

# Switch to Web-based Surveys During Covid-19 Pandemic Left Out the Most Religious, Creating a False Impression of Rapid Religious Decline

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## **Abstract**

Religion appears to have taken a nosedive during the pandemic, including previously persistent forms of intense religion such as strong affiliation and biblical literalism. However, this apparent secularization is the result of mode effects. The gold standard General Social Survey switched to online rather than face-to-face interviews and the response rate plunged to 17%. Parallel analyses of GSS panel data demonstrate that this mode switch introduced substantial nonresponse bias. Illustratively, biblical literalism was almost 50% higher among those who declined to participate (36%) than those who participated in the online survey (25%). Rather than declining, intense religion persisted if not rose over time among those willing to participate in a push-to-web survey. The apparent decline was simply a result of disillusioned, distrusting, disinformed, disadvantaged, and disconnected people being much less likely to agree to participate in push-to-web surveys. Intense religion

and other social phenomena are underrepresented and thereby underestimated in online surveys with substantial nonresponse, including those using population sampling methods. The trend in survey research toward these types of surveys could be expected to give a false impression of secularization and other social change going forward – including making society look less disillusioned, distrusting, disinformed, disadvantaged, and disconnected than it is.

**Keywords:** Religion; Secularization; Social Change; Survey Methodology; Nonresponse Bias; General Social Survey

# 1 Introduction

With the United States now at the center of the secularization debate, the U.S. General Social Survey (GSS) has become the de facto arbiter of the ongoing discussion about the future of religion (Schnabel and Bock 2018; Voas and Chaves 2018; Schnabel and Bock 2017). The U.S. was long seen as a counterexample to the secularization thesis, but with the rapid rise of religious “nones” (Hout and Fischer 2002; Hout and Fischer 2014) and declining on average religiosity, some scholars now claim the U.S. fits the secularization thesis (e.g., Voas and Chaves 2016). Recent debate has focused on divergent patterns among types of religion in the U.S., with research showing that intense religion (e.g., strong affiliation, very frequent religious practice, biblical literalism, and evangelicalism) – arguably the most socially impactful type of religion – persists as a strong, stable, and seemingly ever-present minority of American religion while only moderate religion is on the decline (Schnabel and Bock 2017). This study provides an update to the U.S. secularization debate by examining data from the 2021 GSS. The data suggest an unprecedented change in religion. However, this change could be the result of period effects during a unique span of time, the COVID-19 pandemic, or mode effects resulting from the typically face-to-face survey being fielded online due to the pandemic. If a mode effect, this apparent change could be a canary in the coal mine for the representativeness and comparability of surveys, highlighting foundational issues in the trend toward online surveys.

## 1.1 Religious Change, Secularization, and the COVID-19 Pandemic

Secularization and class conflict were the foundational predictions of 19th century social science. Comte, Marx, Freud, Durkheim, Weber, and other early theorists marked religion as part of premodern culture and predicted it would decline into obscurity within, at most, a few generations as society modernized. Their conjecture laid the foundation for the long-standing dominant theory for interpreting religious change: secularization

theory, which predicted a rapid decline into general irrelevance driven by modernization (Bruce 2011).

But the rapid decline into irrelevance and obscurity did not materialize. Religion remained relevant in people's lives and world affairs. Most of the world was still religious and some even began arguing for a radicalization if not resurgence of religion in the last half of the 20th century. Other work similarly showed persistent if not rising levels on at least some measures like belief in an afterlife and more general stability than decline (Greeley and Hout 1999; Hout and Greeley 1998; Hout and Greeley 1990; Hout and Greeley 1987). With secularization theory challenged by reality, even some of its core proponents reversed their earlier perspective, with Peter Berger (1999), for example, arguing for desecularization rather than secularization.

The vitality of religion in the United States was a central part of arguments against secularization theory, with some scholars even arguing that the United States had become more religious over time (Finke and Stark 2005). Although America was long seen as exceptionally religious, perhaps the most dramatic story in American religion over the past few decades is the decline of religious preference (Hout and Fischer 2002; Hout and Fischer 2014). Some scholars have come to see disaffiliation as a sign of secularization, suggesting that the United States is not an exception to the secularization thesis and reinvigorating claims for secularization (Voas and Chaves 2016).

However, those who want to see disaffiliation as the late arrival of secularization *as modernization theory meant it* must answer three important questions. First, why did it take so long to happen so fast? Second, why do we not see similarly rapid declines on measures of religion besides affiliation? Third, why do we only see a decline in moderate religion while intense religion persists? As several studies show, there is only a decline in the middle categories of more liminal religiosity while the most extreme levels persist unabated (Hout and Fischer 2002; Hout and Fischer 2014; Schnabel and Bock 2017; Schnabel and Bock 2018; Hout 2017b; Hout 2017a). Perhaps societal disruptions are necessary to prompt more rapid religious decline and otherwise change is slow. Could something like a global pandemic finally provide the impetus necessary for people to

become less religious more quickly and for intense religion to finally abate in the United States?

Although something disruptive such as a pandemic could prompt faster social change, we do not have a strong basis for assuming that all disruptions will affect trends in religious change or that all religious change is downward. In fact, some research suggests that when faced with uncertainty and hardship, people turn to religion; adversity of various kinds seems to yield greater religious commitment or at least greater religious coping (Hastings and Roeser 2020; Berkessel et al. 2021; Du Bois 1903; Schnabel 2021). For example, Bentzen (2019) suggests that natural disasters increase religiosity by promoting greater religious coping. Similarly, Storm (2017) suggests that economic insecurity predicts greater religiosity over time cross-nationally.

Other work on natural disasters and life stressors, however, suggests that they have the potential to both make people more religious *or* less religious (Hussain, Weisaeth, and Heir 2011; Vargas 2012). But the direct evidence we have to date on what we might expect during the COVID-19 pandemic suggests that this time of crisis prompted people to use religion to cope (Schnabel and Schieman 2022) and some even argue that “religiosity has risen globally due to the pandemic” because people are turning to it to deal with adversity (Bentzen 2021).

## **1.2 Survey Mode Effects and Data Collection During a Pandemic**

The 2021 GSS was unique in multiple ways as illustrated in Table 1 (Davern et al. 2021). Most notably, the data were collected during a global pandemic. The pandemic could create period effects, which we might expect to amplify religiosity if people turn to religion in adversity (Bentzen 2019; Thunström and Noy 2019; Berkessel et al. 2021; Bentzen 2021). Alternatively, if there was sufficient political backlash against Trump, Christian nationalism, and any perceived mishandling of the pandemic, it is possible that some people might have jumped ship (Hout and Fischer 2014; Bock 2021) similar to drops in some religion measures following prominent televangelist sex and financial scandals in

1987 and 1988 (Smith 1992). Or maybe this was just finally the type of disruptive catalyst needed to bring about secularization theory’s long-prophesied rapid religious decline.

[Table 1]

The pandemic could also create survey mode effects. Typically, the GSS is fielded by trained interviewers contacting people in-person and conducting face-to-face interviews, which leads to relatively high response rates and to high-quality data, even from those with limited literacy. Lockdowns and common sense precluded in-person interviewing through most of 2020, so the GSS switched modes, adopting a mail-to-web survey that was conducted from December 2020 to May 2021 with a much lower response rate. The web self-administered questionnaire (SAQ) required higher literacy (General Social Survey 2021). With interviewers, the usual GSS allowed volunteered responses. For example, when asked by an interviewer if they are a “strong” or “not strong” adherent to their religion, many people voluntarily provide the answer “somewhat strong.” The SAQ either offers a response or does not, respondents cannot create their own response category. Several items of interest to religion researchers typically feature volunteered responses. The SAQ offered several of these in two forms – with and without the responses typically recorded by interviewers if “volunteered.” We will compare the forms to evaluate the impact of changing mode on trends in religiosity, but first we consider previous literature on survey effects and especially mode effects.

Survey researchers have delved into response bias in regard to religion for years. Much of that research focused on a tendency for religious people to overestimate how frequently they attend religious services – with some arguing that people face social pressure to report more religiosity when talking to interviewers and others suggesting that people have a tendency to report their desired amount of attendance due to their religious commitments and identities rather than potentially lower actual levels (Brenner 2011; Brenner 2014; Hout and Greeley 1998; Presser and Stinson 1998). More recently, however, some work has also begun to suggest that survey bias can also lead to broader misestimation and for populations to appear less religious, rather than more religious, than they are. It is well known that opt-in online samples underestimate some forms of social engage-

ment, especially on factors such as religion. For example, mTurk samples are known to be particularly secular (Lewis et al. 2015; Burnham, Le, and Piedmont 2018; Baker, Hill, and Porter 2017). But could there be similar issues with who agrees and who declines to participate in population-based surveys, especially as they move online and have lower response rates? Alternatively, is it possible that religious people are actually more likely to opt into surveys – perhaps due to general dutifulness, conscientiousness, age, gender, or other factors associated with survey response rates – and the decline would have been even more rapid without their greater likelihood to agree to participate when asked?

Beyond religion, methods research has considered general mode effects for online surveys. In 2010, a task force created by the American Association for Public Opinion Research (AAPOR) noted that online surveys, especially opt-in panels, have significant coverage error and concluded that nonprobability online panels should not be used to estimate population values (Reg et al. 2010). These experts concluded that nonprobability online panels are more useful, however, for examining relationships between variables or experimental effects. While online panels are better suited for multivariable analysis than estimating population parameters, research suggests that care should still be taken and that the accuracy of data varies by platform (e.g., Qualtrics is more accurate than MTurk) (Zack, Kennedy, and Long 2019; Simmons and Bobo 2015).

Some online panels, however, are probability-based rather than non-probability, which removes much of the error that enters due to the opt-in nature of some online panels. Tom Smith (2003), long-time director of the General Social Survey, conducted an experiment to compare the most promising online survey approach, pre-recruited panels of the general population, with the General Social Survey. Fielding the same items on both the Knowledge Networks panel and the GSS, he found that while many comparisons showed similar results, there were also a number of notable differences.

In Smith’s experiment, the online panel yielded more “don’t knows,” especially for some items, because of the nature of the difference between oral ask-and-answer questions and read-and-click questions. The online panel also tended to yield more extreme responses on agree/disagree scales. While there was often general similarity on individual

items, on some there were systematic differences. For example, when talking to an interviewer more people support government spending on cities, drug rehabilitation, racial minorities, and welfare than when filling out the survey online, which Smith suggested might be in part social desirability bias. Among items not about spending, Smith noted the one large difference was on school prayer, with people saying they are more likely to support the ban on school prayer in the online sample than in the in-person interviews, which Smith suggested could be in part a function of the question being something of a double negative (people are asked if they support the decision to ban school prayer, and GSS pretests indicate that there is a tendency for people to confuse approving of the ban with approving of school prayer). Overall, the report highlighted factors related to how the survey was fielded (the online platform requires adjustments), with less attention to potential difference in who participates (which is important in light of the generally lower response rates on online surveys and how that could produce nonresponse bias even in probability-based online surveys).

Smith and Kim (2015) later reviewed data collection modes as a whole with a focus on computerization (both online surveys and computer-assisted technology in other survey delivery formats). He concluded that survey modes can produce different outcomes, with mode effects being a key factor to consider in a total survey error framework. He concluded with a cautionary message about the importance of collection method and the need to be particularly careful with newer methods as all methods have a learning curve for establishing best practices and determining the accuracy limits of various approaches.

Certainly, the costs of in-person surveys motivate an interest in moving to web options. Some major data collection efforts have moved partially or fully online, with most organizations making such a switch having reports that typically seem to justify the move, suggesting that online and in-person surveys yield generally equivalent results. For example, the American National Elections Study (ANES) put out a report suggesting that their online data were equivalent to their in-person data (Guggenheim 2019). Other researchers, however, have conducted research suggesting that online methods were not as accurate as the in-person ANES (Malhotra and Krosnick 2007; Simmons and Bobo

2015). Notably, the GSS’s own report about the online methodology necessitated by the pandemic differs from the optimism put forth in other institutional reports justifying mode switches, suggesting great caution when using the 2021 data because of the mode switch and the likelihood that it could affect some results in potentially substantial ways (General Social Survey 2021).

## 2 Results

### 2.1 Sudden Secularization in the 2021 GSS?

Figure 1 presents intense religion over time, demonstrating what looks like a dramatic decline in the 2021 GSS. In fact, it appears to fall off a cliff. There had already been what appeared to be a very slight decline on some measures in 2018 (perhaps the result of political backlash against Trumpism – or, as we will discuss later, a lower response rate), but the change from 2018 to 2021 is an unprecedented decline and apparent rapid secularization, especially on the non-practice measures. Frequent prayer held steady and the decline in frequent attendance was within the realm of typical year-to-year fluctuation (though with some downward tendency). But strong affiliation and biblical literalism dropped lower than ever measured in the GSS and evangelical affiliation declined to levels not seen in four decades. As a result, frequent prayer, which at some points was only about half as common as strong affiliation, appears to have overtaken both strong affiliation and literalism for the first time ever. Period effects and rapid change in intense religion are not unheard of, but in the past such period effects resulted in increases of intense religion – such as during the Reagan years – rather than the decrease we see in 2021. Figure 1 presents trends with the special 2021 survey weights that do help to slightly increase intense religion, but not by much. For example, instead of 24% literalism with the weights, it would be even lower at 21% without them.

[Figure 1]

## 2.2 Do Mode Effects Explain “Secularization” Patterns?

Although period effects are possible, survey mode effects are another possibility. As already noted, the 2021 GSS was unique not only in when it was fielded but also how it was fielded. The pandemic changed how respondents were invited to participate, how interviews were carried out, and other factors including how to translate a face-to-face interview protocol into an online instrument that could affect these data.

The 2021 cross-sectional GSS provides some measures that allow for consideration of mode effects. For example, while the vast majority of surveys were fielded on the web, some were fielded by phone. Across measures, surveys completed over the phone demonstrate substantially higher levels of intense religion than those fielded via the web as shown in Figure 2. The differences were especially large on measures such as the idea that the success of the United States is a part of God’s plan, an indicator of Christian nationalism (Whitehead and Perry 2020) that 43% of those who took the survey on the phone agreed with but which only 25% who took the survey via the web agreed with. Table 2 demonstrates the impact of including previously volunteered responses, such as people saying “somewhat strong” when asked if they were a “strong” or “not strong” adherent to their religious group, on the proportion of people classified as intensely religious. For example, whether “somewhat strong” is provided as an option determines whether 24% or 31% of people would be classified as intensely religious on strength of affiliation.

[Figure 2] [Table 2]

While some information can be gleaned from within the cross-sectional survey itself about the possible importance of mode effects, what we really need is information on non-responders to differentiate between factors such as social desirability bias and nonresponse bias. Typically, it is not possible to compare those who completed a survey and those who were invited but did not complete it. Panel data can help, making it possible to use earlier data to compare those who complete later waves and those who do not. But typical panel attrition is different from this mode change where a previously face-to-face

survey with a high response rate shifts to a push-to-web approach with a much lower response rate. Even if panel data with the same mode switch did exist, the pandemic is a unique time period. In a perfect data world, we would have high-quality data that made the same mode switch during the COVID-19 pandemic.

The GSS anticipated this issue and included reinterviews with past respondents in their accommodation to the pandemic. Between August 24 and September 26, 2020, NORC re-contacted a sample of respondents from the 2016 GSS and all respondents from the 2018 GSS by mail, using a push-to-web sampling approach identical to the one they used for the 2021 GSS cross-section. These are much less select samples than most as the 2016 GSS had a response rate of 61% and 2018 had a response rate of 60%. As such, we can then compare those who completed a push-to-web survey to those who declined to do so – and even other groups, including those not selected for a follow-up invitation, those who were selected but died before they could be reinterviewed, and even those who became ineligible through such things as incapacitation or moving out of the country – and arguably generalize to nonresponse in the 2021 GSS cross-section for which respondents were invited in an equivalent way only three months later.

Substantial nonresponse bias leads to the underestimation of intense religion. As shown in Table 3, those who declined the follow-up are much more intensely religious than are those who completed the follow-up interview. In other words, comparing a similar mode switch among people who previously participated in person shows that the mode switch introduces substantial nonresponse bias. For example, 36% of those who participated in the 2016 face-to-face GSS but did not accept the invitation to participate in the push-to-web follow-up are biblical literalists. But only 25% of those who completed the follow-up were biblical literalists in 2016. By 2020, 25% of those who completed the follow-up were biblical literalists, suggesting that among those who completed the follow-up, biblical literalism (and all other measures of intense religion) did not change. If we were to compare the full sample in 2016 to the full sample in 2020 it would look as though intense religion had declined similarly to the cross-sectional data, but that pattern is a function of nonresponse bias in the follow-up survey. Similar to how there was less decline

on the practice measures in the 2021 cross-sectional GSS, there was less non-response bias on the practice measures in the GSS panel.

[Table 3]

A similar pattern exists for the 2018-2020 GSS panel as illustrated in Figure 3, which shows intense religion over time among those from the 2018 cross-sectional sample who accepted the push-to-web follow-up invitation and completed the 2020 interview. This figure also suggests there was something about the 2018 General Social Survey sample, which had a slightly lower response rate than the 2016 survey and substantially lower than previous years (the response rates were traditionally above 70%), that produced lower estimated intense religion, especially on practice measures. But by 2020, there was some catchup so that on most measures similar levels of intense religion are found among both panels.

[Figure 3]

### **2.3 Who Optes Out of Web Surveys?**

Why are some people, disproportionately the intensely religious, selecting out of web surveys? One possibility is partisanship. With religion and politics correlated, perhaps people with certain political views are more opposed to or simply less interested in participating in scientific research (Hout and Fischer 2002; Hout and Fischer 2014). In light of recent research suggesting that partisanship predicts nonresponse, this could be a particularly relevant factor (Clinton, Lapinski, and Trussler 2022). But Table 3 shows that those who did not participate in the follow up are only very slightly more likely to be Republican (and we might have expected at least as much if not more of a partisan difference based on the larger gap in intense religion alone). This suggests the possibility that the research finding a relatively small partisan gap in non-response may be explained by intense religion. Another possibility is age. Maybe older people are more intensely religious and were less likely to participate in an online survey. But, in fact, it is younger people who were a bit less likely to participate in a push-to-web follow-up survey.

Although women tend to be more religious, men tend to be more religiously dogmatic, and there are known gender differences in survey response (Schnabel 2018). But despite women being more likely to respond to surveys generally, there are not gender differences in who agrees to make the shift to an online survey from an in-person survey.

A further possibility is opposition to science. Many intensely religious Americans have come to see religion and science in conflict with one another and perhaps for this reason they simply do not want to participate in scientific research (Ecklund 2021; Noy and O'Brien 2016; O'Brien and Noy 2015). Table 3 shows that there is not a difference in opposing research. Those who did not complete the follow up are more likely to distrust science, but as we will show those sentiments parallel general distrust and are not unique to science.

If partisanship, age, gender, and opposition to science are not key determinants of who declines to participate, thereby leading to the underestimation of intense religion, what are the key factors? As also shown in Table 3, non-responders in push-to-web surveys can be characterized with five terms that distinguish them from responders, all of which are interrelated with both intense religion and skepticism about, lack of confidence in, and less integration with formal institutions besides religion (e.g., those fielding surveys): non-responders are more disillusioned, distrusting, disinformed, disadvantaged, and disconnected. In terms of disillusionment, they are more likely to think that most politicians and government administrators are corrupt and that they have no say in politics. They are more often bored with nothing to do, less likely to vote, expect the worst, think they wouldn't be able to get out of a jam, less likely to be always happy, and less likely to keep their homes clean. In terms of disadvantage, they are more likely to be working class, minorities, renters, in poor health, low income, and to have less control over their work schedules.

This group of non-respondents are also generally distrusting, strongly oppose wire-tapping of phones, think GMOs and nuclear power are very dangerous, think people are out to take advantage to them, and less likely to have provided consent to have their interviews recorded. Notably, they are over twice as likely to live in the West South Cen-

tral region that encompasses Arkansas, Louisiana, Oklahoma, and Texas, where general distrust is highest. Their general distrust parallels their distrust of science, which they do not seem to distrust more than they distrust other formal institutions. The exception to their distrust is religion, which they are more likely to have confidence in than those who completed the follow-up interview. Perhaps this is not surprising: whereas religion was once a key part of civic society and still is in some ways, the type of intense religion found among this distrusting, disadvantaged, and disillusioned subset of Americans is purposefully more sectarian and deinstitutionalized.

People who do not participate in online, written surveys but had participated in an in-person oral survey are more disinformed in several ways. Their vocabulary knowledge and understanding of survey questions are more limited. They are not necessarily more opposed to science, but they are less likely to understand it: they are more likely to provide incorrect information when asked scientific questions, regardless of whether the question is about a politicized issue or not. They are less likely to have completed high school math and science courses and are more likely to never read a newspaper. Difficulty or disinterest regarding the written format of online surveys seems to be a key factor; those who completed the follow up but did so over the phone rather than online are also more disinformed.

Survey nonresponders are disconnected from other people, from civic society, and from the internet. They are lonelier and less likely to be married. Their cultural interests lean more toward farming than integration with high culture and they are less likely to have gone to an art exhibit or science museum in the last year (likely correlated with disadvantage). They are also less likely to live in safe neighborhoods that facilitate connection. They are much less likely to use LinkedIn but are about just as likely to use Facebook – a problematic source of disinformation in 2016 (Jamieson 2018) and presumably 2020 – and use the internet less overall.

The factors we identified as important to nonresponse are interrelated with intense religion and help provide context for the nonresponse gap in intense religion. As shown in Figure 4, after accounting for these factors in regression models there is no longer a

difference in intense religion by whether people agree to participate in an online survey. In other words, if they were not more likely to be disillusioned, distrusting, disinformed, disadvantaged, and disconnected, intensely religious people appear as though they would be just as likely to participate in online surveys. And we would not expect to see the rapid secularization apparent on non-practice measures in the 2021 cross-sectional GSS data. This suggests that poststratification adjustments for these factors may yield better estimates than adjusting only for a few demographic factors.

[Figure 4]

In short, people who did not participate when invited to take part in a push-to-web survey are not simply partisan, opposed to science, or older. Instead, they face a harder time in life, are not thriving, find written material and survey questions more challenging, and are not particularly engaged in civic society apart from religion. Religion provides disheartened, disillusioned, and disengaged people an alternative form of community and institutional involvement, but they are more involved in the fundamentalist and sectarian forms of religion that are fairly disconnected from other forms of civic society – and may even prompt further distrust of secular society and its institutions, such as universities and research centers conducting surveys.

Because intensely religious people are less likely to participate in surveys with a push-to-web design, the 2021 GSS creates an illusion of secularization. The GSS panel is the ideal comparison for the GSS cross-section because it provides a direct comparison of a GSS in-person face-to-face approach compared to a push-to-web approach. If anything, the difference between those who were reinterviewed and those who were selected for reinterview in the panel but were not reinterviewed is likely a conservative estimate of the differences between those who do and do not participate in push-to-web online surveys. The 2020 panel was sampled from people who had already participated once, removing the people least likely to participate in the first place and leaving those who had established some trust in the organization (and we already saw trust is a key issue in nonresponse).

### 3 Discussion

Mode effects, survey response rates, and nonresponse bias can have drastic implications for our estimation of social phenomena like intense religion. Satisfied, trusting, informed, advantaged, and connected people are more likely to participate in online surveys. Intensely religious people are less likely to agree to take surveys and are more likely to drop out of panels. When they do take surveys, they are less likely to do them online. Therefore, online surveys with substantial nonresponse likely grossly underestimate intense religion, which can help explain why religiosity sometimes looks lower in datasets other than the GSS. And, though raw tabulations from the 2021 GSS indicate otherwise, panel results show that intense religion persisted through the early months of the pandemic (and some indicators rose). It is possible that even changes in earlier years of the GSS cross-section are at least in part a function of changes in response rates over time in a changing social and political climate. For example, there was a large drop from 2014 to 2016 (69% response rate to 61%) and then a further, though smaller, drop in 2018.

The collection of the 2021 GSS provides unique insight into religion and mode effects, allowing us to see how measurements of religion can be biased in online surveys even when population-based sampling methods are used: religion is more persistent than it appears, intensely religious people are less likely to agree to participate in surveys, and data collection efforts like the typical in-person GSS are invaluable for accurately estimating religion and other ideological factors in the United States associated with the likelihood of participating in surveys.

As the 2021 GSS methodological primer itself notes, “any changes in public opinion seen in the 2021 GSS data could be due to either changes in actual opinion and/or methodological shifts to adapt to COVID-19.” Notably, the GSS is not the only gold standard data collection effort affected by pandemic disruption; reports are emerging that the U.S. Census, the only dataset used more than the GSS in the social sciences and which does not include religion measures, disproportionately undercounted racial and ethnic minorities in 2020 (U.S. Census Bureau 2022). We caution that when users employ 2021 GSS data to examine trends over time, they carefully consider if changes

in the GSS methodology may be impacting the analysis (General Social Survey 2021). As we have shown, methodological changes clearly impact analyses involving religion as well as other factors associated with the characteristics we identified as integral to who declines to participate in surveys: disillusionment, distrust, disinformation, disadvantage, and disconnection. For example, an unprecedented decline in happiness was noted by NORC (2020), demonstrating the lowest levels of happiness ever recorded in the GSS. But the reality is likely worse. Happier people are more likely to participate in push-to-web surveys: we showed that 34% of people who completed the 2020 panel follow up reported “all or most of the time” when asked how happy they were in the past week in 2016 whereas only 20% of those who declined the follow-up reported the same. Therefore, the reported decline in happiness is among a group of people biased to be happy. We agree completely on the need for care and would go one step further and say that absent sufficient care – and it is unclear exactly what would be needed for sufficient care, especially when evaluating trends in religion – it would probably be better to exclude the 2021 GSS wave when focusing on change over time.

The results clearly highlight the importance of ongoing efforts like the GSS that seek to collect high-quality data in person. They also demonstrate that the GSS should continue to be funded for in-person data collection. Although more costly than web surveys, the in-person GSS is an invaluable resource providing more accurate information than other surveys. Just as the GSS was right to resist the common shift to phone surveys in the past (Ellis and Krosnick 1999), it has been right to resist the shift to the web even as other surveys are increasingly moving there (e.g., the ANES collects the majority of their responses on the web rather than in person) (Guggenheim 2019). That is not to say that web surveys cannot be valuable, especially for survey experiments concerned more with effects than overall levels and with treatments that cannot be replicated in person. But as the gold standard in social research generally and social change specifically, the GSS should continue collecting data in person (and continue to be funded to do so as it is a unique and irreplaceable tool in the social sciences).

Beyond the General Social Survey itself, this study indicates that the trend toward

relying on online surveys with lower response rates more generally may lead to the continual exclusion of certain segments of the population in social research. Here, we have focused on the exclusion of the intensely religious, resulting in an illusion of secularization. Future studies of religious change in the U.S. will likely show similar patterns if mode effects are not properly accounted for. But systematic non-response bias in surveys affects more than just religion and will likely lead to the misestimation of other social phenomena as well, particularly inequality, well-being, trust, knowledge, and connectedness along with the vast range of processes and characteristics related to these factors. Although in-person surveys with high response rates might be the ideal-case solution, given the reality of data collection costs, many surveys will be fielded online. A common method used to address issues with nonresponse is the creation of postratification weights that account for demographic factors. If wanting to actually adjust for nonresponse, rather than just matching Census benchmarks for a few demographics, survey researchers should consider taking into account the factors, such as those we identified like trust and happiness, that predict whether people participate in surveys. Of course, making such an adjustment requires that the gold-standard GSS continue in-person data collection to provide baseline levels.

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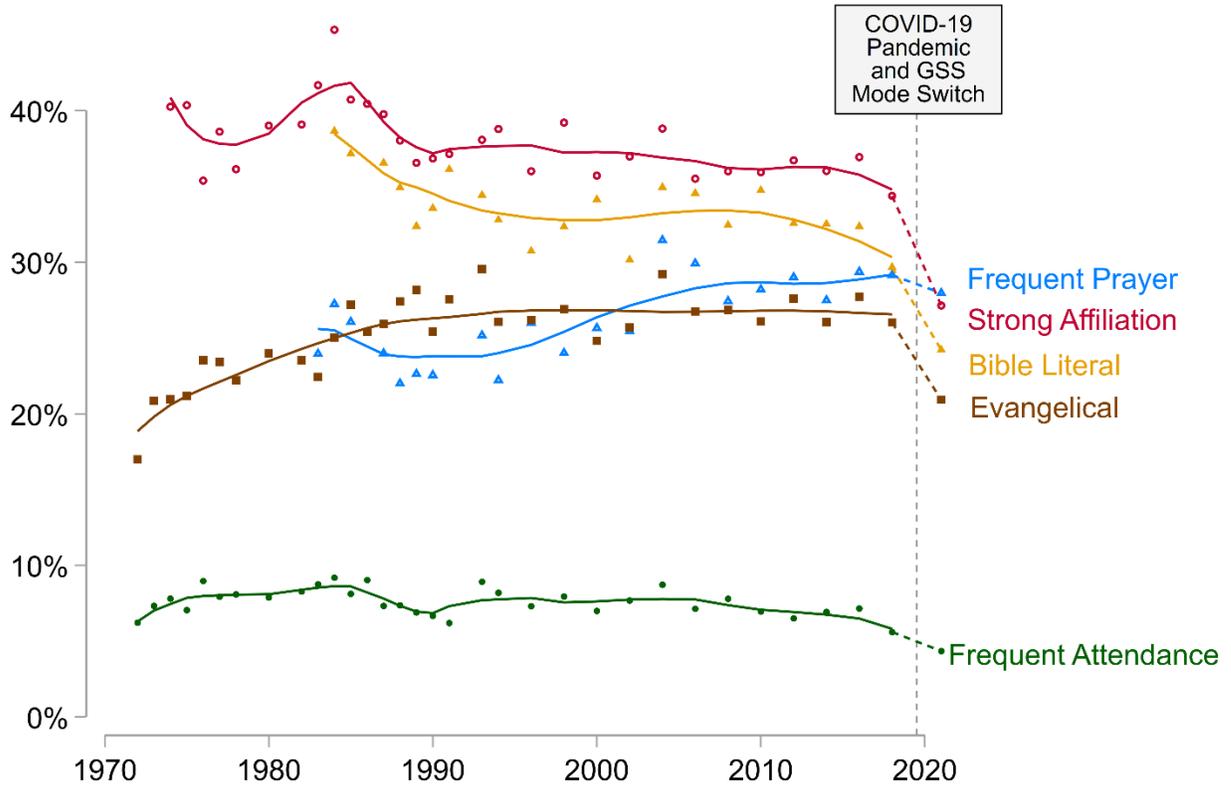
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## 4 Figures and Tables

[See document Figures and Tables]

## FIGURES AND TABLES

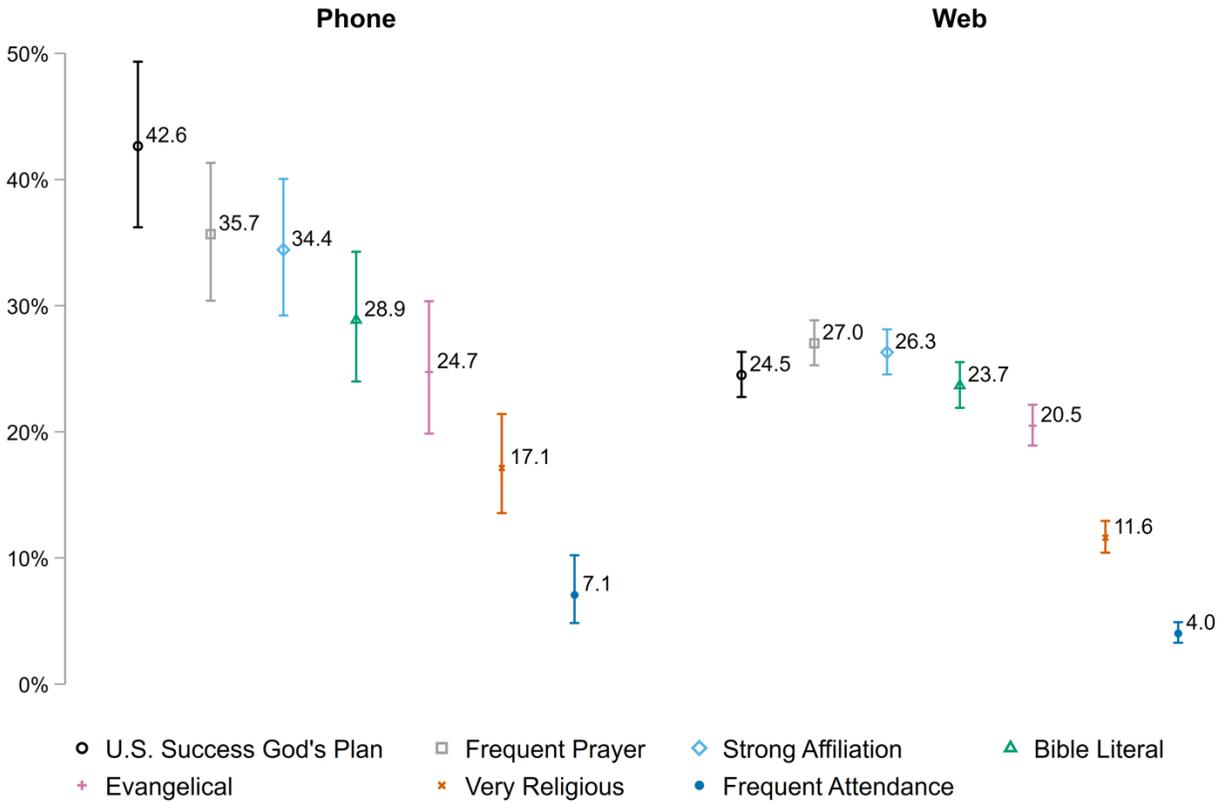
**Figure 1: Intense Religion by Survey Year with Locally Weighted Regression Lines, General Social Survey**



Source: General Social Survey, 1972-2021

Note: Estimates utilize survey weights, with standard weights up through 2018 and new recommended weights used for 2021 that adjust for additional factors including non-response. All measures take the most “extreme” response option for the given item to operationalize “intense religion.” Frequent prayer indicates praying multiple times a day and frequent attendance indicates attending religious services multiple times per week. Evangelical is the category with the same name from the RELTRAD religious categorization schema.

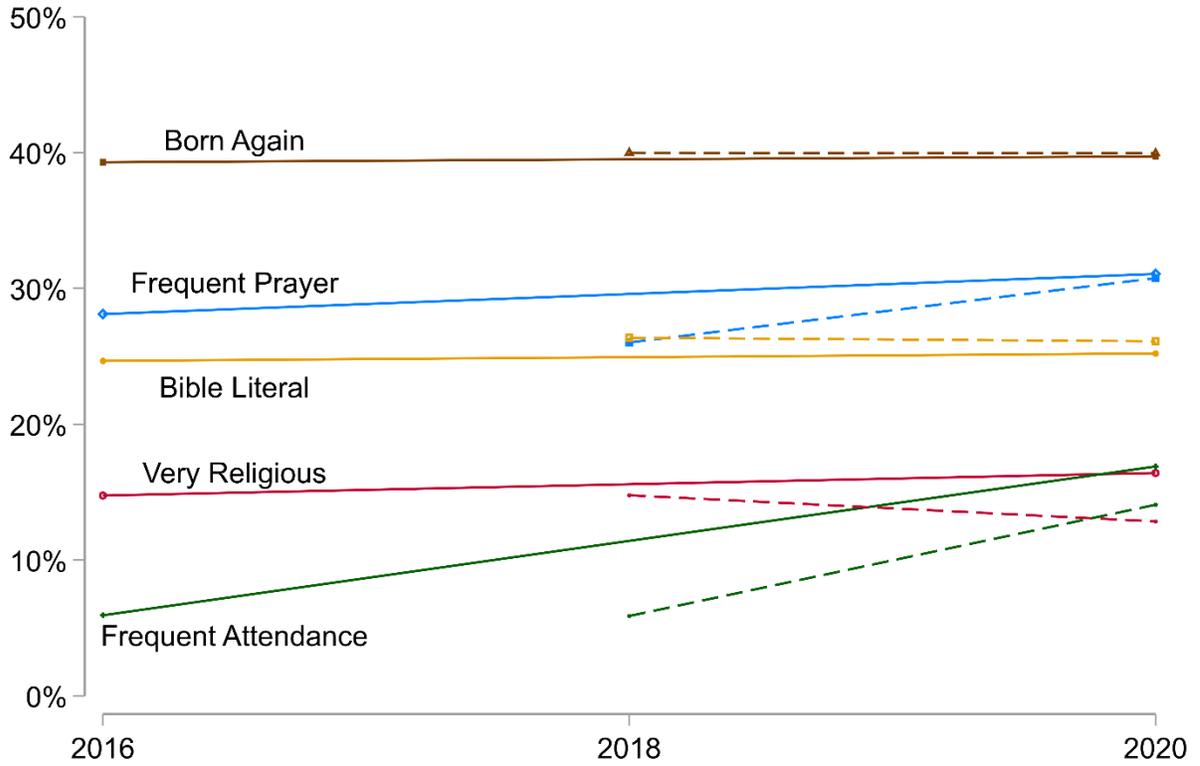
**Figure 2: Intense Religion in 2021 GSS by Survey Mode**



Source: General Social Survey 2021

Note: Weights that account for non-response used. Bars indicate 95% confidence intervals.

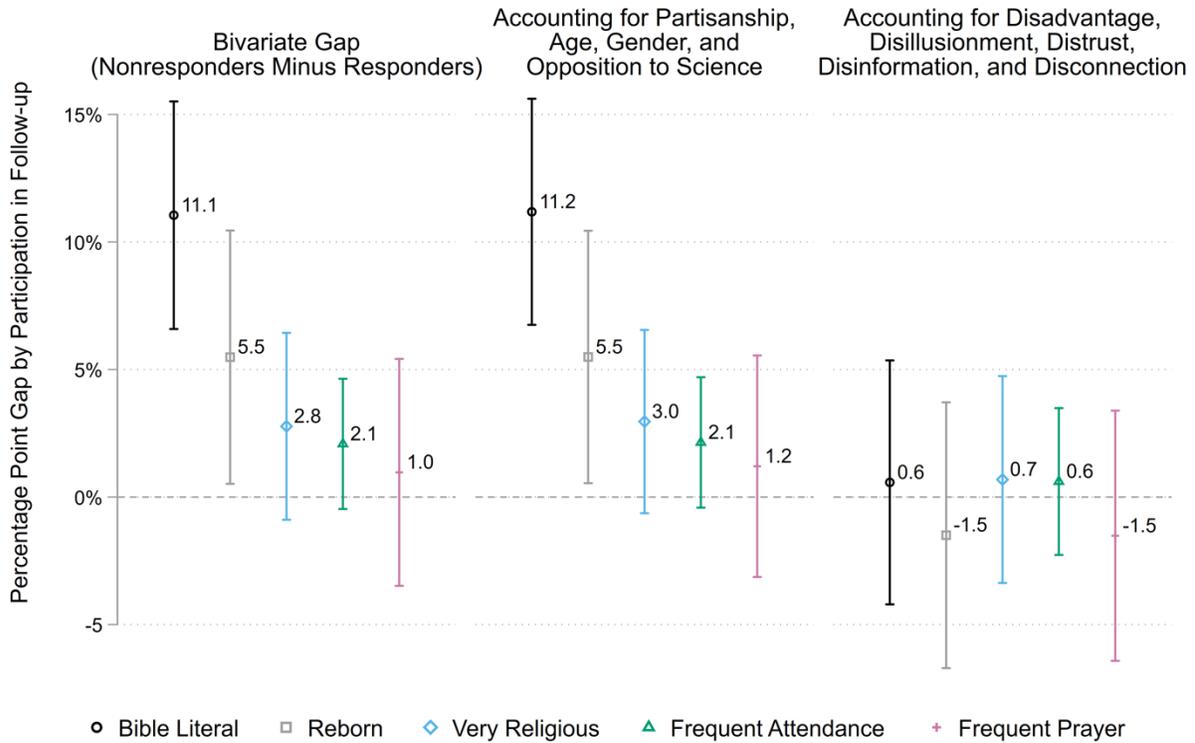
**Figure 3: Intense Religion among General Social Survey Panelists Who Participated in 2020**



General Social Survey Panels, 2016-2020 and 2018-2020

Note: Estimates utilize survey weights. Solid lines present patterns for the 2016 to 2020 GSS panel and dashed lines for the 2018 to 2020 GSS panel.

**Figure 4: Intense Religion Gap in 2016 by Participation in 2020 (Nonresponders Minus Responders) Before and After Accounting for Relevant Factors**



Source: General Social Survey Panel, 2016-2020

Note: Estimates utilize survey weights. Bars indicate 95% confidence intervals. Left panel presents bivariate gap between nonresponders and responders, showing higher intense religion in 2016 among people who will go on to not participate in 2020 than among those who will. The middle panel accounts for partisanship, age, gender, and opposition to science. The right panel accounts for factors relevant to survey nonresponse and intense religion including disadvantage (highest degree attained, race/ethnicity, whether born in the United States, family income, self-identified social class, and self-identified general health), disillusionment (whether often bored with extra time and nothing to do, perceived political efficacy in terms of extent to which one has no say in what government does, and extent of belief that politicians are corrupt), distrust (general trust in other people, extent of opposition to authorities having right to tap phone conversations, and whether living in the West South Central region where general distrust is highest), disinformation (number of words correct in a vocabulary test, whether respondent took algebra 2 in high school, whether interviewer thought respondent understood surveys questions, and whether respondent correctly answered a factual question about lasers and a factual question about viruses), and disconnection (respondents' interests in connection to civic society and high culture [art and farming], number of hours of internet use on weekdays, and whether respondent uses LinkedIn). The GSS utilizes a random ballot design where some questions are only asked on certain versions of the survey to reduce survey fatigue; missing data, primarily due to some questions not being included on all versions of the survey, on covariates imputed using chained equations where the number of imputed datasets equals 50.

**Table 1: Typical GSS Versus 2021 GSS**

	<b>Typical GSS</b>	<b>2021 GSS</b>
Timing	Every Even Year	Delayed Due to Pandemic
Contact Protocol	In-person visit	Mail push-to-web
Interview Mode	Almost all face to face, a few via phone	Mostly web, some via phone
Response Rate	Traditionally >70%	17% and marked differential non-response
Weights	Standard weights across years	Unique weights for just this year
Within-Household Selection	Random	Most recent birthday
Timing	Fielding starts by April of even years	December 2020-May 2021
Don't Know and No Answer	Recorded by trained interviewer	Skips counted as equivalent
Volunteered Responses	Recorded by trained interviewer	Sometimes provided as additional options
Other (see documentation)	See methodological primer	See methodological primer

**Table 2: Strength of Affiliation and View of Bible by Experimental Condition and Survey Mode**

<b>Measures</b>	<b>With Volunteered Category Presented</b>	<b>Without Volunteered Category Presented</b>
<b>Strength of Affiliation (full sample)</b>	N=1,985	N=1,924
Strong	23.6%	30.8%
Somewhat Strong	15.7	0.4
Not Strong	31.2	39.2
No Affiliation	29.5	29.6
<b>Strength of Affiliation (web only)</b>	N=1,789	N=1,687
Strong	22.6	30.1
Somewhat Strong	16.4	N/A
Not Strong	30.3	39.7
No Affiliation	30.8	30.2
<b>Strength of Affiliation (phone only)</b>	N=196	N=237
Strong	33.4	35.27
Somewhat Strong	9.0	3.5
Not Strong	40.9	35.5
No Affiliation	16.7	25.7
<b>View of Bible (full sample)</b>	N=2,000	N=1,935
Literal	23.3	22.5
Inspired	38.3	46.7
Fables	28.2	30.6
Other	10.2	0.2
<b>View of Bible (web only)</b>	N=1,799	N=1,694
Literal	23.0	21.8
Inspired	38.1	46.4
Fables	28.7	31.8
Other	10.2	N/A
<b>View of Bible (phone only)</b>	N=201	N=241
Literal	26.5	27.9
Inspired	39.9	49.2
Fables	22.7	21.7
Other	10.9	1.3

Source: General Social Survey 2021

Note: Weights that account for non-response used. Volunteered responses of “somewhat strong” affiliation and “other” views of the bible only possible in phone version in category when those options were not presented in the online survey instrument.

**Table 3: Intense Religion in GSS Panel**

Measures	2016						2020			Change
	Full Sample (N=2,867)	Completed Follow-up (N=809)	Declined Follow-up (N=1,261)	Deceased (N=61) <sup>a</sup>	Ineligible (N=15) <sup>a</sup>	Not Selected (N=721)	Full Sample (N=809)	Web (N=570)	Phone (N=239)	Among Re-Interviews (N=809)
<b>Intense Religion</b>										
Bible Literal	31.7%	24.7%	35.7%	38.2%	39.5%	32.1%	25.2%	20.1%	37.4%	+0.5 points
Born Again <sup>b</sup>	43.0	39.3	44.8	47.1	50.1	43.6	39.7	33.6	55.0	+0.4
Very Religious	16.5	14.8	17.5	26.9	17.9	15.6	16.4	13.4	23.7	+1.6
Frequent Attendance	7.2	5.9	8.0	5.2	15.6	7.2	16.9	12.8	27.1	+11.0
Frequent Prayer	29.1	28.1	29.1	18.2	19.0	30.1	31.1	27.7	39.2	+3.0
<b>Partisanship, Age, Gender, and Opposition to Science</b>										
Republican	22.5	21.3	22.4	27.0	21.6	23.7	23.3	22.9	24.2	+2.0
Age	47.6	48.2	46.9	62.9	72.4	46.6	52.4	50.1	58.0	+4.2
Man	45.1	44.4	44.9	59.6	44.8	45.0	45.5 <sup>c</sup>	47.4	41.1	NA <sup>c</sup>
Oppose Research	14.9	13.5	13.7	13.3	39.0	17.8	13.8 <sup>d</sup>	15.2	10.4	NA <sup>d</sup>
Distrust Science	58.4	52.2	62.2	60.3	50.4	59.2	55.6	53.8	60.2	+4.4
<b>Disadvantaged</b>										
<High school	12.0	8.1	14.6	26.6	29.4	10.4	7.4	4.4	14.6	-0.7
Working Class	56.1	51.3	59.9	53.3	51.3	55.1	45.9	45.0	48.0	-5.4
Black	16.8	15.4	18.5	15.0	19.6	15.3	15.8 <sup>d</sup>	13.5	21.3	NA <sup>d</sup>
Hispanic	15.2	13.5	17.3	11.1	18.2	13.5	13.9 <sup>d</sup>	12.2	18.2	NA <sup>d</sup>
Survey in Spanish	4.2	2.9	5.5	4.6	9.7	3.1	3.2 <sup>d</sup>	1.1	8.1	NA <sup>d</sup>
Immigrant	14.1	12.3	15.2	7.5	54.9	13.7	12.3 <sup>d</sup>	10.2	17.2	NA <sup>d</sup>
Renter	34.9	28.8	39.4	25.4	68.1	33.2	26.9	24.5	32.4	-1.9
Fair to poor health	28.3	20.7	30.5	45.6	61.9	30.8	23.3	18.4	34.8	+2.6
<=Week Notice of Work Schedule	39.3	29.6	44.9	100	26.9	42.4	32.2 <sup>d</sup>	28.6	44.9	NA <sup>d</sup>
Getting Time Off Difficult	27.5	22.0	32.4	59.3	0.0	26.2	21.7 <sup>d</sup>	19.8	28.5	NA <sup>d</sup>
Mean Family Income (in constant thousands)	52.8	58.3	48.7	37.1	35.1	54.8	57.0	60.2	49.6	-1.3

**Disillusioned**

Most Politicians Corrupt	11.8	8.7	14.7	0.0	10.0	10.7	8.6 <sup>d</sup>	6.2	14.4	NA <sup>d</sup>
Most Gov Admin Corrupt	9.4	6.8	12.3	1.8	10.0	7.6	6.8 <sup>d</sup>	5.4	10.0	NA <sup>d</sup>
No Say in Politics	18.3	14.9	21.7	10.7	7.1	16.5	14.3 <sup>d</sup>	15.5	11.6	NA <sup>d</sup>
Didn't Vote Last Election	31.3	22.7	37.2	33.9	26.7	30.5	19.3	18.7	20.7	-3.4
Expect Worst	29.9	24.7	34.6	72.7	31.4	27.3	24.5 <sup>d</sup>	23.4	27.3	NA <sup>d</sup>
Couldn't Get Out of a Jam	6.3	2.2	8.3	4.7	42.6	7.7	2.2 <sup>d</sup>	1.9	2.9	NA <sup>d</sup>
Always Happy	26.0	33.8	19.8	28.2	18.4	27.8	32.9 <sup>d</sup>	31.6	36.1	NA <sup>d</sup>
Quite Often Bored w/Nothing to Do	10.3	4.0	12.3	28.1	24.3	11.2	4.1 <sup>d</sup>	5.8	0.0	NA <sup>d</sup>
Home Very Clean	26.9	32.5	22.9	22.5	37.1	28.8	31.0 <sup>d</sup>	33.1	25.8	NA <sup>d</sup>

**Distrusting**

General Distrust	65.0	54.7	71.5	70.7	100	64.9	55.6	53.6	60.4	+0.9
Strongly Oppose Wire Tap	27.7	19.8	31.8	33.3	50.0	28.1	18.8 <sup>d</sup>	18.7	19.1	NA <sup>d</sup>
GMO Very Dangerous	44.3	39.0	47.0	42.5	55.4	44.5	38.4 <sup>d</sup>	33.1	50.1	NA <sup>d</sup>
Nuclear Power Very Dangerous	56.3	45.9	59.7	55.5	89.0	59.5	45.7 <sup>d</sup>	38.6	61.4	NA <sup>d</sup>
People Take Advantage	41.3	35.5	45.1	57.2	33.0	40.3	44.7	45.5	42.6	+9.2
No Recording Consent	9.4	6.9	11.3	14.4	3.0	8.6	0.8	0.3	2.1	-5.9
West South Central <sup>c</sup>	12.9	6.5	13.5	11.5	4.6	11.6	9.3	9.1	15.5	NA <sup>e</sup>
Distrust Religion	79.9	83.3	78.9	73.8	71.9	78.1	85.4	87.6	79.7	+2.1

**Disinformed**

<50% Vocab Knowledge	18.7	14.3	22.1	26.8	54.6	16.3	14.5 <sup>d</sup>	8.2	29.8	NA <sup>d</sup>
Limited Understanding of Q's	16.5	11.8	19.4	26.0	47.0	15.2	11.6 <sup>d</sup>	6.0	25.2	NA <sup>d</sup>
Misunderstand Lasers	36.9	30.0	40.8	NA	NA	NA	29.7 <sup>d</sup>	24.1	43.9	NA <sup>d</sup>
Misunderstand Viruses	44.9	36.1	50.1	NA	NA	NA	37.0 <sup>d</sup>	31.9	48.4	NA <sup>d</sup>
Misunderstand Big Bang	18.4	10.0	21.9	28.6	NA	22.2	9.7 <sup>d</sup>	4.8	22.0	NA <sup>d</sup>
Didn't Finish HS Algebra II	51.3	41.4	55.3	67.1	90.5	53.1	42.5 <sup>d</sup>	36.6	57.2	NA <sup>d</sup>
Didn't Finish HS Biology	19.4	14.0	21.3	39.6	21.9	20.5	14.0 <sup>d</sup>	9.9	23.7	NA <sup>d</sup>
Didn't Finish HS Chemistry	41.9	37.3	45.5	43.4	30.2	40.4	37.5 <sup>d</sup>	29.7	56.4	NA <sup>d</sup>
Never Reads Newspaper	37.8	33.1	43.0	24.8	67.2	33.7	42.6	41.1	46.2	+9.5

**Disconnected**

Lonely	7.9	5.0	9.1	12.7	11.2	8.9	5.4 <sup>d</sup>	5.8	4.5	NA <sup>d</sup>
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Married	49.7	54.2	46.6	50.8	37.6	50.2	54.0	55.9	49.3	NA
Art Exhibit	32.9	43.4	29.1	12.4	0.0	39.1	42.8 <sup>d</sup>	45.4	36.4	NA <sup>d</sup>
Science Museum	26.3	33.3	21.1	9.0	9.9	29.4	33.6 <sup>d</sup>	33.2	34.6	NA <sup>d</sup>
Very Interested in Farming	21.5	17.0	24.9	30.1	7.1	20.1	16.7 <sup>d</sup>	13.3	24.5	NA <sup>d</sup>
Very Safe Neighborhood	56.4	61.8	52.8	45.7	78.3	56.9	61.2 <sup>d</sup>	65.6	50.5	NA <sup>d</sup>
Use LinkedIn	28.3	37.3	21.3	9.4	NA	29.6	36.7 <sup>d</sup>	36.8	36.3	NA <sup>d</sup>
Use Facebook	74.0	74.1	72.9	70.4	NA	75.7	74.1 <sup>d</sup>	75.0	70.8	NA <sup>d</sup>
Only occasional web use	28.7	23.4	31.0	66.0	92.6	26.9	23.2 <sup>d</sup>	15.3	42.7	NA <sup>d</sup>
Didn't use web/apps yesterday	8.2	5.0	11.2	27.9	NA	5.4	5.4 <sup>d</sup>	4.5	8.4	NA <sup>d</sup>
Weekday internet use (mean hours)	3.1	3.8	3.3	1.9	1.0	2.9	3.5 <sup>d</sup>	3.6	3.0	NA <sup>d</sup>

Source: General Social Survey Panel, 2016-2020

Note: Strength of affiliation not available in 2020. Estimates utilize survey weights.

<sup>a</sup> Estimates are presented for all possible categories for the sake of transparency but “deceased” and “ineligible” categories should be interpreted with great care due to small sample sizes.

<sup>b</sup> Some variables needed to create RELTRAD schema not available in 2020, including the “relig” measure. Therefore, we use the measure of whether the respondent has ever had a born again experience instead.

<sup>c</sup> Measured at both time 1 and time 2 but differences are due to weighting rather than gender change.

<sup>d</sup> Measured only at time 1 and mean for full sample at time 2 is different from mean for those who completed the follow up survey because of the GSS-provided weights.

<sup>e</sup> Includes Arkansas, Louisiana, Oklahoma, and Texas (general distrust in people is highest by far in this region at 78% distrusting; in comparison, only 54% are distrusting in New England). Region measured at both times, but change is due primarily to weights rather than moving.

<sup>z</sup> Defined as less than a week’s advance notice of work schedule. Limited to people with jobs.