have good intentions, it's the system that's broken	72
The system can work fine, it's the medical doctors that are the problem	26
No answer	2

ASK FORM 1 [N=2,226]:
RQ8_F1A How often, if at all, do you think medical research scientists face serious consequences if they engage in research misconduct?

ASK FORM 2 [N=2,238]:
PQ8_F2A How often, if at all, do you think medical doctors face serious consequences if they engage in professional misconduct?

	Medical research scientists	Medical doctors
All or most of the time	13	20
Some of the time	41	50
Only a little of the time	38	27
None of the time	7	3
No answer	1	1

ASK FORM 1 [N=2,226]:
RQ1_F1B Environmental research scientists conduct research on the environment and how plants, animals and other organisms are affected by it.
In general, would you say your view of environmental research scientists is…
ASK FORM 2 [N=2,238]:
PQ1_F2B Environmental health specialists often advise organizations in a local community about environmental risks to human health such as air and water pollution and how to clean up polluted areas.
In general, would you say your view of environmental health specialists is…

	Environmental research scientists	Environmental health specialists
Mostly positive	57	60
Mostly negative	14	11
Neither positive nor negative	29	28
No answer	1	1

ASK FORM 1 [N=2,226]:
RQ2_F1B How much, if anything, do you know about what environmental research scientists do?
ASK FORM 2 [N=2,238]:
PQ2_F2B How much, if anything, do you know about what environmental health specialists do?

	Environmental research scientists	Environmental health specialists
A lot	16	12
A little	65	63
Nothing at all	19	25
No answer	<1	<1

ASK KNOW A LOT/A LITTLE ABOUT ENVIRONMENTAL RESEARCH SCIENTISTS (RQ2_F1B=1,2) [N=1,819]:

RQ3_F1B Is what you know about environmental research scientists because you … **[RANDOMIZE ITEMS; MAINTAIN SAME ORDER FOR EACH TYPE OF SCIENTIST]**

ASK KNOW A LOT/A LITTLE ABOUT ENVIRONMENTAL HEALTH SPECIALISTS (PQ2_F2B=1,2) [N=1,687]:

PQ3_F2B Is what you know about environmental health specialists because you … **[RANDOMIZE ITEMS; MAINTAIN SAME ORDER FOR EACH TYPE OF SCIENTIST]**

Based on those who know a lot/a little about environmental research scientists [N=1,819]; environmental health specialists [N=1,687]:

a. Know someone who does this

	Based on those asked	
	Environmental research scientists	Environmental health specialists
Yes, know someone who does this	25	24
No, do not know someone who does this	73	74
No answer	1	2

Based on total [N=4,464]:

	Based on U.S. adults	
	Environmental research scientists	Environmental health specialists
Know a lot/a little about this group	81	74
Yes, know someone who does this	21	18
No, do not know someone who does this	59	55
No answer to RQ3_F1Ba/PQ3_F2Ba	1	1
Know nothing at all about this group	19	25
No answer to RQ2_F1B/PQ2_F2B	<1	<1

b. Learned about this in school

Based on those who know a lot/a little about environmental research scientists [N=1,819]; environmental health specialists [N=1,687]:

	Based on those asked	
	Environmental research scientists	Environmental health specialists
Yes, learned about this in school	51	44
No, did not learn about this in school	48	55
No answer	1	1

RQ3_F1B and PQ3_F2B continued …

Based on total [N=4,464]:

	Based on U.S. adults	
	Environmental research scientists	Environmental health specialists
Know a lot/a little about this group	81	74
Yes, learned about this in school	41	33
No, did not learn about this in school	39	41
No answer to RQ3_F1Bb/PQ3_F2Bb	1	1
Know nothing at all about this group	19	25
No answer to RQ2_F1B/PQ2_F2B	<1	<1

c. Learned about this in your job

Based on those who know a lot/a little about environmental research scientists [N=1,819]; environmental health specialists [N=1,687]:

	Based on those asked	
	Environmental research scientists	Environmental health specialists
Yes, learned about this in my job	18	28
No, did not learn about this in my job	81	71
No answer	2	1

Based on total [N=4,464]:

	Based on U.S. adults	
	Environmental research scientists	Environmental health specialists
Know a lot/a little about this group	81	74
Yes, learned about this in my job	14	21
No, did not learn about this in my job	65	53
No answer to RQ3_F1Bc/PQ3_F2Bc	1	1
Know nothing at all about this group	19	25
No answer to RQ2_F1B/PQ2_F2B	<1	<1

RQ3_F1B and PQ3_F2B continued …

d. Have heard or read about this in the news

Based on those who know a lot/a little about environmental research scientists [N=1,819]; environmental health specialists [N=1,687]:

	Based on those asked	
	Environmental research scientists	Environmental health specialists
Yes, have heard or read about this in the news	84	80
No, have not heard or read about this in the news	15	19
No answer	1	1

Based on total [N=4,464]:

	Based on U.S. adults	
	Environmental research scientists	Environmental health specialists
Know a lot/a little about this group	81	74
Yes, have heard or read about this in the news	68	60
No, have not heard or read about this in the news	12	14
No answer to RQ3_F1Bd/PQ3_F2Bd	1	1
Know nothing at all about this group	19	25
No answer to RQ2_F1B/PQ2_F2B	<1	<1

ASK FORM 1 [N=2,226]:
RQ4_F1B Thinking about environmental research scientists, how often would you say they …
[RANDOMIZE ITEMS, MAINTAIN SAME ORDER FOR EACH TYPE OF SCIENTIST]

ASK FORM 2 [N=2,238]:
PQ4_F2B Thinking about environmental health specialists, how often would you say they …
[RANDOMIZE ITEMS, MAINTAIN SAME ORDER FOR EACH TYPE OF SCIENTIST]

a. **ASK FORM 1:** Do a good job conducting research
ASK FORM 2: Do a good job providing recommendations about how to address risks to human health from the environment

	Environmental research scientists	Environmental health specialists
All or most of the time	40	39
Some of the time	45	47
Only a little of the time	10	9
None of the time	2	3
No answer	2	3

RQ4_F1B and PQ4_F2B continued …

b. **ASK FORM 1:** Provide fair and accurate information when making statements about their research
ASK FORM 2: Provide fair and accurate information when making recommendations

	Environmental research scientists	Environmental health specialists
All or most of the time	35	35
Some of the time	45	48
Only a little of the time	15	11
None of the time	3	3
No answer	2	2

c. Admit mistakes and take responsibility for them

	Environmental research scientists	Environmental health specialists
All or most of the time	16	14
Some of the time	47	49
Only a little of the time	26	24
None of the time	9	11
No answer	2	3

d. Are transparent about potential conflicts of interest with industry groups in their work

	Environmental research scientists	Environmental health specialists
All or most of the time	17	17
Some of the time	49	50
Only a little of the time	24	22
None of the time	7	8
No answer	2	3

e. **ASK FORM 1:** Care about the best interests of the public
ASK FORM 2: Care about the best interests of people in the community

	Environmental research scientists	Environmental health specialists
All or most of the time	38	43
Some of the time	43	41
Only a little of the time	13	10
None of the time	4	4
No answer	2	3

ASK FORM 1 [N=2,226]:
RQ5_F1B Overall, do you think research misconduct by environmental research scientists is…
ASK FORM 2 [N=2,238]:
PQ5_F2B Overall, do you think professional misconduct by environmental health specialists is…

	Environmental research scientists	Environmental health specialists
A very big problem	13	10
A moderately big problem	29	26
A small problem	46	47
Not a problem at all	10	14
No answer	1	3

ASK FORM 1 [N=2,226]:
RQ6_F1B When you hear or read news stories about research misconduct by environmental research scientists, do you think of these cases as… **[RANDOMIZE, MAINTAIN SAME ORDER FOR EACH TYPE OF SCIENTIST]**
ASK FORM 2 [N=2,238]:
PQ6_F2B When you hear or read news stories about professional misconduct by environmental health specialists, do you think of these cases as… **[RANDOMIZE, MAINTAIN SAME ORDER FOR EACH TYPE OF SCIENTIST]**

	Environmental research scientists	Environmental health specialists
Isolated incidents	56	62
Signs of a broader problem	42	35
No answer	1	3

ASK FORM 1 [N=2,226]:
RQ7_F1B When you hear about problems with research misconduct among environmental research scientists, which comes closer to your view, even if neither is exactly right? **[RANDOMIZE, MAINTAIN SAME ORDER FOR EACH TYPE OF SCIENTIST]**

	Environmental research scientists
Most environmental research scientists have good intentions, it's the research system that's broken	65
The research system can work fine, it's the environmental research scientists that are the problem	32
No answer	3

ASK FORM 2 [N=2,238]:
PQ7_F2B When you hear about problems with professional misconduct among environmental health specialists, which comes closer to your view, even if neither is exactly right? **[RANDOMIZE, MAINTAIN SAME ORDER FOR EACH TYPE OF SCIENTIST]**

	Environmental health specialists
Most environmental health specialists have good intentions, it's the system that's broken	72
The system can work fine, it's the environmental health specialists that are the problem	24
No answer	4

ASK FORM 1 [N=2,226]:
RQ8_F1B How often, if at all, do you think environmental research scientists face serious consequences if they engage in research misconduct?

ASK FORM 2 [N=2,238]:
PQ8_F2B How often, if at all, do you think environmental health specialists face serious consequences if they engage in professional misconduct?

	Environmental research scientists	Environmental health specialists
All or most of the time	12	11
Some of the time	39	44
Only a little of the time	36	32
None of the time	11	10
No answer	1	3

ASK FORM 1 [N=2,226]:
RQ1_F1C Nutrition research scientists conduct research about the effects of food on health. In general, would you say your view of nutrition research scientists is…
ASK FORM 2 [N=2,238]:
PQ1_F2C Dietitians advise people on what to eat using their training in nutrition in order to promote health and manage disease.
In general, would you say your view of dietitians is…

	Nutrition research scientists	Dietitians
Mostly positive	51	60
Mostly negative	11	7
Neither positive nor negative	38	32
No answer	<1	<1

ASK FORM 1 [N=2,226]:
RQ2_F1C How much, if anything, do you know about what nutrition research scientists do?
ASK FORM 2 [N=2,238]:
PQ2_F2C How much, if anything, do you know about what dietitians do?

	Nutrition research scientists	Dietitians
A lot	10	25
A little	63	65
Nothing at all	26	11
No answer	<1	<1

ASK IF KNOW A LOT/A LITTLE ABOUT NUTRITION RESEARCH SCIENTISTS (RQ2_F1C=1,2) [N=1,692]:
RQ3_F1C Is what you know about nutrition research scientists because you … **[RANDOMIZE ITEMS; MAINTAIN SAME ORDER FOR EACH TYPE OF SCIENTIST]**
ASK IF KNOW A LOT/A LITTLE ABOUT DIETITIANS (PQ2_F2C=1,2) [N=2,041]:
PQ3_F2C Is what you know about dietitians because you … **[RANDOMIZE ITEMS; MAINTAIN SAME ORDER FOR EACH TYPE OF SCIENTIST]**

Based on those who know a lot/a little about nutrition research scientists [N=1,692]; dietitians [N=2,041]:

a. Know someone who does this

	Based on those asked	
	Nutrition research scientists	Dietitians
Yes, know someone who does this	22	46
No, do not know someone who does this	77	53
No answer	1	1

Based on total [N=4,464]:

	Based on U.S. adults	
	Nutrition research scientists	Dietitians
Know a lot/a little about this group	74	89
Yes, know someone who does this	16	41
No, do not know someone who does this	57	47
No answer to RQ3_F1Ca/PQ3_F2Ca	<1	1
Know nothing at all about this group	26	11
No answer to RQ2_F1C/PQ2_F2C	<1	<1

RQ3_F1C and PQ3_F2C continued …

Based on those who know a lot/a little about nutrition research scientists [N=1,692]; dietitians [N=2,041]:

b. Learned about this in school

	Based on those asked	
	Nutrition research scientists	Dietitians
Yes, learned about this in school	45	44
No, did not learn about this in school	54	55
No answer	1	1

Based on total [N=4,464]:

	Based on U.S. adults	
	Nutrition research scientists	Dietitians
Know a lot/a little about this group	74	89
Yes, learned about this in school	33	39
No, did not learn about this in school	40	49
No answer to RQ3_F1Cb/PQ3_F2Cb	1	1
Know nothing at all about this group	26	11
No answer to RQ2_F1C/PQ2_F2C	<1	<1

Based on those who know a lot/a little about nutrition research scientists [N=1,692]; dietitians [N=2,041]:

c. Learned about this in your job

	Based on those asked	
	Nutrition research scientists	Dietitians
Yes, learned about this in my job	16	22
No, did not learn about this in my job	83	78
No answer	1	1

Based on total [N=4,464]:

	Based on U.S. adults	
	Nutrition research scientists	Dietitians
Know a lot/a little about this group	74	89
Yes, learned about this in my job	12	19
No, did not learn about this in my job	61	69
No answer to RQ3_F1Cc/PQ3_F2Cc	1	1
Know nothing at all about this group	26	11
No answer to RQ2_F1C/PQ2_F2C	<1	<1

RQ3_F1C and PQ3_F2C continued …

Based on those who know a lot/a little about nutrition research scientists [N=1,692]; dietitians [N=2,041]:

d. Have heard or read about this in the news

	Based on those asked	
	Nutrition research scientists	Dietitians
Yes, have heard or read about this in the news	79	64
No, have not heard or read about this in the news	20	35
No answer	1	1

Based on total [N=4,464]:

	Based on U.S. adults	
	Nutrition research scientists	Dietitians
Know a lot/a little about this group	74	89
Yes, have heard or read about this in the news	59	57
No, have not heard or read about this in the news	15	31
No answer to RQ3_F1Cd/PQ3_F2Cd	1	1
Know nothing at all about this group	26	11
No answer to RQ2_F1C/PQ2_F2C	<1	<1

ASK FORM 1 [N=2,226]:
RQ4_F1C Thinking about nutrition research scientists, how often would you say they … **[RANDOMIZE ITEMS, MAINTAIN SAME ORDER FOR EACH TYPE OF SCIENTIST]**

ASK FORM 2 [N=2,238]:
PQ4_F2C Thinking about dietitians, how often would you say they … **[RANDOMIZE ITEMS, MAINTAIN SAME ORDER FOR EACH TYPE OF SCIENTIST]**

a. **ASK FORM 1:** Do a good job conducting research
ASK FORM 2: Do a good job providing recommendations about healthy eating

	Nutrition research scientists	Dietitians
All or most of the time	28	54
Some of the time	57	37
Only a little of the time	10	5
None of the time	3	2
No answer	2	2

RQ4_F1C and PQ4_F2C continued …

b. **ASK FORM 1:** Provide fair and accurate information when making statements about their research
ASK FORM 2: Provide fair and accurate information when making recommendations

	Nutrition research scientists	Dietitians
All or most of the time	24	47
Some of the time	56	41
Only a little of the time	15	8
None of the time	4	2
No answer	2	2

c. Admit mistakes and take responsibility for them

	Nutrition research scientists	Dietitians
All or most of the time	11	18
Some of the time	46	50
Only a little of the time	30	21
None of the time	11	8
No answer	2	4

d. Are transparent about potential conflicts of interest with industry groups in their work

	Nutrition research scientists	Dietitians
All or most of the time	12	19
Some of the time	49	50
Only a little of the time	28	21
None of the time	9	7
No answer	2	4

e. **ASK FORM 1:** Care about the best interests of the public
ASK FORM 2: Care about the best interests of their patients

	Nutrition research scientists	Dietitians
All or most of the time	29	60
Some of the time	51	31
Only a little of the time	13	5
None of the time	5	3
No answer	2	1

ASK FORM 1 [N=2,226]:
RQ5_F1C Overall, do you think research misconduct by nutrition research scientists is…
ASK FORM 2 [N=2,238]:
PQ5_F2C Overall, do you think professional misconduct by dietitians is…

	Nutrition research scientists	Dietitians
A very big problem	12	6
A moderately big problem	31	18
A small problem	45	51
Not a problem at all	10	23
No answer	2	2

ASK FORM 1 [N=2,226]:
RQ6_F1C When you hear or read news stories about research misconduct by nutrition research scientists, do you think of these cases as… **[RANDOMIZE, MAINTAIN SAME ORDER FOR EACH TYPE OF SCIENTIST]**
ASK FORM 2 [N=2,238]:
PQ6_F2C When you hear or read news stories about professional misconduct by dietitians, do you think of these cases as… **[RANDOMIZE, MAINTAIN SAME ORDER FOR EACH TYPE OF SCIENTIST]**

	Nutrition research scientists	Dietitians
Isolated incidents	55	75
Signs of a broader problem	43	22
No answer	2	3

ASK FORM 1 [N=2,226]:
RQ7_F1C When you hear about problems with research misconduct among nutrition research scientists, which comes closer to your view, even if neither is exactly right? **[RANDOMIZE, MAINTAIN SAME ORDER FOR EACH TYPE OF SCIENTIST]**

	Nutrition research scientists
Most nutrition research scientists have good intentions, it's the research system that's broken	67
The research system can work fine, it's the nutrition research scientists that are the problem	29
No answer	4

ASK FORM 2 [N=2,238]:
PQ7_F2C When you hear about problems with professional misconduct among dietitians, which comes closer to your view, even if neither is exactly right? **[RANDOMIZE, MAINTAIN SAME ORDER FOR EACH TYPE OF SCIENTIST]**

	Dietitians
Most dietitians have good intentions, it's the system that's broken	72
The system can work fine, it's the dietitians that are the problem	25
No answer	4

ASK FORM 1 [N=2,226]:
RQ8_F1C How often, if at all, do you think nutrition research scientists face serious consequences if they engage in research misconduct?
ASK FORM 2 [N=2,238]:
PQ8_F2C How often, if at all, do you think dietitians face serious consequences if they engage in professional misconduct?

	Nutrition research scientists	Dietitians
All or most of the time	8	13
Some of the time	38	37
Only a little of the time	41	36
None of the time	13	12
No answer	2	3

ASK ALL:
SCM4 How important do you think each of the following types of scientific research is for society? **[RANDOMIZE ITEMS]**

a. Scientific research that has immediate practical applications

Jan 7-21 2019	
64	Essential
29	Important, but not essential
4	Not too important
2	Not important at all
1	No answer

b. Scientific research that advances knowledge, even if there are no immediate benefits

Jan 7-21 2019	
47	Essential
43	Important, but not essential
8	Not too important
2	Not important at all
1	No answer

[DISPLAY BEFORE FIRST QUESTION IN THE Q6F1-Q9F1 SERIES:] Thinking about scientific research findings in general …

ASK FORM 1 [N=2,226]:
Q6F1 When you hear that scientific research findings have been reviewed by an independent committee, does this make you…

Jan 7-21 2019	
52	Trust the research findings MORE
10	Trust the research findings LESS
37	Makes NO DIFFERENCE either way
1	No answer

ASK FORM 1 [N=2,226]:
Q7F1 When you hear that data used in scientific research is being made openly available to the public, does this make you…

Jan 7-21 2019	
57	Trust the research findings MORE
8	Trust the research findings LESS
34	Makes NO DIFFERENCE either way
1	No answer

ASK FORM 1 [N=2,226]:
Q8F1 When you hear about scientific research that has been funded by the federal government, does this make you…

Jan 7-21 2019	
23	Trust the research findings MORE
28	Trust the research findings LESS
48	Makes NO DIFFERENCE either way
1	No answer

ASK FORM 1 [N=2226]:
Q9F1 When you hear about scientific research that has been funded by an industry group, does this make you…

Jan 7-21 2019	
10	Trust the research findings MORE
58	Trust the research findings LESS
32	Makes NO DIFFERENCE either way
1	No answer

[DISPLAY BEFORE FIRST QUESTION IN THE Q6F2-Q9F2 SERIES:] Thinking about recommendations from science practitioners (such as medical doctors, dietitians or environmental health specialists), in general …

ASK FORM 2 [N=2,238]:
Q6F2 When you hear that a science practitioner's recommendation is based on a review from an independent committee, does this make you…

Jan 7-21 2019	
43	Trust the recommendation MORE
17	Trust the recommendation LESS
38	Makes NO DIFFERENCE either way
1	No answer

ASK FORM 2 [N=2,238]:
Q7F2 When you hear that a science practitioner is open to getting a second opinion on their recommendation, does this make you…

Jan 7-21 2019	
68	Trust the recommendation MORE
7	Trust the recommendation LESS
23	Makes NO DIFFERENCE either way
2	No answer

ASK FORM 2 [N=2,238]:
Q8F2 When you hear that a science practitioner has received financial incentives from the federal government related to their work, does this make you…

Jan 7-21 2019	
14	Trust the recommendation MORE
37	Trust the recommendation LESS
48	Makes NO DIFFERENCE either way
1	No answer

ASK FORM 2 [N=2,238]:
Q9F2 When you hear that a science practitioner has received financial incentives from an industry group related to their work, does this make you…

Jan 7-21 2019	
10	Trust the recommendation MORE
62	Trust the recommendation LESS
27	Makes NO DIFFERENCE either way
1	No answer

OTHER QUESTIONS HELD FOR FUTURE RELEASE

ASK ALL:

SCM2 Which of the following best describes what you think about the scientific method? **[RANDOMIZE]**

Jan 7-21 2019	
63	The scientific method generally produces accurate conclusions
35	The scientific method can be used to produce any conclusion the research wants
2	No answer

ASK ALL:

SCM3 Which of these statements comes closer to your own view, even if neither is exactly right? **[RANDOMIZE]**

Jan 7-21 2019	
55	Scientists make judgments based solely on the facts
44	Scientists' judgments are just as likely to be biased as other people's
1	No answer

OTHER QUESTIONS HELD FOR FUTURE RELEASE

See "What Americans Know and Don't Know About Science" for more on KNOW1 through KNOW14

ASK ALL:

KNOW1 Here's a different kind of question. (If you don't know the answer, select "Not sure.") As far as you know…

Oil, natural gas and coal are examples of…[8] **[RANDOMIZE OPTIONS 1-4]**

Jan 7-21 2019	
68	Fossil fuels (Correct)
32	NET Incorrect/Not sure/No answer
5	Biofuels
3	Geothermal resources
6	Renewable resources
17	Not sure
1	No answer

[8] This question was adapted with permission from the Educational Testing Service (ETS) (2018), The Praxis Study Companion, Middle School Science.

ASK ALL:

KNOW2 A scientist is conducting a study to determine how well a new medication treats ear infections. The scientist tells the participants to put 10 drops in their infected ear each day. After two weeks, all participants' ear infections had healed.

Which of the following changes to the design of this study would most improve the ability to test if the new medication effectively treats ear infections? **[RANDOMIZE OPTIONS 1-4]**

Jan 7-21 2019	
60	Create a second group of participants with ear infections who do not use any ear drops (Correct)
40	NET Incorrect/Not sure/No answer
5	Create a second group of participants with ear infections who use 15 drops a day
13	Have participants use ear drops for only 1 week
5	Have participants put ear drops in both their infected ear and healthy ear
16	Not sure
1	No answer

ASK ALL:

KNOW3 Which of the following is an example of genetic engineering? **[RANDOMIZE OPTIONS 1-4]**

Jan 7-21 2019	
56	Inserting a gene into plants that makes them resistant to insects (Correct)
44	NET Incorrect/Not sure/No answer
6	Growing a whole plant from a single cell
8	Finding the sequences of bases in plant DNA
9	Attaching the root of one type of plant to the stem of another type of plant
21	Not sure
1	No answer

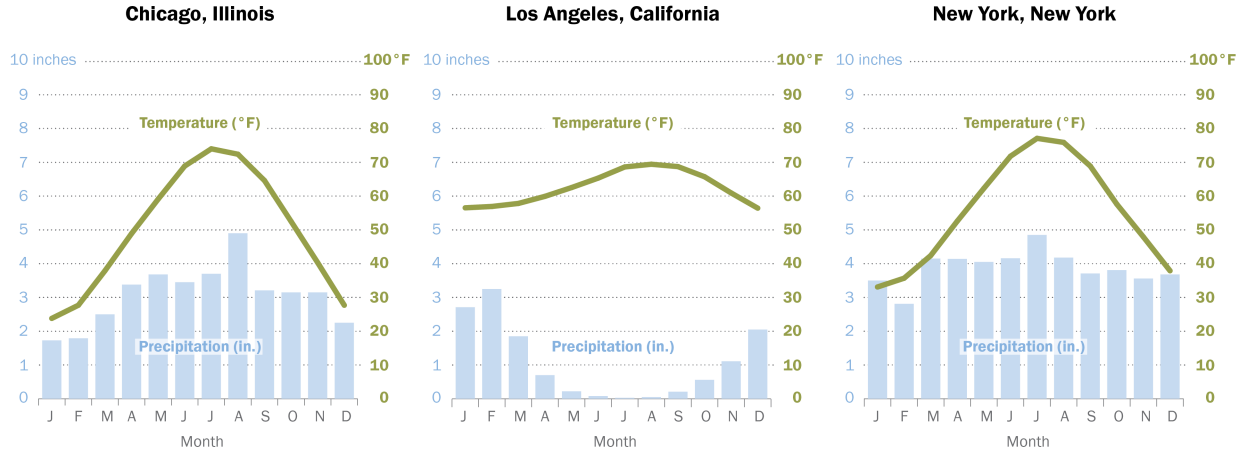
ASK ALL:

KNOW4 What is the main cause of seasons on the Earth? **[RANDOMIZE OPTIONS 1-4]**

Jan 7-21 2019	
63	The tilt of the Earth's axis in relation to the Sun (Correct)
37	NET Incorrect/Not sure/No answer
11	The distance between the Earth and the Sun
7	The speed that the Earth rotates around the Sun
4	Changes in the amount of energy coming from the Sun
15	Not sure
1	No answer

ASK ALL:

KNOW5 These graphs show the monthly precipitation and average temperature for three cities in the United States over the course of one year. **[RANDOMIZE ORDER OF GRAPHS]**



Based on the graphs, which city has the greatest annual range of temperatures? **[RANDOMIZE OPTIONS 1-3 IN SAME ORDER OF GRAPHS]**

Jan 7-21 2019	
59	Chicago, Illinois (Correct)
41	NET Incorrect/Not sure/No answer
20	New York, New York
9	Los Angeles, California
3	They all have the same annual temperature range
8	Not sure
1	No answer

ASK ALL:

KNOW6 The time a computer takes to start has increased dramatically. One possible explanation for this is that the computer is running out of memory.

This explanation is a scientific… **[RANDOMIZE OPTIONS 1-4]**

Jan 7-21 2019	
52	Hypothesis (Correct)
48	NET Incorrect/Not sure/No answer
8	Conclusion
4	Experiment
19	Observation
17	Not sure
1	No answer

ASK ALL:

KNOW7 Many diseases have an incubation period. Which of the following best describes what an incubation period is? **[RANDOMIZE OPTIONS 1-4]**

Jan 7-21 2019	
76	The period during which someone has an infection, but is not showing symptoms (Correct)
24	NET Incorrect/Not sure/No answer
4	The recovery period after being sick
2	The effect of a disease on babies
5	The period during which someone builds up immunity to a disease
12	Not sure
1	No answer

NO QUESTION KNOW8

ASK ALL:

KNOW9 When large areas of forest are removed so land can be converted for other uses, such as farming, which of the following occurs?[9] **[RANDOMIZE OPTIONS 1-4]**

Jan 7-21 2019	
60	Increased erosion (Correct)
40	NET Incorrect/Not sure/No answer
3	Colder temperature
14	Decreased carbon dioxide
3	Greater oxygen production
20	Not sure
1	No answer

ASK ALL:

KNOW10 An antacid relieves an overly acidic stomach because the main components of antacids are… **[RANDOMIZE RESPONSE OPTIONS 1-4]**

Jan 7-21 2019	
39	Bases (Correct)
61	NET Incorrect/Not sure/No answer
11	Acids
13	Neutral
3	Isotopes
33	Not sure
1	No answer

[9] This question was adapted with permission from the Florida Department of Education (2012), Statewide Science Assessment Test Item Specifications, Version 2, Grade 8.

ASK ALL:

KNOW11 Which of these is a major concern about the overuse of antibiotics? **[RANDOMIZE OPTIONS 1-4]**

Jan 7-21 2019	
79	It can lead to antibiotic-resistant bacteria (Correct)
21	NET Incorrect/Not sure/No answer
2	There will be an antibiotic shortage
5	Antibiotics can cause secondary infections
2	Antibiotics will get into the water system
11	Not sure
1	No answer

ASK ALL:

KNOW12 A car travels at a constant speed of 40 miles per hour. How far does the car travel in 45 minutes? **[DO NOT RANDOMIZE]**

Jan 7-21 2019	
57	30 miles (Correct)
43	NET Incorrect/Not sure/No answer
4	25 miles
14	35 miles
9	40 miles
15	Not sure
1	No answer

NO QUESTION KNOW13

TOTAL NUMBER CORRECT KNOW1 THROUGH KNOW12:

Jan 7-21 2019	
16	11 out of 11
13	10 out of 10
10	9 out of 11
8	8 out of 11
9	7 out of 11
8	6 out of 11
7	5 out of 11
6	4 out of 11
6	3 out of 11
6	2 out of 11
5	1 out of 11
5	0 out of 11
39	High science knowledge (9-11 correct)
32	Medium science knowledge (5-8 correct)
29	Low science knowledge (0-4 correct)

ASK ALL:

KNOW14 Based on what you have heard or read, which of the following statements best describes the scientific method? **[RANDOMIZE OPTIONS 1-2]**

Jan 7-21 2019	
67	The scientific method produces findings meant to be continually tested and updated over time
15	The scientific method identifies unchanging core principles and truths
17	Not sure
1	No answer