

# Do Your Own Research: How Searching Online to Evaluate Misinformation Can Increase Its Perceived Veracity

Kevin Aslett<sup>a</sup>, Zeve Sanderson<sup>a</sup>, William Godel<sup>a,b</sup>, Nathaniel Persily<sup>c</sup>, Jonathan Nagler<sup>a,b</sup>, and Joshua A. Tucker<sup>a,b</sup>

<sup>a</sup>Center for Social Media and Politics, New York University

<sup>b</sup>Wilf Family Department of Politics, New York University

<sup>c</sup>Stanford University Law School, Stanford University

## Abstract

With misinformation introducing challenges in domains ranging from public health to democratic governance, significant attention has been paid to understanding the spread of and belief in online misinformation, with a particular focus on social media platforms. However, the dominant role of search engines in the digital information ecosystem remains under-explored, even though the use of online search to evaluate the veracity of false or misleading news is a central component of media literacy interventions encouraged by technology companies, government agencies, and civil society organizations alike. While conventional wisdom suggests that searching online when evaluating the veracity of misinformation would reduce belief in it, there is little empirical evidence with which to evaluate this claim. To address this gap, we test the effect of searching online to evaluate misinformation (SOEM) on belief in misinformation. Across five experiments, we present consistent evidence that online search to evaluate the truthfulness of false news articles increases the probability of believing them, in some cases by up to 26%. To shed light on this relationship, we combine survey and digital trace data, collected using a custom browser extension, to investigate the cause. We find that the effect of SOEM is concentrated among individuals for whom search engines return low-quality information. We also find that this effect does not appear to be concentrated among individuals with lower levels of digital literacy or among individuals who are ideological congruent with the perspective of the misinformation being evaluated.

## Introduction

Concern over the impact of misinformation has continued to grow, as high levels of belief in misinformation have threatened democratic legitimacy in the United States<sup>1</sup> and global public health during the COVID-19 pandemic.<sup>2</sup> Significant attention among scholars, media, and policymakers alike has been paid to the role of social media platforms in the spread of and belief in misinformation (Allcott, Gentzkow, and Yu 2019; Persily and Tucker 2020), with comparatively little focus on other central features of the digital information ecosystem.

This gap in research is particularly evident in our limited understanding of the effect of search engines. While recent research has explored the potential partisan biases of search engine results (Robertson et al. 2018; Hu et al. 2019; Kaňuková et al. 2019), relatively little is known about a fundamental but understudied question: how does searching online to evaluate misinformation (SOEM) impact belief in misinformation? As the cost of producing and distributing information online has fallen and the sheer volume of information on the internet has risen, reliance on traditional gatekeepers has been significantly reduced, leaving search engines to fill the role of 21st century gatekeepers by sorting and validating online content for the public (Jürgens and Stark 2017; Latzer et al. 2016). In this new role, search engines have become influential in users' political knowledge (Granka 2010) and public opinion (Latzer et al. 2016). A majority of internet users state that they check facts online they come across at least once a day (Dutton et al. 2017), and many believe that results from search engines are more reliable than traditional news, such as radio, newspapers, or television (Dutton et al. 2017). The growing reliance on search engines for information verification has been encouraged by social media companies,<sup>3</sup> civil society,<sup>4</sup> and government agencies,<sup>5</sup> all of which have invested in campaigns to encourage online users to research news they believe may be suspect through online search engines, such as Google, with the goal of reducing belief in misinformation. Although search engines play a key role in how people evaluate information online,

---

<sup>1</sup>Misinformation about the 2020 Presidential Election in the United States helped fuel the riots at the U.S. Capitol on January 6th, 2021 (Greenspan 2021; McCarthy n.d.; Edwards 2021; Boggioni 2021)

<sup>2</sup>Misinformation about the COVID-19 vaccine has lowered intent to get vaccinated (Loomba et al. 2021).

<sup>3</sup>In 2017, Facebook listed a link to ten tips for spotting fake news and one tip asked the readers to "look at other reports. If no other reputable news source is reporting the same story, it may indicate that the story is false." (Constine 2017)

<sup>4</sup>See <https://www.wnyc.org/story/breaking-news-consumer-handbook-fake-news-edition/>.

<sup>5</sup>In 2021, the United States Surgeon General released "A Community Toolkit for Addressing Health Misinformation" that recommended searching for additional information from credible sources" <https://www.hhs.gov/sites/default/files/health-misinformation-toolkit-english.pdf>

we know little about how SOEM impacts belief in misinformation.

Research on interventions designed to mitigate belief in misinformation has developed in recent years, but work has thus far focused on ideological congruence (Allcott and Gentzkow 2017; Moravec, Minas, and Dennis 2018), psychological factors (Pennycook and David G. Rand 2019; Pennycook and David G Rand 2020), and digital media literacy (Guess, Lerner, et al. 2020). In this manuscript, we present for the first time, to our knowledge, the results from experimental studies identifying how SOEM affects belief in misinformation. Specifically, we test a pre-registered hypothesis that searching online to verify the veracity of false or misleading articles *increases* belief in them, contradicting what we believe to be the received wisdom underlying many digital media literacy interventions.<sup>6</sup> We then explore a possible mechanism for why this may be the case: exposure to unreliable information. Although it is plausible that searching online may lead respondents to reputable sources contradicting the false article’s central claim, theoretical work on information systems has suggested that there are topics or terms for which there exists a plethora of unreliable information available to be returned by search engines (Golebiewski and boyd 2019), particularly in the period directly after publication of false content. Searches in these cases may expose users to other low-quality information, but thus far no empirical evidence has evaluated whether or not exposure to low-quality information returned by search engines affects belief in misinformation. We therefore also measure the effect of SOEM on belief in misinformation when individuals are exposed to unreliable information returned by search engines.

To this end, we run five separate experiments that measure the effect of SOEM on belief in misinformation. Four of these studies utilize survey experiments, while the fifth combines survey and digital trace data. In our first four studies, we measure the effect of SOEM on belief in popular misinformation by utilizing different types of experiments (within-subjects and between subjects) and in a variety of contexts.

In the fifth and final study, we run a between-respondent study that combines survey and web-tracking data to identify the effect of exposure to search engine results on belief in misinformation. By collecting search results using a custom web browser plug-in, we can identify how the quality of these search results may affect users’ belief in the misinformation being evaluated. Given that

---

<sup>6</sup><https://osf.io/akemx/>

consumers of false news online often encounter these stories shortly after publication,<sup>7</sup> we collected respondent evaluations and digital trace data within 72 hours of publication. A study run months or years after publication would test the impact of a different set of search engine results, and it would be impossible to replicate the original results present in the period of most likely exposure. In addition, it is important we test the effect SOEM in real time, because misinformation often arises in an uncertain information environment present at the time of publication where individual's feel a psychological need for understanding (DiFonzo and Bordia 2007). To truly measure the effect of SOEM we must run this study during the period in which the misinformation is circulating. To this end, these studies test the effect of SOEM within the information environment misinformation was originally generated and most likely to be consumed.

For all five of the studies, we utilized a pre-registered pipeline that sourced the most popular articles from a variety of “streams” of potential articles, and then distributed them to respondents and professional fact-checkers.<sup>8</sup> To remove the possibility of researcher selection bias when selecting the articles to be sent to respondents for assessment, we developed a transparent, replicable article selection algorithm (See the Methods section for a full explanation of this process.).

Taken together, the five studies provide consistent evidence that SOEM increases belief in misinformation and that the quality of results returned by search engines are a key driver of belief. In our fifth study, we find evidence suggesting that exposure to lower-quality information in search results is associated with a higher probability of believing misinformation, but exposure to high-quality information is not. Finally, we also find suggestive evidence that the effect of low-quality search results on believing misinformation is not concentrated among individuals with low levels of digital literacy or those congruent with the ideological perspective of the item of misinformation. Taken together, our results emphasize the effect of SOEM on belief in misinformation, and provide empirical evidence suggesting that unreliable information returned by search engines increases belief in misinformation.

---

<sup>7</sup>Online misinformation on social media spreads rapidly (Vosoughi, Roy, and Aral 2018), but also dies out relatively quickly (Starbird et al. 2018)

<sup>8</sup>The streams utilized in the studies included low quality news sources that were left leaning, right leaning, and with no clear ideological leaning, as well as main-stream news sources that were left learning and right leaning. All but two of the news stories identified as false/misleading by our professional fact checkers – which form the basis for all of our analyses in this paper – came from low quality news sources. See the Methods section for more details.

## Effect of Searching Online to Evaluate Misinformation on Belief In Misinformation

Our first study (Study 1) tests the effect of SOEM on belief in misinformation using a randomized controlled trial. We recruited 3,006 respondents living in the United States through Qualtrics, an online survey firm, over ten days and presented them with three articles from mainstream and low-quality sources within 48 hours of publication.<sup>9</sup> Participants were either randomly assigned to be encouraged to search online to help them evaluate all of the articles they were sent (Treatment Group) or were not prompted to search online (Control Group). All respondents were then asked to evaluate the veracity of the article using both a categorical (True, False/Misleading, Could Not Determine) and 7-point ordinal scale. A key challenge was establishing the veracity of the articles directly after publication, a period during which professional fact-checks were likely not available. To this end, we sent out the articles to be evaluated by a group of six professional fact-checkers from leading national outlets. Fact-checkers could label articles as either “true”, “false or misleading”, or “could not determine.” We labeled articles as “false or misleading” if the modal fact checker evaluation was that the article was false or misleading. Likewise, we labeled articles as “true” if the modal fact checker evaluation was that the article was true.<sup>10</sup> In this paper we only analyze the effect of searching online on belief in articles labeled as “false/misleading.” During Study 1, across thirteen false/misleading news articles, we collected 1,145 evaluations from 876 unique respondents in the control group and 1,130 evaluations from 872 unique respondents in the treatment group.<sup>11</sup>

To estimate the treatment effect of being encouraged to search online, we fit an OLS regression model with article-level fixed effects and standard errors clustered at the respondent and article level to predict belief in misinformation (i.e. rating a false or misleading article as true).<sup>12</sup> We control for basic demographic factors (age, education, income, ideological congruence, and gender) and unless noted otherwise, all models in this manuscript follow these specifications. In Row 1

---

<sup>9</sup>More details about the respondent recruitment, the article selection selection, and how we determined the veracity of each article can be found in the Methods section.

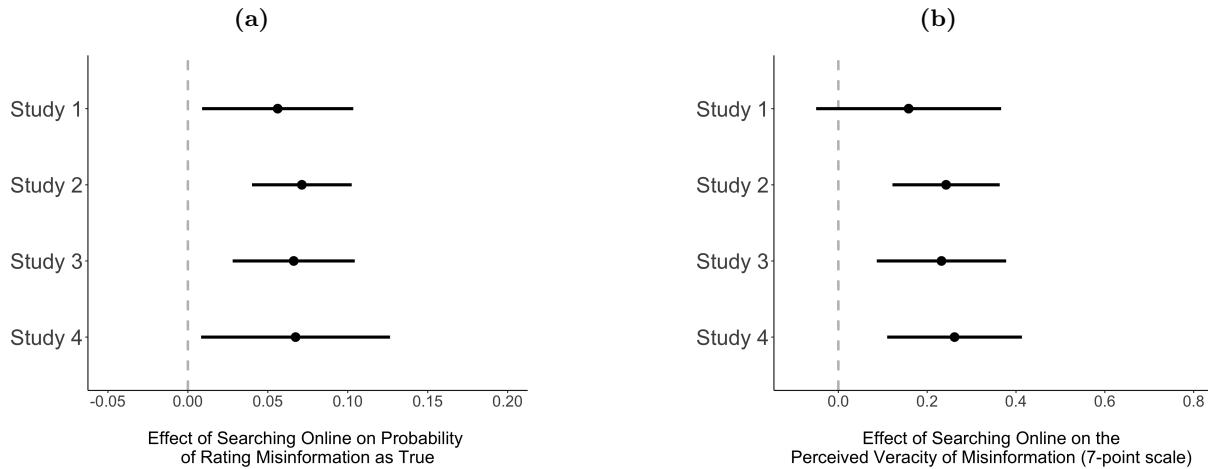
<sup>10</sup>We labeled articles as “could not determine if there was no unique mode or the modal fact-checker evaluation was “could not determine.”

<sup>11</sup>Details about these articles can be found in Section A1 of the Supplementary Materials.

<sup>12</sup>For our dichotomous outcome, rating a false/misleading story as true (1=Yes ; 0=No), OLS or logistic regressions produce similar results and are both appropriate. An OLS regression is preferred to estimate the causal effects of treatments on a binary outcome (Gomila 2020).

of Figures 1a and 1b we present the treatment effect from Study 1 on belief in misinformation using both a dichotomous outcome (rating a false/misleading story as true: 1=Yes ; 0=No) and a 7-point ordinal scale of veracity respectively.<sup>13</sup> Figure 1a shows that being encouraged to search online increased the probability a respondent rated a false or misleading article as true by 0.055 ( $F=7.815$ ,  $P=0.0382$  ; for the full regression table see Section B of the Supplementary Materials). As the proportion of people in the control group that believed the false article to be true was 0.30, this represents close to a 18% increase in the probability of respondents rating misinformation as true when encouraged to SOEM. Figure 1b shows a 0.15 increase in perceived veracity using a 7-point ordinal scale ( $F=10.52$ ,  $P=0.154$ ).

**Figure 1: The effect of searching online to evaluate misinformation on belief in misinformation across Studies 1 through 4.** Panels a and b present effect sizes and 95 percent confidence intervals for linear regression models testing the effect of SOEM during Studies 1, 2, 3, and 4. Panel a presents the effect of SOEM on rating misinformation as true. Panel b presents the effect of SOEM on a 7-point ordinal scale of veracity.



We then set out to test whether the search effect was strong enough to change an individual's evaluation after they had already assessed the veracity of a news story. To do so, we ran a within-respondents study (Study 2) that asked respondents to evaluate an article without being encouraged to search online and then evaluate the same article again, but after being encouraged to search online. If we assume that respondents have a bias towards consistency, this offers an even stronger test than in Study 1 because, to find a search effect, respondents would have to change their previous evaluation. To conduct the study, we recruited 1,054 American respondents through Qualtrics

<sup>13</sup>For the full regression tables see Section B of the Supplementary Materials..

over 33 days who were presented with one false/misleading popular online article within 48 hours of publication.<sup>14</sup> We then compared their evaluation before being encouraged to search online (control) and their evaluation after being encouraged to do so (treatment). Row 2 of Figures 1a and 1b present the treatment effect from this study using the categorical and ordinal scale. Intriguingly, we find slightly stronger results relative to the first study: searching online increases the probability that a respondent rates a false/misleading article as true by 0.071 ( $F=6.892$ ,  $P<0.0001$ ), a 22% increase in the probability of believing misinformation and an increase in 0.22 ( $F=7.098$ ,  $P=0.0004$ ) on a 7-point ordinal scale.<sup>15</sup> We also find that among those who first rated the false/misleading article correctly as false/misleading, 17.6% changed their evaluation to true after being prompted to search online. For comparison, among those who first incorrectly rated the article as true, only 5.8% changed their evaluation to false or misleading after being required to search online. Among those who could not determine the veracity of the article initially, more individuals incorrectly changed their evaluation to true than to false/misleading after being required to search online.

These first two studies present consistent evidence that searching online increases belief in misinformation directly after its publication. However, misinformation can in some instances go viral weeks or months after publication. In these instances, the online information environment surrounding the false article could be different from the one encountered in the first 72 hours. Directly after publication of false articles, search engines may return similar misinformation and little credible information because professional fact-checks often take days or weeks to be published (Kalsnes 2018). Therefore, we might expect that as time passes post-publication, individuals searching online would be exposed to more professional fact-checks and credible information when SOEM. This high quality information could eliminate, or, even more optimistically, change the direction of the search effect identified in Studies 1 and 2. Of course, as most searches to check the veracity of misinformation would likely occur immediately or soon after publication, we think the findings from Studies 1 and 2 are more policy-relevant.

To measure the effect of SOEM months after publication, we ran a third study (Study 3) that replicates Study 2 with new respondents evaluating the same set of articles. A key difference is that the study is run between three and six months after publication of the articles. To conduct this

<sup>14</sup>Details about these articles can be found in Section A2 of the Supplementary Materials.

<sup>15</sup>For the full regression table see Section B of the Supplementary Materials.

study, we recruited 2,022 respondents American individuals over one month through Qualtrics who evaluated false/misleading articles first without being encouraged to search online and then again after being encouraged to search online. Row 3 of Figures 1a and 1b present the effect of SOEM in Study 3 using the categorical and ordinal scale. We find slightly weaker but similar results relative to Study 2: searching online increases the probability that a respondent rates a false/misleading article as true by 0.063 ( $F=8.158$ ,  $P=0.0034$ ), which means 18% more respondents rated the same false/misleading story as true after they were asked to re-evaluate the article post-treatment.<sup>16</sup> A similar effect was identified using an ordinal scale (0.22 increase on a 7-point scale ;  $F=8.756$ ,  $P=0.0015$ ). So while it may be possible that respondents were exposed to more reliable information months after publication, it does not appear to have negated the impact of SOEM on belief in misinformation.

The first three studies measure the effect of SOEM on popular pieces of misinformation, which are often written about niche topics not covered by reliable news outlets. However, it is possible that when one searches online when evaluating misinformation about salient events, one could encounter a different – and hypothetically more reliable – news environment. For example, salient events, such as the Covid-19 pandemic, have a highly saturated news environment. On the one hand, substantial reporting from reliable sources on this topic are available, which could reduce the effect of SOEM on belief in misinformation. On the other hand, it is possible that highly salient events also attract more misinformation, for either political or economic reasons (Munger 2020). To determine whether the effect of SOEM on belief in misinformation holds when researching misinformation about a salient event, we ran a fourth study (Study 4) similar to Studies 2 and 3 but which included only the most popular articles whose central claim covered the health, economic, political, or social effects of Covid-19. For this study, which ran over 8 days in June 2020, we recruited 386 respondents through Qualtrics.<sup>17</sup> Respondents were presented with at least one false/misleading online Covid-related article within 72 hours of publication.<sup>18</sup> Row 4 of Figures 1a and 1b presents the treatment effect from Study 4 using the categorical and ordinal scale. We find remarkably similar results relative to the first three studies: searching online increases the probability that a

<sup>16</sup>For the full regression table see Section B of the Supplementary Materials.

<sup>17</sup>Details about these articles can be found in Section A3 of the Supplementary Materials.

<sup>18</sup>Relative to Studies 1-3, we delayed sending the articles to respondents by 24 hours. We did so in order to immediately communicate the fact-checker evaluations after completion of the survey, thus minimizing any potential risk of misinforming respondents about the pandemic.

respondent rates a false/misleading article as true by 0.067 ( $F=4.567$ ,  $P=0.0451$ ), or an increase in belief in misinformation of 20% and an increase by 0.26 on a 7-point ordinal scale ( $F=4.629$ ,  $P=0.0054$ ).<sup>19</sup>

Taken together, Studies 1–4 present consistent evidence across a variety of experimental designs, time periods, and topics that SOEM increases belief in misinformation. This search effect is concerning on its own, but to better understand the role of search engines and to inform evidence-based interventions, it is important we evaluate the mechanism. In the following section, we explore one such possible mechanism—exposure to unreliable information corroborating the initial misinformation that was viewed—for why SOEM increases belief in misinformation.

## Can Exposure to Unreliable Information Explain Why SOEM Increases Belief In Misinformation?

The theory of “data voids” suggests that when individuals search online about misinformation, especially misinformation around breaking or recently published news, search engines may return little credible information, instead placing non-credible information at the top of results (Golebiewski and boyd 2019). These data voids likely exist for a variety of reasons. First, unreliable news publishers often use terms to guide users to these data voids, where only one point of view is represented (Golebiewski and boyd 2019).<sup>20</sup> Second, unreliable news sources often re-use stories from each other, polluting search engine results with other similar non-credible stories. The topics and framing of false/misleading news stories are also often distinct from those covered by mainstream outlets, which limits the amount of reliable news sources to be returned by search engines when searching for corroborating information about these stories. Finally, direct fact-checks may be difficult to find given that most false narratives are never fact-checked at all and, for stories that are evaluated by organizations such as Snopes or PolitiFact, these fact-checks may not be posted in the immediate aftermath of a false article’s publication. As a result, it would not be surprising that exposure to unreliable news is particularly prevalent when searching online about recently

---

<sup>19</sup>For the full regression table see Section B of the Supplementary Materials.

<sup>20</sup>Golebiewski and boyd (2019) state that these unreliable news sites leverage search engine optimization techniques and encourage readers to use specific search queries when searching online by consistently using a distinct phrase in their stories and in other media.

published misinformation.

To investigate the prevalence and effect of exposure to unreliable information while SOEM, Study 5 combines survey data with digital trace data. In this final randomized controlled trial (between-respondent study), we collect articles using the same article selection protocol, and, as in Study 1, asked two different groups of respondents to evaluate the same false/misleading or true articles within 72-hours of publication in the same 24-hour window. The treatment group was required to search online using Google before providing their assessment of the article's veracity, whereas the control group was not. For those in the treatment group, we collected the URLs they visited and the top ten Google search engine results to which they were exposed by means of a custom-made browser plug-in that respondents consented to install. Over this twelve day study, we recruited 1,677 respondents living in the United States through Amazon's Mechanical Turk and presented them with three articles from mainstream and low-quality sources within 72 hours of publication.<sup>21</sup> Over the course of this study, fourteen different false/misleading articles were evaluated by individuals in the control (952 evaluations from 624 unique respondents) and treatment group (653 evaluations from 451 unique respondents).<sup>22</sup> By asking respondents in both the control and treatment group to install a custom web extension that collected their web browsing behavior, we were able to collect digital trace data associated with 73% of evaluations of false/misleading articles in the treatment group and 91% of evaluations of false/misleading articles in the control group.<sup>23</sup> More details on compliance in the treatment and control group can be found in the Methods section, but for most demographic characteristics (age, gender, income, and education) we did not find any meaningful statistically significant evidence of differences between compliers and non-compliers in the treatment and control groups. We did find that compliers were more likely to self-identify as liberal by about 0.8 on a 7-point scale ( $F=23.917$ ,  $P<0.0001$ ) and more likely to self-report higher levels of digital literacy.<sup>24</sup>

Figure 2a presents the proportion of search queries about true and false/misleading articles that return unreliable news sources in Google search engine results. To assess the reliability of a

---

<sup>21</sup>More details about the respondent recruitment, the article selection selection, and how we determined the veracity of each article can be found in the Methods section.

<sup>22</sup>Details about these articles can be found in Section A4 of the Supplementary Materials.

<sup>23</sup>When we analyze the effect of the quality of searching engine results, we only include those in the control and treatment group who kept their web extension on during the survey to limit possible selection bias effects.

<sup>24</sup>More details on this difference in means testing can be found in the Methods section at the end of the paper.

news source, we use classifications from the *NewsGuard* service available at the time of the study (August, 2021).<sup>25</sup> A histogram of NewsGuard scores for the majority of online news domains can be found in Section C of the Supplementary Materials.<sup>26</sup> Figure 2a shows that search queries about true articles are much less likely to return unreliable news among search results than search queries about false/misleading articles. Only 12% of search queries about true articles return at least one unreliable news link among the top ten results, whereas 32% of search queries about false/misleading articles return at least one unreliable news link among the top ten results.

Using evaluations from Study 5, we first measure the effect of searching online on belief in false articles. In Figure 2b we present the treatment effect (encouraged to search online) on the probability of believing misinformation using both a dichotomous outcome (rating a false/misleading story as true: 1=Yes ; 0=No), a 7-point ordinal scale of veracity, and a 4-point ordinal scale.<sup>27</sup> Like the previous four studies, we find that those who search online about misinformation were more likely to believe misinformation than those who did not. In this study, the effect of SOEM is larger than in the previous studies, likely because the treatment is stronger in this study relative to the others.<sup>28</sup> In this final study, searching online increased the probability a respondent rated a false or misleading article as true by 0.105 ( $F=9.187$ ,  $P=.0119$ ), which is almost double the effect observed in previous studies. This represents a greater than 26% increase in the probability of respondents rating a false or misleading story as true when encouraged to search online. Searching online also increased the average score by 0.15 ( $F=12.149$ ,  $P=0.0467$ ) on a 4-point ordinal scale and 0.16 ( $F=11.430$ ,  $P=0.2155$ ) on a 7-point ordinal scale.

Using digital trace data collected through the custom browser plug-in, we were able to measure the effect of SOEM on belief in misinformation by those exposed to unreliable and reliable information by search engines. To this end, we measured the effect of being encouraged to search online

---

<sup>25</sup>Newsguard is an internet plug-in that informs users if a site they are viewing is reliable. NewsGuard employs a team of trained journalists and experienced editors to review and rate news and information websites based on nine journalistic criteria. The criteria assess basic practices of credibility and transparency based on a site's performance on nine criteria, assigning a score from 0 to 100 indicating its credibility. Anything with a score below 60 is deemed as unreliable and anything above 60 is reliable. NewsGuard has ratings for over 5,000 online news domains, which is responsible for about 95% of all the news consumed in the United States, United Kingdom, France, Germany and Italy. More information can be found here: <https://www.newsguardtech.com>. A sample of their ratings can be found here: <https://www.newsguardtech.com/ratings/sample-nutrition-labels/>.

<sup>26</sup>The full list of online news domains and their ratings is licensed by NewsGuard to approved researchers.

<sup>27</sup>For the full regression table see Section B of the Supplementary Materials.

<sup>28</sup>In Study 5 respondents were asked to travel to a Google search engine to search online to be fully compensated, and the custom browser plug-in enabled us to confirm compliance. In Studies 1-4, we could not verify whether respondents complied with our search encouragement.

on belief in misinformation for our control group and two subsets of the treatment group: those who were exposed to Google search engine results that returned (1) at least one unreliable news site in the top ten results returned,<sup>29</sup> and (2) only very reliable news sites in the top ten results returned.<sup>30</sup> Half of all evaluations in the treatment group fit in either of these two subsets.<sup>31</sup> Among these two subsets Figure 2c shows that the probability an individual believes misinformation is substantially higher than the control group among respondents who are exposed to at least one unreliable news site, but it is not higher among those in the treatment group who are only exposed to very reliable news sites. Together, these results are consistent with the theory that lower quality search engine results can increase belief in misinformation by returning low-quality results. Indeed, in Figure 2d we calculate the probability of rating misinformation as “true” by quartile of the mean news quality across the top ten links returned by Google during the evaluation and report similar results. Results from Figure 2c show that respondents who are exposed to search engine results with the lowest quality news are more likely to believe misinformation than those who are exposed to higher quality news, suggesting that exposure to unreliable news may explain why SOEM increases belief in misinformation. In addition, we actually find that respondents who search online about misinformation and are exposed to the highest quality of information are slightly less likely to believe misinformation than those in the control group. To be clear, we are not inferring a causal relationship between the quality of information returned in Google search engine and belief in misinformation from this analysis. By conditioning on a post-treatment variable we remove the causal leverage gained by the random assignment of the treatment because we are comparing dissimilar groups (Montgomery, Nyhan, and Torres 2018) and therefore cannot make a causal claim. Rather than a causal argument, we can only confirm that this evidence appears consistent with the low-quality search results mechanism, but there are other plausible theories to explain these results. For example, it is possible that Google search engines are more likely to return low-quality news to individuals who are already more predisposed to believe misinformation. Either Google Search engine’s algorithm or the search terms that individuals enter could explain why those who

---

<sup>29</sup> NewsGuard considers sites with a rating of 60 or below (out of 100) as unreliable.

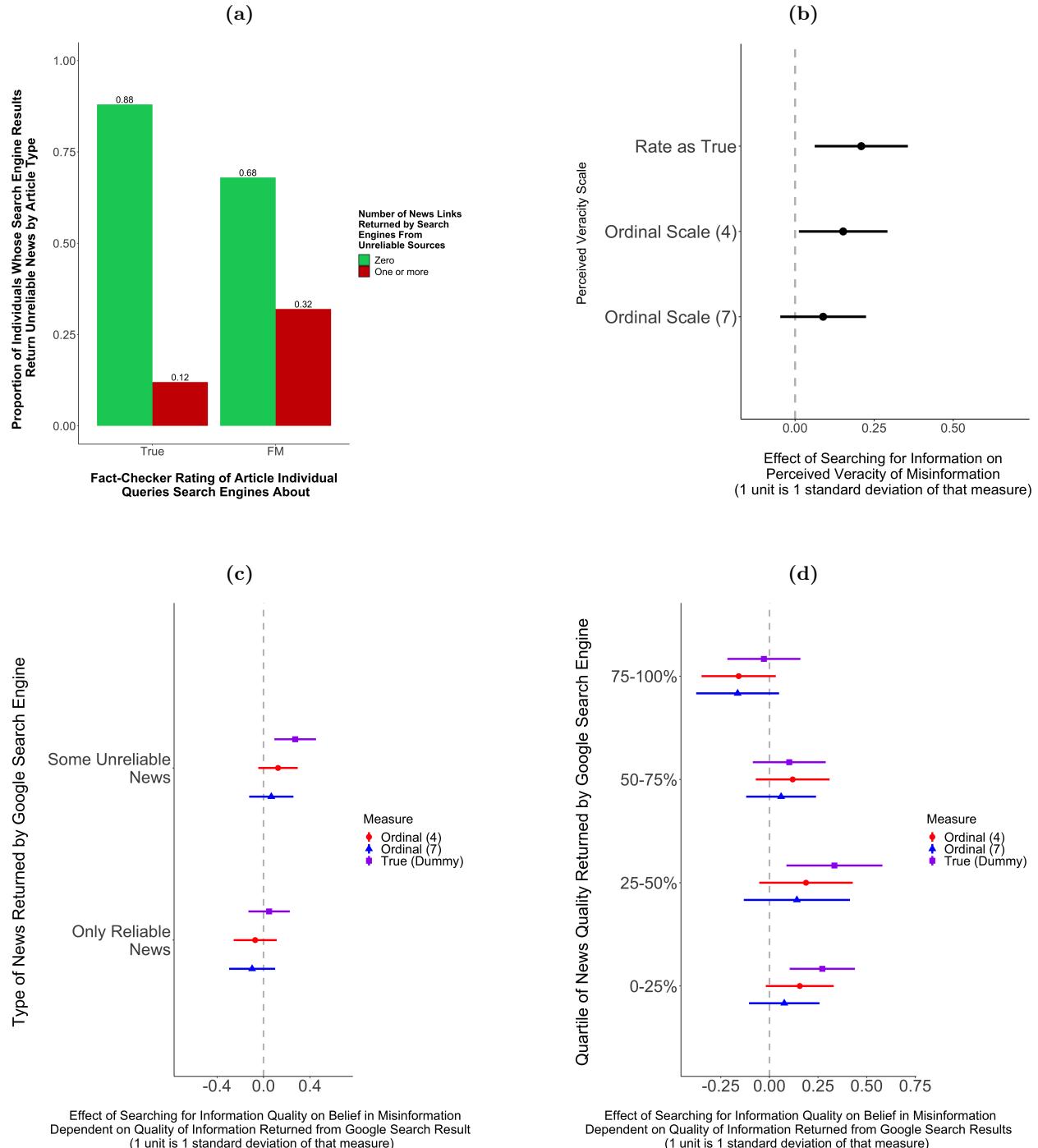
<sup>30</sup> News sites are considered very reliable if they are given a score of 90 or higher by NewsGuard.

<sup>31</sup> 31.5% of the 508 evaluations fit in the “some unreliable news” group and 18.7% of the 508 evaluations fit in the very reliable news sites group. Although subsetting the data in this way ignores 50% of the data, we are interested in the effect of search among groups exposed to very different levels of information quality. Our next analysis looks at the whole set of responses.

are exposed to more unreliable news are more likely to believe a false or misleading article.

But if our explanation is indeed correct, it remains unclear why individuals could be persuaded by low-quality news sources. In the survey, respondents are asked to find “*credible*” sources to help them evaluate the veracity of the news articles, mirroring many media literacy interventions. Why then do individuals allow low-quality sources to influence their evaluation? In the next section, we consider whether evidence from our work is consistent with two plausible interpretations for why individual’s evaluations could be influenced by low-quality information: motivated reasoning and digital literacy.

**Figure 2: How Does News Returned in Google Search Results affect belief in misinformation? (Study 5).** Panel a presents the proportion of individuals who when searching online about an article are exposed to different levels of unreliable news sites by the Google search engine. We present these proportions for those searching about true articles and those searching about false/misleading articles. Panel b presents the effect sizes and 95 percent confidence intervals for linear regression models testing the effect of searching online during Study 5 respectively as a unit of the standard deviation of the dependent variable. Subset by the quality of news returned in their search engine results, Panel c and d present these same marginal effects, but subset the treatment group by the quality of news respondents are exposed to when they search online about misinformation.



## Why does Unreliable Information Affect Belief in Misinformation?

In this section, we assess the viability of two possible explanations for why exposure to low-quality news in search engine results may increase belief in misinformation: (1) motivated reasoning and (2) low levels of digital literacy. In the motivated reasoning account, partisans seek out information from ideological congruent sources, even if they are unreliable, and may adopt inaccurate beliefs that portray their preferred political party in a favorable light (Peterson and Iyengar 2021). If the respondent is congruent with the ideological perspective of the misinformation, they may be more likely to both be exposed to seek out and believe low-quality results in a search engine that support the initial false article, given that it is consistent with their own views (Allcott and Gentzkow 2017; Kahan 2017; Van Bavel and Pereira 2018; Moravec, Minas, and Dennis 2018). To this end, we investigate whether exposure to low-quality search results and the effect of being exposed to low quality search results is concentrated among respondents whose self-reported ideology aligns with the ideological slant of the misinformation.

Another possible explanation is that individuals with low levels of digital literacy are both more likely to fall into these data voids and less able to discern between low-quality and high-quality information returned in search engine results. Previous research has suggested that lower levels of digital literacy among older individuals may explain why they are more likely to share and view misinformation on social media (Guess, Nagler, and Tucker 2019; Guess, Aslett, et al. 2021). News returned in search engines are particularly difficult to evaluate because source cues are largely obscured in the results. Online news consumers often rely on the professionalism of the design of a website to determine the news quality of online sources (Fogg et al. 2001; Flanagin and Metzger 2007), but this is not available if individuals rely solely on the page of search engine results. Source cues may also come through reputation (Flanagin and Metzger 2000; Althaus and Tewksbury 2000), but low-quality news sources likely have no general reputation given that consumption of low-quality news is concentrated among a small proportion of online news consumers (Guess, Nyhan, and Reifler 2020). To this end, we determine whether exposure to low-quality search results and the effect of being exposed to low quality search results is concentrated among those with low levels of digital literacy.

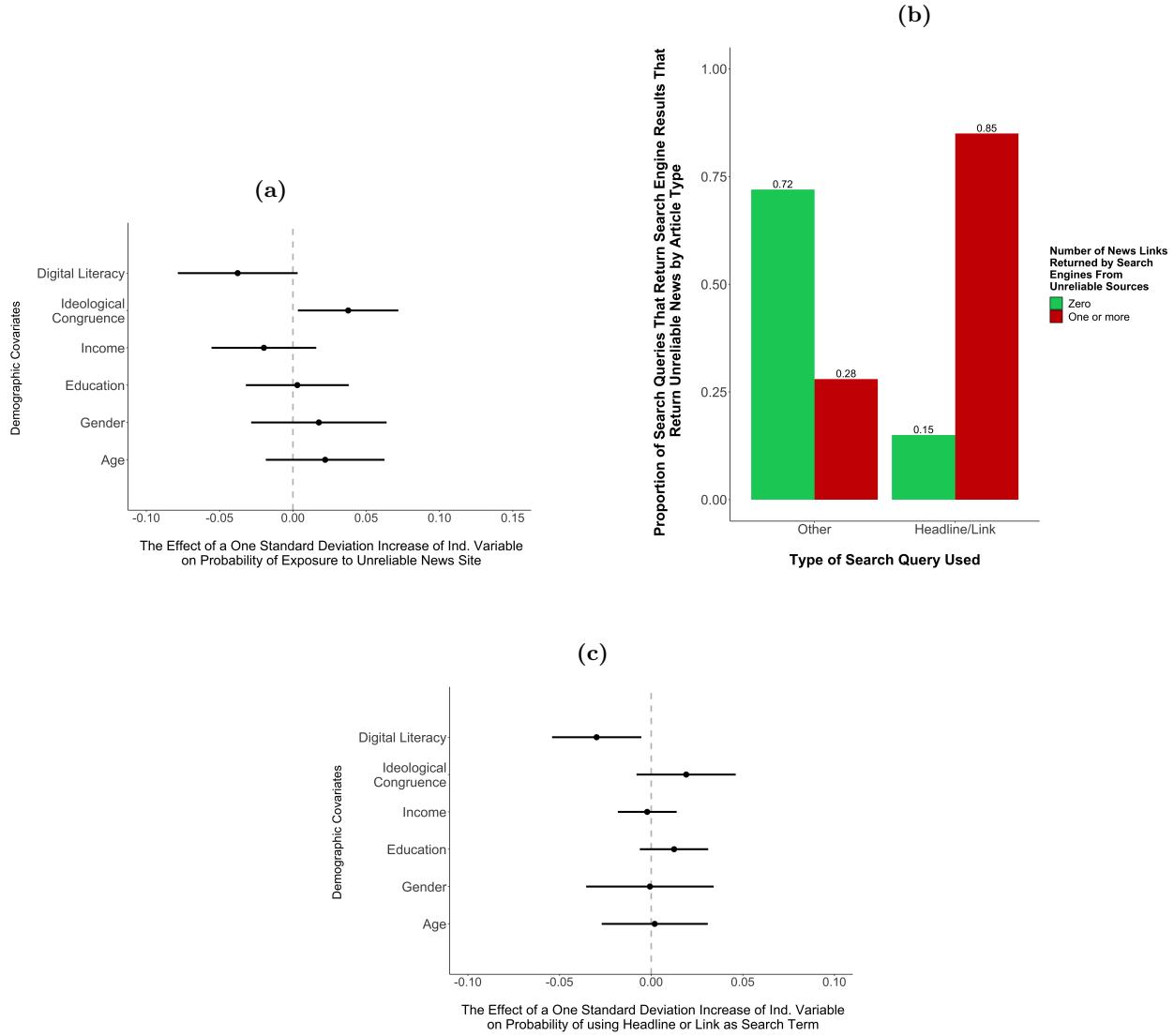
To assess the empirical support for these two potential explanations, we begin by exploring which

basic demographic characteristics are associated with exposure to unreliable news by fitting an OLS regression model with article-level fixed effects and standard errors clustered at the respondent and article level to predict exposure to unreliable news site in search results. Figure 3a presents the effect of a one standard deviation increase of each demographic variable on the probability of being exposed to at least one unreliable news story in the search engine results when SOEM. Evidence from these results suggest that lower levels of digital literacy and ideological congruence with the ideological perspective of the misinformation correlates with exposure to unreliable news in search results, although we have slightly lower confidence in the effect of digital literacy. A standard deviation decrease in digital literacy increases the probability of being exposed to unreliable news by a Google search engine by 0.38 ( $F=3.563$ ,  $P=0.0841$ ). A standard deviation increase in ideological congruence also increases the probability of being exposed to unreliable news by a Google search engine by 0.38 ( $F=3.563$ ,  $P=0.0327$ ).

Individuals with lower levels of digital literacy may be more likely to be exposed to unreliable information because of what they actually type into search engines. To investigate the effect of search terms on the reliability of news returned by the Google search engine, we collected all of the search terms used by individuals in the treatment group. The “data voids” theory supposes that if one uses search terms unique to misinformation, one is more likely to be exposed to low-quality information. To determine if this affects the quality of search engine results, we coded all search terms for whether they contained the headline or URL of the false article. We find that this is indeed the case. Figure 3b shows that those that use the headline/lede or the unique URL of misinformation as a search query are much more likely to be exposed to unreliable information in the Google search results. 85% of search queries that use the headline or link of a false/misleading article as a search query return at least one unreliable news link among the top ten results, whereas only 28% of search queries not using the headline or URL of an item of misinformation return at least one unreliable news link among the top ten results. In addition, we fit an OLS regression model with article-level fixed effects and standard errors clustered at the respondent and article level to predict using the headline or URL as a search term. Figure 3c presents the results of this model and shows that those with lower levels of digital literacy are much more likely to use the headline or the unique URL of the false article as their search query when SOEM. A standard deviation decrease in digital literacy increases the probability of using the headline or the unique

URL of the false article as their search query by 0.03 ( $F=2.411$ ,  $P=0.0269$ ).

**Figure 3: Who is Exposed to Unreliable News Sites When Evaluating Misinformation Online? (Study 5).** Panel a presents the predicted exposure to unreliable news sources when searching online about false/misleading news articles. Panel b presents the probability of using the headline/lede or unique URL when searching online about false/misleading news articles. Panel c presents the proportion of individuals who when searching online about a false/misleading article are exposed to different levels of unreliable news sites by the Google search engine. We present these proportions for those who use the headline of the article or the link of the article and those who use another query.



But once exposed to unreliable information in search engine results, who is more likely to believe the false article they evaluated? To identify which groups may be more susceptible to unreliable news in search results, we again turn to the data from Study 5 to measure the marginal effect of SOEM among those with high and low levels of digital literacy, as well as those who are

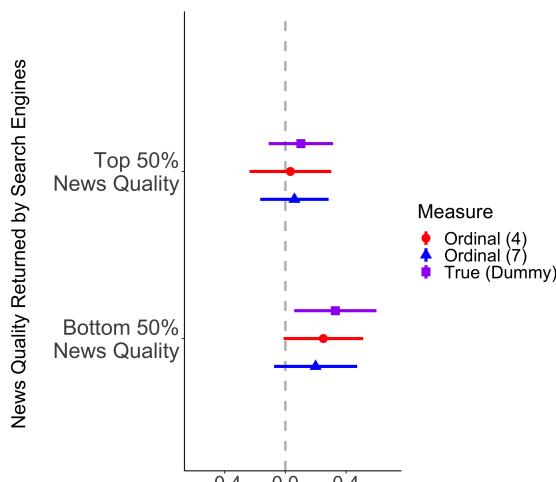
ideologically congruent and incongruent to the misinformation they are evaluating. Among those who received the treatment, we further subset to those who were exposed to Google search engine results that returned: (1) news quality in the top half of Google search engine results (above the median average NewsGuard rating of news returned by Google Search engine results about an item of misinformation) or (2) news quality in the bottom half of Google search engine results (below the median average NewsGuard rating of news returned by Google Search engine results about an item of misinformation). Figure 4 shows that, for those exposed to the bottom half of news quality, the probability an individual believes misinformation after searching online is higher than the control group among each subset of respondents. Taken together, lower quality information returned in search engine results appears to increase belief in misinformation equally among those with high and low levels of digital literacy, as well as those congruent and incongruent to the ideological perspective of the item of misinformation.<sup>32</sup> Combined with our previous findings, this suggests that those with lower levels of digital literacy and ideological congruence to the misinformation are more likely to be exposed to lower quality news when they SOEM, but are not more likely to be influenced by low-quality news.

---

<sup>32</sup>To be clear, as we stated earlier, by subsetting on a post-treatment variable, these relationships are not causal.

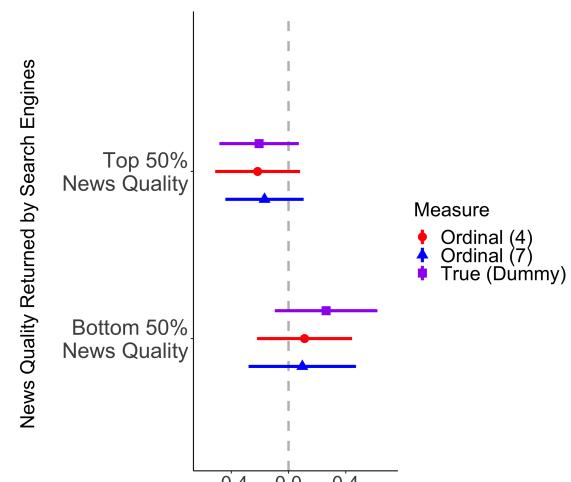
**Figure 4: Who is Most Susceptible to Unreliable Information when Searching for More Information? (Study 5).** Panels a through d present the effect sizes and 95 percent confidence intervals for linear regression models testing the effect of searching online during Study 5 respectively as a unit of the standard deviation of the dependent variable. Marginal effect sizes are subset by the quality of news returned in their search engine results. Panels a through d present the effect of being encouraged to search online among those in the bottom half of digital literacy (a), those in the top half of digital literacy (c), those ideologically congruent with the ideological perspective of the item of misinformation they are evaluating (b), and those ideologically incongruent with the ideological perspective of the item of misinformation they are evaluating (d).

(a) Respondents with Low Levels of Digital Literacy



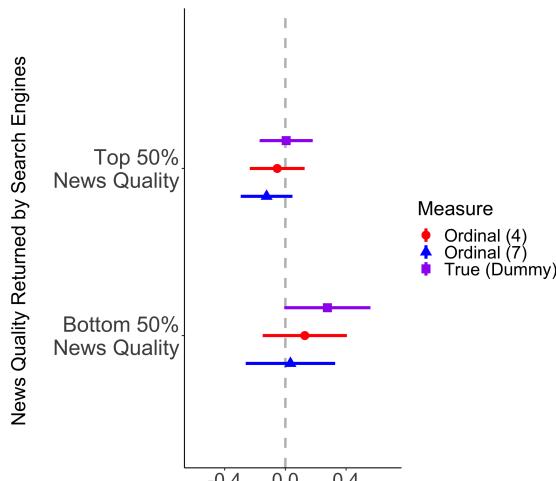
Effect of Encouragement to Search for Information on Likelihood of Rating Misinformation True

(b) Respondents who are Ideologically Congruent to the Ideological Perspective of the Misinformation



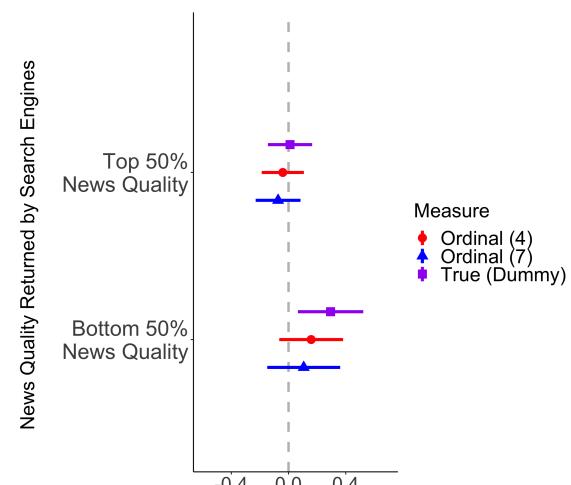
Effect of Encouragement to Search for Information on Likelihood of Rating Misinformation True

(c) Respondents with High Levels of Digital Literacy



Effect of Encouragement to Search for Information on Likelihood of Rating Misinformation True

(d) Respondents who are Ideologically Incongruent to the Ideological Perspective of the Misinformation



Effect of Encouragement to Search for Information on Likelihood of Rating Misinformation True

## Discussion

While significant research has explored the role of social media in the diffusion of misinformation, we know relatively little about the impact of search engines, an integral but understudied piece of the digital information ecosystem. Across five studies, we find that the act of searching online to evaluate misinformation (SOEM) *increases* belief in popular misinformation by measurable amounts. This result is consistent and robust across five separate studies in different contexts: (1) between-respondent and within-respondent experiments (2) using general misinformation and misinformation about a salient event (the Covid-19 pandemic), (3) within-72 hours of publication and months after publication (4) and using respondents recruited by Qualtrics and respondents recruited on Mechanical Turk. In our fifth study, which applies the strongest treatment, encouraging individuals to SOEM increased belief in misinformation by 26%. Other studies with slightly weaker SOEM encouragements also report similarly large increases in belief in misinformation.

To better understand the finding and identify potential remedies, we assessed the relative importance of the quality of information returned by search engines in increasing belief in misinformation. Using digital trace data collected by a custom browser plug-in, we confirm the existence of data voids and find that when individuals search online about misinformation, they are more likely to be exposed to lower quality information relative to when individuals search about true news. In addition, this exposure matters: those who are exposed to low-quality information are more likely to believe misinformation relative to those who are not. We then adjudicated between two possible explanations for why exposure to more low quality information might make people more likely to believe false news stories: motivated reasoning and digital literacy. Although we do find that those who are ideologically congruent to the perspective of the false article and those with low levels of digital literacy are more likely to be exposed to lower-quality information when SOEM, we do not find that the effect of the news quality on belief in misinformation varies across the two groups.

The QAnon movement recommends that people “do the research” themselves (Marwick and Partin 2020), which at first glance seems like a counter-intuitive strategy for a conspiracy theory oriented movement. Our findings, however, suggest that the strategy of pushing people to verify low quality information online might paradoxically be even more effective at misinforming them. For those who wish to learn more, they risk falling into data voids—or informational spaces where there

is plenty of corroborating evidence from low-quality sources—when using online search engines. Ironically, media literacy guides also place an emphasis on SOEM. Our findings highlight the need for media literacy programs to ground their recommendations in empirically tested interventions, as well as search engines to invest in solutions to the challenges identified here. For example, our findings show that exposure to low-quality sources in search results is correlated with higher belief in false or misleading articles, and that low-quality sources are more likely to be returned when using the headline or URL of the stimulus. Building off of this, media literacy programs should replace a general focus on online search with more targeted techniques that teach individuals how to use proper search terms and identify quality news sources.

## Methods

In all five studies we received informed consent from all of the participants. We also excluded participants for inattentiveness. The researchers were not blinded to the hypotheses when carrying out the analyses. All experiments were randomized. No statistical methods were used to predetermine sample size.

The pre-registration for Studies 1 and 2 are available at <https://osf.io/akemx/>. The methods we use for all five studies are based on analysis outlined by this pre-registration. It specified that all analyses would be performed at the level of the individual item (that is, one data point per item per participant) using linear regression with standard errors clustered on the participant. The linear regression was preregistered to have a belief in misinformation dummy variable (1 = false/misleading article rated as “True”, 0 = article rated as “false/misleading” or “could not determine”) as the dependent variable and the following independent variables: treatment dummy (1= treatment group ; 0=control group) , education (1=No High School degree ; 2=High School degree ; 3= Associates Degree ; 4=Bachelors Degree ; 5=Masters Degree ; 6=Doctorate Degree), age, income (0=\$0 - \$50,000 ; 1=\$50,000 - \$100,000 ; 2=\$100,000 - \$150,000 ; 3=\$150,000 plus), gender (1=self-identify as female,0=self-identify as not female.), and ideology (-3=Extremely Liberal ; -2=Liberal ; -1=Slightly Liberal ; 0=Moderate ; 1=Slightly Conservative ; 2=Conservative ; 3=Extremely Conservative).<sup>33</sup> We also stated that we would repeat the main analysis using 7-point ordinal form (1: definitely false to 7 definitely true) in addition to our categorical dummy variable. Our key prediction stated that the treatment—encouraging individuals to search online—would increase belief in misinformation, the hypothesis tested in this study.

However, such an analysis does not account for the likely heterogenous treatment effect across articles evaluated or whether the respondent was ideologically congruent to the perspective of the article. Given this, we deviated from our pre-registered plan on two distinct points: (1) to control for the likely heterogeneity in our treatment effect across articles we add article fixed effects and cluster the standard errors at the article-level (Abadie et al. 2017) in addition to the individual-level. (2) We also replace the ideology variable with a dummy variable that accounts for whether an individual’s ideological perspective is congruent with the article’s perspective. Given that it is

---

<sup>33</sup>For a full description of our variables used in Studies 1-4 and Study see Sections I and J of the Supplementary Materials.

whether one's ideological perspective is congruent to the piece of misinformation, not ideology in itself that affects belief in misinformation, this is the proper variable to use. Although we deviate from these aspects of the pre-registered analysis, results for Studies 1-4 using this pre-registered model can be found in Section O of the Supplementary Materials. The results from these models more strongly support the hypothesis that searching online increases belief in misinformation than the results we present in the main text of this paper.

## Article Selection Process

To distribute a representative sample of popular news articles directly after publication to respondents, we created a transparent, replicable, and pre-registered article selection process that sourced popular false/misleading and true articles from across the ideological spectrum to be evaluated by respondents within 24-48 hours of their publication.<sup>34</sup> Specifically, we sourced one article per day from each of the following five news streams: liberal mainstream news domains; conservative mainstream news domains; liberal low-quality news domains; conservative low-quality news domains; and low-quality news domains with no clear political orientation. Each day we chose the most popular online articles from these five streams that had appeared in the previous 24 hours and sent them to respondents who were recruited either through Qualtrics (Studies 1, 2, 3, and 4) or Amazon's Mechanical Turk (Study 5).<sup>35</sup> Collecting and distributing the most popular false articles directly after publication is a key innovation that enabled us to measure the effect of SOEM on belief in misinformation during the period in which people are most likely to consume it. In Study 3, we used the same articles used in Study 2, but distributed them to respondents 3 to 5 months after publication.

To generate our streams of mainstream news, we collected the top 100 news sites by U.S. consumption identified by Microsoft Research's Project Ratio between 2016 and 2019.<sup>36</sup> To classify these websites as liberal or conservative, we used scores of media partisanship from Eady et al.

<sup>34</sup>In Study 4 (where we only sent articles about Covid-19 to respondents), we delayed sending the articles to respondents for 24 hours to allow us to receive the assessment from our professional fact-checkers before sending the articles out to respondents. Doing so allowed us to communicate fact-checker assessments to respondents once they had completed their own assessment, thus reducing the chance of causing medical harm by misinforming a survey participant about, for example, an incorrect Covid-19 treatment.

<sup>35</sup>See Section D of the Supplementary Materials for an explanation of our sampling technique on Qualtrics and Mechanical Turk, why we chose it, and why we believe these results can be generalized.

<sup>36</sup><https://www.microsoft.com/en-us/research/project/project-ratio/>

(2020), who assign ideological estimates to websites based on the URL sharing behavior of social media users: websites with a score of below zero were classified as liberal and those above zero were classified as conservative. The top ten websites in each group (liberal or conservative) by consumption were then chosen to create a liberal mainstream and conservative mainstream news feed.<sup>37</sup> For our low quality news sources, we relied on the list of low-quality news sources from Allcott, Gentzkow, and Yu (2019) that were still active at the start of our study in November 2019. We subsequently classified all of these low-quality sources into three streams: liberal leaning sources, conservative leaning sources, and those with no clear partisan orientation.<sup>38</sup>

On each day of Studies 1, 2, and 5, we selected the most popular article from the past 24 hours—using CrowdTangle, a content discovery and social monitoring platform that tracks the popularity of URLs on Facebook pages, for the mainstream sources, and RSS feeds for the low-quality ones—from each of the five streams.<sup>39</sup> Articles chosen by this algorithm therefore represent the most popular credible and low quality news from across the ideological spectrum.<sup>40</sup> In Study 3, we used the same articles used in Study 2, but distributed them to respondents 3 to 5 months after publication. In Study 4, to test if this search effect is robust to news stories related to the Covid-19 pandemic, we only sampled the most popular articles whose central claim covered the health, economic, political, or social effects of Covid-19. During Study 4 and 5, we also added a list of low-quality news sources known to publish pandemic-related misinformation, which was compiled by NewsGuard.

## Survey

In each study, we sent out an online survey that asked respondents a battery of questions related to articles that had been selected on that day by our article selection protocol as well as a litany of demographic questions.<sup>41</sup> Respondents evaluated each article using a variety of criteria, the

---

<sup>37</sup>The list of the sources in each mainstream stream is provided in Section E1 of the Supplementary Materials.

<sup>38</sup>The list of the sources in each low-quality stream is provided provided in Section E2 of the Supplementary Materials. Explanation for how the partisanship of these sources were determined is provided in Section E3 of the Supplementary Materials.

<sup>39</sup>We used RSS feeds for the low quality sources instead of CrowdTangle because most low-quality sources' Facebook pages had been banned and thus were not tracked by CrowdTangle; for more on CrowdTangle see <https://www.crowdtangle.com/>.

<sup>40</sup>The number of public Twitter posts and public Facebook group posts that contained each article in Studies 1, 2, and 3 is provided in Section G of the Supplementary Materials.

<sup>41</sup>While they completed the survey within the Qualtrics platform, they viewed the articles directly on the website where they had been originally published. In other studies, respondents were often only asked to evaluate the

most germane of which was a categorical evaluation question: “What is your assessment of the central claim in the article?” to which respondents could choose from three responses: (1) True (2) Misleading/False (3) Could Not Determine. Respondents were also asked to assess the accuracy of the news article on a 7-point ordinal scale ranging from 1 (definitely not true) to 7 (definitely true).<sup>42</sup> We ran our analyses using both categorical responses and the ordinal scale(s). To assess the reliability and validity of both measures, we predict the rating of an article on a 7-point scale using a dummy variable measuring whether that respondent rated that article as “true” using the categorical measure using a simple linear regression. We find that across each study rating an article as true on average increases the veracity scale rating on average by 2.75 points on the 7-point scale (About 1.5 standard deviations of the ratings on the ordinal scale).<sup>43</sup> To ensure that responses we use were actually from respondents who evaluated articles in good faith, two relatively simple attention checks for each article were used. If a respondent failed any of these attention checks, all of their evaluations were omitted from this analysis.<sup>44</sup>

## Determining Veracity of Articles Distributed

One of the key challenges in this study was determining the veracity of the article in the period directly after publication. Whereas many studies use source quality as a proxy for article quality, not all articles from suspect news sites are actually false (Allcott, Gentzkow, and Yu 2019). Other studies have relied upon professional fact checking organizations such as Snopes or Politifact to identify false/misleading stories from these sources (Clayton et al. 2019; Pennycook, McPhetres, et al. 2020). However, the use of evaluations from these organization is impossible when sourcing articles in real time because we have no way of knowing whether these articles will ever be checked by such organizations. As an alternative evaluation mechanism, we hired six professional fact checkers from leading national media organizations to also assess each article during the same

---

<sup>42</sup>In Study 5, we also asked respondents to evaluate articles based on a 4-point ordinal scale: To the best of your knowledge, how accurate is the central claim in the article? (1) Not at all accurate (2) Not very accurate (3) Somewhat accurate (4) Very accurate

<sup>43</sup>For the full regression table see Section M of the Supplementary Materials.

<sup>44</sup>Directly after they were asked to evaluate the article we asked two basic questions about access to the article. These questions do not depend on any ability to evaluate and only measure if they are attempting to evaluate the article that we asked them to evaluate. These attention check questions can be found in Section F of the Supplementary Materials.

24 hour period as respondents.<sup>45</sup> We use the modal response of the professional fact checkers to determine whether we code an article as true, false/misleading, or 'could not determine'. We are then able to assess the ability of our respondents to identify the veracity of an article by comparing their response to the modal professional fact checker response. In terms of inter-rater reliability among fact-checkers, we can report a Fleiss' Kappa score of 0.42 for all fact-checker evaluations of articles used in this paper.<sup>46</sup> This level of agreement is slightly higher than other studies that have used professional fact-checkers to rate the veracity of both credible and suspect articles using the same categorical scale our fact-checkers used (Allen et al. 2021). We also present all of the analyses in this paper using only false/misleading articles with a robust mode—which we define as any modal response of fact-checkers that would not change if one professional fact-checker changed their response—to remove articles where there was higher levels of disagreement among professional fact-checkers. These results can be found in Section N of the Supplementary Materials. We find that the direction of our results do not change when using the false/misleading articles with a robust mode.

## Study 1

In Study 1, we tested whether SOEM affects belief in misinformation in a randomized controlled trial that ran for ten days. During this study we asked two different groups of respondents to evaluate the same false/misleading or true articles in the same 24-hour window but only after searching online. We predicted in a pre-registered report<sup>47</sup> that false/misleading news were more likely to be rated as true by those who were encouraged to search online. This study was approved by the New York University Committee on Activities Involving Human Subjects (IRB-FY2019-3511).

---

<sup>45</sup>These professional fact-checkers were recruited from a diverse group of reputable publications (none of the publications that we ask individuals to fact-check to ensure no conflicts of interest) and paid \$10.00 per article. The modal response of the professional fact checkers yielded 37 false/misleading, 102 true, and 16 indeterminate articles from Study I. Most articles were evaluated by five fact-checkers; a few were evaluated by four or six. A different group of six fact-checkers evaluated all of the articles during Study 4 and 5 relative to Study 1, 2, and 3.

<sup>46</sup>We had unanimous fact checker agreement on over 45% of the articles in Study I. We also report the article level agreement between each pair of fact-checkers and average weighted Cohen kappa score between each pair of fact-checkers in Section K of the Supplementary Materials. These scores are reported for the articles that were rated by five professional fact-checkers.

<sup>47</sup>Link to pre-registration: <https://osf.io/akemx/>

## **Participants and Materials**

On ten separate days (November 21st, 2019 to January 7th, 2020), we randomly assigned a group of respondents to be encouraged to search online before providing their assessment of the article's veracity. Over these ten days, thirteen different false/misleading articles were evaluated by individuals in our control group who were not requested to search online (resulting in 1,145 evaluations from 876 unique respondents) and those in our treatment group who were requested to search online (resulting in 1,130 evaluations from 872 unique respondents). You can find the articles used during this study in Section A1 of the Supplementary Materials.

## **Procedure**

Participants in both the control (not encouraged to search for additional information) and treatment group were given the following instructions at the beginning of the survey: "In this survey you will be asked to evaluate the central claim of three recent news articles."<sup>48</sup> We then presented participants with three of five articles selected that day randomly (no articles could be shown to a respondent more than once). For each article respondents in each group were asked a series questions about the article, such as whether it is an opinion article, does the article interest you, and how reliable is the source. Those in the control group were presented with the veracity questions most relevant to this study: "What is your assessment of the central claim in the article?" with the following options: (1) True: The central claim you are evaluating is factually accurate. (2) Misleading and/or False.: The central claim you are evaluating is factually accurate. Misleading: The central claim takes out of context, misrepresents, or omits evidence. ; False: The central claim is factually inaccurate. (3) Could Not Determine: You do not feel you can judge whether the central claim is true, false, or misleading. They were also asked a 7-point ordinal scale veracity question: Now that you have evaluated the article, we are interested in the strength of your opinion. Please rank the article on the following scale: 1 - Definitely Not True ; 2 ; 3 ; 4 ; 5 ; 6 ; 7 - Definitely True. Differing from the control group, participants in the treatment group (encouraged to search for additional information) were given instructions before these two veracity questions (see below). These instructions encouraged them to search online and asked the respondents questions about their search online.

---

<sup>48</sup>We define the central claim as a factual statement related to the article's main point or purpose.

### Instructions To Find Evidence To Evaluate Central Claim

The purpose of this section is to find evidence from another source regarding the central claim that you're evaluating. This evidence should allow you to assess whether the central claim is true, false, or somewhere in between. Guidance for the finding evidence for or against the central claim you've identified:

- (1) By evidence, we mean an article, statement, photo, video, audio, or statistic relevant to the central claim. This evidence should be reported by some other source than the author of the article you are investigating. This evidence can either support the initial claim or go against it.
- (2) To find evidence about the claim, you should use a keyword search on a search engine of your choice or within the website of a particular source you trust as an authority on the topic related to the claim you're evaluating.
- (3) We ask that you use the highest quality pieces of evidence to evaluate the central claim in your search. If you cannot find evidence about the claim from a source that you trust, you should try to find the most relevant evidence about the claim you can find from any source, even one you don't trust.

For additional instructions explaining how to find evidence please click this text.<sup>49</sup>

We then presented respondents with the following four questions:

- (1) What are the keywords you used to research this original claim? If you searched multiple times, enter just the keywords you used on your final/successful search. If you used a reverse image search, please enter “reverse image search” in the text box.
- (2) Which of the following best describes the highest quality evidence you found about the claim in your search?<sup>50</sup>
- (3) Evidence Link: Please paste the link for the highest quality evidence you found (Paste only the text of the URL link here. Do not include additional text from the webpage/article, etc.). If you did not find any evidence, please type the following phrase in the text box below: “No Evidence.”
- (4) Additional Evidence Links: If you use other different evidence sources that are particularly helpful, please paste the additional sources here.

---

<sup>49</sup>These additional instructions can be found in Section H of the Supplementary Materials.

<sup>50</sup>Possible responses: (A) I found evidence from a source that I trust. (B) I found evidence, but it's from a source that I don't know enough about to trust or distrust. (C) I found evidence, but it's from a source that I don't trust. (D) I did not find evidence about this claim.

After they read these instructions and were asked these questions about their online search, those in the treatment group were presented with the two veracity questions of interest (categorical and 7-point ordinal scale). In both the control and treatment conditions, the response options were listed in the same order as they are listed in this Methods section.

## 1 Analysis Plan

This analysis was pre-registered here <https://osf.io/akemx/>.

### Balance Table

Below we create a balance table comparing basic demographic variables among respondents in the control and treatment group. Table 1 shows that respondents were similar across demographic variables, except for income. Those in the control group self-reported making higher levels of income than those in the treatment group.

### Balance Table

**Table 1:** Balance Table for Those in the Control and Treatment Group in Study 1

Demographic	Average (Treatment)	Average (Control)	(Con- trol)	Difference
Education	2.32	2.38		-0.06
Age	45.12	46.26		-1.14
Gender	0.52	0.49		0.03
Income	0.78	1.1		-0.32***
Ideology	-0.08	0		-0.08

\*\*\*  $p < 0.001$ , \*\*  $p < 0.01$ , \*  $p < 0.05$

## Study 2

Study 2 ran similar to Study 1, but over 29 days between November 18th, 2019 and February 6th, 2020. In each survey that was sent in Study 1, we asked respondents in the control group to evaluate the third article they receive a second time, but only after looking for evidence online (using the same directions to search online that participants in Study 2 received).

This study measures the effect of searching online on belief in misinformation, but instead of running a between-respondent random control trial, we run a within respondent study. In this

study, participants first evaluate articles without being encouraged to search online. Then, they are encouraged to search online to help them re-evaluate the article's veracity. This is a conceivably more difficult test of the effect of searching online as individuals have already anchored themselves to their previous response. Literature on confirmation bias leads us to believe that new information will have the largest effect when individuals have not already evaluated the news article on its own. Therefore, this study allows us to measure if the effect of searching online is strong enough to change an individual's evaluation of a news article after they have evaluated the article on its own. We did not pre-register a hypothesis, but we did pose this as an exploratory research question in the registered report for Study 1.<sup>51</sup> This study was approved by the New York University Committee on Activities Involving Human Subjects (IRB-FY2019-3511).

## **Participants And Materials**

During Study 2, 33 false or misleading unique articles were evaluated and re-evaluated by 1,054 respondents. We then compared their evaluation before being requested to search online and their evaluation after searching online. You can find the articles used during this experiment in Section A2 of the Supplementary Materials. Summary statistics for all respondents in this study are presented in Table 2.

## **Procedure**

Similar to Study 1, respondents initially evaluated articles as if they were in the control group, but after they finished their evaluation they were then presented with this text: "Now that you have evaluated the article, we would like you evaluate the article again, but this time find evidence from another source regarding the central claim that you're evaluating." They were then prompted with the same instructions and questions as the treatment group in Study 1.

## **Analysis plan**

This analysis was posed as an exploratory research question in the registered report for Study 1.<sup>52</sup>

## **Summary Statistics**

---

<sup>51</sup>Link to pre-registration: <https://osf.io/akemx/>

<sup>52</sup>Link to pre-registration: <https://osf.io/akemx/>

**Table 2:** Summary Statistic of participants in Study 2

Demographic	Mean	Standard Deviation
Education	2.36	1.24
Age	44.79	17.41
Gender	0.47	0.5
Income	1.04	1
Ideology	0.01	1.74

\*\*\*  $p < 0.001$ , \*\*  $p < 0.01$ , \*  $p < 0.05$

## Study 3

Study 3 replicated Study 2 using the same materials and procedure, but was run between March 16th, 2020 and April 28th, 2020, three to five months after the publication of each these articles. This study set out to test if this search effect held even months after the publication of this misinformation when professional fact-checks are hopefully more prevalent. This study was approved by the New York University Committee on Activities Involving Human Subjects (IRB-FY2019-3511).

### Participants And Materials

33 false or misleading unique articles were evaluated and re-evaluated by 1,011 respondents. We then compared their evaluation before being requested to search online and their evaluation after searching online. You can find the articles used during this experiment in Section A3 of the Supplementary Materials. Summary statistics for all respondents in this study are presented in Table 3.

### Analysis plan

No pre-registration was filed for this study.

## Summary Statistics

**Table 3:** Summary Statistic of participants in Study 3

Demographic	Mean	Standard Deviation
Education	2.37	1.2
Age	44.04	16.36
Gender	0.51	0.5
Income	0.95	0.95
Ideology	-0.04	1.76

\*\*\*  $p < 0.001$ , \*\*  $p < 0.01$ , \*  $p < 0.05$

## Study 4

Study 4 extended Study 2 by asking individuals to evaluate and re-evaluate popular misinformation strictly about Covid-19 after searching online. This study was run between May 28th, 2020 to June 22nd, 2020. In the article selection section, we detail the changes we made in our article selection process to collect these articles. We collected these articles and sent them out to be evaluated by respondents over eight days in June and July 2020. This study measured the effect of searching online on belief in misinformation still holds for misinformation about a salient event. The salient event we use is the Covid-19 pandemic within four months of the beginning of the pandemic in the United States. This study was approved by the New York University Committee on Activities Involving Human Subjects (IRB-FY2019-3511).

## Participants And Materials

13 false or misleading unique articles were evaluated and re-evaluated by 386 respondents. We then compared their evaluation before being requested to search online (the treatment) and their evaluation after searching online. You can find the articles used during this experiment in Section A4 of the Supplementary Materials. Summary statistics for all respondents in this study are presented in Table 4.

## Analysis plan

No pre-registration was filed for this study.

## Summary Statistics

**Table 4:** Summary Statistic of participants in Study 3

Demographic	Mean	Standard Deviation
Education	2.36	1.24
Age	44.79	17.41
Gender	0.47	0.5
Income	1.04	1
Ideology	0.01	1.74

\*\*\*  $p < 0.001$ , \*\*  $p < 0.01$ , \*  $p < 0.05$

## Study 5

To test the effect of exposure to unreliable news on belief in misinformation, we ran a fifth and final study that combined survey and digital trace data. This study was almost identical to Study 1, but we used a custom plug-in to collect digital trace data and encouraged respondents to specifically search online using Google (our web browser plug-in could only collect search results from a Google search result page). Similar to Study 1, we measured the effect of SOEM on belief in misinformation in a randomized controlled trial that ran on twelve separate days from July 13th, 2021 to November 9th, 2021., during which we asked two different groups of respondents to evaluate the same false/misleading or true articles in the same 24-hour window. The treatment group was encouraged to search online, while the control group was not. This study was approved by the New York University Committee on Activities Involving Human Subjects (IRB-FY2021-5608).

## Participants And Materials

Unlike the other four studies, these respondents were recruited through Amazon Mechanical Turk. Only workers within the United States (verified by IP address) and those with above a 95% success rate were allowed to participate. We were unable to recruit a representative sample of Americans using sampling quotas because of the difficulty recruiting respondents from Amazon Mechanical Turk who were willing to install a web-tracking browser extension in the 24-hour period after our algorithm selected articles to be evaluated.

Over twelve days during Study 5, a group of respondents were encouraged to SOEM before pro-

viding their assessment of the article's veracity (Treatment) and another group was not encouraged to search online when they evaluated these articles (Control). Twelve different false/misleading articles were evaluated by individuals in our control group who were not encouraged to search online (952 evaluations from 624 unique respondents) and those in our treatment group who were requested to search online (653 evaluations from 451 unique respondents). You can find the articles used during this experiment in Section A5 of the Supplementary Materials. We do not find statistically significant evidence that respondents who we were recruited to the control group were any different on a number of demographic variables. Table 5 presents a balance table comparing those in the treatment and control group.

### **Procedure**

Participants in both the control and treatment group were given the following instructions at the beginning of the survey: “In this survey you will be asked to evaluate the central claim of three recent news articles.” Those assigned to the treatment group were then asked to install a web extension that would collect their digital trace data including their Google search history. They were presented with the following text: “In this section we will ask you to install our plugin and then evaluate three news articles. To evaluate these news articles we will ask you to search online using Google about each news article online and then use Google Search results to help you evaluate the news articles. We need you to install the web extension and then search on Google for relevant information pertaining to each article in order for us to compensate you.” They were then presented with instructions to download and activate the “Search Engine Results Saver”, which is available at the Google Chrome store here: [link to Search Engine Results Saver](#). Those assigned to the control group were also asked to install a web extension that collected their digital trace data, but not any search engine results. They were presented with the following text: “In this section we will ask you to install our plugin and then evaluate three news articles. You must install the extension, log in and keep this extension on for the whole survey to be fully compensated.” They were then presented with instructions to download and activate the “URL Historian”, which is available at the Google Chrome store here: [link to URL Historian](#). Both those in the control and treatment group were asked to download and install a web extension that tracked their web behavior in order to limit varying levels of attrition across both groups, due to the unwillingness or inability of respondents

to install this kind of extension. After respondents downloaded their respective web extension, the study ran identical to Study 1.

### Digital Trace Data

By asking individuals to download and activate web browsers that collected their URL history and scrape their search engine results, we were able to measure the quality of news they were exposed to when they searched online. We were unable to collect this data if respondents did not search on Google, deactivated their web browser while they were taking the survey, or did not wait on a search engine result page for at least 5 seconds. Therefore, in total for the 653 evaluations of misinformation in our treatment group, we only collected Google search results for 508 evaluations (78% of all evaluations). We also collected the URL history of those in the control group, but did not use this data in our analyses. For most demographic characteristics (age, gender, income, and education) we have statistically significant evidence that respondents who we were able to collect search engine results were slightly different than those who were not able to. We do find that those we were able to collect this digital trace data were more likely to self-identify as liberal by about 0.8 on a 7-point scale, more likely to self-report higher levels of digital literacy, and less likely to self-identify as female. Table 6 presents a balance table comparing compliers and non-compliers within the treatment group.

### Balance Table

**Table 5:** Balance Table for Those in the Control and Treatment Group in Study 5

Demographic	Average (Treatment)	Average (Control)	Difference
Education	3.54	3.53	0.01
Age	37.59	39.31	-1.72
Gender	0.45	0.48	-0.03
Income	1.76	1.79	-0.03
Ideology	-0.54	-0.57	0.03

\*\*\*  $p < 0.001$ , \*\*  $p < 0.01$ , \*  $p < 0.05$

**Table 6:** Balance Table: Compliers and Non-Compliers in Treatment Group

Demographic	Average (Complier)	Average (Non-Complier)	Difference
Education	3.43	3.67	-0.24
Age	36.56	39.11	-2.55
Gender (Female)	0.41	0.52	-0.11*
Income	1.73	1.75	-0.02
Ideology	-0.61	0.23	-0.84***
Digital Literacy	55.14	49.03	6.11***

\*\*\*  $p < 0.001$ , \*\*  $p < 0.01$ , \*  $p < 0.05$

When we analyze the effect of the quality of online information, we only include those in the control group who kept their web extension on during the survey to limit possible selection bias effects. In the control group, 93% of the respondents evaluated a false/misleading article in the control group installed the web extension that tracked their own digital trace data throughout the whole survey. Similar to the treatment group we do find that those we were able to collect this digital trace data for were more likely to self-identify as liberal by about 0.55 on a 7-point scale and more likely to self-report higher levels of digital literacy. The magnitude of these differences are modest and the direction of these differences are identical to the differences in the treatment group. Table 7 presents a balance table comparing compliers and non-compliers within the control group. We do not see very much difference in how those that choose to be compliant in the control group differ from those who choose to be compliant in the treatment group. Table 8 presents a balance table comparing compliers in the treatment and control group.

**Table 7:** Balance Table: Compliers and Non-Compliers in Control Group

Demographic	Average (Com- plier)	Average (Non- Complier)	Difference
Education	3.49	3.87	-0.38
Age	39.13	42.76	-3.63
Gender (Female)	0.47	0.52	-0.05
Income	1.8	1.81	-0.01
Ideology	-0.57	-0.02	-0.55*
Digital Literacy	54.81	48.59	6.22***

\*\*\*  $p < 0.001$ , \*\*  $p < 0.01$ , \*  $p < 0.05$

When we compare compliant respondents in the control and treatment group we do not find very much difference across various demographic variables. Those compliant in the treatment group were slightly younger by two and a half years and slightly more likely to be male. Table 7 presents

a balance table comparing compliers in the control and treatment group.

**Table 8:** All Respondents with Digital Trace Data in Control and Treatment Group

Demographic	Average (Treatment)	Average (Control)	Difference
Education	3.43	3.49	-0.06
Age	36.56	39.13	-2.57***
Gender (Female)	0.41	0.47	-0.06*
Income	1.73	1.8	-0.07
Ideology	-0.61	-0.57	-0.04
Digital Literacy	55.14	54.81	0.33

\*\*\*  $p < 0.001$ , \*\*  $p < 0.01$ , \*  $p < 0.05$

## Data availability

Data and materials for all of the studies are available at [https://github.com/SMAPPNYU/Do\\_Your\\_Own\\_Research](https://github.com/SMAPPNYU/Do_Your_Own_Research).

## Code availability

Code for all of the studies is available at [https://github.com/SMAPPNYU/Do\\_Your\\_Own\\_Research](https://github.com/SMAPPNYU/Do_Your_Own_Research).

## References

- Abadie, Alberto et al. (2017). *When should you adjust standard errors for clustering?* Tech. rep. National Bureau of Economic Research.
- Allcott, Hunt and Matthew Gentzkow (2017). “Social media and fake news in the 2016 election”. In: *Journal of economic perspectives* 31.2, pp. 211–36.
- Allcott, Hunt, Matthew Gentzkow, and Chuan Yu (2019). “Trends in the diffusion of misinformation on social media”. In: *Research & Politics* 6.2, p. 2053168019848554.
- Allen, Jennifer et al. (2021). “Scaling up fact-checking using the wisdom of crowds”. In: *Science Advances* 7.36, eabf4393. URL: <https://www.science.org/doi/abs/10.1126/sciadv.eabf4393>.
- Althaus, Scott L and David Tewksbury (2000). “Patterns of Internet and traditional news media use in a networked community”. In: *Political communication* 17.1, pp. 21–45.
- Boggioni, Tom (May 30, 2021). “Capitol rioters blame conservative media misinformation for hoodwinking them into Jan. 6: report”. In: *Salon*. URL: [https://www.salon.com/2021/05/30/capitol-rioters-blame-conservative-media-misinformation-for-hoodwinking-them-into-jan-6-report\\_partner/](https://www.salon.com/2021/05/30/capitol-rioters-blame-conservative-media-misinformation-for-hoodwinking-them-into-jan-6-report_partner/) (visited on 05/30/2021).
- Clayton, Katherine et al. (2019). “Real solutions for fake news? Measuring the effectiveness of general warnings and fact-check tags in reducing belief in false stories on social media”. In: *Political Behavior*, pp. 1–23.
- Constine, Josh (Apr. 2017). “Facebook puts link to 10 tips for spotting ‘false news’ atop feed”. In: URL: <https://techcrunch.com/2017/04/06/facebook-puts-link-to10-tips-for-spotting-false-news-atop-feed/>.
- DiFonzo, Nicholas and Prashant Bordia (2007). “Rumor, gossip and urban legends”. In: *Diogenes* 54.1, pp. 19–35.
- Dutton, William H et al. (2017). “Search and politics: The uses and impacts of search in Britain, France, Germany, Italy, Poland, Spain, and the United States”. In:
- Eady, Gregory et al. (2020). “News Sharing on Social Media: Mapping the Ideology of News Media Content, Citizens, and Politicians”. URL: [https://papers.ssrn.com/sol3/papers.cfm?abstract%7B%5C\\_%7Did=3721668](https://papers.ssrn.com/sol3/papers.cfm?abstract%7B%5C_%7Did=3721668).

Edwards, Lauren (Feb. 8, 2021). “Conspiracy theories, misinformation fueled riots at the Capitol on Jan. 6”. In: *Fox17*. URL: <https://www.fox17online.com/homepage-showcase/conspiracy-theories-misinformation-fueled-people-riots-at-the-capitol-on-jan-6> (visited on 02/08/2021).

Flanagin, Andrew J and Miriam J Metzger (2000). “Perceptions of Internet information credibility”. In: *Journalism & Mass Communication Quarterly* 77.3, pp. 515–540.

— (2007). “The role of site features, user attributes, and information verification behaviors on the perceived credibility of web-based information”. In: *New media & society* 9.2, pp. 319–342.

Fogg, Brian J et al. (2001). “What makes web sites credible? A report on a large quantitative study”. In: *Proceedings of the SIGCHI conference on Human factors in computing systems*, pp. 61–68.

Golebiewski, Michael and Danah boyd (2019). “Data voids: Where missing data can easily be exploited”. In: *Data & Society*.

Gomila, Robin (2020). “Logistic or linear? Estimating causal effects of experimental treatments on binary outcomes using regression analysis”. In: *Journal of Experimental Psychology: General*.

Granka, Laura A (2010). “The politics of search: A decade retrospective”. In: *The Information Society* 26.5, pp. 364–374.

Greenspan, Rachel (Jan. 7, 2021). “The QAnon conspiracy theory and a stew of misinformation fueled the insurrection at the Capitol”. In: *Insider*. URL: <https://www.insider.com/capitol-riots-qanon-protest-conspiracy-theory-washington-dc-protests-2021-1> (visited on 01/07/2021).

Guess, Andrew, Kevin Aslett, et al. (2021). “Cracking Open the News Feed: Exploring What US Facebook Users See and Share with Large-Scale Platform Data”. In: *Journal of Quantitative Description: Digital Media* 1.

Guess, Andrew, Michael Lerner, et al. (2020). “A digital media literacy intervention increases discernment between mainstream and false news in the United States and India”. In: *Proceedings of the National Academy of Sciences* 117.27, pp. 15536–15545.

Guess, Andrew, Jonathan Nagler, and Joshua A. Tucker (2019). “Less than you think: Prevalence and predictors of fake news dissemination on Facebook”. In: *Science advances* 5.1, eaau4586.

- Guess, Andrew, Brendan Nyhan, and Jason Reifler (2020). “Exposure to untrustworthy websites in the 2016 US election”. In: *Nature Human Behaviour* 4.5, pp. 472–480.
- Hu, Desheng et al. (2019). “Auditing the partisanship of google search snippets”. In: *The World Wide Web Conference*, pp. 693–704.
- Jürgens, Pascal and Birgit Stark (2017). “The power of default on Reddit: A general model to measure the influence of information intermediaries”. In: *Policy & Internet* 9.4, pp. 395–419.
- Kahan, Dan M (2017). “Misconceptions, misinformation, and the logic of identity-protective cognition”. In:
- Kalsnes, Bente (2018). *Deciding what's true: The rise of political fact-checking in American journalism*.
- Kaňuková, Nikola et al. (2019). “Searching for Alternative Facts: Analyzing Scriptural Inference in Conservative News Practises”. In: *Media Literacy and Academic Research* 2.1, pp. 119–120.
- Latzer, Michael et al. (2016). “The economics of algorithmic selection on the Internet”. In: *Handbook on the Economics of the Internet*. Edward Elgar Publishing.
- Loomba, Sahil et al. (2021). “Measuring the impact of COVID-19 vaccine misinformation on vaccination intent in the UK and USA”. In: *Nature human behaviour* 5.3, pp. 337–348.
- Marwick, Alice and William Partin (2020). “QAnon shows that the age of alternative facts will not end with Trump”. In: *Columbia Journalism Review*.
- McCarthy, Bill (n.d.). “Misinformation and the Jan. 6 insurrection: When ‘patriot warriors’ were fed lies”. In: *PolitiFact* (). URL: <https://www.politifact.com/article/2021/jun/30/misinformation-and-jan-6-insurrection-when-patriot/>.
- Montgomery, Jacob M, Brendan Nyhan, and Michelle Torres (2018). “How conditioning on post-treatment variables can ruin your experiment and what to do about it”. In: *American Journal of Political Science* 62.3, pp. 760–775.
- Moravec, Patricia, Randall Minas, and Alan R Dennis (2018). “Fake news on social media: People believe what they want to believe when it makes no sense at all”. In: *Kelley School of Business Research Paper* 18-87.
- Munger, Kevin (2020). “All the news that's fit to click: The economics of clickbait media”. In: *Political Communication* 37.3, pp. 376–397.

- Pennycook, Gordon, Jonathon McPhetres, et al. (2020). "Fighting COVID-19 misinformation on social media: Experimental evidence for a scalable accuracy-nudge intervention". In: *Psychological science* 31.7, pp. 770–780.
- Pennycook, Gordon and David G Rand (2020). "Who falls for fake news? The roles of bullshit receptivity, overclaiming, familiarity, and analytic thinking". In: *Journal of personality* 88.2, pp. 185–200.
- (2019). "Lazy, not biased: Susceptibility to partisan fake news is better explained by lack of reasoning than by motivated reasoning". In: *Cognition* 188. The Cognitive Science of Political Thought, pp. 39–50. URL: <http://www.sciencedirect.com/science/article/pii/S001002771830163X>.
- Persily, Nathaniel and Joshua A. Tucker (2020). *Social Media and Democracy: The State of the Field, Prospects for Reform*. Cambridge University Press.
- Peterson, Erik and Shanto Iyengar (2021). "Partisan Gaps in Political Information and Information-Seeking Behavior: Motivated Reasoning or Cheerleading?" In: *American Journal of Political Science* 65.1, pp. 133–147.
- Robertson, Ronald E et al. (2018). "Auditing partisan audience bias within google search". In: *Proceedings of the ACM on Human-Computer Interaction* 2.CSCW, pp. 1–22.
- Starbird, Kate et al. (2018). "Engage early, correct more: How journalists participate in false rumors online during crisis events". In: *Proceedings of the 2018 CHI conference on human factors in computing systems*, pp. 1–12.
- Van Bavel, Jay J and Andrea Pereira (2018). "The partisan brain: An identity-based model of political belief". In: *Trends in cognitive sciences* 22.3, pp. 213–224.
- Vosoughi, Soroush, Deb Roy, and Sinan Aral (2018). "The spread of true and false news online". In: *Science* 359.6380, pp. 1146–1151. URL: <https://science.sciencemag.org/content/359/6380/1146>.

# Supplementary Materials: Do Your Own Research? Searching Online About Misinformation Increases Belief

## Contents

<b>A Articles Selected</b>	<b>2</b>
A.1 Study 1 . . . . .	2
A.2 Study 2 . . . . .	5
A.3 Study 4 . . . . .	10
A.4 Study 5 . . . . .	15
<b>B Model Results for Figures 1–4</b>	<b>20</b>
<b>C Descriptive Statistics for NewsGuard Ratings</b>	<b>41</b>
<b>D Explanation of Sampling Technique</b>	<b>42</b>
<b>E Article Selection Process</b>	<b>43</b>
E.1 Mainstream Sources . . . . .	43
E.2 Low-Quality Sources . . . . .	44
<b>F Attention Checks</b>	<b>49</b>
<b>G Social Media Presence of Articles Selected in Studies 1, 2, and 3</b>	<b>50</b>
<b>H Additional Instructions to Search Online for Information</b>	<b>51</b>
<b>I Data Measurement – Studies 1–4</b>	<b>52</b>
<b>J Different Data Measurement – Study 5</b>	<b>56</b>
<b>K Fact-Checker Agreement</b>	<b>59</b>
<b>L Ideological Perspectives of Articles (Studies 1–4)</b>	<b>59</b>
<b>M Predicting Seven-Point Ordinal Scale with Categorical Rating</b>	<b>60</b>
<b>N Figures Only Using Robust Modal Classification</b>	<b>61</b>
<b>O Figures 1a and 1b using pre-registered model</b>	<b>65</b>

## A Articles Selected

### A.1 Study 1

**Table 1:** Headlines for Articles Chosen from the Low Quality Liberal News Stream in Study 1

	Date	Headline	Modal Fact Checker Rating	Topic	Lean of Article
1	11/20/19	Lt. Col. Vindman: ‘This Is America...Here, Right Matters’	True	Political/Economy	Liberal
2	11/21/19	Sondland’s testimony directly implicates Trump, Pence and Pompeo in Ukraine quid pro quo plot	True	Political/Economy	Liberal
3	12/3/19	The sealed “Indictment A” that Donald Trump needs to worry about more than ever	False/Misleading	Political/Economy	Liberal
4	12/4/19	Devin Nunes Shamelessly Lies When Hannity Asks About Lev Parnas	False/Misleading	Political/Economy	Liberal
5	12/5/19	Trump caught by reporters patting himself on back for insulting Justin Trudeau	True	Political/Economy	Liberal
6	12/9/19	Ex-Intel Slam Trump For Sucking Up To Saudis After Navy Shooting	True	Political/Economy	Liberal
7	12/10/19	Nancy Pelosi knows something we don’t	False/Misleading	Political/Economy	Neutral
8	12/11/19	Tucker Carlson’s White Power Hour Guest: AOC’s District Is The ‘Least American’	True	Political/Economy	Liberal
9	1/6/20	Schiff Hammers President & GOP Over Impeachment Trial Obstruction	True	Political/Economy	Liberal
10	1/7/20	Everything is falling apart for Donald Trump in real time	True	Political/Economy	Liberal

**Table 2:** Headlines for Articles Chosen from the Low Quality Conservative News Stream in Study 1

	Date	Headline	Modal Fact Checker Rating	Topic	Lean of Article
1	11/20/19	No Shots Fired! Citizen with a Gun Ends Gunman’s Attack at Oklahoma Walmart	False/Misleading	Political/Economy	Conservative
2	11/21/19	Indictment Against Head Of Burisma Reveals ‘Hunter Biden Was Receiving Payments From Money Raised Through Criminal Means, Siphoned, Laundered From Ukraine’	False/Misleading	Political/Economy	Conservative
3	12/3/19	Donald Trump SLAMS Corbyn’s NHS lies ‘We want nothing to do with it!’	False/Misleading	Political/Economy	Neutral
4	12/4/19	In 2018, 86% of Those Arrested for Violent Crime in Los Angeles Were Non-White (5% Were White): the City Is 28% White	False/Misleading	Political/Economy	Conservative
5	12/5/19	DING! DING! First Muslim woman elected to Pennsylvania House of Representatives has been ARRESTED for stealing \$500,000 from a charity	True	Political/Economy	Conservative
6	12/9/19	NEVER TRUMPER RICK WILSON SUGGESTS PUTTING ANTI-VAXXERS IN “RE-EDUCATION CAMPS”	True	Political/Economy	Conservative
7	12/10/19	Breaking: Ukrainian Official Reveals Six Criminal Cases Opened In Ukraine Involving The Bidens	False/Misleading	Political/Economy	Conservative
8	12/11/19	Ukraine Advisor Disputes Key Point In Impeachment Testimony — Is This Bad News For Democrats?	False/Misleading	Political/Economy	Conservative
9	1/6/20	NEARLY 200 PEOPLE ARRESTED ACROSS AUSTRALIA FOR DELIBERATELY STARTING BUSHFIRES	False/Misleading	Science	Conservative
10	1/7/20	Iran stampede: ‘35 dead’ and dozens injured after huge crush at Qassem Soleimani funeral	True	Political/Economy	Neutral

**Table 3:** Headlines for Articles Chosen from the Mainstream Conservative News Stream in Study 1

	Date	Headline	Modal Fact Checker Rating	Topic	Lean of Article
1	11/20/19	Key impeachment witness dodges GOP questions to protect whistleblower	True	Political/Economy	Neutral
2	11/21/19	Smollet Claims He Suffered ‘Extreme Emotional Distress’ in Malicious Prosecution Lawsuit Against Chicago	True	Human Interest	Neutral
3	12/3/19	Marine veteran turned congressional candidate calls Kaepernick a ‘national disgrace’	True	Political/Economy	Conservative
4	12/4/19	Devin Nunes slaps CNN with \$435 million defamation lawsuit	True	Political/Economy	Neutral
5	12/5/19	Angry Melania Slams Impeachment Witness for Joking About Son	True	Political/Economy	Conservative
6	12/9/19	Walmart apologizes for sweater featuring Santa with cocaine	True	Human Interest	Neutral
7	12/10/19	Joe Biden Claims No One Told Him About Potential Conflict of Interest With Hunter’s Job at Burisma	True	Political/Economy	Conservative
8	12/11/19	House Democrats announce articles of impeachment against Trump: Abuse of power, obstruction of Congress	True	Political/Economy	Neutral
9	1/6/20	Ricky Gervais blasts Hollywood figures as unprincipled, ignorant at Golden Globes	True	Human Interest	Neutral
10	1/7/20	Pelosi Says the House Will Vote on a Resolution to Limit Trump’s Military Actions Regarding Iran	True	Political/Economy	Neutral

**Table 4:** Headlines for Articles Chosen from the Mainstream Liberal News Stream in Study 1

	Date	Headline	Modal Fact Checker Rating	Topic	Lean of Article
1	11/20/19	Woman Saves Scorched Koala From Bushfire With Shirt Off Her Own Back	True	Science	Neutral
2	11/21/19	Almaas Elman, Somali-Canadian Activist, Is Shot Dead in Mogadishu	True	Political/Economy	Neutral
3	12/3/19	Duncan Hunter To Plead Guilty In Campaign Finance Case He Called ‘Witch Hunt’	True	Political/Economy	Neutral
4	12/4/19	Kamala Harris Dropping Out Of Presidential Race	True	Political/Economy	Neutral
5	12/5/19	‘He Showed Us Life’: Japanese Doctor Who Brought Water to Afghans Is Killed	True	Human Interest	Neutral
6	12/9/19	Caroll Spinney, legendary ‘Sesame Street’ puppeteer of Big Bird, dies at 85	True	Human Interest	Neutral
7	12/10/19	Megan Rapinoe is Sports Illustrated’s Sportsperson of the Year, only the fourth woman chosen alone	True	Human Interest	Neutral
8	12/11/19	Police Chief Tears Into Ted Cruz, McConnell For Caring More About NRA Than Gun Victims	True	Political/Economy	Neutral
9	1/6/20	Mike Pence Slammed After Falsefully Linking Qassem Soleimani To 9/11	True	Political/Economy	Liberal
10	1/7/20	Pentagon Rules Out Striking Iranian Cultural Sites, Contradicting Trump	True	Political/Economy	Liberal

**Table 5:** Headlines for Articles Chosen from the Low Quality Unclear News Stream in Study 1

	Date	Headline	Modal Fact Checker Rating	Topic	Lean of Article
1	11/20/19	Pounds lost doesn't mean FAT lost: You CAN lose up to 2 pounds of fat a month – but it takes consistency and patience	False/Misleading	Science	Neutral
2	11/21/19	Ukrainian MP Claims \$7.4 Billion Obama-Linked Laundering, Puts Biden Group Take At \$16.5 Million	False/Misleading	Political/Economy	Conservative
3	12/3/19	Americans Bought Enough Guns on Black Friday to Arm the Marine Corps – Yet Again!	True	Political/Economy	Unclear
4	12/4/19	Ukrainian Neo-Nazis Help Out at Hong Kong Riots, Pan-Democrats Defend Them	Could Not Determine	Political/Economy	Unclear
5	12/5/19	China Repeats US Must Reduce Tariiffs For "Phase One" Trade Deal	True	Political/Economy	Neutral
5	12/9/19	Biden Denies Wrongdoing in Ukraine During Testy Interview	True	Political/Economy	Conservative
7	12/10/19	Stressed to the Max? Deep Sleep Can Rewire the Anxious Brain	True	Science	Neutral
8	12/11/19	Since Feeding the Homeless is Illegal, Activists Carry AR-15s to Give Out Food, Supplies	False/Misleading	Political/Economy	Conservative
9	1/6/20	Senate Republican Eyes Rule Change to Kick Start Trump Impeachment Trial	True	Political/Economy	Neutral
10	1/7/20	Iran Evaluating 13 Retaliation Scenarios To Inflict "Historic Nightmare" On US	True	Political/Economy	Conservative

## A.2 Study 2

**Table 6:** Headlines for Articles Chosen from the Low Quality Liberal News Stream in Studies 2 and 3

	Date	Headline	Modal Fact Checker Rating	Topic	Lean of Article
1	11/18/19	Doctor Tells CNN Trump's Walter Reed Medical Visit Was Fishy	False/Misleading	Political/Economy	Liberal
2	11/19/19	Rudy Giuliani has completely berserk meltdown as Feds close in on him	No Mode	Political/Economy	Liberal
3	11/20/19	Lt. Col. Vindman: 'This Is America...Here, Right Matters'	True	Political/Economy	Liberal
4	11/21/19	Sondland's testimony directly implicates Trump, Pence and Pompeo in Ukraine quid pro quo plot	True	Political/Economy	Liberal
5	12/2/19	Senator Announces Impeach Vote Hint That Has Trump Fuming	No Mode	Political/Economy	Liberal
6	12/3/19	The sealed "Indictment A" that Donald Trump needs to worry about more than ever	False/Misleading	Political/Economy	Liberal
7	12/4/19	Devin Nunes Shamelessly Lies When Hannity Asks About Lev Parnas	False/Misleading	Political/Economy	Liberal
8	12/5/19	Trump caught by reporters patting himself on back for insulting Justin Trudeau	True	Political/Economy	Liberal
9	12/9/19	Ex-Intel Slam Trump For Sucking Up To Saudis After Navy Shooting	True	Political/Economy	Liberal
10	12/10/19	Nancy Pelosi knows something we don't	False/Misleading	Political/Economy	Neutral
11	12/11/19	Tucker Carlson's White Power Hour Guest: AOC's District Is The 'Least American'	True	Political/Economy	Liberal
12	12/12/19	Bush's ethics chief: Trumps are an "organized crime family," we need to "go after all of them"	True	Political/Economy	Liberal
13	12/16/19	Trump Attacks Congresswoman For Not Having His Back	True	Political/Economy	Liberal
14	12/17/19	Donald Trump caught retweeting bizarre fake account	No Mode	Political/Economy	Liberal
15	12/18/19	No Punches Pulled In Climate-Themed Campaign Ad	True	Political/Economy	Liberal
16	12/19/19	Shaken Trump vows Democrats will see backlash at "the box office" after impeachment verdict	True	Political/Economy	Liberal
17	1/6/20	Schiff Hammers President & GOP Over Impeachment Trial Obstruction	True	Political/Economy	Liberal
18	1/7/20	Everything is falling apart for Donald Trump in real time	True	Political/Economy	Liberal
19	1/8/20	Trump bewilders nation by tweeting "all is well" and "so far so good" after Iran's missile strike	True	Political/Economy	Liberal
20	1/9/20	John Bolton Will Testify If Subpoenaed, So Why Aren't House Dems Doing That?	No Mode	Political/Economy	Liberal
21	1/13/20	New Trump Approval Poll Released Confirms Massive 2020 Blue Wave	False/Misleading	Political/Economy	Liberal
22	1/14/20	Donald Trump's GOP Senate allies have just been backed into a no-win corner	No Mode	Political/Economy	Liberal
23	1/15/20	Newly released texts from Giuliani collaborator appear to show them stalking Amb. Yovanovich	True	Political/Economy	Liberal
24	1/21/20	Even C-SPAN Is Cut Off From Covering Senate Impeachment Trial	True	Political/Economy	Liberal
25	1/22/20	Schiff Opening Impeachment Trial Statement To Go Down In History	True	Political/Economy	Liberal
26	1/23/20	Donald Trump just screwed up and blew a gaping hole in his own impeachment trial strategy	No Mode	Political/Economy	Liberal
27	1/27/20	Damning potential John Bolton Ukraine impeachment testimony revealed in early leak of book draft	True	Political/Economy	Liberal
28	1/28/20	Joni Ernst Gives Away The Ballgame On Joe Biden	No Mode	Political/Economy	Liberal
29	2/4/20	Donald Trump's sham acquittal is already blowing up in Senate Republicans' faces	No Mode	Political/Economy	Liberal
30	2/5/20	Susan Collins Betrays The Country With Vote To Acquit	True	Political/Economy	Liberal
31	2/6/20	Jennifer Granholm Catches Rick Santorum Shamelessly Lying About Pre-Existing Conditions	False/Misleading	Political/Economy	Liberal

**Table 7:** Headlines for Articles Chosen from the Low Quality Conservative News Stream in Studies 2 and 3

	Date	Headline	Modal Fact Checker Rating	Topic	Lean of Article
1	11/18/19	KANYE WEST AND HIS SUNDAY SERVICE SHOW PERFORM WITH ILLUMINATI ALL-SEEING EYE OF HORUS STAGE SET AT LAKEWOOD CHURCH TO SOLD OUT CROWD	False/Misleading	Human Interest	Unclear
2	11/19/19	Schiff Named in WH Official's Defamation Lawsuit, Leaked Lies To Politico To Push Impeachment	False/Misleading	Political/Economy	Conservative
3	11/20/19	No Shots Fired! Citizen with a Gun Ends Gunman's Attack at Oklahoma Walmart	False/Misleading	Political/Economy	Conservative
4	11/21/19	Indictment Against Head Of Burisma Reveals 'Hunter Biden Was Receiving Payments From Money Raised Through Criminal Means, Siphoned, Laundered From Ukraine'	False/Misleading	Political/Economy	Conservative
5	12/2/19	Montana Gov. Bullock Drops Out Of 2020 Presidential Race	True	Political/Economy	Neutral
6	12/3/19	Donald Trump SLAMS Corbyn's NHS lies 'We want nothing to do with it!'	False/Misleading	Political/Economy	Neutral
7	12/4/19	In 2018, 86% of Those Arrested for Violent Crime in Los Angeles Were Non-White (5% Were White): the City Is 28% White	False/Misleading	Political/Economy	Conservative
8	12/5/19	DING! DING! DING! First Muslim woman elected to Pennsylvania House of Representatives has been ARRESTED for stealing \$500,000 from a charity	True	Political/Economy	Conservative
9	12/9/19	NEVER TRUMPER RICK WILSON SUGGESTS PUTTING ANTI-VAXXERS IN "RE-EDUCATION CAMPS"	True	Political/Economy	Conservative
10	12/10/19	Breaking: Ukrainian Official Reveals Six Criminal Cases Opened In Ukraine Involving The Bidens	False/Misleading	Political/Economy	Conservative
11	12/11/19	Ukraine Advisor Disputes Key Point In Impeachment Testimony — Is This Bad News For Democrats?	False/Misleading	Political/Economy	Conservative
12	12/12/19	NYC's De Blasio Deports Thousands of Homeless Families Across America	False/Misleading	Political/Economy	Conservative
13	12/16/19	Trans Activists Target Olympic Cyclist Inga Thompson For Saying Women Shouldn't Have To Compete With Biological Men	False/Misleading	Human Interest	Conservative
14	12/17/19	Back Home In Pelosi's San Francisco: Homeless Drug Addicts Are Now Taking Dumps In The Supermarket Aisles	False/Misleading	Political/Economy	Conservative
15	12/18/19	Video of the Day: Dem Rep Raskin thanks Congressman helping form rules for sham impeachment of Trump who was impeached for bribery	False/Misleading	Political/Economy	Conservative
16	12/19/19	These Democrats Voted AGAINST Impeaching Trump	False/Misleading	Political/Economy	Conservative
17	1/6/20	NEARLY 200 PEOPLE ARRESTED ACROSS AUSTRALIA FOR DELIBERATELY STARTING BUSHFIRES	False/Misleading	Science	Conservative
18	1/7/20	Iran stampede: '35 dead' and dozens injured after huge crush at Qassem Soleimani funeral	True	Political/Economy	Neutral
19	1/8/20	Muslim Teen Accused Of Starting Aussie Grass Fire Laughs As He Leaves Court On Tuesday	False/Misleading	Science	Conservative
20	1/9/20	Third busiest abortion facility in Massachusetts could soon shut its doors	True	Political/Economy	Conservative
21	1/13/20	Why Are Volcanoes All Over The Globe Suddenly Shooting Giant Clouds Of Ash Miles Into The Air?	False/Misleading	Science	Neutral
22	1/14/20	Wisconsin Judge Orders Up to 209,000 Listings Purged from Voter Rolls — Finds 3 in Contempt, Orders Fines for Delay	True	Political/Economy	Conservative
23	1/15/20	Bloomberg Draws Paltry Crowd Of 45 At Heavily Advertised Rally	Could Not Determine	Political/Economy	Conservative
24	1/21/20	Pentagon bans Bible verses on dog tags, while Pres. Trump upholds right to pray in public schools	False/Misleading	Political/Economy	Conservative
25	1/22/20	LEAKED FRENCH INTERNAL INTELLIGENCE REPORT CLAIMS 150 NEIGHBORHOODS 'HELD' BY RADICAL ISLAMISTS	No Mode	Political/Economy	Conservative
26	1/23/20	Coronavirus outbreak: China seals off SECOND major city - 18m people on lockdown	True	Science	Neutral
27	1/27/20	Lawmakers Pushing to Make Michigan a 2nd Amendment Sanctuary STATE	True	Political/Economy	Conservative
28	1/28/20	Holy Moses! More Than 175,000 Tickets Requested To See President Trump In New Jersey — Supporters Line Up 48 Hours Early	False/Misleading	Political/Economy	Conservative
29	2/4/20	Ilhan Omar's Dirty Money Hustle Blows Wide Open, Reports Say She Gave 40% Of Her Campaign Spending Went To Loverboy's Firm	False/Misleading	Political/Economy	Conservative
30	2/5/20	DEMS RELEASE ONLY 62% OF IOWA CAUCUS RESULTS — JUST ENOUGH TO HAVE 'MAYOR CHEAT' IN THE LEAD	False/Misleading	Political/Economy	Conservative
31	2/6/20	John Kerry Says That The ENTIRE Obama Admin Was Trying To Get Rid Of The Burisma Prosecutor	No Mode	Political/Economy	Conservative

**Table 8:** Headlines for Articles Chosen from the Mainstream Conservative News Stream in Studies 2 and 3

	Date	Headline	Modal Fact Checker Rating	Topic	Lean of Article
1	11/18/19	Hyundai launches car with a roof-based solar charging system	True	Science	Neutral
2	11/19/19	Pelosi: Trump's Actions 'Worse' Than Nixon	True	Political/Economy	Neutral
3	11/20/19	Key impeachment witness dodges GOP questions to protect whistleblower	True	Political/Economy	Neutral
4	11/21/19	Smollet Claims He Suffered 'Extreme Emotional Distress' in Malicious Prosecution Lawsuit Against Chicago	True	Human Interest	Neutral
5	12/2/19	'F-K WHITE PEOPLE' graffiti found outside Queens home	True	Human Interest	Neutral
6	12/3/19	Marine veteran turned congressional candidate calls Kaepernick a 'national disgrace'	True	Political/Economy	Conservative
7	12/4/19	Devin Nunes slaps CNN with \$435 million defamation lawsuit	True	Political/Economy	Neutral
8	12/5/19	Angry Melania Slams Impeachment Witness for Joking About Son	True	Political/Economy	Conservative
9	12/9/19	Walmart apologizes for sweater featuring Santa with cocaine	True	Human Interest	Neutral
10	12/10/19	Joe Biden Claims No One Told Him About Potential Conflict of Interest With Hunter's Job at Burisma	True	Political/Economy	Conservative
11	12/11/19	House Democrats announce articles of impeachment against Trump: Abuse of power, obstruction of Congress	True	Political/Economy	Neutral
12	12/12/19	Pastors, worship leaders pray for Trump in Oval Office amid impeachment fight	True	Political/Economy	Conservative
13	12/16/19	I was wrong': James Comey admits 'real sloppiness' in Russia probe	True	Political/Economy	Unclear
14	12/17/19	Schiff Says He Would Vote to Impeach Obama If He Engaged in Similar Conduct	True	Political/Economy	Neutral
15	12/18/19	Teen Karol Sanchez staged her own Bronx kidnapping: police sources	True	Human Interest	Neutral
16	12/19/19	President Trump is impeached in a historic vote by the House, will face trial in the Senate	True	Political/Economy	Neutral
17	1/6/20	Ricky Gervais blasts Hollywood figures as unprincipled, ignorant at Golden Globes	True	Human Interest	Neutral
18	1/7/20	Pelosi Says the House Will Vote on a Resolution to Limit Trump's Military Actions Regarding Iran	True	Political/Economy	Neutral
19	1/8/20	Climate Change? Turns Out Two Dozen Arrested for Setting Australia's Fires	False/Misleading	Science	Conservative
20	1/9/20	Cardi B bashes Trump, says she's seeking Nigerian citizenship amid tensions with Iran	True	Political/Economy	Neutral
21	1/13/20	Bill Gates: My \$109 billion net worth shows the economy is not fair	True	Political/Economy	Neutral
22	1/14/20	Trump, first lady cheered at national championship game	True	Political/Economy	Neutral
23	1/15/20	President Trump Gets Thunderous Applause at Clemson and LSU National Championship Game	True	Political/Economy	Conservative
24	1/21/20	Virginia's Capitol flooded with gun rights activists for Second Amendment rally	True	Political/Economy	Conservative
25	1/22/20	CDC confirms first US case of coronavirus that has killed 9 in China	True	Science	Neutral
26	1/23/20	Three US firefighters killed in plane crash while battling wildfires in Australia	True	Science	Neutral
27	1/27/20	Coronavirus may have originated in lab linked to China's biowarfare program	No Mode	Science	Neutral
28	1/28/20	Dershowitz calls out House Dems in Trump's Senate impeachment trial after Bolton shock waves	True	Political/Economy	Conservative
29	2/4/20	Democratic White House Race off to Messy Start as 'Inconsistencies' Delay Iowa Results	True	Political/Economy	Neutral
30	2/5/20	Macy's to close 125 stores, cut 2,000 corporate jobs, in hunt for growth	True	Political/Economy	Neutral
31	2/6/20	Trump acquitted on all charges in Senate impeachment trial	True	Political/Economy	Neutral

**Table 9:** Headlines for Articles Chosen from the Mainstream Liberal News Stream in Studies 2 and 3

	Date	Headline	Modal Fact Checker Rating	Topic	Lean of Article
1	11/18/19	10 shot, four killed at family gathering in Fresno, California	True	Human Interest	Neutral
2	11/19/19	Kanye West calls himself "greatest artist that God has ever created" during Joel Osteen service	True	Human Interest	Neutral
3	11/20/19	Woman Saves Scorched Koala From Bushfire With Shirt Off Her Own Back	True	Science	Neutral
4	11/21/19	Almaas Elman, Somali-Canadian Activist, Is Shot Dead in Mogadishu	True	Political/Economy	Neutral
5	12/2/19	White House will not participate in Wednesday's impeachment hearing	True	Political/Economy	Neutral
6	12/3/19	Duncan Hunter To Plead Guilty In Campaign Finance Case He Called 'Witch Hunt'	True	Political/Economy	Neutral
7	12/4/19	Kamala Harris Dropping Out Of Presidential Race	True	Political/Economy	Neutral
8	12/5/19	'He Showed Us Life': Japanese Doctor Who Brought Water to Afghans Is Killed	True	Human Interest	Neutral
9	12/9/19	Caroll Spinney, legendary 'Sesame Street' puppeteer of Big Bird, dies at 85	True	Human Interest	Neutral
10	12/10/19	Megan Rapinoe is Sports Illustrated's Sportsperson of the Year, only the fourth woman chosen alone	True	Human Interest	Neutral
11	12/11/19	Police Chief Tears Into Ted Cruz, McConnell For Caring More About NRA Than Gun Victims	True	Political/Economy	Neutral
12	12/12/19	Donald Trump Jr killed rare endangered sheep in Mongolia with special permit	True	Other	Liberal
13	12/16/19	Black Women Now Hold Crowns in 5 Major Beauty Pageants	True	Human Interest	Neutral
14	12/17/19	Barack Obama: Women Ruling All Nations Would Improve 'Just About Everything'	True	Political/Economy	Neutral
15	12/18/19	Police investigating whether teen staged her own kidnapping in Bronx	True	Human Interest	Neutral
16	12/19/19	House impeaches Trump for abuse of power and obstruction in historic rebuke	True	Political/Economy	Neutral
17	1/6/20	Mike Pence Slammed After Falsely Linking Qassem Soleimani To 9/11	True	Political/Economy	Liberal
18	1/7/20	Pentagon Rules Out Striking Iranian Cultural Sites, Contradicting Trump	True	Political/Economy	Liberal
19	1/8/20	All is well,' Trump tweets after Iran targets U.S. forces in missile attack in Iraq	True	Political/Economy	Neutral
20	1/9/20	Ruth Bader Ginsburg says she is cancer-free	True	Political/Economy	Neutral
21	1/13/20	Serena Williams wins first title in 3 years — and donates prize money to Australia wildfire relief	True	Human Interest	Neutral
22	1/14/20	The first Obama-backed documentary receives an Oscar nomination	True	Human Interest	Neutral
23	1/15/20	More than 50 injured after Delta jet dumps fuel on L.A. schools during midair emergency	True	Human Interest	Neutral
24	1/21/20	Katie Sowers Is The First Female And Openly Gay Person To Coach In A Super Bowl	True	Human Interest	Neutral
25	1/22/20	Weather service issues alert for falling iguanas as temperatures drop in Florida	True	Science	Neutral
26	1/23/20	Half of Americans don't know 6m Jews were killed in Holocaust, survey says	True	Political/Economy	Neutral
27	1/27/20	Kobe Bryant's Daughter Gianna, 13, Dead Alongside Father in Calabasas Helicopter Crash	True	Human Interest	Neutral
28	1/28/20	Today really hurts': Families, friends remember those who died in Kobe Bryant crash	True	Human Interest	Neutral
29	2/4/20	State of the Union 2020: Trump addresses nation just before expected acquittal by Senate	True	Political/Economy	Neutral
30	2/5/20	Nancy Pelosi rips up copy of State of the Union speech from Trump	True	Political/Economy	Neutral
31	2/6/20	Kirk Douglas, Hollywood legend and star of Spartacus, dies aged 103	True	Human Interest	Neutral

**Table 10:** Headlines for Articles Chosen from the Low Quality Unclear News Stream in Studies 2 and 3

	Date	Headline	Modal Fact Checker Rating	Topic	Lean of Article
1	11/18/19	Family Facing Jail for Living in RV on Their Own Property to Repair Home After Fire	True	Human Interest	Conservative
2	11/19/19	Shooter Commits Suicide After Being Confronted by Armed Citizen at OK Walmart	False/Misleading	Human Interest	Neutral
3	11/20/19	Pounds lost doesn't mean FAT lost: You CAN lose up to 2 pounds of fat a month – but it takes consistency and patience	False/Misleading	Science	Neutral
4	11/21/19	Ukrainian MP Claims \$7.4 Billion Obama-Linked Laundering, Puts Biden Group Take At \$16.5 Million	False/Misleading	Political/Economy	Conservative
5	12/2/19	Bestselling Novelist Who Wrote About Vaccine Industry Deception Found Dead	False/Misleading	Human Interest	Unclear
6	12/3/19	Americans Bought Enough Guns on Black Friday to Arm the Marine Corps – Yet Again!	True	Political/Economy	Unclear
7	12/4/19	Ukrainian Neo-Nazis Help Out at Hong Kong Riots, Pan-Democrats Defend Them	Could Not Determine	Political/Economy	Unclear
8	12/5/19	China Repeats US Must Reduce Tariffs For "Phase One" Trade Deal	True	Political/Economy	Neutral
9	12/9/19	Biden Denies Wrongdoing in Ukraine During Testy Interview	True	Political/Economy	Conservative
10	12/10/19	Stressed to the Max? Deep Sleep Can Rewire the Anxious Brain	True	Science	Neutral
11	12/11/19	Since Feeding the Homeless is Illegal, Activists Carry AR-15s to Give Out Food, Supplies	False/Misleading	Political/Economy	Conservative
12	12/12/19	Russia's Only Aircraft Carrier Has Erupted In Flames	True	Political/Economy	Neutral
13	12/16/19	Trump Poised This Week to Become Third U.S. President Impeached	True	Political/Economy	Neutral
14	12/17/19	Kansas City Makes Public Transportation Free, Become The First Major City In The U.S. To Make This Progressive Change	No Mode	Political/Economy	Liberal
15	12/18/19	Wall Street Journal Investigation Finds Amazon.com Selling Dumpster Trash Food & Supplements As New	No Mode	Science	Neutral
16	12/19/19	UN Peacekeepers Fathered Hundreds of Babies With Girls in Haiti as Young as 11	True	Political/Economy	Conservative
17	1/6/20	Senate Republican Eyes Rule Change to Kick Start Trump Impeachment Trial	True	Political/Economy	Neutral
18	1/7/20	Iran Evaluating 13 Retaliation Scenarios To Inflict "Historic Nightmare" On US	True	Political/Economy	Conservative
19	1/8/20	Key Brain Region Smaller in Birth Control Pill User	True	Science	Neutral
20	1/9/20	The US Military Pollutes More 140 Countries Combined	True	Science	Liberal
21	1/13/20	Alaska man survives three weeks with little food and shelter	True	Human Interest	Neutral
22	1/14/20	Boeing Mocked Lion Air "Idiots" For Requesting Extra Training For 737 MAX	True	Human Interest	Unclear
23	1/15/20	300 Vultures Occupy Border Patrol Tower, Covering It With "Corrosive" Feces & Vomit	True	Human Interest	Neutral
24	1/21/20	PUNISHING ECONOMY: San Fran's Democrat tyrants double down on closed businesses, taxing landlords for leaving stores vacant	False/Misleading	Political/Economy	Conservative
25	1/22/20	Another Supposedly Authentic Photo Of A UFO & The Story Behind It	No Mode	Human Interest	Neutral
26	1/23/20	China Quarantines 3rd City As Wuhan Virus Spreads To Singapore	True	Science	Neutral
27	1/27/20	Nature Science Journal Warned About "Pathogens Escaping" Wuhan Level-4 Biosafety Lab (BSL-4) Before Coronavirus Outbreak	False/Misleading	Science	Unclear
28	1/28/20	Death Tolls Rises to 106 as 1,000 Americans Try to Evacuate From Coronavirus-Infected Wuhan	True	Science	Neutral
29	2/4/20	The Coronavirus Was Engineered By Scientists In A Lab Using Well Documented Genetic Engineering Vectors That Leave Behind A "Fingerprint"	False/Misleading	Science	Unclear
30	2/5/20	Earth is About to Enter a 30-Year 'Mini Ice Age' as the Sun Hibernates, Scientist Warns	False/Misleading	Science	Unclear
31	2/6/20	The lies we are being told about the Coronavirus	False/Misleading	Science	Conservative

### A.3 Study 4

**Table 11:** Headlines for Articles Chosen from the Low Quality Liberal News Stream in Study 4

	Date	Headline	Modal Fact Checker Rating	Topic	Lean of Article
1	5/27/20	Only 1 state has met the federal government's criteria for reopening	False/Misleading	Science	Neutral
2	6/1/20	Republican Voters Don't Expect Trump To Mourn, Because They Gave Up On Empathy Long Ago	Could Not Determine	Political/Economy	Liberal
3	6/3/20	Communities Of Color Have Been Hit Hardest By COVID-19. Now Is The Time To Fix That	True	Political/Economy	Liberal
4	6/8/20	CDC: More Americans Drinking Cleaning Products Than Ever Before	No Mode	Science	Liberal
5	6/10/20	New Zealand Is COVID-Free; Prime Minister 'Did A Little Dance'	True	Science	Neutral
6	6/15/20	Larry Kudlow: Attendees Of Trump's Tulsa Rally Should 'Probably' Wear Masks	True	Political/Economy	Liberal
7	6/17/20	Trump Touts Aids Vaccine That Does Not Exist During Tuesday Meltdown	True	Political/Economy	Liberal
8	6/22/20	COVID Infection Spike In At Least 23 States, More Young People Testing Positive	True	Other	Liberal

**Table 12:** Headlines for Articles Chosen from the Low Quality Conservative News Stream in Study 4

	Date	Headline	Modal Fact Checker Rating	Topic	Lean of Article
1	5/27/20	Like the Soviet-Styled KGB,' Armed Police Sent To Shut Down Black Baptist Church, Pastor Says	False/Misleading	Political/Economy	Conservative
2	6/1/20	Trump pulls U.S. out of World Health Organization: Is the U.N. next?	False/Misleading	Political/Economy	Conservative
3	6/3/20	Leftie Governor Cooper Kills RNC Convention in Charlotte Due to COVID-19 — Then Goes and Marches with Leftist Mob in Street (VIDEO)	False/Misleading	Political/Economy	Conservative
4	6/8/20	Forced' vaccinations will control your life, warns religious-liberty group	False/Misleading	Science	Neutral
5	6/10/20	Task Force: Expect a Spike in COVID Thanks to Protesters and Rioters	False/Misleading	Other	Conservative
6	6/15/20	CHINA LOCKS DOWN TEN MORE BEIJING NEIGHBORHOODS OVER NEW COVID-19 OUTBREAK AT WHOLESALE MARKET	True	Other	Neutral
7	6/17/20	Thousands Gather in NYC for 'Black Trans Lives Matter' Protest on Same Day Cuomo Threatens Businesses	True	Political/Economy	Conservative
8	6/22/20	Frightened' doctor warns against using hand dryers as they will spark coronavirus spike	True	Science	Neutral

**Table 13:** Headlines for Articles Chosen from the Low Quality Non-Partisan News Stream in Study 4

	Date	Headline	Modal Fact Checker Rating	Topic	Lean of Article
1	5/27/20	Your “Immunity Passport” Future Begins To Materialize As Airlines Call For Digital ID Tracking Systems	False/Misleading	Science	Neutral
2	6/1/20	German Official Leaks Report Denouncing COVID-19 As ”A Global False Alarm”	False/Misleading	Political/Economy	Conservative
3	6/3/20	CONTACT TRACING IN THE CIRCUS OF ROBOTS	False/Misleading	Other	Conservative
4	6/8/20	Bill Gates, The CDC, Fauci And Birx Now Totally Silent About The Mass Race Riots Across America Proves The COVID-19 Lockdown Was A Total Scam	False/Misleading	Other	Conservative
5	6/10/20	WHO Data Suggests It’s “Very Rare” For COVID-19 To Spread Through Asymptomatic People	False/Misleading	Science	Conservative
6	6/15/20	Chinese Scientist, Escorted Out Of Canadian Biolab, Sent Deadly Viruses To Wuhan	False/Misleading	Science	Neutral
7	6/17/20	FOX: Cobb County man tests positive and negative for COVID-19 just hours apart	True	Science	Neutral
8	6/22/20	Dr. Meryl Nass Discovers Hydroxychloroquine Experiments Were Designed to Kill COVID Patients How Many Were Murdered?	False/Misleading	Science	Unclear

**Table 14:** Headlines for Articles Chosen from the Mainstream Conservative News Stream in Study 4

	Date	Headline	Modal Fact Checker Rating	Topic	Lean of Article
1	5/27/20	House Republicans sue Pelosi in bid to stop proxy voting amid coronavirus concerns	True	Political/Economy	Neutral
2	6/1/20	Second wave of coronavirus infections could cause a worse economic disaster, experts warn	True	Political/Economy	Neutral
3	6/3/20	Hope: Top Italian Doctors Say COVID-19 is Losing Viral Potency, Becoming Less Deadly	True	Science	Neutral
4	6/8/20	As states reopen and protests rage, the coronavirus lays the foundation for a nasty second wave of infections this fall	True	Science	Neutral
5	6/10/20	Texas sees record number of coronavirus hospitalizations after state reopens	True	Other	Neutral
6	6/15/20	US coronavirus deaths could double, hit 200,000 by September: report	True	Science	Neutral
7	6/17/20	Scientists hail dexamethasone as Ômajor breakthroughÕ in treating coronavirus	True	Science	Neutral
8	6/22/20	U.S. reports more than 30,000 coronavirus cases two days straight, the highest number since May 1	True	Other	Neutral

**Table 15:** Headlines for Articles Chosen from the Mainstream Liberal News Stream in Study 4

	Date	Headline	Modal Fact Checker Rating	Topic	Lean of Article
1	5/27/20	Fauci says he wears a mask to be a symbol of what 'you should be doing'	True	Science	Neutral
2	6/1/20	How a decade of privatisation and cuts exposed England to coronavirus	True	Political/Economy	Neutral
3	6/3/20	Trump slams North Carolina and says he's moving GOP convention elsewhere	True	Political/Economy	Neutral
4	6/8/20	With no active Covid-19 cases, New Zealand is lifting almost all its coronavirus restrictions	True	Other	Neutral
5	6/10/20	Majority of UK theatres and music venues 'face permanent shutdown'	True	Political/Economy	Neutral
6	6/15/20	Florida sees 2 consecutive days of 2,000-plus new COVID-19 cases as more beaches reopen	True	Other	Neutral
7	6/17/20	Trump Claims COVID-19 Will Go Away And That An AIDS Vaccine Exists. It Doesn't.	True	Political/Economy	Liberal
8	6/22/20	Trump trade adviser: Rally comment on reducing Covid testing was just a joke	True	Political/Economy	Liberal

## A.4 Study 5

**Table 16:** Headlines for Articles Chosen from the Low Quality Liberal News Stream in Study 5

	Date	Headline	Modal Fact Checker Rating	Topic	Lean of Article
1	7/19/21	AZ State Senator Demands Biden Electors Be Recalled, New Election Be Held After Shocking Audit Revelations	False/Misleading	Politics	Conservative
2	7/20/21	'Know Your History, Coward': UFC Star Calls Out Colin Kaepernick For Support Of Fidel Castro	True	No Mode	Conservative
3	7/21/21	Democrats Add Funding Of 'Civilian Climate Corps' To Infrastructure Bill	True	Politics	Conservative
4	7/22/21	GOP Reps. Demand Explanation For Why Capitol Protesters Are Being Jailed When BLM Protesters Were Not	No Mode	Politics	Conservative
5	7/25/21	Enthusiasm for Trump's rally in Arizona dwarfs President Biden's town hall just days earlier	False/Misleading	Politics	Conservative
6	7/26/21	Ashli Babbitt's Mom: Nancy Pelosi Orchestrated the Killing of My Daughter	False/Misleading	Politics	Conservative
7	7/27/21	'They Tortured Me': Officer Michael Fanone Calls Jan. 6 Rioters 'Terrorists'	True	Politics	Unclear
8	7/28/21	Greg Abbott Orders Texas National Guard To Begin Arresting Illegal Immigrants	True	Politics	Conservative
9	10/28/21	GOP Rep. Duncan Enrages Democrat By Wearing 'Let's Go Brandon' Mask On House Floor	True	Politics	Conservative
10	11/1/21	Shock NBC Poll Shows Americans Have 'Lost Their Confidence' In Biden, Chuck Todd Says	True	Politics	Conservative
11	11/3/21	Foreign News Media Laughs at Joe Biden: He 'Needs a Retirement Home and a Warm Bowl of Soup'	False/Misleading	Politics	Conservative
12	11/8/21	Indictment shows it was Hillary who colluded with Russia	False/Misleading	Politics	Conservative

**Table 17:** Headlines for Articles Chosen from the Low Quality Conservative News Stream in Study 5

	Date	Headline	Modal Fact Checker Rating	Topic	Lean of Article
1	7/19/21	Miserable Trump throws fit because a British golf tournament isn't held at his course	True	Politics	Liberal
2	7/20/21	Bans On Critical Race Theory Will Have A Chilling Effect On Educators	No Mode	Politics	Liberal
3	7/21/21	Looks like New York prosecutors have a witness directly incriminating Donald Trump	False/Misleading	Politics	Liberal
4	7/22/21	Liz Cheney Emasculates Kevin McCarthy For His Jan 6 Nonsense	True	Politics	Liberal
5	7/25/21	Rand Paul is left speechless after Dr. Fauci tears into him for lying in Senate hearing	False/Misleading	No Mode	Liberal
6	7/26/21	Newsmax Jackass Roots For 'Woke' Team USA To Lose	True	Human Interest	Liberal
7	7/27/21	Matt Gaetz and Marjorie Taylor Greene get run out of their own protest rally	False/Misleading	Politics	Liberal
8	7/28/21	Capitol Police Chief Destroys GOP Narrative After Jan. 6 Hearing	True	Politics	Liberal
9	10/28/21	Biden Denies Trump Exec Privilege & Releases Treasure-Trove Of Docs	True	Politics	Liberal
10	11/1/21	Private Jet Flying Insurrectionist Smacked Down By DOJ Over Jan 6	No Mode	Politics	Liberal
11	11/3/21	Ivermectin Study Retracted After Data Found To Be Completely Wrong	True	Science	Liberal
12	11/8/21	Liz Cheney Appears On 'Fox Sunday' To Hand Trump His Ass	True	Politics	Liberal

**Table 18:** Headlines for Articles Chosen from the Low Quality Non-Partisan News Stream in Study 5

	Date	Headline	Modal Fact Checker Rating	Topic	Lean of Article
1	7/19/21	"This Is Worrying Me Quite A Bit": mRNA Vaccine Inventor Shares Viral Thread Showing COVID Surge In Most-Vaxxed Countries	False/Misleading	Science	Unclear
2	7/20/21	Texas Democrats' DC Trip To Block Voting Bill Expected To Cost Around \$1.5 Million	True	Politics	Unclear
3	7/21/21	Jeff Bezos Thanks Amazon Workers And Customers For Paying For His Flight To Space	True	Human Interest	Unclear
4	7/22/21	"Zero COVID" Catastrophe: Participating Nations See New Records Across the Board	False/Misleading	Science	Unclear
5	7/25/21	Chicago Chamber Of Commerce Rages As Average Unemployed Illinoisan Parent Earns \$35/Hour Sitting On The Couch	False/Misleading	Economy	Conservative
6	7/26/21	High Schooler Raises \$12K to Help Homeless Veterans Across the Country Get Off the Streets	True	Human Interest	Neutral
7	7/27/21	REPORT: Democrats Running In Rural Areas Are Keeping Their Party Identification Out Of Their Ads	No Mode	Politics	Conservative
8	7/28/21	REPORT: Ilhan Omar cites rising COVID cases to make demand of Biden. Pelosi says	True	Politics	Unclear
9	10/28/21	NIH Director Shredded Over Risky Research In Wuhan After CNN Interview Goes Sideways	False/Misleading	Science	Conservative
10	11/1/21	U.S. faces engineered famine as COVID lockdowns and vax mandates could lead to widespread hunger, unrest this winter	False/Misleading	No Mode	Conservative
11	11/3/21	'Falsified Data': Pfizer Vaccine Trial Had Major Flaws, Whistleblower Tells Peer-Reviewed Journal	False/Misleading	Science	Conservative
12	11/8/21	Biden Gang Reportedly Running Two Secret Lists Used to Prevent Outspoken Conservatives from Owning Guns – Laura Loomer Speaks Out on This Injustice	False/Misleading	Politics	Conservative

**Table 19:** Headlines for Articles Chosen from the Mainstream Conservative News Stream in Study 5

	Date	Headline	Modal Fact Checker Rating	Topic	Lean of Article
1	7/19/21	Majority of Arizona Republicans believe election audit will show Trump won, poll shows	True	Politics	Unclear
2	7/20/21	Sixth Texas Dem comes down with COVID-19 and is isolating: report	True	Politics	Conservative
3	7/21/21	23-Year-Old Ex-Trump Staffer Running for Congress in New Hampshire	True	Politics	Conservative
4	7/22/21	Video shows would-be LA robbery victim shoot his assailants	True	Human Interest	Unclear
5	7/25/21	Banks: Pelosi Doesn't Want 'Tough Questions' Because She's Responsible for Breakdown of Security on Jan. 6'	False/Misleading	Politics	Conservative
6	7/26/21	Trump Rejects 'Fake' Jan. 6 Panel: 'Will Nancy Investigate Herself?'	False/Misleading	Politics	Conservative
7	7/27/21	'Running against a movement': Eric Adams declares war on AOC's socialists	True	Politics	Unclear
8	7/28/21	Olympian Caeleb Dressel tears up on gold medal stand while national anthem plays	True	Human Interest	Unclear
9	10/28/21	Rep. Marjorie Taylor Greene bought shares of Trump SPAC Digital World Acquisition as stock skyrocketed	True	Politics	Neutral
10	11/1/21	AMA Document: Doctors Should Use Language 'Inspired by Critical Race Theory'	True	Science	Unclear
11	11/3/21	McAuliffe Concedes Virginia Governor's Race	True	Politics	Neutral
12	11/8/21	Nearly half of voters say Biden worse president than expected, most don't want to see him run again: poll	True	Politics	Conservative

**Table 20:** Headlines for Articles Chosen from the Mainstream Liberal News Stream in Study 5

	Date	Headline	Modal Fact Checker Rating	Topic	Lean of Article
1	7/19/21	Kara Eaker, U.S. women's gymnastics alternate, tests positive for Covid days before Tokyo Olympics	True	Human Interest	Neutral
2	7/20/21	Twitter suspends Rep. Marjorie Taylor Greene for spreading COVID-19 misinformation	True	Politics	Neutral
3	7/21/21	U.S. stunned by Sweden 3-0 in women's soccer at Olympics: "Not the start we wanted"	True	Human Interest	Neutral
4	7/22/21	Alabama city leader who used n-word in council meeting says he won't apologize and might run for mayor	True	No Mode	Neutral
5	7/25/21	Tom Daley 'incredibly proud to say I am gay and an Olympic champion'	True	Human Interest	Neutral
6	7/26/21	Parkland Survivor Says QAnon Convinced His Dad Shooting Was A Hoax: Report	Could Not Determine	Human Interest	Neutral
7	7/27/21	As Covid cases surge, unvaccinated Americans trigger scorn, resentment from many vaccinated people	True	Human Interest	Neutral
8	7/28/21	Simone Biles says she now realizes she is more than her gymnastics career in emotional tweet	True	Human Interest	Neutral
9	10/28/21	DeVos family was misled by Theranos founder before investing \$100 million, rep says	True	Human Interest	Neutral
10	11/1/21	Steve Buscemi Hands Out Candy Dressed As His Own Meme On Halloween	True	Human Interest	Neutral
11	11/3/21	QAnon supporters gather over theory that JFK Jr. will emerge, announce Trump to be reinstated	True	Human Interest	Neutral
12	11/8/21	Aaron Rodgers says he's unvaccinated, takes ivermectin and bashes 'woke mob'	True	Human Interest	Neutral

## B Model Results for Figures 1–4

### Figure 1a and Figure 1b

**Table 21:** Results from OLS Regression Results Presented in Figure 1a and 1b (Study 1)

Dependent Variables: Model:	Categorical (Rated as True) (1)	7-Point Ordinal Scale (2)
<i>Variables</i>		
Treatment (Search)	0.0568* (0.0243)	0.1615 (0.1061)
Age	-0.0029** (0.0007)	-0.0110*** (0.0024)
Ideological Congruence	0.1737** (0.0425)	0.9850*** (0.1585)
Education	-0.0066 (0.0118)	-0.0130 (0.0495)
Gender (Female dummy)	-0.0329 (0.0226)	-0.0165 (0.0915)
Income	-0.0021 (0.0099)	0.0088 (0.0349)
<i>Fixed-effects</i>		
Article	Yes	Yes
<i>Fit statistics</i>		
Observations	2,275	2,275
R <sup>2</sup>	0.05869	0.07744
Within R <sup>2</sup>	0.03110	0.04894

*Clustered (Article & Respondent) standard-errors in parentheses*

*Signif. Codes: \*\*\*: 0.001, \*\*: 0.01, \*: 0.05*

**Table 22:** Results from OLS Regression Results Presented in Figure 1a and 1b (Study 2)

Dependent Variables: Model:	Categorical (Rated as True) (1)	7-Point Ordinal Scale (2)
<i>Variables</i>		
Treatment (Search)	0.0713*** (0.0159)	0.2426*** (0.0616)
Age	-0.0209* (0.0083)	-0.0327 (0.0343)
Ideological Congruence	0.1790*** (0.0386)	0.8350*** (0.1574)
Education	-0.0138 (0.0126)	-0.0061 (0.0406)
Gender (Female dummy)	-0.0238 (0.0322)	0.0076 (0.0911)
Income	0.0032 (0.0135)	-0.0253 (0.0542)
<i>Fixed-effects</i>		
Article	Yes	Yes
<i>Fit statistics</i>		
Observations	2,020	2,020
R <sup>2</sup>	0.11677	0.11984
Within R <sup>2</sup>	0.03413	0.04105
<i>Clustered (Article &amp; Respondent) standard-errors in parentheses</i>		
<i>Signif. Codes: ***: 0.001, **: 0.01, *: 0.05</i>		

**Table 23:** Results from OLS Regression Results Presented in Figure 1a and 1b (Study 3)

Dependent Variables: Model:	Categorical (Rated as True) (1)	7-Point Ordinal Scale (2)
<i>Variables</i>		
Treatment (Search)	0.0684** (0.0216)	0.2717** (0.0783)
Age	-0.0010 (0.0007)	0.0001 (0.0025)
Ideological Congruence	0.1477*** (0.0284)	0.6619*** (0.1062)
Education	0.0104 (0.0095)	0.0513 (0.0381)
Gender (Female dummy)	-0.0686* (0.0259)	-0.1125 (0.1071)
Income	0.0178 (0.0155)	0.0208 (0.0543)
<i>Fixed-effects</i>		
Article	Yes	Yes
<i>Fit statistics</i>		
Observations	3,394	3,394
R <sup>2</sup>	0.08458	0.09023
Within R <sup>2</sup>	0.02695	0.02477
<i>Clustered (Article &amp; Respondent) standard-errors in parentheses</i>		
<i>Signif. Codes: ***: 0.001, **: 0.01, *: 0.05</i>		

**Table 24:** Results from OLS Regression Results Presented in Figure 1a and 1b (Study 4)

Dependent Variables: Model:	Categorical (Rated as True) (1)	7-Point Ordinal Scale (2)
<i>Variables</i>		
Treatment (Search)	0.0674* (0.0301)	0.2617** (0.0774)
Age	-0.0039* (0.0013)	-0.0100 (0.0064)
Ideological Congruence	0.1675* (0.0554)	0.7408*** (0.1330)
Education	0.0344 (0.0164)	-0.0024 (0.0804)
Gender (Female dummy)	-0.0281 (0.0534)	-0.2139 (0.2192)
Income	0.0039 (0.0240)	0.0126 (0.1168)
<i>Fixed-effects</i>		
Article	Yes	Yes
<i>Fit statistics</i>		
Observations	772	772
R <sup>2</sup>	0.09822	0.09963
Within R <sup>2</sup>	0.04502	0.03786

*Clustered (Article & Respondent) standard-errors in parentheses*

*Signif. Codes: \*\*\*: 0.001, \*\*: 0.01, \*: 0.05*

## Figure 2b

**Table 25:** Results from OLS Regression Results Presented in Figure 2b

Dependent Variables: Model:	Categorical (Rated as True) (1)	4-Point Ordinal Scale (2)	7-Point Ordinal Scale (3)
<i>Variables</i>			
Treatment (Search)	0.1029* (0.0370)	0.1465* (0.0689)	0.1620 (0.1264)
Age	0.0002 (0.0009)	0.0030 (0.0015)	0.0054 (0.0035)
Ideological Congruence	0.2803*** (0.0384)	0.6057*** (0.0827)	1.179*** (0.1549)
Education	-0.0033 (0.0137)	-0.0372 (0.0251)	-0.0380 (0.0509)
Gender (Female dummy)	0.0076 (0.0273)	-0.0379 (0.0600)	0.0239 (0.1032)
Income	-0.0096 (0.0155)	-0.0351 (0.0310)	-0.0558 (0.0576)
<i>Fixed-effects</i>			
Article	Yes	Yes	Yes
<i>Fit statistics</i>			
Observations	1,605	1,605	1,605
R <sup>2</sup>	0.12699	0.16132	0.15324
Within R <sup>2</sup>	0.07438	0.08451	0.08234

*Clustered (Article & Respondent) standard-errors in parentheses*

*Signif. Codes: \*\*\*: 0.001, \*\*: 0.01, \*: 0.05*

## Figure 2c

**Table 26:** Results from OLS Regression Results Presented in Figure 2c (Only Very Reliable News Returned)

Dependent Variables: Model:	Categorical (Rated as True) (1)	4-Point Ordinal Scale (2)	7-Point Ordinal Scale (3)
<i>Variables</i>			
Treatment (Search)	0.0188 (0.0460)	-0.0671 (0.1327)	-0.2404 (0.2425)
Age	0.0004 (0.0010)	0.0046* (0.0020)	0.0092 (0.0050)
Ideological Congruence	0.3116*** (0.0388)	0.6653*** (0.0853)	1.255*** (0.1531)
Education	0.0040 (0.0179)	-0.0363 (0.0275)	-0.0192 (0.0561)
Gender (Female dummy)	-0.0038 (0.0280)	-0.0868 (0.0726)	-0.0778 (0.1153)
Income	-0.0110 (0.0224)	-0.0486 (0.0449)	-0.0569 (0.0861)
<i>Fixed-effects</i>			
Article	Yes	Yes	Yes
<i>Fit statistics</i>			
Observations	940	940	940
R <sup>2</sup>	0.13927	0.17223	0.16097
Within R <sup>2</sup>	0.07551	0.09613	0.09182

*Clustered (Article & Respondent) standard-errors in parentheses*

*Signif. Codes: \*\*\*: 0.001, \*\*: 0.01, \*: 0.05*

**Table 27:** Results from OLS Regression Results Presented in Figure 2c (Some Unreliable News Returned)

Dependent Variables: Model:	Categorical (Rated as True) (1)	4-Point Ordinal Scale (2)	7-Point Ordinal Scale (3)
<i>Variables</i>			
Treatment (Search)	0.1355** (0.0448)	0.1253 (0.0841)	0.1325 (0.1789)
Age	-0.0003 (0.0012)	0.0035 (0.0022)	0.0065 (0.0050)
Ideological Congruence	0.3114*** (0.0411)	0.6631*** (0.0838)	1.256*** (0.1492)
Education	-0.0046 (0.0181)	-0.0494 (0.0285)	-0.0602 (0.0641)
Gender (Female dummy)	-0.0224 (0.0342)	-0.1211 (0.0884)	-0.1108 (0.1328)
Income	-0.0069 (0.0216)	-0.0648 (0.0394)	-0.0720 (0.0822)
<i>Fixed-effects</i>			
Article	Yes	Yes	Yes
<i>Fit statistics</i>			
Observations	1,042	1,042	1,042
R <sup>2</sup>	0.14247	0.16850	0.15709
Within R <sup>2</sup>	0.08793	0.10383	0.09397
<i>Clustered (Article &amp; Respondent) standard-errors in parentheses</i>			
<i>Signif. Codes: ***: 0.001, **: 0.01, *: 0.05</i>			

## Figure 2d

**Table 28:** Results from OLS Regression Results Presented in Figure 2d (75-100 Percentage Quartile of News Quality)

Dependent Variables: Model:	Categorical (Rated as True) (1)	4-Point Ordinal Scale (2)	7-Point Ordinal Scale (3)
<i>Variables</i>			
Treatment (Search)	-0.0197 (0.0426)	-0.1574 (0.0988)	-0.3002 (0.1994)
Age	0.0002 (0.0011)	0.0043* (0.0019)	0.0089 (0.0050)
Ideological Congruence	0.3043*** (0.0397)	0.6435*** (0.0805)	1.244*** (0.1409)
Education	0.0039 (0.0165)	-0.0345 (0.0273)	-0.0231 (0.0517)
Gender (Female dummy)	-0.0130 (0.0278)	-0.0821 (0.0698)	-0.0777 (0.1128)
Income	-0.0145 (0.0198)	-0.0435 (0.0396)	-0.0366 (0.0723)
<i>Fixed-effects</i>			
Article	Yes	Yes	Yes
<i>Fit statistics</i>			
Observations	1,005	1,005	1,005
R <sup>2</sup>	0.13345	0.17526	0.16774
Within R <sup>2</sup>	0.07195	0.09165	0.09052

*Clustered (Article & Respondent) standard-errors in parentheses*

*Signif. Codes: \*\*\*: 0.001, \*\*: 0.01, \*: 0.05*

**Table 29:** Results from OLS Regression Results Presented in Figure 2d (50-75 Percentage Quartile of News Quality)

Dependent Variables: Model:	Categorical (1)	4-Point Ordinal Scale (2)	7-Point Ordinal Scale (3)
<i>Variables</i>			
Treatment (Search)	0.0500 (0.0468)	0.1171 (0.0948)	0.1121 (0.1711)
Age	0.0008 (0.0011)	0.0040* (0.0018)	0.0078 (0.0046)
Ideological Congruence	0.2913*** (0.0383)	0.6630*** (0.0952)	1.217*** (0.1741)
Education	0.0053 (0.0146)	-0.0386 (0.0245)	-0.0231 (0.0550)
Gender (Female dummy)	0.0067 (0.0318)	-0.0664 (0.0787)	-0.0579 (0.1333)
Income	-0.0246 (0.0196)	-0.0695 (0.0409)	-0.1200 (0.0821)
<i>Fixed-effects</i>			
Article	Yes	Yes	Yes
<i>Fit statistics</i>			
Observations	1,005	1,005	1,005
R <sup>2</sup>	0.12966	0.17258	0.15633
Within R <sup>2</sup>	0.07062	0.10054	0.08883
<i>Clustered (Article &amp; Respondent) standard-errors in parentheses</i>			
<i>Signif. Codes: ***: 0.001, **: 0.01, *: 0.05</i>			

**Table 30:** Results from OLS Regression Results Presented in Figure 2d (25-50 Percentage Quartile of News Quality)

Dependent Variables: Model:	Categorical (Rated as True) (1)	4-Point Ordinal Scale (2)	7-Point Ordinal Scale (3)
<i>Variables</i>			
Treatment (Search)	0.1645* (0.0620)	0.1848 (0.1205)	0.2632 (0.2598)
Age	0.0004 (0.0011)	0.0047* (0.0021)	0.0087 (0.0047)
Ideological Congruence	0.3176*** (0.0378)	0.6595*** (0.0905)	1.234*** (0.1515)
Education	-0.0048 (0.0175)	-0.0501 (0.0241)	-0.0553 (0.0596)
Gender (Female dummy)	-0.0121 (0.0342)	-0.0928 (0.0787)	-0.0616 (0.1114)
Income	0.0083 (0.0226)	-0.0292 (0.0452)	-0.0258 (0.0900)
<i>Fixed-effects</i>			
Article	Yes	Yes	Yes
<i>Fit statistics</i>			
Observations	1,005	1,005	1,005
R <sup>2</sup>	0.14508	0.17550	0.16102
Within R <sup>2</sup>	0.08914	0.09886	0.09004

*Clustered (Article & Respondent) standard-errors in parentheses*

*Signif. Codes: \*\*\*: 0.001, \*\*: 0.01, \*: 0.05*

**Table 31:** Results from OLS Regression Results Presented in Figure 2d (0-25 Percentage Quartile of News Quality)

Dependent Variables: Model:	Categorical (Rated as True) (1)	4-Point Ordinal Scale (2)	7-Point Ordinal Scale (3)
<i>Variables</i>			
Treatment (Search)	0.1335** (0.0421)	0.1521 (0.0869)	0.1410 (0.1710)
Age	-0.0002 (0.0012)	0.0030 (0.0021)	0.0051 (0.0050)
Ideological Congruence	0.3172*** (0.0420)	0.6762*** (0.0866)	1.265*** (0.1502)
Education	0.0008 (0.0185)	-0.0360 (0.0282)	-0.0344 (0.0632)
Gender (Female dummy)	-0.0094 (0.0327)	-0.1079 (0.0835)	-0.1336 (0.1303)
Income	-0.0126 (0.0227)	-0.0593 (0.0440)	-0.0696 (0.0895)
<i>Fixed-effects</i>			
Article	Yes	Yes	Yes
<i>Fit statistics</i>			
Observations	1,006	1,006	1,006
R <sup>2</sup>	0.14505	0.17429	0.15820
Within R <sup>2</sup>	0.08865	0.10520	0.09434

*Clustered (Article & Respondent) standard-errors in parentheses*

*Signif. Codes: \*\*\*: 0.001, \*\*: 0.01, \*: 0.05*

**Figure 3a****Table 32:** Predicted Exposure to Unreliable News Sources when Searching for Information

Dependent Variable:	Some_Unrel_Sources
Model:	(1)
<i>Variables</i>	
Age	0.0021 (0.0019)
Gender (Female dummy)	0.0345 (0.0472)
Education	0.0018 (0.0169)
Income	-0.0267 (0.0234)
Ideological Congruence	0.0865* (0.0376)
Digital Literacy	-0.0048 (0.0026)
<i>Fixed-effects</i>	
Article	Yes
<i>Fit statistics</i>	
Observations	508
R <sup>2</sup>	0.15598
Within R <sup>2</sup>	0.02067
<i>Clustered (Article &amp; Respondent) standard-errors in parentheses</i>	
<i>Signif. Codes: ***: 0.001, **: 0.01, *: 0.05</i>	

### Figure 3b

**Table 33:** Predicted Use of Headline or URL as a Search Query when Searching Online about Misinformation

Dependent Variable:	Headline Link
Model:	(1)
<i>Variables</i>	
Age	0.0002 (0.0014)
Gender (Female dummy)	-0.0015 (0.0360)
Education	0.0121 (0.0093)
Income	-0.0030 (0.0111)
Ideological Congruence	0.0413 (0.0299)
Digital Literacy	-0.0039* (0.0016)
<i>Fixed-effects</i>	
Article	Yes
<i>Fit statistics</i>	
Observations	1,026
R <sup>2</sup>	0.05685
Within R <sup>2</sup>	0.01701
<i>Clustered (Article &amp; Respondent) standard-errors in parentheses</i>	
<i>Signif. Codes: ***: 0.001, **: 0.01, *: 0.05</i>	

**Figure 4a****Table 34:** Results from OLS Regression Results Presented in Figure 4a (Upper half of news quality returned - lower half of digital literacy)

Dependent Variables: Model:	Categorical (Rated as True) (1)	4-Point Ordinal Scale (2)	7-Point Ordinal Scale (3)
<i>Variables</i>			
Treatment (Search)	0.0506 (0.0536)	0.0302 (0.1250)	0.1023 (0.1970)
Age	-0.0002 (0.0017)	0.0017 (0.0026)	0.0028 (0.0051)
Ideological Congruence	0.2682*** (0.0347)	0.5264*** (0.0786)	1.005*** (0.1761)
Education	0.0183 (0.0194)	-0.0198 (0.0452)	0.0165 (0.0699)
Gender (Female dummy)	0.0343 (0.0525)	-0.0135 (0.1015)	0.1377 (0.1657)
Income	-0.0330 (0.0254)	-0.0581 (0.0514)	-0.1127 (0.0799)
<i>Fixed-effects</i>			
Article	Yes	Yes	Yes
<i>Fit statistics</i>			
Observations	530	530	530
R <sup>2</sup>	0.12105	0.14721	0.14142
Within R <sup>2</sup>	0.06561	0.07310	0.07615

*Clustered (Article & Respondent) standard-errors in parentheses**Signif. Codes: \*\*\*: 0.001, \*\*: 0.01, \*: 0.05*

**Table 35:** Results from OLS Regression Results Presented in Figure 4a (Lower half of news quality returned - lower half of digital literacy)

Dependent Variables: Model:	Categorical (Rated as True) (1)	4-Point Ordinal Scale (2)	7-Point Ordinal Scale (3)
<i>Variables</i>			
Treatment (Search)	0.1639* (0.0689)	0.2264 (0.1211)	0.3373 (0.2364)
Age	-0.0009 (0.0016)	0.0014 (0.0033)	0.0009 (0.0061)
Ideological Congruence	0.3228*** (0.0407)	0.6107*** (0.0821)	1.130*** (0.1901)
Education	0.0067 (0.0256)	-0.0532 (0.0355)	-0.0348 (0.0757)
Gender (Female dummy)	-0.0123 (0.0434)	-0.1310 (0.0968)	-0.0578 (0.1431)
Income	-0.0019 (0.0258)	-0.0162 (0.0520)	-0.0508 (0.0751)
<i>Fixed-effects</i>			
Article	Yes	Yes	Yes
<i>Fit statistics</i>			
Observations	536	536	536
R <sup>2</sup>	0.16453	0.19585	0.17223
Within R <sup>2</sup>	0.10527	0.11205	0.09993

*Clustered (Article & Respondent) standard-errors in parentheses*

*Signif. Codes: \*\*\*: 0.001, \*\*: 0.01, \*: 0.05*

## Figure 4b

**Table 36:** Results from OLS Regression Results Presented in Figure 4b (Lower half of news quality returned - upper half of digital literacy)

Dependent Variables: Model:	Categorical (Rated as True) (1)	4-Point Ordinal Scale (2)	7-Point Ordinal Scale (3)
<i>Variables</i>			
Treatment (Search)	0.0026 (0.0430)	-0.0562 (0.0963)	-0.2533 (0.1781)
Age	0.0022 (0.0013)	0.0070* (0.0030)	0.0144* (0.0068)
Ideological Congruence	0.2733*** (0.0663)	0.6860*** (0.1242)	1.312*** (0.2287)
Education	-0.0054 (0.0202)	-0.0427 (0.0373)	-0.0523 (0.0830)
Gender (Female dummy)	-0.0158 (0.0430)	-0.0660 (0.0913)	-0.1427 (0.1616)
Income	-0.0290 (0.0230)	-0.0731 (0.0595)	-0.1138 (0.1230)
<i>Fixed-effects</i>			
Article	Yes	Yes	Yes
<i>Fit statistics</i>			
Observations	603	603	603
R <sup>2</sup>	0.14163	0.19061	0.18426
Within R <sup>2</sup>	0.06090	0.08902	0.08678

*Clustered (Article & Respondent) standard-errors in parentheses*

*Signif. Codes: \*\*\*: 0.001, \*\*: 0.01, \*: 0.05*

**Table 37:** Results from OLS Regression Results Presented in Figure 4b (Lower half of news quality returned - upper half of digital literacy)

Dependent Variables: Model:	Categorical (Rated as True) (1)	4-Point Ordinal Scale (2)	7-Point Ordinal Scale (3)
<i>Variables</i>			
Treatment (Search)	0.1353 (0.0708)	0.1335 (0.1477)	0.0672 (0.3021)
Age	0.0010 (0.0013)	0.0059 (0.0029)	0.0115 (0.0062)
Ideological Congruence	0.2821*** (0.0642)	0.6433*** (0.1270)	1.228*** (0.1955)
Education	-0.0220 (0.0221)	-0.0501 (0.0399)	-0.0869 (0.0872)
Gender (Female dummy)	-0.0152 (0.0500)	-0.0664 (0.1064)	-0.1367 (0.1765)
Income	0.0044 (0.0323)	-0.0685 (0.0673)	-0.0549 (0.1569)
<i>Fixed-effects</i>			
Article	Yes	Yes	Yes
<i>Fit statistics</i>			
Observations	594	594	594
R <sup>2</sup>	0.14937	0.17666	0.17461
Within R <sup>2</sup>	0.07369	0.08364	0.07717

*Clustered (Article & Respondent) standard-errors in parentheses*

*Signif. Codes: \*\*\*: 0.001, \*\*: 0.01, \*: 0.05*

**Figure 4c****Table 38:** Results from OLS Regression Results Presented in Figure 4c (Upper Half of News Quality Returned - Ideological Congruence)

Dependent Variables: Model:	Categorical (Rated as True) (1)	4-Point Ordinal Scale (2)	7-Point Ordinal Scale (3)
<i>Variables</i>			
Treatment (Search)	-0.1016 (0.0699)	-0.1842 (0.1291)	-0.2711 (0.2254)
Age	0.0018 (0.0025)	0.0062 (0.0037)	0.0145 (0.0082)
Education	0.0201 (0.0262)	-0.0451 (0.0492)	-0.0550 (0.0782)
Gender (Female dummy)	0.0899 (0.0585)	0.0982 (0.1030)	0.2287 (0.1919)
Income	-0.0521 (0.0278)	-0.0478 (0.0613)	-0.0640 (0.1127)
<i>Fixed-effects</i>			
Article	Yes	Yes	Yes
<i>Fit statistics</i>			
Observations	317	317	317
R <sup>2</sup>	0.09708	0.10965	0.11950
Within R <sup>2</sup>	0.02562	0.02610	0.02510

*Clustered (Article & Respondent) standard-errors in parentheses**Signif. Codes: \*\*\*: 0.001, \*\*: 0.01, \*: 0.05*

**Table 39:** Results from OLS Regression Results Presented in Figure 4c (Lower Half of News Quality Returned - Ideological Congruence)

Dependent Variables: Model:	Categorical (Rated as True) (1)	4-Point Ordinal Scale (2)	7-Point Ordinal Scale (3)
<i>Variables</i>			
Treatment (Search)	0.1266 (0.0883)	0.0943 (0.1427)	0.1505 (0.2997)
Age	-0.0005 (0.0027)	0.0035 (0.0040)	0.0075 (0.0089)
Education	-0.0005 (0.0232)	-0.0694 (0.0479)	-0.0727 (0.0768)
Gender (Female dummy)	0.0950 (0.0474)	0.0514 (0.1049)	0.2390 (0.1741)
Income	-0.0093 (0.0223)	-0.0205 (0.0565)	-0.0280 (0.1018)
<i>Fixed-effects</i>			
Article	Yes	Yes	Yes
<i>Fit statistics</i>			
Observations	321	321	321
R <sup>2</sup>	0.11646	0.09212	0.09059
Within R <sup>2</sup>	0.02363	0.01353	0.01271

*Clustered (Article & Respondent) standard-errors in parentheses*

*Signif. Codes:* \*\*\*: 0.001, \*\*: 0.01, \*: 0.05

**Figure 4d****Table 40:** Results from OLS Regression Results Presented in Figure 4d (Upper Half of News Quality Returned - Ideologically Incongruent)

Dependent Variables: Model:	Categorical (Rated as True) (1)	4-Point Ordinal Scale (2)	7-Point Ordinal Scale (3)
<i>Variables</i>			
Treatment (Search)	0.0052 (0.0387)	-0.0397 (0.0745)	-0.1394 (0.1527)
Age	0.0006 (0.0010)	0.0038* (0.0016)	0.0079 (0.0051)
Ideological Congruence	0.2755*** (0.0379)	0.6271*** (0.0864)	1.204*** (0.1593)
Education	0.0009 (0.0166)	-0.0578 (0.0297)	-0.0628 (0.0555)
Gender (Female dummy)	-0.0166 (0.0295)	-0.1090 (0.0708)	-0.1501 (0.1174)
Income	-0.0190 (0.0198)	-0.0437 (0.0378)	-0.0462 (0.0651)
<i>Fixed-effects</i>			
Article	Yes	Yes	Yes
<i>Fit statistics</i>			
Observations	1,830	1,830	1,830
R <sup>2</sup>	0.12850	0.18711	0.17460
Within R <sup>2</sup>	0.07344	0.10561	0.10016

*Clustered (Article & Respondent) standard-errors in parentheses**Signif. Codes: \*\*\*: 0.001, \*\*: 0.01, \*: 0.05*

**Table 41:** Results from OLS Regression Results Presented in Figure 4d (Lower Half of News Quality Returned - Ideologically Incongruent)

Dependent Variables: Model:	Categorical (Rated as True) (1)	4-Point Ordinal Scale (2)	7-Point Ordinal Scale (3)
<i>Variables</i>			
Treatment (Search)	0.1455* (0.0577)	0.1578 (0.1135)	0.2004 (0.2453)
Age	-0.0007 (0.0010)	0.0025 (0.0022)	0.0043 (0.0051)
Ideological Congruence	0.3120*** (0.0395)	0.6576*** (0.0873)	1.231*** (0.1453)
Education	-0.0132 (0.0207)	-0.0673* (0.0288)	-0.1075 (0.0703)
Gender (Female dummy)	-0.0101 (0.0381)	-0.1209 (0.0986)	-0.1408 (0.1362)
Income	0.0212 (0.0240)	-0.0136 (0.0432)	0.0401 (0.0810)
<i>Fixed-effects</i>			
Article	Yes	Yes	Yes
<i>Fit statistics</i>			
Observations	1,830	1,830	1,830
R <sup>2</sup>	0.15619	0.18703	0.16955
Within R <sup>2</sup>	0.10816	0.11636	0.10626

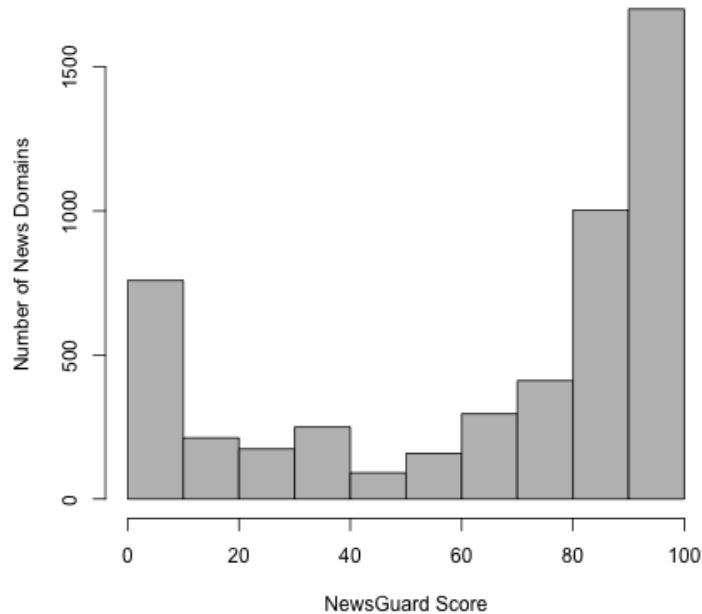
*Clustered (Article & Respondent) standard-errors in parentheses*

*Signif. Codes: \*\*\*: 0.001, \*\*: 0.01, \*: 0.05*

## C Descriptive Statistics for NewsGuard Ratings

A histogram of NewsGuard scores is listed below:

**Figure 1:** Histogram of NewsGuard Scores



## D Explanation of Sampling Technique

Given that internet surveys using opt-in panels are less accurate than probability sampling (**macinnis2018accuracy**), we must be cautious when experimental results using non-probability sampling from Qualtrics. In this paper, we only report results from analyses with that we can use non-probability sampling. Given that this is an opt-in survey we expect the behavior of these respondents who self-selected into the survey to differ from those drawn with known probability from a well-specified population. Therefore it is possible and likely this convenience sample is different in possibly unmeasured ways. Therefore, we must be cautious when making experimental inferences using an opt-in non-probability samples from Qualtrics, but previous work has found that about 90% of effects identified using a gold-standard probability sample are indistinguishable from effects identified by an opt-in Qualtrics panel (**zack2019can**). The behaviors of those who opt-in to and join multiple panels to earn incentives may put much less effort into tasks at hand and are more likely to guess in order to save time and maximize their payment. To test if this would affect our main results we ran a parallel survey and paid respondents additional payments for correct answers to our veracity question, but did not find much of any difference in their responses. Therefore we do not believe that a lack of effort explain the results we find. Recent work has also shown that experimental results from these non-probability samples are often comparable to those found in population samples (**mullinix2015generalizability**). Given this previous work, the results we present are not likely to be different if we had used probability-sampling.

## E Article Selection Process

### E.1 Mainstream Sources

#### Mainstream Liberal News Sites:

- Yahoo News
- The New York Times
- The Huffington Post
- NBC News
- Politico
- CNN
- The Washington Post
- The Guardian
- USA Today
- CBS News

#### Mainstream Conservative News Sites:<sup>1</sup>

- Fox News
- The New York Post
- Real Clear Politics
- IJR
- The Washington Times
- CNBC
- The Wall Street Journal
- Newsmax
- Townhall

---

<sup>1</sup>Note that the conservative news group contains only nine websites. The Drudge report did not have a Facebook page, and therefore could not be followed on CrowdTangle. Since there were only ten conservative leaning websites in the top 100 list, we used the only nine that had Facebook pages.

## E.2 Low-Quality Sources

**Table 42:** Low-Quality Conservative Sources

Number	Domain
1	dailywire.com
2	dailycaller.com
3	express.co.uk
4	redstatewatcher.com
5	thepoliticalinsider.com
6	thefederalistpapers.org
7	rightwingnews.com
8	madworldnews.com
9	yournewswire.com
10	uschronicle.com
11	louderwithcrowder.com
12	100percentfedup.com
13	angrypatriotmovement.com
14	ilovemyfreedom.org
15	clashdaily.com
16	joeforamerica.com
17	conservativedailypost.com
18	americasfreedomfighters.com
19	babylonbee.com
20	teaparty.org
21	judicialwatch.org
22	conservativepost.com
23	thegatewaypundit.com
24	infowars.com
25	eaglerising.com
26	en-volve.com
27	wnd.com
28	bb4sp.com
29	concealednation.org
30	theconservativetreehouse.com
31	dcclothesline.com
32	conservativefiringline.com
33	frontpagemag.com
34	endtimeheadlines.org
35	downtrend.com
36	nowtheendbegins.com
37	wearechange.org
38	neonnettle.com
39	powderedwigssociety.com
40	americanjournalreview.com
41	thehornnews.com
42	barenakedislam.com
43	rickwells.us

**Table 43:** Low-Quality Conservative Sources (Continued)

Number	Domain
44	ahtribune.com
45	ipatriot.com
46	afa.net
47	eutimes.net
48	thepeoplescube.com
49	stateofthenation2012.com
50	fellowshipoftheminds.com
51	trunews.com
52	freerepublic.com
53	mediamass.net
54	endoftheamerican dream.com
55	2ndvote.com
56	iotwreport.com
57	puppetstringnews.com
58	dailyheadlines.net
59	thenationalpatriot.com
60	rogue-nation3.com
61	veteransfordonaldtrump.com

**Table 44:** Low-Quality Liberal Sources

Number	Domain
1	occupydemocrats.com
2	bipartisanreport.com
3	palmerreport.com
4	crooksandliars.com
5	democraticunderground.com
6	halfwaypost.com

**Table 45:** Low-Quality Unclear Sources

Number	Domain
1	ijr.com
2	anonhq.com
3	inquisitr.com
4	worldtruth.tv
5	collective-evolution.com
6	tribunist.com
7	naturalnews.com
8	worldnewsdailyreport.com
9	trueactivist.com
10	firstpost.com
11	zerohedge.com
12	disclose.tv
13	dailysnark.com
14	postcard.news
15	higherperspectives.com
16	dailypost.ng
17	davidwolfe.com
18	noticias-frescas.com
19	healthnutnews.com
20	beforeitsnews.com
21	truthuncensored.net
22	awarenessact.com
23	duffelblog.com
24	nation.com.pk
25	actualidadpanamericana.com
26	themindunleashed.com
27	huzlers.com
28	dennismichaellynch.com
29	rearfront.com
30	actualite.co
31	activistpost.com
32	newzmagazine.com
33	12minutos.com
34	dailyoccupation.com
35	newsrescue.com
36	the-postillon.com
37	burrardstreetjournal.com
38	empirenews.net
39	medicalkidnap.com
40	friendsofsyria.wordpress.com
41	realnewsrightnow.com
42	adobochronicles.com
43	anonews.co

**Table 46:** Low-Quality Unclear Sources (Continued)

Number	Domain
44	thenationalmarijuananews.com
45	en.mediamass.net
46	daily-sun.com
47	whatdoesitmean.com
48	therooster.com
49	thelastamericanvagabond.com
50	stillnessinthestorm.com
51	independentminute.com
52	newsbiscuit.com
53	attitude.co.uk
54	onlysimchas.com
55	dailyfeed.news
56	newsjustforyou1.blogspot.com
57	thebreakingnews.co
58	usanewtoday.com

## **F Attention Checks**

**(1) Was it possible to access the article using the link provided?**

- (A) Yes (Correct)
- (B) No (Incorrect)

**(2) Is the full article blocked by some paywall or require a subscription (the website asks you to pay for article, or it requires a subscription to access the article and you do not have one)?**

- (A) Yes (Incorrect)
- (B) No (Correct)

## G Social Media Presence of Articles Selected in Studies 1, 2, and 3

**Table 47:** Summary Statistics For Twitter Posts (within 48 hours of publication) Per News Stream

News Stream	Mean	Median	Max	Min
Conservative Low-Quality	90.065	14	1577	0
Liberal Low-Quality	222.97	52	2687	0
Unclear Low-Quality	1570.23	14	42696	0
Conservative Mainstream	999.48	197	5270	0
Liberal Mainstream	1270.19	1198	6702	0
All Low-Quality	627.75	21	42696	0
All Mainstream	1134.84	308	6702	0
All Articles	830.59	52	42696	0

**Table 48:** Summary Statistics For Facebook Shares Per News Stream

News Stream	Mean	Median	Max	Min
Conservative Low-Quality	587.52	116	5421	0
Liberal Low-Quality	917.39	265	9050	16
Unclear Low-Quality	9222.76	135	147127	0
Conservative Mainstream	26200.48	10643	190157	0
Liberal Mainstream	25808.00	16372	117365	195
All Low-Quality	3186.45	205	147127	0
All Mainstream	25990.71	13711	190157	0
All Articles	12308.15	1109	190157	0

## H Additional Instructions to Search Online for Information

We now ask you to research this central claim by finding evidence supporting or contradicting it. Please use any internet based source you trust. By evidence, we mean a statement, photo, video, audio, or statistic relevant to the central claim. This evidence should be reported by a different source than the one whose content you are investigating. This evidence can either support the central claim or contradict it.

Guidance for the finding evidence for or against the central claim you've identified:

- (1) By evidence, we mean an article, statement, photo, video, audio, or statistic relevant to the central claim. This evidence should be reported by some other source than the author of the article you are investigating. This evidence can either support the central claim or go against it.
- (2) To evaluate the central claim, you will be asked to search for evidence about the claim and to provide some information about the evidence you found (the steps of this process are described in detail below).
- (3) We ask that you use the highest quality pieces of evidence to evaluate the central claim in your search. If you cannot find evidence about the claim from a source that you trust, you should try to find the most relevant evidence about the claim you can find from any source, even one you don't trust. In the task, you will be asked to note whether you do not trust the evidence provided by the original source.
- (4) DO NOT directly copy and paste the headline or title of the article you are evaluating into the search engine as your search terms.
- (5) DO select key terms related to the central claim to enter into the search engine as your search terms.
- (6) DO try using synonyms for different key terms if you're having trouble finding evidence from sources you trust.
- (7) To locate relevant evidence, try to also include in your search terms the names of key people, locations, actions and events described in the article, when possible.
- (8) For claims about current events, you should also include search terms related to when the event occurred or the link you are evaluating was published (e.g., the month and/or year) to help locate relevant evidence.
- (9) DO NOT use extreme language. For example, if an article uses extreme language in the way it states its claim, searching using those same extreme terms may make you more likely to only encounter sources that agree with the article you are evaluating (vs more diverse perspectives or reporting on the claim). Therefore, when evaluating an article that uses extreme language, you should try searching using more neutral terms.

## I Data Measurement – Studies 1–4

1. **Ideology of respondent:** We ask individuals to self-identify their ideology using the following question. The score they receive on the ideological scale is in parentheses next to the answer they give.

Where would you place yourself on this scale?

- (A) Extremely Conservative (3)
- (B) Conservative (2)
- (C) Slightly Conservative (1)
- (D) Moderate (0)
- (E) Slightly Liberal (-1)
- (F) Liberal (-2)
- (G) Extremely Liberal (-3)
- (H) Haven't Thought Much About it (NA)

Variable names used later in models:  $Con\_Ideology\_Score_i$  is assigned the value that corresponds to the answer they choose.

2. **Digital Literacy:** Digital literacy is measured by asking for respondent's familiarity with the following terms: Phishing ; Hashtag ; Preference Setting ; Wiki ; PDF ; Malware ; RSS ; BCC (on email) ; Tablet ; Tagging. We ask them for their familiarity on a five point scale (1 representing no understanding and 5 representing full understanding). The digital literacy score for each respondent is the average of the scores across these categories.

$DL\_Score_i$  is the digital literacy score a respondent receives.

**3. Government Trust:** Trust in institutions is measured using four questions from the ANES survey that measure trust. For each question a respondent is assigned a value between 0 and 1 dependent on their answer. The values they are assigned for each answer are in parentheses.

**How much of the time do you think you can trust each of the following groups to do what is right?**

**Groups:** “The federal government in Washington D.C.” ; “Law enforcement” ; “The media” ; “People in general”

**Possible Answers:** “Almost never” (0) ; “Some of the time” (0.33) ; “Most of the time” (0.67) ; “Almost Always” (1.0)

**How much do public officials care what people like you think?**

- (A) None at all (0)
- (B) A little (0.25)
- (C) A moderate amount (0.50)
- (D) A lot (0.75)
- (E) A great deal (1.0)

**Do you think the government today has:**

- (A) Too little power (0)
- (B) About the right amount of power (0.5)
- (C) Too much power. (1.0)

**How much can people like you affect what the government does?**

- (A) None at all (0)
- (B) A little (0.25)
- (C) A moderate amount (0.50)
- (D) A lot (0.75)
- (E) A great deal (1.0)

*Trust\_Score<sub>i</sub>* is the average value each respondent received.

**4. Political Knowledge:** Measured using four questions from the ANES survey that are re-worded to make them contemporary. Each respondent answers this set of questions once. The  $PK\_Score_i$  variable starts at 0 and one unit is added to the variable for each correct answer (A value of one is assigned to this variable if the respondent has one correct answer ; A value of two is assigned to this variable if the respondent has two correct answers, etc.). The correct answers have "(Correct)" next to them

**Which party currently has the most members in the U.S. House of Representatives in Washington, D.C.?**

- (A) Republican Party
- (B) Democratic Party (Correct)

**Who is the current Speaker of the U.S. House of Representatives?**

- (A) Nancy Pelosi (Correct)
- (B) Mitch McConnell
- (C) Chuck Schumer
- (D) Steve Scalise

**What job or political office is now held by Boris Johnson?**

- (A) Prime Minister of Australia
- (B) Prime Minister of Canada
- (C) Prime Minister of the United Kingdom (Correct)
- (D) Secretary-General of the United Nations

**Who is the current Secretary of State?**

- (A) Rex Tillerson
- (B) John Sullivan
- (C) Jim Mattis
- (D) Michael Pompeo (Correct)

**5. Familiarity with an Article:** For each article we ask the respondent the following question.

**Have you seen or heard of this story before?**

- (A) Yes
- (B) No
- (C) Not Sure

If a respondent answers "Yes", they are familiar with the story and the variable  $Familiarity\_Dummy_{ij}$  is assigned a value of 1. Otherwise it is assigned a zero.

6. **Likert Truth Scale:** To determine how confident a respondent is of their evaluation we ask respondents the following question.

**Now that you have evaluated the article, we are interested in the strength of your opinion.  
Please rank the article on the following scale:**

- (A) 1 - Definitely NOT TRUE
- (B) 2
- (C) 3
- (D) 4
- (B) 5
- (C) 6
- (D) 7 - Definitely TRUE

The variable,  $likert_i$ , is assigned the value of the answer chosen by the respondent (1 through 7). The same question is assigned to a group of professional fact-checkers. We plan to compare the mean choice of the fact-checkers to the individual truth-likert value ( $\mu_f$ ) to determine the absolute difference between the average fact-checker value on the likert scale and the respondent's chosen value on the likert scale ( $|likert_i - \mu_f|$ ):

7. **Asked to research information by survey:** If the respondent is apart of the treatment group and is asked to search for information to evaluate the article the variable *Treatment\_Search* is assigned a one, otherwise it is assigned a zero.
8. **Cognitive Reflection:** Cognitive Reflection is measured using four questions from a cognitive reflection test used by **thomson2016investigating**. Each respondent answers this set of questions once. The variable starts at 0 and one unit is added to the variable for each correct answer (A value of one is assigned to this variable if the respondent has one correct answer ; A value of two is assigned to this variable if the respondent has two correct answers, etc.).
9. **Education:** We ask individuals to self-identify their highest degree earned and attribute the following numeric value to each answer: No High School education (0) ; High School Education (1) ; Associates Degree (2) ; Bachelors Degree (3) ; Masters Degree (4) ; Doctorate Degree (5)
10. **Income:** We ask individuals to self-identify their income from last year and attribute the following numeric value to each answer: \$0 - \$50,000 (0) ; \$50,000 - \$100,000 (1) ; \$100,000 - \$150,000 (2) ; \$150,000 plus (3)
11. **Gender (Female Dummy):** What is your gender? Male (0) ; Female (1) ; Other (0)

## J Different Data Measurement – Study 5

1. **Digital Literacy:** Digital literacy is measured using the following two grid questions.

The first grid question asks for respondent's familiarity with the following terms on a five point scale (1 representing no understanding and 5 representing full understanding):

- (1) Phishing
- (2) JPG
- (3) Cache
- (4) Malware
- (5) RSS
- (6) Hashtag

The second grid question asks respondents' agreement with the following statements on a scale of -4 = Strongly Disagree to 4 = Strongly Agree:

- (1) I prefer to ask friends how to use any new technological gadget instead of trying to figure it out myself.
- (2) I feel like information technology is a part of my daily life.
- (3) Using information technology makes it easier to do my work.
- (4) I often have trouble finding things that I've saved on my computer.

Note: The value for one and four are reverse coded.

By summing all of the values we can create a digital literacy score that is assigned to the variable:  $DL\_Score_i$  for each respondent. We take the inverse to determine if the effect size increased with lower levels of digital literacy.

$DL\_Score_i$  is the digital literacy score a respondent receives.

**2. Political Knowledge:** Measured using four questions from the ANES survey that are re-worded to make them contemporary. Each respondent answers this set of questions once. The  $PK\_Score_i$  variable starts at 0 and one unit is added to the variable for each correct answer (A value of one is assigned to this variable if the respondent has one correct answer ; A value of two is assigned to this variable if the respondent has two correct answers, etc.). The correct answers have "(Correct)" next to them

**Which party currently has the most members in the U.S. House of Representatives in Washington, D.C.?**

- (A) Republican Party
- (B) Democratic Party (Correct)

**Who is the current Speaker of the U.S. House of Representatives?**

- (A) Nancy Pelosi (Correct)
- (B) Mitch McConnell
- (C) Chuck Schumer
- (D) Steve Scalise

**What job or political office is now held by Boris Johnson?**

- (A) Prime Minister of Australia
- (B) Prime Minister of Canada
- (C) Prime Minister of the United Kingdom (Correct)
- (D) Secretary-General of the United Nations

**Who is the current Secretary of State?**

- (A) Rex Tillerson
- (B) John Sullivan
- (C) Antony Blinken (Correct)
- (D) Michael Pompeo

3. **Likert Truth Scale (4-Point Ordinal Scale):** We asked respondents to evaluate the accuracy of a number of headlines on the following 4-point scale:
- (A) Not at all accurate (1) (B) Not very accurate (2) (C) Somewhat accurate (3) (D) Very accurate (4)

## K Fact-Checker Agreement

**Table 49:** Inter-Rater Reliability Statistics for Fact-Checker Evaluations of Articles in Studies 1–5

Number of Articles Evaluated	Percentage of Articles with Unanimous Agreement	Fleiss Kappa
265	44.62	0.42

## L Ideological Perspectives of Articles (Studies 1–4)

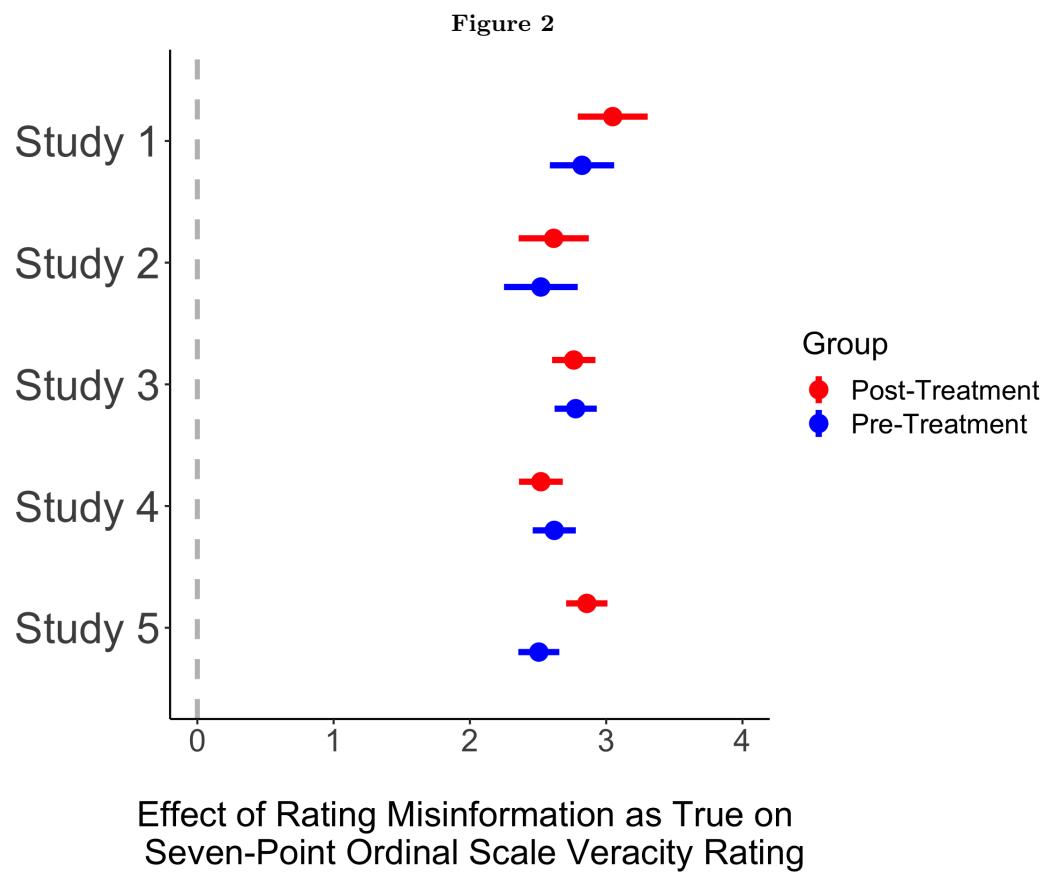
In Studies 1–4 we determine the partisan lean of the articles by asking four independent coders to determine the ideological perspective of the article (conservative, liberal, neutral and unclear). The partisan lean was determined by taking the modal evaluation of the coders. When there was no modal evaluation, or there was a tie, the evaluation of a graduate student was used as the tiebreaker. Coders were asked to use only the headline and content of the article to make their determination. In Study 5 we just asked our fact-checkers to rate them by their ideological perspective and took the modal classification. The following guidance was given to raters for selecting the partisan perspective:

Articles that are clearly written from a partisan perspective should be classified according to whichever direction that is, even if the article is not completely supportive of the political party that shares that ideology. Articles that are clearly advocating for one side of the political spectrum should be classified as leaning that way. Importantly, just because partisans may feel differently about an article, does not mean the article does not have a neutral perspective. For example, “Trump Impeached” may induce very different reactions among liberals and conservatives, but the article could still be neutral so long as it reports on this event objectively. Conversely, “Trump is a Crook” likely has a liberal perspective. Importantly, neutral articles are those where the perspective is balanced and appears to show no bias. Unclear articles are those where the perspective does not appear to be any of the three above or you are unable to make a clear determination.

**Table 50:** Inter-Rater Reliability Statistics for Ideological Perspective Ratings of Articles in Studies 1–5

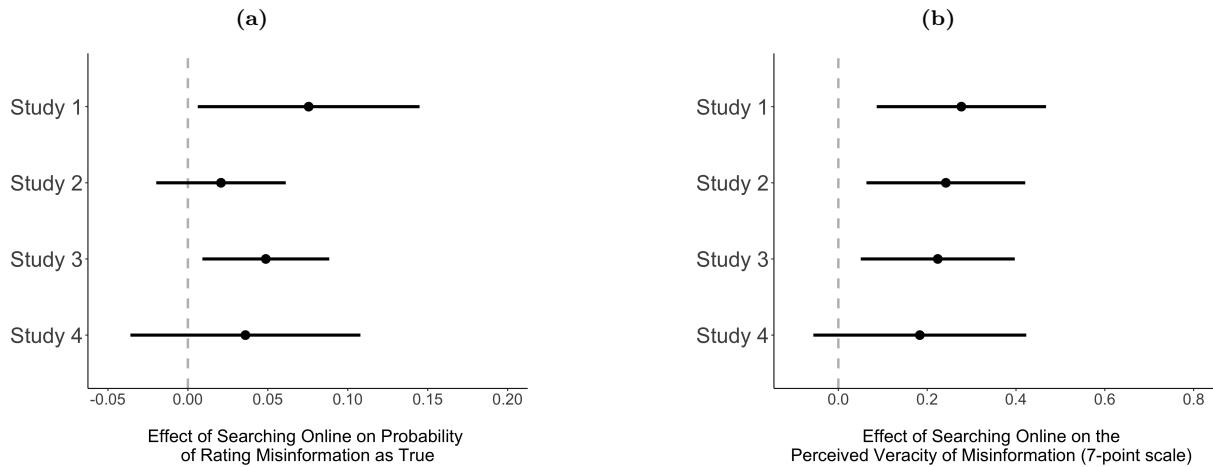
Number of Articles	Unanimous Agreement	Fleiss Kappa
265.00	53.21	0.60

## M Predicting Seven-Point Ordinal Scale with Categorical Rating

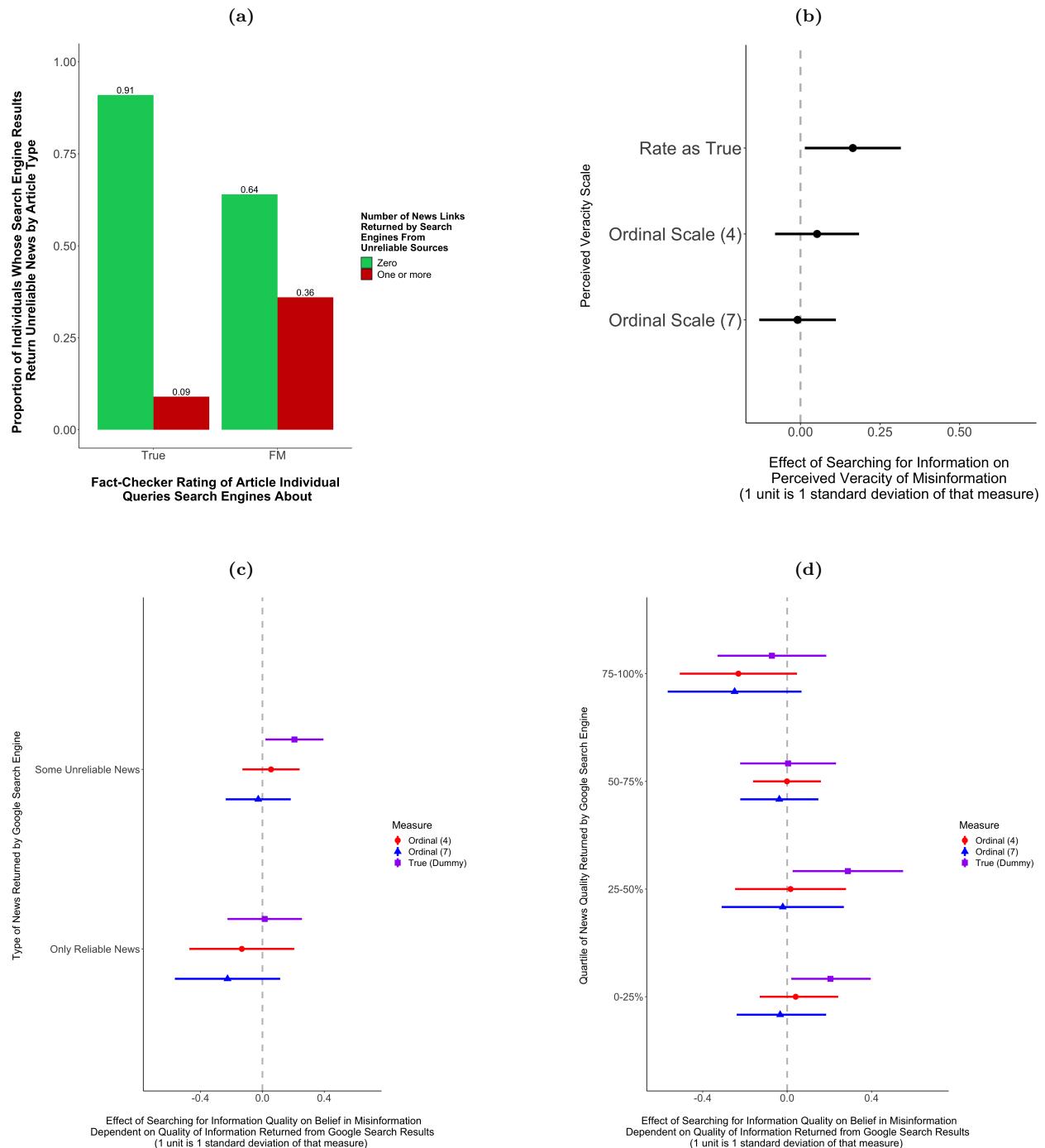


## N Figures Only Using Robust Modal Classification

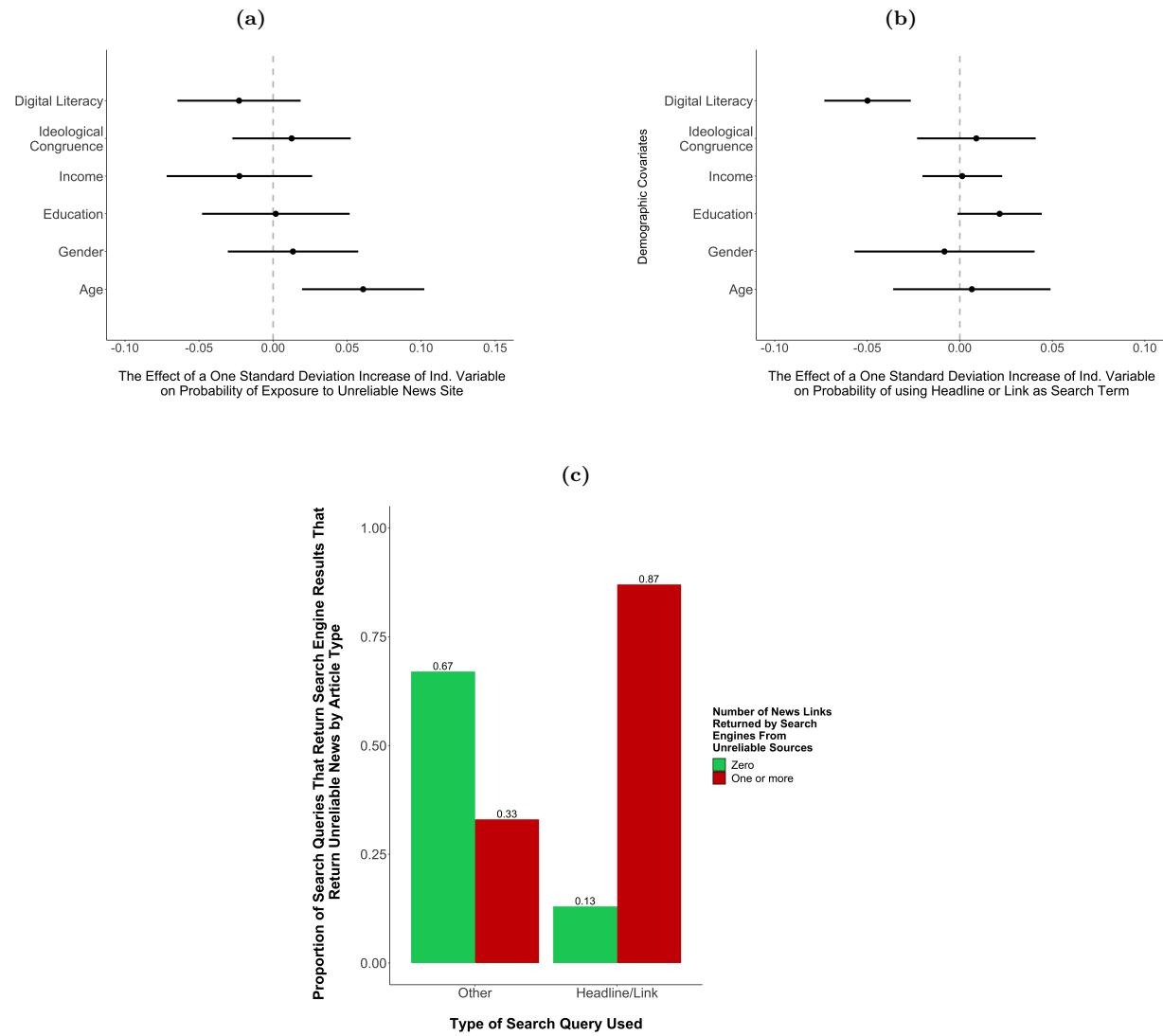
**Figure 3: The effect of searching for information on belief in misinformation across Study 1 through 4.** Panel A and B presents effect sizes and 95 percent confidence intervals for linear regression models testing the effect of searching for information during Study 1, 2, 3, and 4 respectively. Panel A presents the effect of searching online on rating misinformation as true. Panel B presents the effect of searching online on an ordinal scale of veracity.



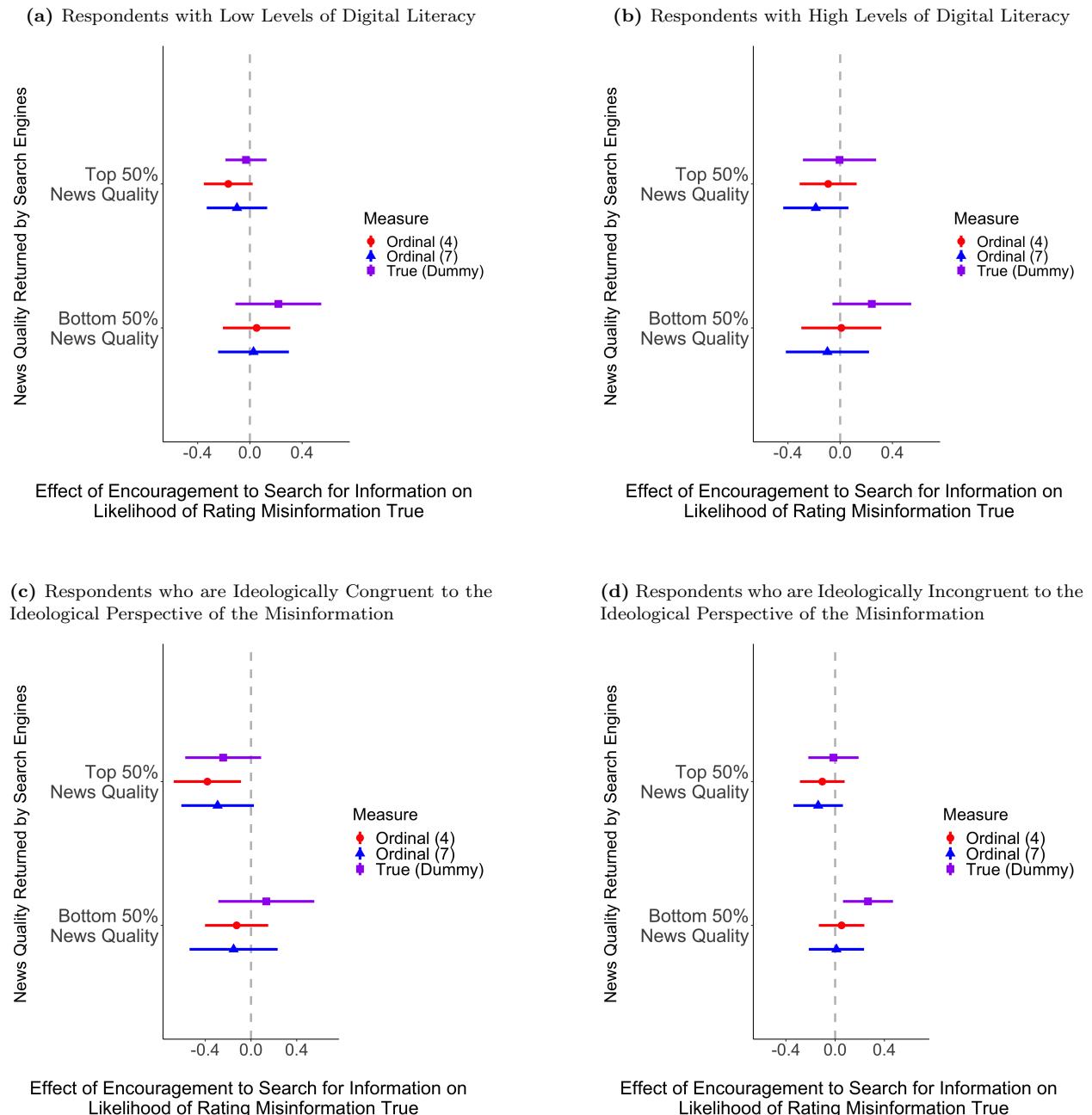
**Figure 4: How Does News Returned in Google Search Results affect belief in fake news? (Study 5).** Panel A presents the distribution of the proportion of unreliable news sites returned in Google search engine results about true and false/misleading news articles. Panel B presents the effect sizes and 95 percent confidence intervals for linear regression models testing the effect of searching for information during Study 5 respectively as a unit of the standard deviation of the dependent variable. Subset by the quality of news returned in their search engine results, Panel C and D present these same marginal effects, but subset the treatment group by the quality of news respondents are exposed to when they search online.



**Figure 5: How Does News Returned in Google Search Results affect belief in misinformation? (Study 5).** Panel A presents the predicted exposure to unreliable news sources when searching for information about false/misleading news articles. Panel B presents the probability of using the headline/lede or unique URL when searching for information about false/misleading news articles. Panel C presents the proportion of individuals who when searching online about a false/misleading article are exposed to different levels of unreliable news sites by the Google search engine. We present these proportions for those who use the headline of the article or the link of the article and those who use another query.



**Figure 6: Who is Most Susceptible to Unreliable Information when Searching for More Information? (Study 5).** Panel A through D presents the effect sizes and 95 percent confidence intervals for linear regression models testing the effect of searching for information during Study 5 respectively as a unit of the standard deviation of the dependent variable. Marginal effect Sizes are subset by the quality of news returned in their search engine results. Panel A through D present the effect of being encouraged to search for information among those in the top half of digital literacy (A), those in the bottom half of digital literacy (B), those ideologically congruent with the ideological perspective of misinformation (C), and those ideologically incongruent with the ideological perspective of misinformation (D).



## O Figures 1a and 1b using pre-registered model

**Figure 7: The effect of searching for information on belief in misinformation across Study 1 through 4.** Panels a and b present effect sizes and 95 percent confidence intervals for linear regression models testing the effect of searching for information during Study 1, 2, 3, and 4 respectively. Panel a presents the effect of searching online on rating misinformation as true. Panel b presents the effect of searching online on a 7-point ordinal scale of veracity.

