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Anti-Intellectualism and American Fears: An Analysis of Social and Political Factors that Influence Distrust in Scientific Authority

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ABSTRACT

In the last few decades of our history, strong sentiments of anti-intellectualism and distrust in scientific authority have developed and spread throughout American society. Recently, the outward displays of denial and distrust surrounding the COVID-19 pandemic and climate change have demonstrated just how pervasive these views are becoming. This study looked at public opinion on a variety of anti-intellectual views among the American public. The main question this research was attempting to answer is what are the political and social correlates of anti-intellectualism? The data I used to test this question was the 2021 Chapman University Survey on American Fears. I looked specifically at questions within the survey that address public stances on climate change, vaccinations, and mask wearing (during the COVID-19 pandemic) along with the demographic characteristics of each response group. After running a variety of tests for each question to check for any correlations between the level of fear expressed and demographics, I found support for which social and political categories are more likely to subscribe to anti-intellectual beliefs like climate change denial, anti-vax, and anti-mask.

LITERATURE REVIEW

Introduction

Historian Richard Hofstadter first popularized the term anti-intellectualism in his 1964 work *Anti-Intellectualism in American Life*. According to him, anti-intellectual beliefs could be defined as "a resentment and suspicion of the life of the mind and of those who are considered to represent it; and a disposition constantly to minimize the value of that life" (Hofstadter, 1964, p. 7). Back in the 1950's it was McCarthyism which targeted intellectuals, among other groups of people, and planted the seed of fear among the American public manufacturing this distrust and resentment Hofstadter was observing (1962, p. 3). Since then, this seed has grown and entangled itself throughout U.S. public opinion and political life, propagated by political leaders and institutions that "[embrace] anti-intellectualism for political benefit" (Shogan, 2007, 295). One policy area has been highly impacted by this sentiment of anti-intellectualism than that of climate change. While the international scientific community have been in consensus on the reality and severity of the global climate change crisis for years, the topic has remained up for debate in American politics and society to this day.

If the United States has any chance of effectively responding to current climate threats, we must first understand why climate denialism has persisted this long. The concepts presented in this literature review will analyze public opinion on climate change within the United States historically and presently with the purpose of answering the question why do some American citizens deny the existence climate change and distrust climate scientists? Through the evaluation of multiple scholarly articles, themes of party polarization, elite cues, and demographics will be identified and addressed as influential factors towards climate

change opinion and belief. The analysis will highlight similarities between and support across these several articles to draw a general picture of how the growing polarization among political elites, the subsequent cues the give to the public electorate, and demographics have played a major role in influencing U.S. opinion on climate change. Additionally, I will broaden this conversation to look at general trends of trust in science over time and if these factors influencing climate change denial are also influencing present-day issues such as vaccinations and most recently, the COVID-19 pandemic.

Polarization

The increased ideological polarization of the Democratic and Republican parties within the United States has played a significant role in influencing public trust in science, and more specifically public opinion on climate change. Diverging partisan views became more pronounced after the onset of the Republican Revolution which made congressional and partisan "disagreements in the 1990's and early 2000's more pronounced and more intense than they used to be" (Stonecash et al., 2018, p.1). Multiple studies have looked at public opinion over the course of this time period and concluded that polarization levels among the public on certain issues appeared to reflect the levels of polarization between the political parties themselves.

As Dunlap and McCright point out, support for environmental protection policies and initiatives has historically "been relatively nonpartisan" (2008, p.1). They specifically site conservation efforts by both of the Roosevelt presidents as well as the bipartisan during the Nixon years and important environmental acts in the 1970's as testaments to this previously nonpartisan nature of environmental views (Dunlap & McCright, 2008, p.1). A noticeable shift

occurred in public opinion in the mid 1990's though. Through their analysis of public opinion polls from 1997 to 2008 Dunlap and McCright conclude that the correlation between public views on global warming and party affiliation has increased over time (2008, p.5). The authors argue that the observed increase in correlation levels support the assertion of party sorting, or the idea that groups of the population often separate themselves along party lines which in turn "heighten their partisan differences" (Dunlap & McCright, 2008, p.5). Specific trends they noticed were a decline in proportion of Republicans who believe the effects of global warming are currently taking place, as well as an increased proportion of Republicans that view the seriousness of warming to be exaggerated (Dunlap & McCright, 2008, p.4).

Another study conducted by Egan and Mullin measures the influence of different factors on climate change opinions, namely those of demographics, risk perceptions, personal experiences or vulnerabilities, and polarization. While the first three factors have a noticeable impact on individual climate change beliefs, their research argued that "partisan polarization" plays a much more dominant role in influencing aggregate opinions (Egan & Mullin, 2017, p.216). Like Dunlap and McCright, they cite the 1990's as a turning point for climate change opinion which initiated the "gap between partisans that has widened over time and currently stands at more than 40 percentage points" (Egan & Mullin, 2017, p.218). These findings support Dunlap and McCright's claims that there is a noticeable "pattern of divergent partisan views" between Republicans and Democrats when it comes to global warming beliefs (2008, p.4). Through their research they had concluded that U.S. public opinion on climate change reflected the "deeply polarized" and "deadlocked" nature of the country's political structure at large (Egan and Mullin, 2017, p. 210).

Gauchat takes a step back to look at the more generalized topic of public trust in science over a longer period of time, from 1974 through to 2010 (2012, p.167). Although his research did not focus on climate change specifically, he observed a similar pattern of party polarization's influence on public opinion in regard to trust in science over time. Looking at "individuals' trust in science" can actually be a determining factor is one's opinion on climate change according to Egan and Mullin, which is why Gauchat's research can be influential in this conversation (2017, p.207). The main conclusion he made from his research was that "public trust in science has not declined since the 1970s except among conservatives and those who frequently attend church" (Gauchat, 2012, p.182). Gauchat found support specifically for that of the politicization thesis which "predicts that ideological conservatives will experience group-specific declines in trust in science over time' (2012, p.171). Just like the previously mentioned studies identified a decline in Republicans' belief in certain global warming realities, Gauchat's findings demonstrate that declining trust in science was most noticeable among conservatives as well.

Political Elite Cues

Several studies have found this previously discussed polarization between parties is most prominent within the ranks of the political elite, or those in positions of political power in the United States like members of Congress or President (Dunlap & McCright, 2008, p.1). Not only are elite views highly polarized, but due to the powerful positions they hold in society, they are highly influential over public opinion and mass attitudes. This "top-down" influence over public opinion allows elites to provide signaling cues to the public which positions they should be taking on relevant issues (Dunlap & McCright, 2008, p.5). Dunlap and McCright concede that

not all analysts are in agreement that political polarization is driven by the elite in a top-down manner. They cite the research of Geoffrey Layman who sees this discussion as similar to the chicken and the egg debate, where one cannot truly determine which came first (Dunlap & McCright, 2008, p.4). Despite this, they claim that a majority of research appears to support their view of elite driven polarization which will be demonstrated below.

While Egan and Mullin named polarization as the dominant influence of climate change opinion, their research looked a little further into explanations as to why this is the case. Through their research, they found that the complex and abstract nature of climate change science and policy "can make it difficult for individuals to form their own judgments about [their] accuracy" (2017, pg.217). Because of this, many people are inclined to rely on and look to partisan elites for this information instead (Egan & Mullin, 2017, pg.217). After looking at data collected from the American National Election Studies (ANES) and other surveys from 1988 to 2012, they found support for the concept of issue evolution or the theory that "attitudes among partisans in the electorate have come to mirror the divided positions taken by partisans in government" (Egan and Mullin, 2017, p. 219). Egan and Mullin's observations of issue evolution were divergent from the previous period in the 1970's where public opinion on environmental issues was actually resistant to diverging views among elites (2017, p. 219). By the 1990's it appeared as though the electorate had caught up to this elite divide and this division "proceeded to grow in a dramatic fashion" (Egan and Mullin, 2017, p. 219). While they acknowledge the large role politicization plays in public opinion, Egan and Mullin ultimately conclude ques given by the political elite are the main drivers of politicization and ultimately affect public stances on political issues.

A different study conducted by Brulle, Carmichael, and Jenkins examined a wide range of factors influencing climate change concern and concurred with Egan and Mullin that elite cues are influential. In fact, when looking at five categories of "extreme weather events, public access to accurate scientific information, media coverage, elite cues, and movement/ countermovement advocacy" elite cues had one of the largest effects on public concern levels (Brulle et al., 2012). Their research involved constructing a Climate Change Threat Index (CCTI) to help measure levels of concern among the surveyed public (Brulle et al., 2012). After collecting the data, Brulle and his colleagues were able to conclude that within the category of elite cues "the two strongest effects on public concern are Democratic Congressional action statements and Republican roll-call votes, which increase and diminish public concern, respectively" (Brulle et al., 2012). Their research supported the view that political elites are critical factors when it comes to influencing and even shifting concern about climate change among the public.

Demographics

Many of the previous studies, in their analysis of data, have measured the impact of a variety of demographic characteristics on public opinion. These demographics can include categories like gender, race, age, and religion to name a few. Unlike the clear association identified between elite cues, party polarization, and public attitudes on climate change, researchers have come to a variety of conclusions when it comes to the influence of demographics. One of the four factors that Egan and Mullin looked into for their research was demographics, which they claim "[accounts] for surprisingly little of the variation in how people perceive this problem" of climate change (2017, p.215). While they recognize the greater

influence of religiosity and gender in particular, the “findings for other personal characteristics that are often associated with policy attitudes—race, age, education, and income—are mixed” (Egan & Mullin, 2017, p.215). They argue that a potential reasoning behind this limited effect if demographics when it comes public opinion is that the impacts of climate change are more widespread and do not impact one population exclusively (Egan & Mullin, 2017, p.214). I would argue that this viewpoint, or at least the viewpoint concluded from their research, neglects the disproportionate impacts of environmental issues like climate change on minority communities both domestically and internationally.

McCright and Dunlap also looked more specifically into the demographics of climate change denial. This research wanted to test the hypothesis of “whether conservative white males are more likely than are other adults in the U.S. general public to endorse climate change denial” (McCright & Dunlap, 2011, p.1163). If this hypothesis is supported by the data, it would be challenging Egan and Mullin’s claim that demographics are not as influential in determining public perceptions of climate change. McCright and Dunlap collected their data from environmental polls over the course of nine years from 2001-2010 and hoped to explore “the intersection of political ideology, race, and gender” (McCright & Dunlap, 2011, p.1164). Their data analysis revealed that “political conservatives and males are more likely to report a climate change denial view than are their politically liberal and female counterparts” (McCright & Dunlap, 2011, p.1169). This finding demonstrates that demographic factors like gender in addition to political identification can influence anti-intellectual views about climate change. Even Egan and Mullin support this when citing that “that women express higher levels of belief and concern about the problem than men do” (2017, p.215).

Another demographic category that both of these studies considered to be of note is religiosity. Egan and Mullin expressed that religiosity, along with gender, are two demographics that can influence with climate change attitudes (2017, p.215). McCright and Dunlap found that "more religious individuals […] are still more likely to report denialist beliefs than are their respective counterparts" as well (2011, p.1171). Likewise, Gauchat's data demonstrated how "those who attended church frequently experienced group-specific change over time" (2012, p.179). All three of these studies appear to support the larger influence of party polarization, gender, and religiosity in influencing U.S. public opinion on climate change, helping to shape a better picture of why certain sects of the population hold denialist views. Something interesting when looking at the data collection from these studies, is that some of them did not include age as influential of a demographic attribute.

Vaccinations

Research has shown anti-intellectual views towards climate change are largely influenced by demographics, elite cues, and partisanship but do these factors also influence views towards other policy areas like vaccinations? In recent years there has been an observed increase in anti-vaccination viewpoints which pose a threat to public health and safety and should be addressed as well. One study conducted by Marian Olpinski looked specifically into the history of the anti-vaccination movement within the United States and cites the airing of a television program in the early 1980's as its initiation (2012). The program was called "DPT: Vaccine Roulette" and linked this particular vaccine to brain damage and incited mass fear among parents who soon began refusing to vaccinate their children out of fear (Olpinski, 2012). Another event characterized as even more influential was an article published in the 1998 by

Andrew Wakefield which suggested that there was a connection between MMR vaccines and autism diagnoses, and we can see how influential this writing was for there still exists concern over the potential link between the two (Olpinski, 2012).

A recent study published in 2018 explained how Wakefield's study helped the revival of anti-vaccination sentiment in Western countries like the United States (Hussain et al.). Despite the fact that his claims were later disproven by multiple other studies, the initial publicity his work received perpetuated these ideas and fears into the minds of the public and resulted in negative consequences down the line (Hussain et al., 2018). In the fallout of his research there was an observable decline in the percent of parents who were allowing to receive the MMR vaccines which protect against diseases like measles, which had previously believed to have been eradicated the United States (Hussain et al., 2018). With lowered vaccinations rates, there has been recent measles outbreaks began occurring throughout Western countries that threaten public health and previously established herd immunity (Hussain et al., 2018).

Looking more specifically at the factors that may influence an individual's likelihood to be distrusting of vaccines there has been some empirical support for impact of partisanship. One study published in 2015 analyzed the political and social factors that determined vaccine hesitancy during the swine flu outbreak and found strong support for the influence of partisanship (Mesch & Schwirian, 2015). They concluded that "political partisanship had a significant effect on the willingness to become vaccinated" with Democrats being more willing than their Republican or Independent counterparts (Mesch & Schwirian, 2015). From their data they found 39.6% of Democrats expressed willingness to get the H1N1 vaccination while only 32.2% of Republicans were willing (Mesch & Schwirian, 2015). This difference between levels of

hesitancy towards vaccines depending on party supports the influential effect of party politics on public attitudes. There is still much more research that needs to be conducted in order to fully support the effects of partisanship on vaccine beliefs for this was one of the few studies that looked specifically at the interaction between politics and vaccinations.

The other two factors discussed previously were demographics and elite cues, and there has been minimal research linking these factors to vaccine beliefs. In terms of demographics studies have concluded parents are the individuals who are more fearful of vaccinations as of recent, since Wakefield's work linked the MMR vaccine to autism in children (Hussain et al., 2018). Pediatricians and doctors have been seeing an elevated number of parents who are refusing to have their children vaccinated when coming in for appointments, which has in turn been leading to the outbreaks of older diseases as mentioned before (Olpinski, 2012). Studies also mention the fact that misinformation spread by social media, celebrity figures, and politicians alike has played a large role in the propagation of these myths surrounding the dangers of vaccines hinting at the possibility of elite cues influencing vaccine belief as well. Celebrities like Jenny McCarthy have also perpetuated the anti-vaccination movement by using their platforms to spread fear and misinformation (Hussain et al., 2018). There have been specific anti-vaccination websites created to spread misinformation surrounding their effectiveness and safety which reach large segments of the public due to high levels of internet access in the United States (Olpinski, 2012).

While research has shown that parents have a tendency to hold anti-intellectual views surrounding vaccines and some instances of celebrity influence, there is still minimal information available about the effects of demographics and elite cues on vaccination attitudes.

This missing information is all the more relevant today with the arrival of the coronavirus in the United States which has deepened some of the political divides in this country among politicians and the public alike. COVID-19 has become so politicized that policies recommended by scientific professional and organization like mask wearing, social distancing, and vaccinations have become a topic of debate and contention, highlighting this persistent and growing distrust in scientific authority. I believe more research must be conducted in light of today's issues to have a better understanding of how social and political correlates have been influencing these anti-intellectual behaviors.

Purpose

Overall, the analysis of U.S. public opinion on climate change and what factors influence and shift it is necessary to understand why certain sects of the population maintain denialist views. Through the review of scholarly articles, it has been demonstrated that elite-driven polarization between the Democrat and Republican political parties, that has increased over time, is one of the main determinates of climate views held by the public. The wider reach of anti-intellectualism has been discussed by looking at public attitudes towards more recent topics like vaccination of children and coronavirus policies. Understanding what influences these denialist views helps one understand what must be challenged and changed within the United States political system in order to effectively and efficiently address the climate crisis and the coronavirus pandemic. Another factor impacting public opinion that has been identified is demographics. Although some debate has been seen throughout research, certain demographic characteristics has been recognized across research as particularly influential on individual climate change beliefs. This review began by acknowledging the growth of anti-

intellectualism within the country over time and demonstrated which social and political factors have allowed this sentiment to prosper here answering the question of why some Americans deny the existence of climate change.

The purpose of this present study is to examine the demographic and political correlates of anti-intellectualism in the United States as they relate to present day policy issues including climate change, vaccinations, and COVID-19. These topics are areas in which there is clear scientific consensus which have implications for public health, which is why they should be of particular interest to the government. In order to have effective policy responses to crises we need to be working towards reestablishing trust between the American people and figures of scientific authority. I hope to help achieve this by shedding light on who exactly is holding anti-intellectual beliefs.

METHODS

Participants

The data used for this study was collected from the Chapman University Survey on America Fears (CSAF). This survey was collected through the SRSS online opinion panel and was administered over the course of ten days from January 5th-15th 2021. While the survey was completed by 1,067 participants, the final sample of participants used for the data set consisted of 1,035 adults 18 years and older. This number was tapered down using a quality checking system that ultimately removed several responses that did not pass standards. It is important to note that while Chapman University is located in Southern California, the survey was conducted on a national scale and therefore results are more representative of the country at large. Researchers implemented a weighting system to ensure the data provided "nationally representative and projectable estimates" (Rapoport, Berta, & Kline, 2021). The weighting process involved multiple stages including calculating a base weight to determine survey recruitment probabilities, accounting for households which lack internet access for an online survey and sorting demographic samples to reflect "population parameters" (Rapoport, Berta, and Kline, 2021).

Materials

This study attempted to look at levels of anti-intellectualism among the American public, but there is no universal measurement for this phenomenon. Using the Survey on American Fears, I selected several questions from the survey that ask about levels of fear towards topics of scientific consensus with political implications. Since anti-intellectualism involves a general distrust of science and scientific authority, these questions are used as a

proxy to measure trust in science. The three specific categories of anti-intellectual beliefs that were looked at and measured during this study were views on climate change and global warming, health and safety responses during the COVID-19 pandemic, and vaccinations.

The question reading read “How afraid are you of the following: Global warming and climate change?” was selected as the best proxy for measuring public opinion towards climate change. The original data from the survey for this question was measured on a scale ranging from “very afraid” to “not afraid”, but this question was recoded into a binary variable to allow for easier interpretation of results after testing. This resulted in two binary options of either afraid or not afraid of climate change. With the scientific community being in consensus on the reality and threat of climate change for decades, the analysis of this question relied on the assumption that those who are trusting of science would hold some level of fear towards it. It was assumed that those who do not believe in something, would not be afraid of it.

The second category of anti-intellectual beliefs involved the recent COVID-19 pandemic. As with climate change, I used the following questions as proxies for measuring anti-intellectualism and trust in science since the information surrounding the pandemic and response measures have been communicated by scientific officials and organizations. The first asked the following: “How afraid are you of the following: A loved one contracting the coronavirus (COVID-19)?”. While I initially planned on using question asking how afraid individuals were of contracting COVID-19 themselves, I decided that this one would be a better measurement to determine levels of trust in science. The second question that addressed the pandemic stated “Please indicate your level of agreement with the following statements about the coronavirus (COVID-19). The benefits of wearing a mask outweigh the consequences of not

wearing one". Both of these questions were also recoded into binary variables to help make interpretation easier.

Lastly, several questions from the Survey on American Fears addressed public attitudes towards vaccinations, another area of contention for those who hold anti-intellectual beliefs. The first question used for this category asked "Please indicate your level of agreement with the following statements about the coronavirus (COVID-19). When a safe and effective coronavirus (COVID-19) vaccine becomes available, I will get it as soon as possible". I recognized that the COVID vaccine in particular has become highly politicized, so I also wanted to include questions that revealed public stances towards vaccines in general outside of the context of the pandemic. Two other questions addressing general attitudes towards vaccinates helped paint a more accurate picture of attitudes towards vaccines and scientific consensus. These three questions were all recoded into binary varaibles as well.

Procedure

As mentioned previously, data for the survey was collected over a period of 10 days beginning with a "soft launch" on January 5th, 2021. This soft launch involved sending out the online survey to a smaller number of individuals to ensure the data collection was working as expected. Once this proved successful, the survey was sent out to a larger population of potential participants totaling 2,019. In order to incentivize participation, electronic gift cards were sent out to participants who completed the survey in its entirety, and there was a 51% percent completion rate. Since the polling was completed online it was self-administered by the participants and margins of error were calculated and accounted for once all the data was collected.

The questionnaire had a minimum of 36 question sections with multiple parts for each one. For my study I chose to focus specifically on the six questions detailed in the last section that relate to my research question of the political and social correlates of anti-intellectualism. Additionally, I went in and selected the political and social demographics I was interested in testing in relation to them. I looked at five categories of political ideology, political party, religiosity, gender, and race and recoded these inputs to function as my independent variables. I then was able to run tests and analyze relationships between public views towards the questions about climate change, COVID-19, and vaccines and their demographic spread.

For my research I created three main hypotheses, and one related hypothesis, to test using the recoded questions and data from the Survey on American Fears.

Main Hypotheses:

H1: Conservative, white, men make are more likely to deny climate change than other demographic groups

H2: Women are more likely to be fearful/distrusting of vaccinations than men

H3: Due to heightened polarization, political party affiliation is a significant predictor of anti-intellectual views

Related Hypothesis:

H4: People of color are more fearful of vaccinations

The first hypothesis tests whether the characterization of climate change deniers as predominately conservative, white, men by researchers like Egan and Mullin was supported by this data. My second hypothesis speculated that women over men would be more distrusting in vaccines since much of the anti-vaccination rhetoric I have observed in my life has been shared by women. The third main hypothesis is based off of research supporting the increasingly polarized nature of our political system, and how that politicization informs public views through elite cues. I hypothesized that one's political party would be one of the biggest factors in determining if they held anti-intellectual views. My fourth hypothesis predicted that due to the history of medical violence people of color have experienced in the United States, they would likely be more fearful of receiving vaccinations. This last hypothesis differs from the previous three because it does not necessarily signal an increased level of anti-intellectualism, but rather the generational trauma that has informed attitudes of people of color today. For this reason, I consider it to be a related hypothesis.

RESULTS

To test these hypotheses, I started out by running a series of crosstabulations between each dependent variable and independent variable and looked more specifically at subcategories within each demographic group. For example, within the independent variable group of political ideology I obtained unique percentages for liberals, moderates, and conservatives to better understand how exactly one's political ideology influences their views on climate change, COVID-19, and vaccinations. After all of the crosstab tests were complete, I

arranged the data in a percentage table allowing me to analyze these results and see if I could decipher any general patterns or distributions that would be of note (Table 1).

Table 1. Attitudes Towards Climate Chance, COVID-19, and Vaccines by Political and Demographic Variables

	Fear of climate change	Fear of a loved one catching COVID-19	Benefits of wearing a mask outweigh the consequences (COVID-19)	Will get the COVID-19 vaccine	Concerned about the safety of vaccines	Benefits of vaccines outweigh the risks
Ideology						
Liberal	95.4%	92.4%	94.9%	82.7%	38.1%	88.2%
Moderate	80.1%	88.5%	87.7%	61.2%	58.7%	77.0%
Conservative	42.7%	70.6%	58.8%	39.6%	63.7%	62.0%
Political Party						
Democrat	95.5%	95.2%	94.1%	76.0%	44.9%	86.5%
Independent	76.4%	85.5%	83.9%	59.8%	57.3%	73.3%
Republican	43.9%	71.5%	63.6%	42.3%	66.3%	67.2%
Religiosity						
Not religious	80.4%	85.7%	85.0%	67.1%	47.7%	82.0%
Religious	69.5%	84.1%	79.7%	55.5%	61.5%	71.1%
Gender*						
Female	75.6%	85.6%	80.8%	58.9%	60.2%	71.2%
Male	71.8%	84.0%	83.3%	62.0%	50.5%	79.8%
Race**						
Black	87.6%	94.6%	92.1%	43.4%	79.7%	61.1%
White	55.3%	59.8%	59.9%	66.7%	54.5%	66.3%

*Survey on American Fears includes non-binary individuals as well, but these numbers were not included in Table 1
**Survey on American Fears also includes a wider breadth of race categories not included in Table 1

Most of the data came out as one would expect. For example, fears towards highly politicized issues like climate change were more common among liberals and Democrats over conservatives and republicans with around 95% of former expressing fear towards climate change while that number dropped around 40% for the later (Table 1). One area that was somewhat was surprising when initially running the data was the relatively high level of concern about the safety of vaccines expressed across all demographic groups, there appeared to be smaller gaps between demographic groups when it came to this subject. While the percentage table is helpful in understanding the spread of my data along with any general trends that

emerged, the crosstab tests used to create it gave no indication of statistical significance and could not be used to either support or reject my hypotheses. This is because the crosstabulations only shows the bivariate relationships, and not the actual effect of each independent variable relative to the others.

Because of this I decided to move on to a more complex level of testing. I utilized ordinary least squares regression analysis to determine if these relationships remained significant when holding other variables constant. The specific data I collected from the regression tests included the standard coefficients which demonstrate the direction and strength of the relationship between each independent variable and dependent variable along with their significance levels. This data has been compiled into a second table below (Table 2). With this table, I was now able to make some conclusions about my hypothesis.

Starting with H1: Conservative, white, men make are more likely to deny climate change than other demographic groups. This hypothesis was based on the characterization of conservative, white, men as the primary group of climate change deniers within the United States according to some previous research and ended up being only partially supported by my data. Looking at the column on the far left of Table 2 we can see that ideology, political party,

Table 2. Standardized Regression Coefficients: Attitudes Towards Climate Chance, COVID-19, and Vaccines by Political and Demographic Variables

	Fear of climate change	Fear of a loved one catching COVID-19	Benefits of wearing a mask outweigh the consequences (COVID-19)	Will get the COVID-19 vaccine	Concerned about the safety of vaccines	Benefits of vaccines outweigh the risks
Ideology	-.317*	-.183*	-.292*	-.242*	.125*	-.225*
Political Party	-.260*	-.145*	-.210*	-.193*	.179*	-.190*
Religiosity	-.039	.059	.044	-.004	.096*	-.033
Gender: Male	-.023	-.078*	.050	.078*	-.140*	.118*
Race: White	-.089*	-.164*	-.011	.195*	-.222*	.193*
Adjusted R Square	.314	.136	.195	.156	.133	.159

*$p < .01$

and race all remained significant determining factors of fear of climate change when accounting for all of the other independent variables. The negative sign in front of the coefficients for these three independent variables indicates an inverse relationship between them and the dependent variable. Based off of the coding of the data we can observe that conservative, Republican, and white individuals experience less fear towards climate change and their counterparts express greater levels of fear (Table 2). This pattern was first identified in Table 1 when looking at the crosstab percentages, but now regression analysis has confirmed the significance of this relationship even while holding the effects of other independent variables constant, at the significance level of $p<.01$ (Table 2).

While support was found within my data for the influence on pollical party, ideology, and race on climate change beliefs, the independent variables of gender and religiosity did not remain significant. The previously mentioned studies by Egan and Mullin found increased levels of denial among men in particular but this was not supported by the data presented here. The possible explanation for this could potentially be that more men or religious individuals subscribe to conservative political beliefs, which then ultimately becomes the determining factor in one's fear of climate change. But gender and religion on their own do not influence one's attitudes towards climate change. This is why I suggest that my first hypothesis was only partially supported.

Moving on to my second hypothesis: Women are more likely to be fearful/distrusting of vaccinations than men. Referring back to Table 2 we can observe that the regression

coefficients between the independent variable of gender and the three dependent variables asking about vaccinations all were significant at $p < .01$. According to the data, men were more likely to get the COVID-19 vaccine, less concerned about the safety of vaccines, and more likely believed that the benefits of vaccines outweighed the risks or their concerns (Table 2). We can conclude then that women experience the opposite of these relationships and are overall much more fearful and distrusting in the safety of vaccines. They are less likely to receive the COVID-19 vaccine, more concerned about the general safety of them, and women were less likely to agree that the benefits of vaccinations outweigh the risks they perceive. Altogether this information and data fully supports my second hypothesis which was predicting that women are the main individuals who carry anti-intellectual beliefs about vaccinations.

My third main hypothesis went as follows: Due to heightened polarization, political party affiliation is a significant predictor of anti-intellectual views. This hypothesis was definitely the broadest one and was based off of the previous research surrounding effects of party and elite polarization on climate change views. I wanted to expand this finding to all three categories of I was looking at including climate change, COVID-19, and vaccinations and I ultimately found support for this hypothesis in my data as well. Across all six dependent variables, the coefficients for political party were significant meaning that one's political party was a significant predictor of their attitudes and beliefs no matter what topic they were asked about (Table 2). This supports the claims that party politicization does drive public opinion on these issues and also supports my third hypothesis.

Not only this but looking at the first row of Table 2 you can also see that political ideology has a separate and independent effect from political party across all dependent

variables as well. Just like party, the coefficients for the independent variable of ideology remained significant demonstrating their effectiveness in predicting public attitudes across all questions. This was very surprising to see because oftentimes political party and ideology are grouped together and seen as strongly correlated, but these findings suggest that there are distinct differences which allow each to be influential even when holding the other constant. Adding to on my initial hypothesis I can now say that both political party affiliation and political ideology are significant predictors of whether one holds anti-intellectual views towards these issues.

My last hypothesis I considered to be a related hypothesis because I did not believe it would be the best indication of anti-intellectualism, instead it would be highlighting a justified fear. I predicted that people of color are more fearful of vaccinations due to the history of violence and abuse by our medical systems in the United States. While it does not deal with anti-intellectualism as explicitly, I believe it is still an important lens of analysis to apply to this work for not all experiences of individuals have been comparable and these disparities in treatment will likely manifest themselves in attitudes today.

Referring back to the regression table and looking at the fifth row of the race independent variable, the coefficients under the three questions pertaining to vaccinations were all significant. The numbers show us that white people are more likely to get the COVID-19 vaccine compared to other races, are less worried about the safety concerns of vaccinations, and more likely to believe their benefits outweigh their risks (Table 2). From this relationship we can once again conclude that people of color experience the opposite attitudes of white people. This relationship is also reflected in the Table 1 which provides percentages specifically

for Black Americans who expressed the highest level of concern out of all demographic categories for the safety of vaccines in general. The regression analysis then proved this pattern was significant and upheld my fourth hypothesis.

What my fourth hypothesis highlights is the fact that anti-intellectual views can be informed by very different things for different people. In the case of people of color in America their fear and distrust in the safety of scientifically backed practices like vaccinations is cultivated by generational trauma, while white Americans have not experienced the same systemic violence from medical institutions and practitioners. This study's goal was to look specifically into the political social correlates that inform anti-intellectual and denialist beliefs towards climate change, COVID-19, and vaccinations and has successfully demonstrated how these two things interact, but the next logical step from here would be to do a deeper dive into how these individuals come to hold these views. Several areas of particular interest that have been discussed in related literature pieces include social media use, news exposure, and education to name a few. Further research into how specific demographic groups are impacted by these factors may help paint a more holistic picture of anti-intellectualism in the U.S.

Conclusion

In conclusion, using my recoded data from the Survey on American Fears I have found full support for three out of four of my hypotheses H2, H3, and H4. I have demonstrated that women and people of color are more likely to be distrusting and fearful of vaccination practices both in general and surrounding the COVID-19 pandemic. Additionally, I have also shown how political parties and ideologies are the most influential factors in determining whether someone holds anti-intellectual views and act independently from one another despite their similarities.

While I did not find full support for my first hypothesis, I was able to conclude that political party, ideology, and race are all significant predictors of whether someone is fearful of climate change. Specifically, conservative and white individuals are the least likely demographic categories to fear it. Overall, understanding which portions of the American public carry anti-intellectual beliefs is a vital first step in addressing the problem of this sentiment. The policy areas discussed are all strongly related to public health we cannot properly respond to crisis without public support and incentive. In order to ensure future safety for all Americans we need effective policy responses backed by the expertise of scientific efforts and this starts by addressing the strong anti-intellectual sentiment which has gripped much of the public today.

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