Partisanship and older Americans' engagement with dubious political news

[1], Benjamin Lyons[1], Jacob M. Montgomery[2], and Jason Reifler[3]

[1]Department of Communication, University of Utah
[2]Department of Political Science, Washington University in St. Louis
[3]Department of Politics, University of Exeter

January 29, 2024

Abstract

Studies based on digital trace data show that older Americans visit and share dubious news sources far more often than younger cohorts, tendencies often attributed to lower levels of digital literacy. At the same time, survey experiments show that older Americans are no worse, if not better, at discerning between false and accurate news. If older Americans can identify misleading news content equally well, why are they still *more* likely to engage with it in observational settings? In this article, we combine survey measures and digital trace data for three nationally representative samples (N=9,944) to argue that the existing literature over-emphasizes the importance of factors like digital literacy relative to standard political variables such as political interest and partisanship, factors known to increase across the lifespan. Calcified partisanship in particular makes older Americans vulnerable to hyperpartisan news — which is highly slanted but not verified as explicitly false. High rates of engagement with this category of content, which has been examined in survey studies of older citizens less regularly in the literature, may partially explain the high rates of engagement with dubious news domains in behavioral trace data. In all, our findings have important implications for how we understand — and might intervene to reduce — high engagement among this cohort with dubious news.

Manuscript accepted to *Public Opinion Quarterly*

Concerns about the public's susceptibility to untrustworthy, false, or otherwise dubious news[1] online has motivated an explosion of research focusing on vulnerable subgroups, especially older news consumers (Loos and Nijenhuis 2020; Allen et al. 2020). Compared to younger users, older Americans shared links to and visited such sites more often in 2016 and 2020 (Guess, Nyhan, and Reifler 2020; Guess et al. 2021; Grinberg et al. 2019; Guess, Nagler, and Tucker 2019a). Why are older news consumers especially vulnerable to dubious content? Brashier and Schacter (2020) discuss potential culprits that include cognitive declines, social changes, and digital illiteracy. Poor digital literacy among older news consumers, in particular, has attracted attention of academics (Moore and Hancock 2020; Lee 2018; Moore and Hancock 2022), non-profits (e.g., MediaWise for Seniors from Poynter), and the press e.g., (Span 2020).

Yet, the evidence supporting these skills-based explanations for age differences remains mixed. Lab studies, for instance, suggest that older adults are *no* more likely than younger counterparts to perceive false news to be accurate (Pehlivanoglu et al. 2022). Further, re-analysis (Brashier and Schacter 2020) of multiple survey studies in the US (Allcott and Gentzkow 2017; Pennycook and Rand 2018) show that the ability to distinguish legitimate and false headlines *increases* with age, a finding recently replicated cross-nationally (Peren Arin, Mazrekaj, and Thum 2023; Arechar et al. 2023) (see also exploratory analyses in Calvillo et al. 2020; Badrinathan 2020). In other words, the problem likely is *not* that older cohorts are simply less able to identify false news content.

There are multiple possible explanations for conflicting findings over age-related differences between these different types of studies, ranging from the narrowly methodological to the theoretical. These literatures tend to rely on different sampling strategies and we are aware of no previous research that uses both approaches – digital trace data and survey ratings tasks to assess misinformation discernment – on a single representative sample. Some research even shows a disconnect

1. We use the specific terms hyperpartisan news and false news when referring to our headline stimuli (see Methods). We define false news narrowly as content that has been fact-checked as false. We use the more inclusive word "dubious" to refer to observed news exposure that is of questionable provenance (i.e., from low-quality news domains that we examine in our trace data) but not necessarily fact-checked as false. In our background and discussion sections, we sometimes refer to misinformation when making a general point drawn from the literature. We use "fake" news only in quotes when prior work employed the term.

between news content that is believed and content that is engaged with (read or share) (Pennycook and Rand 2021; Sirlin et al. 2021), suggesting different antecedents for each.

More fundamentally, however, there are many variables that may correlate with both age and engagement with low-quality news content; it is not clear that digital literacy is the most likely culprit from among these factors. For instance, older Americans are also more politically engaged and consume more media overall (Glenn and Grimes 1968; Moretto et al. 2022; Sears and Funk 1999; Hobbs 2019). Most importantly, older Americans have more calcified partisan identities and report higher levels of affective polarization (Phillips 2022), factors that may affect what news older Americans engage with. Perhaps it is the concentration of these factors in older cohorts that is driving engagement?

In this article, we use three nationally representative surveys of Americans with nearly 10,000 respondents, linked directly to trace data of online behavior. These data allow us to examine real-world online behavior and performance on survey-based news discernment tasks *among the same set of respondents*. We find that older Americans are indeed more likely to engage with dubious news content; yet older Americans are no more likely to be deceived in news discernment tasks. Moreover, there is no evidence that digital literacy training is more effective in this cohort. Both results are inconsistent with the idea that the inability to correctly identify false news content is primarily driving engagement with dubious sources, although it may still play a role.

Instead, we argue that a key underlying factor in older Americans' disproportionate engagement with dubious news online is increasingly hardened partisanship (Phillips 2022). Older Americans in our sample exhibit significantly higher levels of affective polarization and congeniality bias towards stories consistent with their partisan leanings. In particular, this group is more likely to believe congenial hyperpartisan news — which is highly slanted but not rated as explicitly false. Since many low-quality web domains examined in trace data studies mix false and hyperpartisan news content, our results suggest that it may be a preference for content that re-enforces partisan identities rather than illiteracy that is responsible for the high levels of engagement we observe in older Americans.

Our findings call into question existing common wisdom. Our findings suggest that researchers

should take more seriously the role of hyperpartisan — rather than explicitly false — news content in digital trace data (Ross, Rand, and Pennycook 2021) when considering the nature of news diets and sources of misperceptions. Further, interventions drawn from research on affective polarization (Voelkel et al. 2023) may be important in addressing the disproportionate engagement with dubious content in older cohorts.

Vulnerability to misinformation across the lifespan

It is first important to justify a focus on older adults' online behavior, given their disproportionate interest in traditional media (Muise et al. 2022). Although older adults watch far more television news than younger audiences do (Muise et al. 2022), they also engage in significant online news media use. In fact, recent consumption data shows older adults attend to even more online news than younger audiences do (Allen et al. 2020). Importantly, most news, and partisan news in particular, that is shared online comes from older adults (Moretto et al. 2022). As such, their digital behavior is important to understand.

Several influential studies also show that older adults are more likely to share and consume misinformation online, relative to younger users (Grinberg et al. 2019; Guess, Nagler, and Tucker 2019a; Allen et al. 2020). For instance, Guess, Nagler, and Tucker 2019a find that individuals over the age of 65 shared false stories at more than twice the rate as the next youngest cohort. The authors stated that "no other demographic characteristic we examined — gender, income, education — had any consistent relationship with the likelihood of sharing fake news" (Guess, Nagler, and Tucker 2019b). Likewise, Alex Stamos, former chief security officer at Facebook, recently stated, "[T]here's good social science evidence that a lot of this is a boomer problem. Both on the left and the right, a lot of this stuff is being spread by folks who are our parents' generation" (Kafka 2023).

Identifying differences across age cohorts is one thing, but correctly identifying the mechanisms at play is another. Scholars have forwarded a number of explanations ranging from information environment factors to declining cognitive abilities associated with aging (Dodson, Powers, and

Lytell 2015; Brashier and Schacter 2020).[2] Perhaps the most prominent account focuses on lower levels of digital literacy (Moore and Hancock 2020; Guess, Nagler, and Tucker 2019a; Moore and Hancock 2022). It is argued that older adults, as 'nonnatives', are simply less familiar with the digital media ecosystem (Hargittai and Dobransky 2017; Jo, Yang, and Yan 2022).

As digital literacy training is important in addressing misinformation online, it is natural to think that sub-populations especially vulnerable to this content would especially benefit from this type of intervention. Consequently, efforts have focused on training older citizens (Span 2020; Gringlas 2020) through the creation of training programs specifically tailored to educate older adults about risky information online. Moore and Hancock 2022, for instance, evaluate a novel digital literacy intervention for older adults motivated by the fact that "[o]lder adults are especially susceptible to fake news online, possibly because they are less digitally literate compared to younger individuals." However, as noted, studies have found that older adults are no worse at identifying misleading content (Brashier and Schacter 2020; Allcott and Gentzkow 2017). Indeed, discernment abilities may *increase* with age (Badrinathan 2020; Calvillo et al. 2020; Peren Arin, Mazrekaj, and Thum 2023).

Resolving these conflicting findings is challenging. While it is relatively easy to establish a correlational link between age and engagement with dubious news, establishing a clear causal chain for *why* there are age differences is more difficult. Existing work posits both cohort and life-course explanations. Even focusing just on life-course explanations, there are many factors that change across the lifespan (e.g., income, education, life experience, personality (Boyce, Wood, and Powdthavee 2013)). Yet, we are aware of no existing study that has sought to arbitrate which factors are most central (but see an overview in Brashier and Schacter 2020).

In summary, numerous empirical studies (and our own results below) show that older adults are, indeed, significantly more likely to engage in low quality news sites. But *why* this is the case remains unsettled. Moreover, one of the most widely mentioned explanations, poor digital literacy in older cohorts, is inconsistent with laboratory studies of discernment.

2. We address a cognitive account of age disparities in more detail in Lyons 2023.

Age, partisanship, and engagement with dubious online content

While digital literacy may be *one* determinant of the online behavior of older Americans, it is a mistake to completely put aside core concepts understood to shape political behavior. Previous research demonstrates that multiple factors change across the lifespan, several of which are well-established determinants of political activities. In particular, older Americans tend to be stronger partisans and exhibit more affective polarization, differences that predate the Internet age.

To begin, due to increasing interest in news and politics (Moretto et al. 2022; Glenn and Grimes 1968), older Americans consume far more news overall. This greater political interest also coincides with increasingly established partisan identities and concurrent increases in affective polarization (Phillips 2022). Thus, older news consumers may exhibit greater directional motivations when encountering dubious news and may therefore share this content on social media regardless of perceived accuracy (Osmundsen et al. 2021; Pennycook and Rand 2021; Sirlin et al. 2021). Such directional motives may reflect social utility (e.g., sharing to strengthen relationships) (Duffy, Tandoc, and Ling 2020). As attitudes crystallize, partisan identity becomes more entrenched, and interest in politics increases across adulthood (Hobbs 2019; Converse 1969; Glenn and Grimes 1968; Sears and Funk 1999; Phillips 2022), derogation of the out-party (Osmundsen et al. 2021) may be an especially salient motive for older consumers. Consistent with this account is that polarization has increased the *most* among older Americans over the last three decades despite this demographic being the least likely to be engaged online (Boxell, Gentzkow, and Shapiro 2017).

Partisanship has long been understood as a foundational factor in determining political behaviors. Specifically, research consistently identifies partisanship or polarization as a driving force behind the consumption and spread of misinformation (Rao, Morstatter, and Lerman 2022; Humprecht 2019; Pretus et al. 2022). Indeed, some recent work argues that partisan polarization is *the* primary factor behind the sharing of political misinformation (Osmundsen et al. 2021).

It is worth noting nuance as well. If affective polarization increases with age, driven by increased interest in and consumption of political media (Kim, Broussard, and Barnidge 2020; Suk et al. 2022;

Garrett, Long, and Jeong 2019), it may in turn then be associated with increases in both political knowledge (Kim, Broussard, and Barnidge 2020; Suk et al. 2022) and misperceptions (Garrett, Long, and Jeong 2019; Jenke 2023), which may be two sides of the same coin for the politically engaged (Allcott et al. 2020). In other words, affect-infused political interest can drive surveillance knowledge, but also can make individuals more vulnerable to (congenially) biased framing of real events. As a result, when considering evaluations of news headlines, we would expect that age could be linked to *recognition* of false content, but also *endorsement* of congenial hyperpartisan content.

Research Questions and Study Design

Is engagement with false news among older Americans mostly a function of greater partisanship that comes with age, or primarily the result of some other age-related factor like digital literacy? What empirical implications would help arbitrate between these competing accounts?

We begin by replicating the seemingly conflicting findings that older American adults are more likely to consume false news but are no worse at recognizing it. To our knowledge, trace data and discernment data have not previously been collected for the same sample. Instead, studies of online behavior typically rely on non-representative (albeit large) administrative datasets (Grinberg et al. 2019). Discernment studies examining age differences (such as those reanalyzed in Brashier and Schacter 2020) have tended to rely on participants recruited from convenience samples such as Amazon's mechanical Turk or SurveyMonkey (Pennycook and Rand 2018; Allcott and Gentzkow 2017). By replicating both within one dataset, we remove concerns that conflicting findings may merely be a statistical artifact of different sampling strategies.

Research Question 1 (news consumption):
(RQ1) Are older Americans more likely to engage with dubious news than younger cohorts?

Research Question 2 (news discernment):
(RQ2a) Are older Americans more or less capable than younger cohorts of discerning

true and false news headlines?
(RQ2b) Do older Americans perceive false news headlines to be more or less accurate relative to younger cohorts?[3]

Next, if the primary mechanism explaining older American's higher rates of engagement with false news is lower digital literacy, it seems reasonable to expect that digital literacy training should have a *larger* beneficial effect among respondents in this group.[4] We explore whether a digital literacy intervention (Guess et al. 2020a) — among the most effective at reducing vulnerability to misinformation (Offer-Westort, Rosenzweig, and Athey 2022) — is more effective among older respondents.[5]

Research Question 3 (digital literacy intervention):
(RQ3) Are digital literacy interventions especially effective among older Americans?

The above research questions primarily aim to highlight the limitations — or at least incompleteness — of popular accounts of higher engagement among older American with false news. However, we also use our data to explore whether partisanship, which increases with age, can help account for this finding.

Research Question 4 (calcified partisanship):
(RQ4a) Do older Americans have stronger partisan attachments?
(RQ4b) Do older Americans exhibit higher levels of affective polarization?
(RQ4c) Do older Americans demonstrate higher levels of congeniality bias in evaluating news content?

Finally, if older Americans demonstrate higher levels of congeniality bias, it is reasonable that they may also be more likely to rate hyperpartisan news as accurate. Hyperpartisan domains can

3. This specific test was pre-registered in our initial study (`https://osf.io/94x5b`). The remaining analyses of age differences are exploratory.

4. A more traditional approach to arbitrating between competing claims might be to include some measure of digital literacy (Guess and Munger 2023) as a covariate. Unfortunately, our surveys were originally designed for a different question and did not include a measure of digital literacy (most of which were developed after our survey was fielded anyways). In addition, including both variables in the same specification would induce post-treatment bias if digital literacy is itself a function of age (Montgomery, Nyhan, and Torres 2018). Instead, we focus on where these competing theories generate different empirical expectations.

5. Our expectation — that training should not have larger effects across age, and thus not support a skills-based account — is consistent with recent experimental work showing that an intervention focused on helping respondents identify "troll" accounts worked no better among older adults (Lees et al. 2023).

often be difficult edge cases of what constitutes "fake news." Yet, as a borderline case it is perhaps surprising hyperpartisan content has not received more direct attention in survey tasks (particularly those examining age differences). Thus, higher susceptibility to hyperpartisan content generally rather than strictly false news content may provide a better explanation for apparently conflicting findings. This expectation is further supported by research on "clickbait" headlines that make appeals to partisan emotions. Like hyperpartisan news, partisan clickbait headlines can be viewed as low quality (but not necessarily false) news content that is salient to those with strong partisan attachments. This is relevant, because older Americans appear to exhibit a preference for such headlines (Munger et al. 2020), even when incentivized to identify correct information (Luca et al. 2022).

> *Research Question 5 (hyperpartisan engagement):*
> (RQ5a) Do older Americans perceive hyperpartisan news headlines to be more or less accurate relative to younger cohorts?
> (RQ5b) Do older Americans demonstrate higher levels of congeniality bias for hyperpartisan news content?

To test these expectations, we conduct a secondary analysis of three separate surveys collected before and after the 2018 US elections. There are three features of this dataset that make it especially suitable for our purposes. First, the dataset includes both surveys and digital trace data, increasing our confidence that any difference between exposure and discernment are not an artifact of different sampling strategies. Second, one survey included random assignment to a digital literacy intervention, where half of respondents in the third survey were exposed to a set of ten brief "Tips to Spot False News." Importantly, this intervention improved discernment overall. Therefore, we are able to test whether older respondents were especially responsive (suggesting an initial literacy deficit). Third, our data includes measures of strength of partisanship and affective polarization as well as evaluations of hyperpartisan headlines (although it does include a measure of digital literacy itself).

We summarize our research questions and preview our findings in Table 1.

Table 1: Summary of research questions and findings

Question	Finding	Results
News consumption:		
Are older Americans more likely to engage with dubious news?	Yes	Fig. 1 / Tab. 2
News discernment:		
Are older Americans more or less capable than younger cohorts of discerning true and false news headlines?	Not distinguishable	Table 3
Do older Americans perceive false news headlines to be more or less accurate relative to younger cohorts?	Less accurate	Table 3
Digital literacy intervention:		
Are digital literacy interventions especially effective among older Americans	Not distinguishable	Table 4
Partisanship:		
Do older Americans have stronger partisan attachments?	Yes	Figure 3
Do older Americans exhibit higher levels of affective polarization?	Yes	Figure 3
Do older Americans demonstrate higher levels of congeniality bias in evaluating news content?	Yes	Fig. 4 / Tab. 5
Hyperpartisan content:		
Do older Americans perceive hyperpartisan news headlines to be more or less accurate relative to younger cohorts?	More accurate	Table 6
Do older Americans demonstrate higher levels of congeniality bias for hyperpartisan news content?	Yes	Table 7

Methods

Survey data collection

We draw on data from three two-wave survey panels[6] conducted by the survey company YouGov during and after the 2018 U.S. midterm elections.[7] By collecting data across three surveys, we are able to replicate our analyses across time, samples, and stimuli. Our data come from: a survey fielded June 25–July 3, 2018 (wave 1; N = 1,718) and July 9–17, 2018 (wave 2; N = 1,499); a survey fielded October 19–26 (wave 1; N = 3,378) and October 30–November 6, 2018 (wave 2; N = 2,948); and survey fielded November 20–December 27, 2018 (wave 1; N = 4,907) and December 14,

6. As mentioned, we make use of existing data that was collected for other studies. In our analyses, the two-wave panel structure only comes into play when examining decay of the literacy training effect in the Nov./Dec. study.

7. These surveys included multiple orthogonal experiments (Guess et al. 2020a; Guess et al. 2020b; Berlinski et al. 2023).

2018–January 3, 2019 (wave 2; N = 4,283). Respondents were selected by YouGov's matching and weighting algorithm to approximate the demographic and political attributes of the U.S. population (see Supplementary Material, Appendix A). Participants were ineligible to take part in more than one study.

Measures

Headline rating

In each survey, we asked respondents to evaluate the accuracy of a number of headlines on a four-point scale. The articles, all of which appeared 'in the wild' during the 2018 midterms, were published by actual sources and were balanced within each group in terms of their partisan congeniality. In total, we selected four mainstream news articles that were congenial to Democrats and four that were congenial to Republicans, and two pro-Democrat and two pro-Republican false news articles. Respondents also rated the accuracy of four hyperpartisan news headlines. These headlines were chosen from outlets defined as hyperpartisan in prior work (Pennycook and Rand 2019). To keep distinction from false headlines, we selected hyperpartisan headlines that had not been fact-checked as false. All headlines are presented in Supplementary Material, Appendix B.

In the first wave of each survey, respondents evaluated a random subset of headlines from each slant-and-veracity subcategory (e.g., pro-Republican false news, etc.) on a scale ranging from "Not at all accurate" (1) to "Very accurate" (4). In the second wave, respondents evaluated all 16 headlines. The order of the headlines was randomized within wave for each respondent.

We look at perceived accuracy for each news type (mainstream, false, and hyperpartisan). For these, we also include a measure of headline congeniality. Congeniality is coded at the headline level for partisans to indicate that a story is consistent with the respondents' partisan leanings (e.g., a Democrat evaluating a story that is favorable to a Democrat) and is a zero otherwise. We also examine ability to distinguish mainstream from false news – *discernment* – as mean(mainstream news accuracy) - mean(false news accuracy). For comparison, we also compute a discernment

measure using hyperpartisan news using mean(mainstream news accuracy) - mean(hyperpartisan news accuracy). Descriptive statistics are listed in Table A.1.

Media exposure data/trace data

We also analyze media exposure using behavioral data of respondents' web visits, collected unobtrusively. Data is available from users' laptop or desktop computers as well as their mobile devices and tablets. Our measures come from a period immediately following each survey.[8]

We first created a binary measure of whether respondents made one or more visits to dubious news sites, as well as a binary measure for mainstream news sites. We also look at a count of total visits to either set of news domains. However, it is worth noting that the distribution was highly skewed; 90–94% of respondents visited zero dubious news sites and the distribution among non-zero respondents had a long right tail (June/July M = 1.75, SD = 18.26, min=0, max=438; Oct./Nov. M =.43, SD = 3.24, min=0, max=75; Nov./Dec. M =.21, SD = 1.37, min=0, max=25). Our binary measure of *dubious news exposure* is coded as 1 if the respondent visited any of the domains in our list (June/July: 10%, Oct./Nov.: 7%, Nov./Dec.: 6%) and 0 otherwise. We also created a binary measure of *mainstream news exposure* (June/July: 73%, Oct./Nov.: 60%, Nov./Dec.: 52%).

Importantly, not all respondents who were part of our survey opted into the web-tracking portion of our study. Thus, our sample size using this data decreases (June/July web-tracking n = 1312 (76%), Oct./Nov. n = 2103 (63%), Nov./Dec. n = 1069 (22%), total web-tracking n = 4484 (50%)).[9]

Demographics and sociopolitical measures

We also measure objective political knowledge, political interest, dichotomous indicators of Democrat and Republican affiliation (including leaners), college education, gender, and nonwhite racial background. We measure affective polarization as the difference in people's feelings toward their

8. See Supplementary Material, Appendix A for details, including lists of domains used.

9. The decline between surveys reflects the lack of available respondents who (a) participated in the web-tracking and (b) did not participate in our earlier waves of data collection.

preferred party and the opposition party on 100-pt. feeling thermometers (including leaners but excluding independents). (The full question list is in Supplementary Material, Appendix C).

Analytic approach

We use OLS regression models with age as our predictor, and include party, political knowledge, political interest, college education, gender, and nonwhite racial background as covariates unless otherwise noted. Except in the case of the experimental results for RQ3, these models also include survey weights. In all analyses, we pool across surveys.

Our primary analyses use dichotomous indicators for a standard set of age groups, as fitting linear interaction models can mask nonlinearities (Hainmueller, Mummolo, and Xu 2019). Further, studies employing trace data summarized above suggest that it is the oldest subgroup of users, in particular, who are most likely to consume dubious news, specifically those 60+ (Guess, Nyhan, and Reifler 2020; Moore, Dahlke, and Hancock 2023). As such, we look at the size of prior exposure effects across the same age categories as used in these studies. However, for all results, we provide the linear interaction models in supplemental analyses shown throughout Supplementary Material, Appendix D.

For headline accuracy rating models, we include fixed effects for each headline to account for differing baseline levels of plausibility and cluster at the respondent level to account for correlations between their ratings across headlines. The headline models also include a measure of headline congeniality computed based on a given headline's slant and the respondent's party identity. We also include covariates and use survey weights.

Results

Older Americans visit more dubious *and* more mainstream news sites (RQ1)

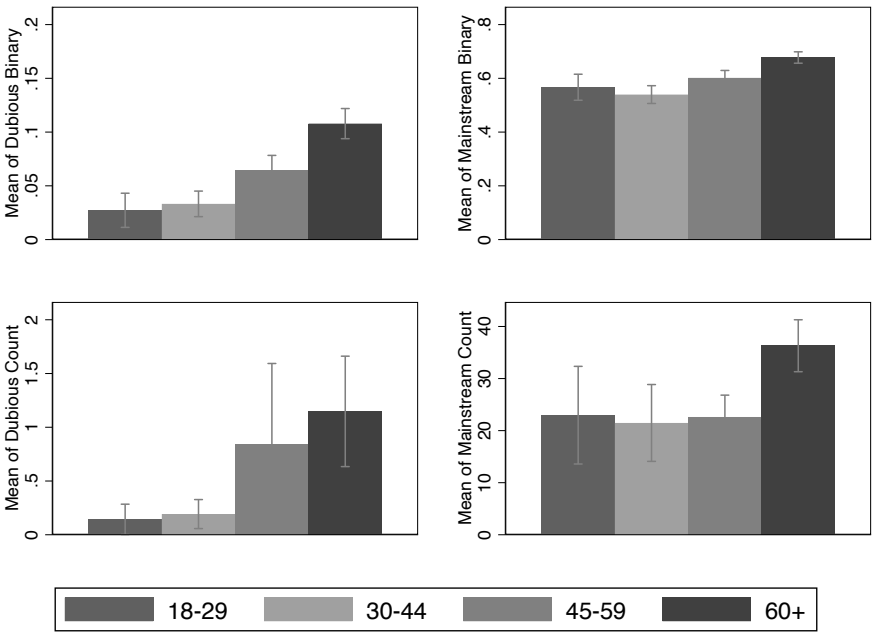
We first look at mainstream and dubious news visits (binary and count, pooled across surveys). We find a relationship between age and both dubious and mainstream news exposure (binary measures) as well as the volume of consumption for each (count measure). For instance, respondents over 60 made about .5 ($p = .018$) more visits to dubious domains during our data collection period than did those between 18 and 29, and made about 14 more mainstream news domain visits than did the youngest cohort ($p = .009$). Although these relationships are significant for a linear age term (Supplementary Material, Table D.2), we find that the "effect" of age is concentrated among those over 60 years old (Table 2 and Figure 1). Finally, we note that the relationship between age and news consumption is stronger prior to accounting for political interest and knowledge (Supplementary Material, Table D.3). Older Americans are more politically interested and knowledgeable, and those higher in these traits tend to consume more news (of both dubious and mainstream varieties). In sum, though older subgroups are more often exposed to dubious news domains, this may in part be a symptom of their greater interest in news and politics. However, age appears to matter after accounting for this trait. Critically, we also find that dubious news visits as a *proportion* of all news visits still increase with age (Supplementary Material, Table D.5) so it is unlikely that this pattern is explained just by higher engagement with news generally.

Older Americans are generally no worse at evaluating news accuracy (RQ2)

We test headline evaluation using multiple model specifications (Table 3). We look at the perceived accuracy of both mainstream and false news as well as the discernment between the two as our outcomes.

Our results show that older Americans perceive both false and mainstream headlines as less accurate, resulting in discernment scores that are generally no worse than younger cohorts. One

Figure 1: Age and news visits (by age groups)



Note: Figure shows descriptive means. The binary measure of dubious [mainstream] news exposure is coded as 1 if the respondent visited any such domain and 0 otherwise. Error bars are 95% confidence intervals. Full results of models including a standard set of covariates are shown in Table 2.

Table 2: Age and news visits

	Dubious binary	Dubious count	Mainstream binary	Mainstream count
Age 30-44	0.0117	-0.0545	-0.0624	-0.6416
	(0.0130)	(0.1215)	(0.0357)	(4.0526)
Age 45-59	0.0214	0.4134	0.0195	3.7940
	(0.0116)	(0.2865)	(0.0353)	(4.4405)
Age 60+	0.0495***	0.5475*	0.0595	14.3606**
	(0.0127)	(0.2316)	(0.0334)	(5.4845)
Control variables	✓	✓	✓	✓
R^2	0.08	0.01	0.06	0.02
N	4365	4365	4365	4365

* $p < .05$, ** $p < .01$, *** $p < .005$ (two-sided). Cell entries are OLS coefficients. Binary exposure is coded as 1 if the respondent visited any such domain and 0 otherwise. Age 18-29 is the reference group. All models include controls for Democrat, Republican, college education, political knowledge, political interest, gender, and nonwhite racial background.

Table 3: Age, perceived accuracy, and discernment

	False	Mainstream	Discernment	False (w2)	Mainstream (w2)	Discernment (w2)
Age 30-44	-0.0347	0.0067	0.0410	-0.0352	-0.0227	0.0127
	(0.0310)	(0.0243)	(0.0335)	(0.0295)	(0.0251)	(0.0275)
Age 45-59	-0.1500***	-0.1020***	0.0455	-0.0730*	-0.0738***	0.0004
	(0.0308)	(0.0254)	(0.0355)	(0.0291)	(0.0251)	(0.0280)
Age 60+	-0.1604***	-0.1598***	-0.0030	-0.0507	-0.0593**	-0.0081
	(0.0291)	(0.0231)	(0.0332)	(0.0271)	(0.0222)	(0.0271)
Control variables	✓	✓	✓	✓	✓	✓
Headline fixed effects	✓	✓		✓	✓	
R^2	0.15	0.17	0.17	0.16	0.17	0.24
N	19886	39765	9944	34718	69433	8682

* $p < .05$, ** $p < .01$, *** $p < .005$ (two-sided). Cell entries are OLS coefficients. Age 18-29 is the reference group. All models include controls for Democrat, Republican, college education, political knowledge, political interest, gender, and nonwhite racial background. Headline-level analyses also control for congeniality.

interpretation is that there is not a media literacy deficit among older news consumers. To address this more formally, we consider whether digital literacy training has differential effects across age.

No differential effects of a digital literacy intervention (RQ3)

We randomly assigned respondents with probability .5 to the "Tips for spotting false news" stimuli in wave 1 of the November/December study (Figure 2).[10] This intervention took place before the headline rating task.

Results in Table 4 show that literacy training had no differential effect across respondent age categories. The results show that there is some evidence that the tips worked better for adults aged 45-59 ($\beta = -0.15, p = .031$) in identifying false news. However, this does not hold for respondents aged 60+ as we would expect, nor does it replicate with a linear measure of age (Supplementary Material, Table D.8). Further, in Supplementary Material, Table D.8 we examine results for the second wave and also find no reliable evidence that the treatment effect decayed faster for older cohorts. While failing to reject the null is not direct evidence of no effect heterogeneity by age,

10. Due to a programming error, all respondents in the June/July and October/November studies were exposed to the tips intervention. To make sure this does not affect our conclusions about the association of age with perceived accuracy and discernment, we present results using the control group from the Nov/Dec survey in Table D.6.

Figure 2: Media literacy intervention

"Tips to Spot False News"

Be skeptical of headlines. False news stories often have catchy headlines in all caps with exclamation points. If shocking claims in the headline sound unbelievable, they probably are.

Look closely at the URL. A phony or look-alike URL may be a warning sign of false news. Many false news sites mimic authentic news sources by making small changes to the URL. You can go to the site to compare the URL to established sources.

Investigate the source. Ensure that the story is written by a source that you trust with a reputation for accuracy. If the story comes from an unfamiliar organization, check their "About" section to learn more.

Watch for unusual formatting. Many false news sites have misspellings or awkward layouts. Read carefully if you see these signs.

Consider the photos. False news stories often contain manipulated images or videos. Sometimes the photo may be authentic, but taken out of context. You can search for the photo or image to verify where it came from.

Inspect the dates. False news stories may contain timelines that make no sense, or event dates that have been altered.

Check the evidence. Check the author's sources to confirm that they are accurate. Lack of evidence or reliance on unnamed experts may indicate a false news story.

Look at other reports. If no other news source is reporting the same story, it may indicate that the story is false. If the story is reported by multiple sources you trust, it's more likely to be true.

Is the story a joke? Sometimes false news stories can be hard to distinguish from humor or satire. Check whether the source is known for parody, and whether the story's details and tone suggest it may be just for fun.

Some stories are intentionally false. Think critically about the stories you read, and only share news that you know to be credible.

[These tips are taken verbatim from the original tips published by Facebook.]

these results at least fail to support the theory that digital literacy is the prime driver of engagement with dubious news.

Explaining the disagreement

Older Americans are more subject to partisan bias in news evaluation (RQ4)

A key way that older news consumers may differ is in their partisanship. Indeed, in our data, respondents age 60+ were significantly more likely to strongly identify with a political party, and affective polarization consistently increases with age (Figure 3), even after accounting for demographics and political sophistication (see Supplementary Material, Table D.10). Respondents aged 60+ score about 11 points higher in affective polarization than do those age 18-29 after accounting

Table 4: Age and media literacy training efficacy

	False	MS	Discernment	False	MS	Discernment
News tips intervention	-0.1960***	-0.0463**	0.1274***	-0.1260*	-0.0384	0.0660
	(0.0202)	(0.0167)	(0.0271)	(0.0579)	(0.0456)	(0.0669)
Age 30-44				-0.0426	-0.0058	0.0339
				(0.0501)	(0.0408)	(0.0502)
Age 45-59				-0.0889	-0.0965*	-0.0255
				(0.0490)	(0.0398)	(0.0512)
Age 60+				-0.1950***	-0.1307***	0.0499
				(0.0503)	(0.0394)	(0.0522)
Age 30-44 × news tips				-0.0520	0.0245	0.0857
				(0.0725)	(0.0578)	(0.0796)
Age 45-59 × news tips				-0.1531*	-0.0334	0.1480
				(0.0711)	(0.0566)	(0.0811)
Age 60+ × news tips				-0.0485	-0.0663	0.0064
				(0.0694)	(0.0536)	(0.0790)
Control variables				✓	✓	✓
Headline fixed effects	✓	✓		✓	✓	
R^2	0.04	0.07	0.01	0.18	0.17	0.19
N	9813	19623	4907	9797	19591	4899

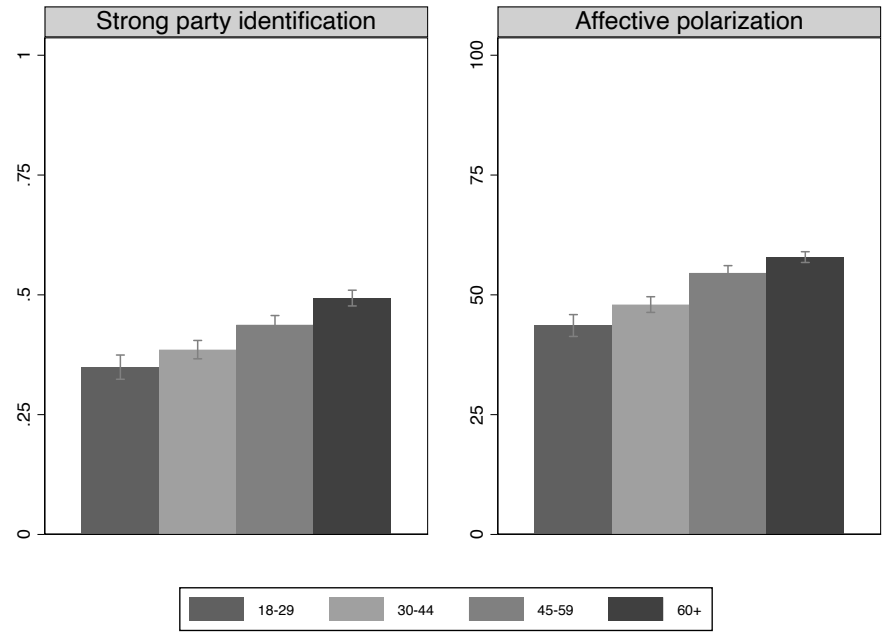
* $p < .05$, ** $p < .01$, *** $p < .005$ (two-sided). Cell entries are OLS coefficients. Models testing for age interactions include controls for Democrat, Republican, college education, political knowledge, political interest, gender, and nonwhite racial background, and headline congeniality (in headline level analyses).

for covariates.[11]

Next, we test whether older Americans are also more subject to partisan congeniality effects when evaluating headlines. We look at perceived headline accuracy as our outcome variable. As seen in Supplementary Material, Table D.12 and Figure 4, older Americans, including those age 45-59, but especially those over 60, are especially subject to partisan congeniality bias when evaluating headlines. This appears to hold across headline veracity (Table 5). Finally, in Supplementary Material, Tables D.15 and D.16 we also partially replicate these patterns using beliefs in misperceptions about recent current events.

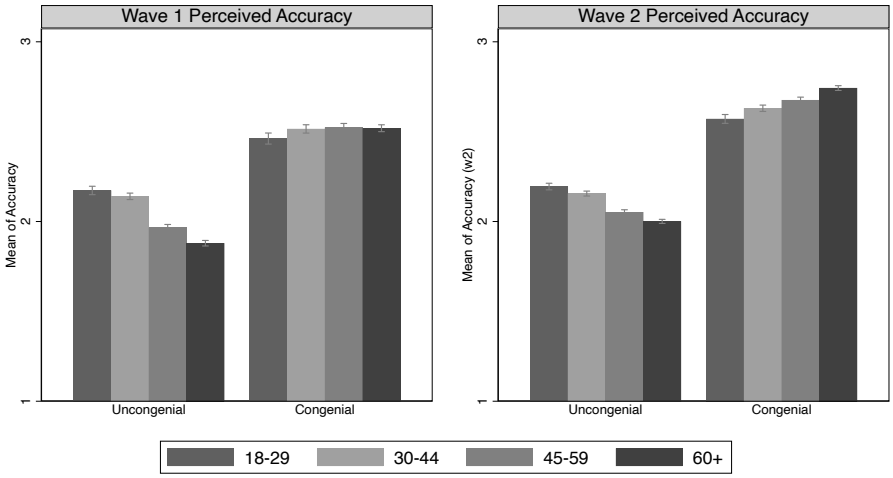
11. Note also that political interest and knowledge increase with age in our data (Supplementary Material, Table D.11).

Figure 3: Party attachment and affective polarization by age group



Note: Figure shows descriptive means. For strong party attachment, independents are coded as 0; for affective polarization, independents are by definition dropped. Error bars are 95% confidence intervals. Full results of models including a standard set of covariates are shown in Supplementary Material, Table D.10.

Figure 4: Age and congeniality effects (pooled news types)



Note: Figure shows descriptive means. Error bars are 95% confidence intervals. Full modelled results are shown in Table D.12.

Older Americans are more credulous to hyperpartisan news in surveys, but prior studies elided the category (RQ5)

Though related to the partisan motivation account touched on above, the next explanation for the disjuncture between survey and trace data focuses on methodology. When examining sharing patterns

Table 5: Age and congeniality effects by news type

	False	Mainstream	False w2	Mainstream w2
Age 30-44	-0.0464	-0.0273	-0.0540	-0.0437
	(0.0370)	(0.0303)	(0.0345)	(0.0300)
Age 45-59	-0.1711***	-0.2069***	-0.1107***	-0.1533***
	(0.0362)	(0.0301)	(0.0341)	(0.0303)
Age 60+	-0.2241***	-0.2750***	-0.1353***	-0.1686***
	(0.0341)	(0.0286)	(0.0307)	(0.0263)
Congenial	0.4755***	0.3625***	0.5336***	0.4754***
	(0.0418)	(0.0317)	(0.0364)	(0.0311)
Age 30-44 × Congenial	0.0314	0.0911*	0.0501	0.0569
	(0.0516)	(0.0413)	(0.0462)	(0.0396)
Age 45-59 × Congenial	0.0549	0.2641***	0.0973*	0.2012***
	(0.0514)	(0.0405)	(0.0456)	(0.0394)
Age 60+ × Congenial	0.1512***	0.2799***	0.2026***	0.2637***
	(0.0485)	(0.0386)	(0.0417)	(0.0354)
Control variables	✓	✓	✓	✓
Headline fixed effects	✓	✓	✓	✓
R^2	0.15	0.18	0.16	0.17
N	19886	39765	34718	69433

* $p < .05$, ** $p < .01$, *** $p < .005$ (two-sided). Cell entries are OLS coefficients. Age 18-29 is the reference group. All models include controls for Democrat, Republican, college education, political knowledge, political interest, gender, and nonwhite racial background.

or exposure through web-tracking, researchers often use domain lists that include websites that are frequently flagged for publishing flawed and misleading news stories (Grinberg et al. 2019; Guess, Nyhan, and Reifler 2020). However, coding these websites at the domain level reveals sharing of or exposure to the a broader category of low-quality news, and not exclusively *false* news (see for instance the "red" and "orange" lists — which account for most shares — vs. "black" lists in these studies). In essence, then, these "false news sites," as we too have called them in our prior work — may often be more accurately classified as hyperpartisan news sites (in Supplementary Material, Table D.1, we include examples of prior studies that classify the sources for our hyperpartisan headlines as "fake" or "false" news sites).

However, when older Americans' ability to discern news has been judged, the surveys have typically included stimuli from (accurate) mainstream headlines contrasted with headlines that had been demonstrably fact-checked as false (Allcott and Gentzkow 2017; Pennycook and Rand 2018).

Given the potential epistemological rabbit-hole of defining what is truth, relying on fact-checked claims when studying misinformation and false news is a reasonable approach. However, focusing on demonstrably false content elides hyperpartisan content — emotional, slanted, and often misleading, but based on actual events and not necessarily, categorically false. We rectify this by including both false and hyperpartisan headlines in our accuracy rating task.

For these analyses, we follow the same model specifications as our prior models addressing perceived accuracy of mainstream and false news and discernment between them, but use perceived accuracy of hyperpartisan news and mainstream-hyperpartisan discernment as outcomes. While older Americans were more likely than younger cohorts to rate both false and mainstream headlines as inaccurate (Table 3), there was a departure when rating hyperpartisan headlines, which they saw as more accurate in some cases (i.e., in wave 2) (Table 6). Notably, older respondents exhibit stronger congeniality bias for hyperpartisan headlines than other news types (Table 7).

This is also reflected in the second discernment score, which subtracted hyperpartisan accuracy from mainstream accuracy. While older Americans were generally no worse at discerning between mainstream and false headlines, they were consistently worse at discerning between mainstream and hyperpartisan headlines (see Supplementary Material, Figure D.1). In this way, the ostensible gap between trace data and survey data can be partially resolved. Further, this methodological explanation can be fit within the theoretical account regarding increasing partisan animosity among older news consumers and preference for derogative content (Osmundsen et al. 2021).

Discussion

Older news consumers are often identified as among the most vulnerable to dubious news online, with blame often attributed to generational digital illiteracy. However, little empirical work has demonstrated the source of this age group's greater engagement. In this study, we replicate past work that shows older Americans are no worse at discerning true from false news in surveys, despite their greater exposure to dubious websites as measured in digital trace data. We likewise show that

Table 6: Age and perceived accuracy of hyperpartisan news

	Hyper	Hyper (w2)	MS-hyper	MS-hyper (w2)
Age 30-44	0.0477	0.0510	-0.0362	-0.0739**
	(0.0303)	(0.0299)	(0.0315)	(0.0279)
Age 45-59	0.0121	0.0608*	-0.1119***	-0.1344***
	(0.0295)	(0.0295)	(0.0327)	(0.0277)
Age 60+	0.0107	0.1069***	-0.1685***	-0.1660***
	(0.0284)	(0.0277)	(0.0314)	(0.0278)
Control variables	✓	✓	✓	✓
Headline fixed effects	✓	✓		
R^2	0.17	0.19	0.13	0.19
N	19883	34723	9944	8683

* $p < .05$, ** $p < .01$, *** $p < .005$ (two-sided). Cell entries are OLS coefficients. Age 18-29 is the reference group. All models include controls for Democrat, Republican, college education, political knowledge, political interest, gender, and nonwhite racial background.

Table 7: Age and congeniality effects for hyperpartisan news

	Hyper	Hyper (w2)
Age 30-44	-0.0022	-0.0104
	(0.0354)	(0.0346)
Age 45-59	-0.1250***	-0.0343
	(0.0339)	(0.0345)
Age 60+	-0.1472***	-0.0517
	(0.0332)	(0.0312)
Congenial	0.4810***	0.6402***
	(0.0431)	(0.0395)
Age 30-44 × Congenial	0.1330*	0.1609***
	(0.0526)	(0.0502)
Age 45-59 × Congenial	0.3459***	0.2440***
	(0.0531)	(0.0501)
Age 60+ × Congenial	0.3833***	0.3844***
	(0.0510)	(0.0452)
Control variables	✓	✓
Headline fixed effects	✓	✓
R^2	0.17	0.19
N	19883	34723

* $p < .05$, ** $p < .01$, *** $p < .005$ (two-sided). Cell entries are OLS coefficients. Age 18-29 is the reference group. All models include controls for Democrat, Republican, college education, political knowledge, political interest, gender, and nonwhite racial background.

digital literacy training is no more or less effective among older respondents. Accordingly, we argue that digital literacy deficits are likely not the sole culprit, although they may still play a role. Instead, we emphasize motivational and methodological explanations centered on increasing entrenched

partisan identity — closely associated with greater political interest and media consumption — across the lifespan (Glenn and Grimes 1968; Sears and Funk 1999; Plutzer 2002; Phillips 2022).

First, we emphasize that some of the differences in exposure across age groups may be attributable to the sheer volume of news that older Americans' consume. Likely reflecting generally high political interest (Glenn and Grimes 1968; Moretto et al. 2022), we find that older cohorts consume more dubious news as well as mainstream news.

Second, perceived accuracy and engagement decisions are not necessarily related (Pennycook and Rand 2021; Sirlin et al. 2021), a disjuncture that seems to be more apparent among older Americans (Munyaka, Hargittai, and Redmiles 2022). This suggests that other motivations beside accuracy could be driving engagement choices. We show that older Americans consistently display more congeniality bias when evaluating headlines. One implication of this bias is that older news consumers could be more likely to visit or share news that derogates the other party in spite of its inaccuracy (Osmundsen et al. 2021). A weakness for emotional, out-group derogating news — but not fully fabricated news — is also reflected in older Americans' more credulous rating of hyperpartisan headlines, but not false headlines. Although prior work that suggest older Americans are better at discerning between higher and lower quality news did not account for this content category, it may better reflect the sort of news often classified as "fake" given the domain lists included in such studies.

In this way our account is closely linked to existing research on the role of affective polarization in engaging with dubious news content. Previous work finds that affective polarization, fueled by heightened engagement with political media (Kim, Broussard, and Barnidge 2020; Suk et al. 2022; Garrett, Long, and Jeong 2019), is linked to higher levels of both political knowledge and misperceptions (Kim, Broussard, and Barnidge 2020; Suk et al. 2022; Garrett, Long, and Jeong 2019; Jenke 2023; Allcott et al. 2020). Essentially, when people's emotions become intertwined with their political interests, they may become more attentive to political information, but also more susceptible to biased interpretations of factual events. When turning to the role of age in news evaluations, we similarly find that older news consumers, who also happen to be more engaged

and emotionally invested in politics, are more likely to recognize false content but also to endorse slanted hyperpartisan content.

These findings have several important implications for those interested in reducing engagement with dubious news among older cohorts. First, our findings imply that while digital literacy training may be useful in general (Guess et al. 2020a), older Americans do not suffer a particular deficit and interventions aiming to improve the quality of online news sharing may be better served by targeting the increasing partisan animosity among these news consumers. De-polarization techniques (Voelkel et al. 2023) may be tailored for these partisans more specifically (but see Broockman, Kalla, and Westwood 2020). Further on the topic of interventions, because older adults tend to perceive both false and mainstream news as less accurate than other age groups do (Munyaka, Hargittai, and Redmiles 2022), interventions that target increased trust in legitimate sources may be especially important, given that mainstream news constitutes the vast majority of all news consumed (Acerbi, Altay, and Mercier 2022).

Additionally, our results invite comparative research on vulnerability to misinformation across the lifespan; age differences in engagement may be less pronounced in less polarized contexts (Humprecht 2019). By the same token, in terms of theoretical implications, these results further suggest misinformation researchers should consider social contexts that often underlie behavior alongside universal cognitive explanations (Adam-Troian et al. 2021).

Finally, these results have methodological implications. Researchers should not only think carefully about outcomes of interest — as belief and engagement behaviors frequently diverge — but also about how our approach to measurement can stretch or distort the concept we are studying in subtle ways. Our results indicate that part of the source for the conflict between findings based on experimental and digital trace data may be how the outcome variable was operationalized. While the former has typically focused on news content that has been fact checked as false, the latter regularly include slanted (but not explicitly false) hyperpartisan content that are intermixed with explicitly false content on the same domains. When we instead conduct experiments using hyperpartisan news, we do indeed find that older cohorts are more susceptible to low-quality news

content – especially when congenial. This implies that scholars may wish to more regularly include hyperpartisan news in their research designs. But it also indicates that that the underlying problem facing older cohorts may not actually be engagement with misinformation *per se*.

Of course, these findings should also be considered in light of their limitations. To begin, this is an exploratory (not pre-registered) analysis based on a secondary analysis of a previously completed study. In addition, there is always some level of error associated with public opinion research, and we rely exclusively on non-probability samples. Further, we cannot test all possible contributors to age differences in consumption and sharing, such as shifts in interpersonal trust or sets of social ties (Brashier and Schacter 2020; Guess et al. 2021). Similarly, we focused on the U.S. context, in light of prior work revealing older American news users as especially vulnerable as a group. However, there may be cross-national differences based around differing political and media systems (Humprecht, Esser, and Van Aelst 2020) (but see (Arechar et al. 2023)). In terms of measurement, our web-tracking data is limited in that it captures only visits and cannot assess exposure via social news feeds, and likewise does not account for offline exposure, which is still common among older users. Our analysis of congeniality bias also cannot directly speak to the outgroup derogating motives prior work suggests drives engagement with dubious news. Instead, we must indirectly speculate that as such bias increases, so do such motives (Lelkes and Westwood 2017; Combs et al. 2009).

Finally, our results do not distinguish between age, period, and cohort (APC) effects. On this issue, it is worth considering Phillips' (2022) estimates of APC effects on affective polarization and partisan strength — our proposed drivers of news engagement. Affective polarization may increase both with age (due to age-related increases in partisan strength) and over time in the United States. Though the analysis found no clear cohort effects, "there is some evidence that the Baby Boomer generation is chronically lower in both in-party and out-party warmth," (p. 1484). Researchers might consider whether habits those currently over 60 picked up early on in life have something to do with their current news use. Spending formative years under a system featuring just a few, largely reliable news outlets may have resulted in overly credulous news engagement, for instance. This

is complicated by our finding that older adults find both false and mainstream news headlines to be less accurate than younger respondents do; it is only hyperpartisan news that older respondents especially endorse. However, this outcome could be understood in light of this cohort's chronically low warmth toward both parties.

Overall, our results challenge conventional wisdom regarding older news consumers using three large, nationally representative surveys that match survey and tracking data. Rather than victims of digital illiteracy, we find that older Americans typically recognize and disbelieve false news. However, they also demonstrate heightened partisan responses to news and as such are particularly likely to engage with congenial hyperpartisan news content, much of which happens to be classified as false news in prior research based on domain-level classifications.

REPLICATION DATA AND DOCUMENTATION are available at `https://osf.io/zax5k/`

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A Methods detail

Study methodology

We draw on data from three studies conducted among a representative sample of the U.S. population by the survey company YouGov, which recruits a large panel of opt-in respondents and then uses a weighting and matching algorithm to construct a final sample that mirrors the demographic composition of the U.S. population. Our participants closely resemble the U.S. population in both demographics and political attitudes and affiliations.

In the text, we identify these studies by the month in which they were conducted. All descriptive statistics below are unweighted.

Our June/July 2018 data come from a two-wave panel study fielded June 25–July 3, 2018 (wave 1; N = 1,718) and July 9–17, 2018 (wave 2; N = 1,499). Respondents are 56% female, 80% white, median age 54, 49% hold a four-year college degree or higher, 53% identify as Democrats (including leaners), 33% identify as Republicans (including leaners), and 37% approve of Donald Trump's job performance.

Our October/November 2018 data come from a two-wave panel study fielded October 19–26 (wave 1; N = 3,378) and October 30–November 6, 2018 (wave 2; N = 2,948). Respondents are 57% female, 80% white, median age 55, 37% hold a four-year college degree or higher, 49% identify as Democrats (including leaners), 34% identify as Republicans (including leaners), and 41% approve of Donald Trump's job performance.

Our November/December 2018 data come from a two-wave panel study fielded November 20–December 27, 2018 (wave 1; N = 4,907) and December 14, 2018–January 3, 2019 (wave 2; N = 4,283). Respondents are 55% female, 68% white, median age 50, 32% hold a four-year college degree or higher, 46% identify as Democrats (including leaners), 36% identify as Republicans (including leaners), and 43% approve of Donald Trump's job performance.

Weights for all surveys were provided by YouGov. Their documentation indicates this is done using raking methods based on gender, race, age, education, and region.[1]

To improve compliance for the digital literacy intervention, the tips were broken into three blocks and respondents had to answer a simple question about each set of tips before proceeding. For instance, respondents read tips 1–3 and were then asked a specific question about the content. Respondents who failed to answer this question correctly were shown the tips again and told to read them each more closely (this process took place a maximum of three times before respondents were allowed to proceed even if they could not answer the recall question correctly). The separate blocks divided the tips into three groups: tips 1–3, 4–7, and 8–10.

Web consumption data

Web visits are collected anonymously with users' permission through a mix of browser plug-ins, proxies, and VPNs. The provider of this passive metering data is the firm Reality Mine, whose technology underlies the YouGov Pulse panel from which survey respondents were sampled.

1. See https://yougovplatform.zendesk.com/hc/en-gb/articles/360002975617-How-is-the-data-weighted-

We measured online information consumption by aggregating each respondent's web visits for the period of the survey. The lists we used to code each type of media are below:

- Mainstream news visit: One of AOL, ABC News, CBSNews.com, CNN.com, FiveThirtyEight, FoxNews.com, Huffington Post, MSN.com, NBCNews.com, NYTimes.com, Politico, RealClearPolitics, Talking Points Memo, The Weekly Standard, WashingtonPost.com, WSJ.com, or Wikipedia
- Dubious news visit: Any visit to one of the 673 domains identified in Allcott, Gentzkow, and Yu 2019 as a false news producer as of September 2018 excluding those with print versions (including but not limited to *Express*, the British tabloid) and also domains that were previously classified by Bakshy et al. (2015) as a source of hard news. In addition, we exclude sites that predominantly feature user-generated content (e.g., online bulletin boards) and political interest groups.

We computed a binary measure of exposure to the types of content above as well as a count of the total webpages visited from each category during the period.

Duplicate visits to webpages were not counted if they were successive (i.e., a page that was reloaded after first opening it). URLs were cleaned of referrer information and other parameters before de-duplication. (For more detail, see the processing steps described in guess18fn.)

Descriptive statistics

Table A.1: Descriptive statistics of key outcome variables

	June/July		**Oct./Nov.**		**Nov./Dec.**	
	M	*SD*	*M*	*SD*	*M*	*SD*
Mainstream news perceived accuracy	2.69	.64	2.59	.59	2.56	.59
Mainstream news perceived accuracy (w2)	2.75	.54	2.68	.50	2.63	.52
False news perceived accuracy	1.68	.62	1.76	.68	1.93	.72
False news perceived accuracy (w2)	1.96	.59	1.90	.59	2.00	.62
Hyperpartisan news perceived accuracy	1.87	.62	1.78	.67	1.91	.70
Hyperpartisan news perceived accuracy (w2)	2.05	.58	1.99	.55	2.05	.58
Mainstream-false discernment score	1.02	.85	.83	.81	.62	.83
Mainstream-false discernment score (w2)	.80	.73	.78	.65	.62	.66
Mainstream-hyperpartisan discernment score	.82	.84	.81	.79	.65	.79
Mainstream-hyperpartisan discernment score (w2)	.74	.68	.69	.60	.58	.60
Visited dubious news site	.10	.29	.07	.25	.06	.24
Dubious news site visit count	1.75	18.26	.43	3.24	.21	1.37
Visited mainstream news site	.73	.45	.60	.49	.52	.50
Mainstream news site visit count	57.51	158.87	17.76	61.31	11.77	43.76

Although our inferences are based on a relatively small number of headlines ($k = 24$; two unique sets of 12), these appear to be comparable to the large set of political headlines in Pennycook et

al. (2021) (k = 146): After re-scaling all outcomes to range from 0–1, mean accuracy rating for mainstream headlines was .58/.67/.66 across our three surveys, respectively, and mean rating for false headlines was .32/.48/.50. These mean values (especially those from the set of headlines used in the second and third surveys) are highly similar to those in Pennycook et al., who found a mean rating of .63 for mainstream headlines and .49 for false headlines.

Pennycook, G., Binnendyk, J., Newton, C. & Rand, D. (2021), 'A practical guide to doing behavioural research on fake news and misinformation' *Collabra: Psychology 7*(1): 25293. doi: https://doi.org/10.1525/collabra.25293

B News headline stimuli

Respondents evaluated 16 total articles: 4 mainstream news articles that were congenial to Democrats (2 from low-prominence sources and 2 from high-prominence sources), 4 mainstream news articles that were congenial to Republicans (2 from low-prominence sources and 2 from high-prominence sources), 2 pro-Democrat false news articles, 2 pro-Republican false news articles, 2 pro-Democrat hyperpartisan news articles, and 2 pro-Republican hyperpartisan news articles.

We define high prominence mainstream sources as those that more than four in ten Americans recognize in recent polling by Pew (Mitchell et al. 2014). False news stories were verified as false by at least one third-party fact checking organization.

Mitchell, A., Gottfried, J., Kiley, J. & Matsa, K. E. (2014), Political polarization & media habits. Pew Research Center, October 21, 2014. www.pewresearch.org/wp-content/uploads/sites/8/2014/10/Political-Polarization-and-Media-Habits-FINAL-REPOR pdf

When presented to respondents, the stories were formatted exactly as they would appear on the Facebook news feed. Due to Facebook's native formatting from this time, the visual appearance of some false article previews differed somewhat from those of the mainstream articles. This format replicates the decision environment faced by everyday users, who frequently assess the accuracy of news stories given only the content that appears in their news feeds.

June/July 2018

Pro-Democrat false news

Michigan GOP tried to pass bill marking immigrants' licenses with YELLOW STARS https://archive.li/KfTkh#selection-841.0-841.78
Trump's Older Sister Worries About Him: 'Donnie's Acting Like A Nutjob' https://web.archive.org/web/20180116154621/https://www.nova-magazine.net/trumps-older-s

Pro-Republican false news

Millions RUSH To Join The NRA After Anti-Gun Lectures By The Liberal Media https://ilovemyfreedom.org/millions-rush-join-nra-anti-gun-lectures-liberal-media/
Sen. Dick Durbin Just Revealed Why He Lied About Trump Saying 'S***hole' http://capitolconservati com/2018/01/15/sen-dick-durbin-just-revealed-lied-trump-saying-shole/

Mainstream news that is congenial to Democrats (low-prominence source)

White House official mocked 'dying' McCain at internal meeting http://thehill.com/homenews/administration/387182-white-house-official-mocked-dying-mccain-at-
Trump Launched Campaign to Discredit Potential FBI Witnesses http://foreignpolicy.com/2018/01/26/trump-launched-campaign-to-discredit-potential-fbi-witnesses

Mainstream news that is congenial to Democrats (high-prominence source)

Accusations Against Aide Renew Attention on White House Security Clearances https://www.nytimes.com/2018/02/12/us/politics/white-house-security-clearances-jared-ku
html
Trump was angry and 'unglued' when he started a trade war, officials say https://www.nbcnews.com/politics/white-house/trump-was-angry-unglued-when-he-started-trade-war-
cid=sm_npd_nn_tw_ma

Mainstream news that is congenial to Republicans (low-prominence source)

GOP lawmaker calls for FBI, DOJ officials to face 'treason' charges https://www.politico.com/story/2018/02/02/nunes-memo-treason-paul-gosar-386089
Dems worry Trump will win over economy http://thehill.com/homenews/campaign/387356-dems-worry-trump-will-win-over-economy

Mainstream news that is congenial to Republicans (high-prominence source)

Republicans vote to release memo alleging FBI missteps in surveillance of Trump campaign operative https://www.washingtonpost.com/world/national-security/republicans-vote-t
2018/01/29/750fb150-0535-11e8-b48c-b07fea957bd5_story.html
Democrat running for Congress indicted in $803G fraud, embezzlement case http://www.foxnews.com/politics/2017/12/25/democrat-running-for-congress-indicted-in-8
html

Hyperpartisan news that is congenial to Democrats

Pro-D hyperpartisan: Mueller Makes New Court Request That Has Trump's Camp Ready To Run For It http://web.archive.org/web/20180520075259/http://bipartisanreport.com/2018/05/19/mueller-makes-new-court-request-that-has-trumps-camp-ready-t
ND congressman leaps to the defense of Republican candidate caught peeping with his pants unzipped http://web.archive.org/web/20180531040638/https://www.dailykos.com/stories/2018/5/30/1768243/-ND-Congressman-leaps-to-the-defense-of-Repub

Hyperpartisan news that is congenial to Republicans

WORLD FEELS EFFECTS OF TRUMP TAX CUTS AS MONEY EXPECTED TO POUR INTO US MARKETS http://web.archive.org/web/20171223042050/https://www.infowars.com/world-feels-effects-of-trump-tax-cuts-as-money-expected-to-pou
Two Year Study of Gun Owners Exposes Dem's Gun Control Narrative as Nonsense https://thefederalistpapers.org/us/new-study-shows-just-how-responsible-legal-gun-c

October/November 2018 and November/December 2018

Pro-Democrat false news

VP Mike Pence Busted Stealing Campaign Funds To Pay His Mortgage Like A Thief http://
bipartisanreport.com/2018/09/03/vp-mike-pence-busted-stealing-campaign-fund
Vice President Pence now being investigated for campaign fraud his ties to Russia and Manafort
dctribune.org/2018/08/23/vice-president-pence-now-being-investigated-for-ca

Pro-Republican false news

Special Agent David Raynor was due to testify against Hillary Clinton when he died http://
www.neonnettle.com/features/1398-fbi-agent-who-exposed-hillary-clinton-s-cc
Lisa Page Squeals: DNC Server Was Not Hacked By Russia https://yournewswire.com/
lisa-page-squeals-dnc-server-not-hacked-russia/

Mainstream news that is congenial to Democrats (low-prominence source)

A Series Of Suspicious Money Transfers Followed The Trump Tower Meeting https://www.
buzzfeednews.com/article/anthonycormier/trump-tower-meeting-suspicious-tran
A Border Patrol Agent Has Been Called a 'Serial Killer' by Police After Murdering 4 Women
https://www.teenvogue.com/story/border-patrol-agent-arrested-murder-4-women

Mainstream news that is congenial to Democrats (high-prominence source)

Detention of Migrant Children Has Skyrocketed to Highest Levels Ever https://www.nytimes.
com/2018/09/12/us/migrant-children-detention.html
'And now it's the tallest': Trump, in otherwise sombre 9/11 interview, couldn't help touting one of
his buildings https://www.washingtonpost.com/gdpr-consent/?destination=
%2fnews%2fmorning-mix%2fwp%2f2018%2f09%2f11%2fand-now-its-the-tallest-trump
2f%3f

Mainstream news that is congenial to Republicans (low-prominence source)

Google Workers Discussed Tweaking Search Function to Counter Travel Ban http://uk.businessinsider
com/google-employees-search-protest-travel-ban-2018-9
Feds said alleged Russian spy Maria Butina used sex for influence. Now, they're walking that back.
https://news.vice.com/en_us/article/wjyqe4/feds-said-alleged-russian-spy-ma

Mainstream news that is congenial to Republicans (high-prominence source)

Small business optimism surges to highest level ever, topping previous record under Reagan https:
//www.cnbc.com/2018/09/11/small-business-optimism-surges-to-highest-ever.
html
Economy adds more jobs than expected in August, and wage growth hits post-recession high https:
//www.cnbc.com/2018/09/07/us-nonfarm-payrolls-aug-2018.html

Hyperpartisan news that is congenial to Democrats

Donald Trump caught privately wishing he'd sided more thoroughly with white supremacists. https://www.palmerreport.com/analysis/white-supremacists-trump-siding/12478/
Franklin Graham: Attempted rape not a crime. Kavanaugh 'respected' his victim by not finishing. https://www.dailykos.com/stories/2018/9/19/1797143/-Graham-Attempted-rape-n

Hyperpartisan news that is congenial to Republicans

Soros Money Behind 'Black Political Power' Outfit Supporting Andrew Gillum in Florida. https://www.breitbart.com/big-government/2018/09/20/soros-money-behind-black-poli
Kavanaugh Accuser Christine Blasey Exposed For Ties To Big Pharma Abortion Pill Maker... Effort To Derail Kavanaugh Is Plot To Protect Abortion Industry Profits. https://www.infowars.com/kavanaugh-accuser-christine-blasey-exposed-for-ties-to-big-pharma-abort

Figure B.1: June/July news headline stimuli: Democrat-congenial headlines

False news

THEMAVEN.NET | BY BEING LIBERAL

Michigan GOP tried to pass bill marking immigrants' licenses with YELLOW STARS - Being Liberal

False news

MEDIUM.COM

Trump's Older Sister Says "Donnie's Acting Like A Nutjob...I'm Worried About Him"

Mainstream news (low-prominence)

THEHILL.COM

White House official mocked 'dying' McCain at internal meeting

A White House official mocked Sen. John McCainJohn Sidney McCainGO...

Mainstream news (high-prominence)

NYTIMES.COM

Accusations Against Aide Renew Attention on White House Security Clearances

Mainstream news (low-prominence)

FOREIGNPOLICY.COM

Trump Launched Campaign to Discredit Potential FBI Witnesses

The president targeted three bureau officials who could provide key...

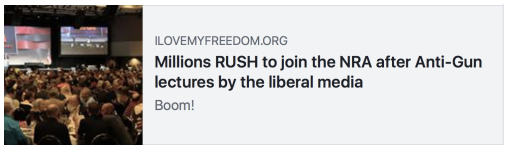
Mainstream news (high-prominence)

NBCNEWS.COM

Trump was angry and 'unglued' when he started a trade war, officials say

Figure B.2: June/July news headline stimuli: Republican-congenial headlines

False news



False news

Mainstream news (low-prominence)

Mainstream news (high-prominence)

Mainstream news (low-prominence)

Mainstream news (high-prominence)

Figure B.3: June/July news headline stimuli: Hyperpartisan headlines

Hyperpartisan news (pro-Republican)

INFOWARS.COM

World Feels Effects Of Trump Tax Cuts As Money Expected To Pour Into US Markets

Despite months of lies from the Globalist media, the world prepares for a booming American economy.

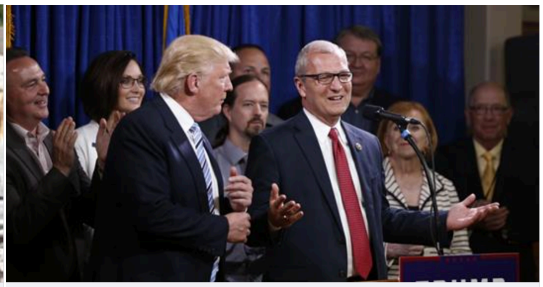
THEFEDERALISTPAPERS.ORG

Two Year Study of Gun Owners Exposes Dem's Gun Control Narrative as Nonsense

Hyperpartisan news (pro-Democrat)

BIPARTISANREPORT.COM | BY AUTHOR DAVID WELLS

Mueller Makes New Court Request That Has Trump's Camp Ready To Run For It (DETAILS)



DAILYKOS.COM

ND congressman leaps to the defense of Republican candidate caught peeping with his pants unzipped

Figure B.4: Oct./Nov. and Nov./Dec. news headline stimuli: Democrat-congenial headlines

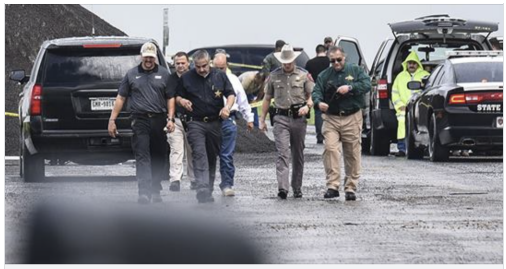
False news

False news

Mainstream news (low-prominence)

Mainstream news (high-prominence)

Mainstream news (low-prominence)



Mainstream news (high-prominence)

Figure B.5: Oct./Nov. and Nov./Dec. news headline stimuli: Republican-congenial headlines

False news

False news

Mainstream news (low-prominence)

Mainstream news (high-prominence)

Mainstream news (low-prominence)

Mainstream news (high-prominence)

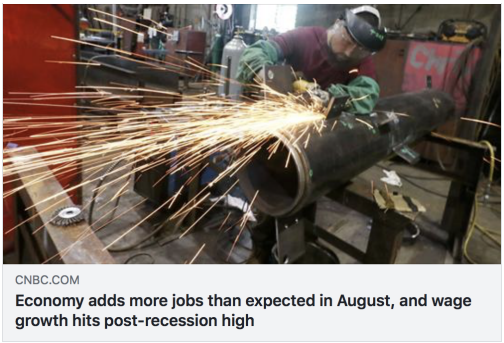


Figure B.6: Oct./Nov. and Nov./Dec. news headline stimuli: Hyperpartisan headlines

Hyperpartisan news (pro-Republican)

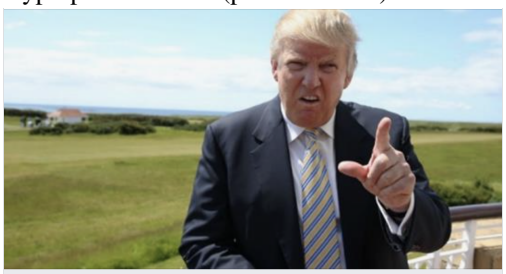
BREITBART.COM

Soros Money Behind 'Black Political Power' Outfit Supporting Andrew Gillum in Florida | Breitbart

INFOWARS.COM

Kavanaugh Accuser Christine Blasey Exposed for Ties to Big Pharma Abortion Pill Mak... to Protect Abortion Industry Profits

Hyperpartisan news (pro-Democrat)



PALMERREPORT.COM

Donald Trump caught privately wishing he'd sided more thoroughly with white supremacists

DAILYKOS.COM

Franklin Graham: Attempted rape not a crime. Kavanaugh "respected" his victim by not finishing.

C Survey question wording

Age

In what year were you born?

Gender

What is your gender?
-Male
-Female

Racial background

What racial or ethnic group best describes you?
-White
-Black or African-American
-Hispanic or Latino
-Asian or Asian-American
-Native American
-Middle Eastern
-Mixed Race
-Other (open)

Education

What is the highest level of education you have completed?
-Did not graduate from high school
-High school graduate
-Some college, but no degree (yet)
-2-year college degree
-4-year college degree
-Postgraduate

Political views

When it comes to politics, would you describe yourself as liberal, conservative, or neither liberal nor conservative?
-Very liberal
-Somewhat liberal

-Slightly liberal
-Moderate; middle of the road
-Slightly conservative
-Somewhat conservative
-Very conservative

Generally speaking, do you think of yourself as a...?
-Democrat
-Republican
-Independent
-Other
-Not sure

[Follow-up]
If Democrat:
-Strong Democrat
-Not very strong Democrat
If Republican:
-Strong Republican
-Not very strong Republican
If Independent/Other/Not sure:
-The Democratic Party
-The Republican Party
-Neither
-Not sure

Do you approve or disapprove of the way Donald Trump is handling his job as President?
-Strongly approve
-Somewhat approve
-Somewhat disapprove
-Strongly disapprove

Political interest

Some people seem to follow what's going on in government and public affairs most of the time, whether there's an election going on or not. Others aren't that interested. Would you say you follow what's going on in government and public affairs ...
-Most of the time (5)
-Some of the time (4)
-Only now and then (3)
-Hardly at all (2)
-Don't know (1)

Political knowledge

The next set of questions helps us learn what types of information are commonly known to the public. Please answer these questions on your own without asking anyone or looking up the answers. Many people don't know the answers to these questions, but we'd be grateful if you would please answer every question even if you're not sure what the right answer is.

It is important to us that you do NOT use outside sources like the Internet to search for the correct answer. Will you answer the following questions without help from outside sources?
-Yes
-No

For how many years is a United States Senator elected - that is, how many years are there in one full term of office for a U.S. Senator?
-Two years
-Four years
-Six years (1)
-Eight years
-None of these
-Don't know

How many times can an individual be elected President of the United States under current laws?
-Once
-Twice (1)
-Four times
-Unlimited number of terms
-Don't know

How many U.S. Senators are there from each state?
-One
-Two (1)
-Four
-Depends on which state
-Don't know

Who is currently the Prime Minister of the United Kingdom?
-Richard Branson
-Nick Clegg
-David Cameron
-Theresa May (1)
-Margaret Thatcher
-Don't know

For how many years is a member of the United States House of Representatives elected – that is,

how many years are there in one full term of office for a U.S. House member?
-Two years (1)
-Four years
-Six years
-Eight years
-For life
-Don't know

Media trust and Facebook use

In general, how much trust and confidence do you have in the mass media – such as newspapers, TV and radio – when it comes to reporting the news fully, accurately and fairly?
-None at all (1)
-Not very much (2)
-A fair amount (3)
-A great deal (4)

In general, how much trust and confidence do you have in the information you see on Facebook when it comes to reporting the news fully, accurately, and fairly?
-None at all (1)
-Not very much (2)
-A fair amount (3)
-A great deal (4)

How frequently do you use Facebook?
-Almost constantly
-Several times a day
-About once a day
-A few times a week
-About once a week
-A few times a month
-Once a month
-Less often than once a month
-Never

How frequently do you click on political news stories in your Facebook News Feed?
-Almost constantly
-Several times a day
-About once a day
-A few times a week
-About once a week
-A few times a month
-Once a month

-Less often than once a month
-Never

How frequently do you share political news stories on Facebook?
-Almost constantly
-Several times a day
-About once a day
-A few times a week
-About once a week
-A few times a month
-Once a month
-Less often than once a month
-Never

Feeling thermometers

We would like to get your feelings toward some of our political leaders and institutions who are in the news these days using something we call the feeling thermometer. Ratings between 50 degrees and 100 degrees mean that you feel favorable and warm toward the person. Ratings between 0 degrees and 50 degrees mean that you don't feel favorable toward the person or institution and that you don't care too much for that person or institution. You would rate them at the 50 degree mark if you don't feel particularly warm or cold toward them. If we come to a person or institution whose name you don't recognize, you don't need to rate them.
-The news media
-Democratic Party
-Republican Party

News headline evaluations

To the best of your knowledge, how accurate is the claim in the above headline?
-Not at all accurate (1)
-Not very accurate (2)
-Somewhat accurate (3)
-Very accurate (4)

Topical misperception question batteries

June/July 2018 Wave 1

1. The widely debated practice of separating families at the border is mandated by a law passed by Democrats. (false)
2. The little girl who was crying as a U.S. Border Patrol agent patted down her mother in a widely

shared photo was being separated from her family. (false)
3. The actor Peter Fonda suggested in a tweet that Barron Trump should be kidnapped as a protest against the president's immigration policy. (true)
4. First Lady Melania Trump wore a jacket with "I DON'T REALLY CARE DO U?" emblazoned on the back on her way to visit immigrant kids. (true)

June/July 2018 Wave 2

1. Trump to shield his son from ongoing Russia investigations. (false)
2. U.S. intelligence agencies concluded that the Russian government tried to help Donald Trump and hurt Hillary Clinton by meddling in the 2016 election. (true)
3. The unemployment rates for blacks and Latinos are the lowest they have been since the government began tracking them in the early 1970s. (true)
4. Immigrants in the country illegally are more likely to commit violent crimes than native-born Americans. (false)

October/November 2018 Waves 1 and 2

1. The audience at a public rally laughed when Trump mocked gaps in Ford's testimony. (true)
2. Ford's allegations were refuted by the people she says were present during the assault. (false)
3. Ford's high school classmates recall hearing the story about the alleged assault at the time. (false)
4. Kavanaugh was questioned by police after a bar fight in college. (true)

D Additional results

Additional information on hyperpartisan news sources

Table D.1: Hyperpartisan sources in discernment task and trace data studies

Hyperpartisan source	Example trace data studies classifying as false/fake
Bipartisan Report (Red)	Guess et al. (2020), Grinberg et al. (2019), Moore et al. (2023), Teng et al. (2022)
Infowars (Red)	Guess et al. (2020), Grinberg et al. (2019), Moore et al. (2023), Teng et al. (2022), Teng et al. (2022), Doshi et al. (2018), Flamino et al. (2023)
Palmer Report (Orange)	Guess et al. (2020), Grinberg et al. (2019), Moore et al. (2023), Teng et al. (2022)
Federalist Papers	Doshi et al. (2018), Flamino et al. (2023)
Daily Kos	Doshi et al. (2018)
Breitbart	Doshi et al. (2018)

Notes: The left column lists sources of hyperpartisan headlines used in our discernment tasks. The right column lists (non-exhaustive) example studies that classify each source as a "fake news" website in analyzing consumption. Red and Orange refer to commonly used "fake news" domain list classifications containing said source (see (Grinberg et al. 2019)).

Supplemental results: RQ1

Table D.2: Age and news visits (linear)

	Dubious binary	Dubious count	Mainstream binary	Mainstream count
Age (linear)	0.0011***	0.0138***	0.0018***	0.3126**
	(0.0003)	(0.0046)	(0.0006)	(0.1116)
Control variables	✓	✓	✓	✓
R^2	0.08	0.01	0.06	0.02
N	4365	4365	4365	4365

* $p < .05$, ** $p < .01$, *** $p < .005$ (two-sided). Cell entries are OLS coefficients. Binary exposure is coded as 1 if the respondent visited any such domain and 0 otherwise. All models include controls for Democrat, Republican, college education, political knowledge, political interest, gender, and nonwhite racial background.

Table D.3: Age and news visits (without accounting for sophistication)

	Dubious binary	Dubious count	Mainstream binary	Mainstream count
Age 30-44	0.0129	-0.0432	-0.0615	-0.4623
	(0.0131)	(0.1169)	(0.0369)	(4.0803)
Age 45-59	0.0292*	0.5143	0.0330	5.0456
	(0.0118)	(0.2982)	(0.0365)	(4.3984)
Age 60+	0.0719***	0.8481***	0.1001***	17.9652***
	(0.0135)	(0.2600)	(0.0345)	(5.3936)
Control variables	✓	✓	✓	✓
R^2	0.05	0.01	0.03	0.01
N	4369	4369	4369	4369

* $p < .05$, ** $p < .01$, *** $p < .005$ (two-sided). Cell entries are OLS coefficients. Binary exposure is coded as 1 if the respondent visited any such domain and 0 otherwise. All models include controls for Democrat, Republican, college education, gender, and nonwhite racial background.

Table D.4: Age and news visits (logit)

	Dubious binary	Mainstream binary	Dubious binary	Mainstream binary
Age 30-44	0.4674	-0.2667		
	(0.4249)	(0.1514)		
Age 45-59	0.6429	0.0833		
	(0.3663)	(0.1515)		
Age 60+	1.0080***	0.2648		
	(0.3569)	(0.1450)		
Age (linear)			0.0189***	0.0079***
			(0.0054)	(0.0028)
Control variables	✓	✓	✓	✓
N	4365	4365	4365	4365

* $p < .05$, ** $p < .01$, *** $p < .005$ (two-sided). Binary exposure is coded as 1 if the respondent visited any such domain and 0 otherwise. All models include controls for Democrat, Republican, college education, political knowledge, political interest, gender, and nonwhite racial background.

Table D.5: Age and news diet (proportion of dubious news visits)

	Dubious news visits/total visits	
Age 30-44	0.0155*	0.0061
	(0.0072)	(0.0079)
Age 45-59	0.0372***	0.0162
	(0.0086)	(0.0088)
Age 60+	0.0610***	0.0347***
	(0.0102)	(0.0086)
Control variables		✓
R^2	0.02	0.11
N	2745	2742

* $p < .05$, ** $p < .01$, *** $p < .005$ (two-sided). Outcome measure is computed as (dubious news visits (count)) / (dubious + mainstream visits). Second model includes controls for Democrat, Republican, college education, political knowledge, political interest, gender, and nonwhite racial background.

Supplemental results: RQ2

Table D.6: Age, perceived accuracy, and discernment (untreated)

	False	Mainstream	Mainstream-False
Age 30-44	-0.0011	0.0146	0.0378
	(0.0308)	(0.0283)	(0.0502)
Age 45-59	-0.0802**	-0.0689*	-0.0182
	(0.0296)	(0.0271)	(0.0512)
Age 60+	-0.1212***	-0.1249***	0.0607
	(0.0296)	(0.0270)	(0.0531)
Control variables	✓	✓	✓
Headline fixed effects	✓	✓	
R^2	0.20	0.19	0.18
N	24495	29391	2450

* $p < .05$, ** $p < .01$, *** $p < .005$ (two-sided). Cell entries are OLS coefficients. All models include controls for Democrat, Republican, college education, political knowledge, political interest, gender, and nonwhite racial background. Headline level analyses control for congeniality. Data come from control condition in Nov/Dec survey.

Table D.7: Age and perceived accuracy by news type (linear)

	False	Mainstream	Hyper	False (w2)	Mainstream (w2)	Hyper (w2)
Age (linear)	-0.0035***	-0.0039***	0.0002	-0.0009	-0.0013***	0.0025***
	(0.0006)	(0.0005)	(0.0006)	(0.0005)	(0.0004)	(0.0005)
Control variables	✓	✓	✓	✓	✓	✓
Headline fixed effects	✓	✓	✓	✓	✓	✓
R^2	0.15	0.17	0.17	0.16	0.16	0.19
N	19886	39765	19883	34718	69433	34723

* $p < .05$, ** $p < .01$, *** $p < .005$ (two-sided). Cell entries are OLS coefficients. All models include controls for Democrat, Republican, college education, political knowledge, political interest, gender, and nonwhite racial background, as well as headline congeniality.

Supplemental results: RQ3

Table D.8: Age and media literacy training efficacy (age groups, wave 2 results)

	False (w2)	MS (w2)	MS-false (w2)
News tips intervention	-0.0786	-0.0156	0.0612
	(0.0533)	(0.0421)	(0.0532)
Age 30-44	0.0039	0.0077	0.0039
	(0.0500)	(0.0405)	(0.0473)
Age 45-59	-0.0840	-0.0564	0.0272
	(0.0474)	(0.0388)	(0.0484)
Age 60+	-0.1337***	-0.0344	0.0991*
	(0.0456)	(0.0371)	(0.0452)
Age 30-44 × news tips	-0.0481	-0.0135	0.0354
	(0.0695)	(0.0560)	(0.0655)
Age 45-59 × news tips	-0.0340	-0.0300	0.0063
	(0.0653)	(0.0527)	(0.0675)
Age 60+ × news tips	0.0198	-0.0506	-0.0687
	(0.0612)	(0.0482)	(0.0612)
Control variables	✓	✓	✓
Headline fixed effects	✓	✓	
R^2	0.19	0.15	0.25
N	17089	34173	4273

* $p < .05$, ** $p < .01$, *** $p < .005$ (two-sided). Cell entries are OLS coefficients. All models include controls for headline congeniality, Democrat, Republican, college education, political knowledge, political interest, gender, and nonwhite racial background. Headline-level analyses also control for congeniality.

Table D.9: Age and media literacy training efficacy (linear)

	False	MS	MS-false	False (w2)	MS (w2)	MS-false (w2)
News tips intervention	-0.1156	0.0219	0.1096	-0.1280*	0.0107	0.1365*
	(0.0710)	(0.0556)	(0.0796)	(0.0639)	(0.0517)	(0.0627)
Age (linear)	-0.0040***	-0.0031***	0.0006	-0.0035***	-0.0010	0.0025**
	(0.0010)	(0.0007)	(0.0010)	(0.0009)	(0.0007)	(0.0009)
News tips × age	-0.0016	-0.0018	0.0003	0.0007	-0.0011	-0.0018
	(0.0013)	(0.0010)	(0.0015)	(0.0012)	(0.0009)	(0.0012)
Control variables	✓	✓	✓	✓	✓	✓
Headline fixed effects	✓	✓		✓	✓	
R^2	0.11	0.11	0.18	0.09	0.07	0.25
N	9797	19591	4899	17089	34173	4273

[h!]

* $p < .05$, ** $p < .01$, *** $p < .005$ (two-sided). Cell entries are OLS coefficients. All models include controls for headline congeniality, Democrat, Republican, college education, political knowledge, political interest, gender, and nonwhite racial background. Headline-level analyses also control for congeniality.

Supplemental results: RQ4

Table D.10: Age, strong partisan identity, and affective polarization

	Strong ID		Affective polarization	
Age 30-44	0.0007		2.7718	
	(0.0182)		(1.9197)	
Age 45-59	0.0399*		8.9683***	
	(0.0185)		(1.8472)	
Age 60+	0.0593***		11.3722***	
	(0.0183)		(1.8061)	
Age (linear)		0.0016***		0.2528***
		(0.0004)		(0.0354)
Control variables	✓	✓	✓	✓
R^2	0.20	0.20	0.03	0.07
N	9944	9944	7126	7126

* $p < .05$, ** $p < .01$, *** $p < .005$ (two-sided). Cell entries are OLS coefficients. All models include controls for Democrat, Republican, college education, political knowledge, political interest, gender, and nonwhite racial background.

Table D.11: Age and political interest/knowledge

	Political interest	Political knowledge
Age 30-44	0.0449	-0.1219*
	(0.0464)	(0.0602)
Age 45-59	0.2966***	0.2359***
	(0.0465)	(0.0603)
Age 60+	0.5300***	0.6698***
	(0.0430)	(0.0581)
Constant	2.9692***	2.7156***
	(0.0567)	(0.0728)
Control variables	✓	✓
R^2	0.19	0.24
N	9944	9957

* $p < .05$, ** $p < .01$, *** $p < .005$ (two-sided). Cell entries are OLS coefficients. All models include controls for Democrat, Republican, college education, gender, and nonwhite racial background.

Table D.12: Age and congeniality effects (pooled news types)

	w1	w2
Age 30-44	-0.0259	-0.0380
	(0.0255)	(0.0273)
Age 45-59	-0.1774***	-0.1129***
	(0.0240)	(0.0271)
Age 60+	-0.2304***	-0.1310***
	(0.0226)	(0.0230)
Congenial	0.4204***	0.5312***
	(0.0264)	(0.0279)
Age 30-44 × Congenial	0.0867*	0.0812*
	(0.0341)	(0.0362)
Age 45-59 × Congenial	0.2320***	0.1859***
	(0.0337)	(0.0358)
Age 60+ × Congenial	0.2737***	0.2785***
	(0.0316)	(0.0317)
Control variables	✓	✓
Headline fixed effects	✓	✓
R^2	0.23	0.22
N	79534	138874

* $p < .05$, ** $p < .01$, *** $p < .005$ (two-sided). Cell entries are OLS coefficients. Age 18-29 is the reference group. All models include controls for Democrat, Republican, college education, political knowledge, political interest, gender, and nonwhite racial background.

Table D.13: Age and congeniality effects across all pooled headlines (linear)

	Pooled	Pooled (w2)
Age (linear)	-0.0055***	-0.0028***
	(0.0004)	(0.0004)
Congenial	0.2804***	0.3965***
	(0.0326)	(0.0335)
Age × congenial	0.0063***	0.0060***
	(0.0006)	(0.0006)
Control variables	✓	✓
Headline fixed effects	✓	✓
R^2	0.23	0.22
N	79534	138874

* $p < .05$, ** $p < .01$, *** $p < .005$ (two-sided). Cell entries are OLS coefficients. All models include controls for Democrat, Republican, college education, political knowledge, political interest, gender, and nonwhite racial background.

Table D.14: Age and congeniality effects by news type (linear)

	False	Mainstream	Hyper	False (w2)	Mainstream (w2)	Hyper (w2)
Age (linear)	-0.0050***	-0.0067***	-0.0034***	-0.0027***	-0.0038***	-0.0008
	(0.0007)	(0.0006)	(0.0007)	(0.0006)	(0.0005)	(0.0006)
Congenial	0.3719***	0.2173***	0.3150***	0.4293***	0.3361***	0.4844***
	(0.0507)	(0.0398)	(0.0530)	(0.0442)	(0.0368)	(0.0484)
Age × congenial	0.0036***	0.0066***	0.0084***	0.0042***	0.0059***	0.0078***
	(0.0009)	(0.0008)	(0.0010)	(0.0008)	(0.0007)	(0.0009)
Control variables	✓	✓	✓	✓	✓	✓
Headline fixed effects	✓	✓	✓	✓	✓	✓
R^2	0.15	0.18	0.17	0.16	0.17	0.19
N	19886	39765	19883	34718	69433	34723

* $p < .05$, ** $p < .01$, *** $p < .005$ (two-sided). Cell entries are OLS coefficients. All models include controls for Democrat, Republican, college education, political knowledge, political interest, gender, and nonwhite racial background.

Supplemental results: Topical misperceptions

The surveys also included three batteries that asked respondents to rate the veracity of factual claims related to immigrant border crossings, the investigation into Donald Trump's relationship to Russia, and the appointment/confirmation of Justice Kavanaugh. All three were topics in the news near the time of the relevant surveys. Note that the Kavanaugh bettery was administered in two waves of the survey. (The full question wording is shown in Supplementary Material, Appendix C.) This data allows us to test whether the patterns shown above also replicate when looking at real-world perceptions that were (somewhat) common online during the election cycle.

The results in Tables D.15 and D.16 generally show that older respondents were, on average, less likely to believe false statements and more able to discern between true and false content. However, at the same time they show evidence of higher rates of congeniality bias for older respondents. Note, however, that this pattern was not evident in the battery on Trump misperceptions and less clear on the second administration of the Kavanaugh battery.

Table D.15: Age and topical misperceptions (Immigration and Trump batteries)

	Immigration battery		**Trump battery**	
	False statement	Discernment	False statement	Discernment
Congeniality	0.0055		0.5355***	
	(0.1708)		(0.1841)	
Age 30-44	-0.1961	0.2393*	0.1038	-0.0466
	(0.1174)	(0.1093)	(0.1203)	(0.1111)
Age 45-59	-0.1204	0.3381***	0.2183	-0.0462
	(0.1069)	(0.1105)	(0.1207)	(0.0982)
Age 60+	-0.3205***	0.4361***	0.1683	0.0631
	(0.1023)	(0.1085)	(0.1090)	(0.0980)
Congenial × Age 30-44	0.2549		-0.2395	
	(0.1983)		(0.2096)	
Congenial × Age 45-59	0.2004		-0.3743	
	(0.1991)		(0.2076)	
Congenial × Age 60+	0.4132*		-0.1727	
	(0.1837)		(0.2040)	
Controls	✓	✓	✓	✓
Statement fixed effects	✓		✓	
R^2	0.04	0.20	0.20	0.26
N	2936	1716	2558	1493

* $p < .05$, ** $p < .01$, *** $p < .005$ (two-sided). Cell entries are OLS coefficients. Age 18-29 is the reference group. All models include controls for Democrat, Republican, college education, political knowledge, political interest, gender, and nonwhite racial background. False statement analyses drop independents to examine congeniality effects. Data come from the June/July survey.

Table D.16: Age and topical misperceptions (Kavanaugh battery)

	False statement	Discernment	False statement (w2)	Discernment (w2)
Congeniality	0.4263***		0.5260***	
	(0.1085)		(0.1331)	
Age 30-44	-0.0714	0.1372	0.0550	0.0543
	(0.0889)	(0.0712)	(0.1019)	(0.0692)
Age 45-59	-0.1527	0.2037**	-0.0401	0.0385
	(0.0888)	(0.0729)	(0.1007)	(0.0704)
Age 60+	-0.2523***	0.1536*	-0.1201	0.0595
	(0.0824)	(0.0695)	(0.0965)	(0.0693)
Congenial × Age 30-44	0.2712*		0.1353	
	(0.1287)		(0.1493)	
Congenial × Age 45-59	0.5024***		0.3753*	
	(0.1278)		(0.1528)	
Congenial × Age 60+	0.6433***		0.5679***	
	(0.1250)		(0.1469)	
Controls	✓	✓	✓	✓
Statement fixed effects	✓		✓	
R^2	0.16	0.14	0.17	0.14
N	5539	3320	4876	2909

* $p < .05$, ** $p < .01$, *** $p < .005$ (two-sided). Cell entries are OLS coefficients. Age 18-29 is the reference group. All models include controls for Democrat, Republican, college education, political knowledge, political interest, gender, and nonwhite racial background. False statement analyses drop independents to examine congeniality effects. Data come from the Oct./Nov. survey.

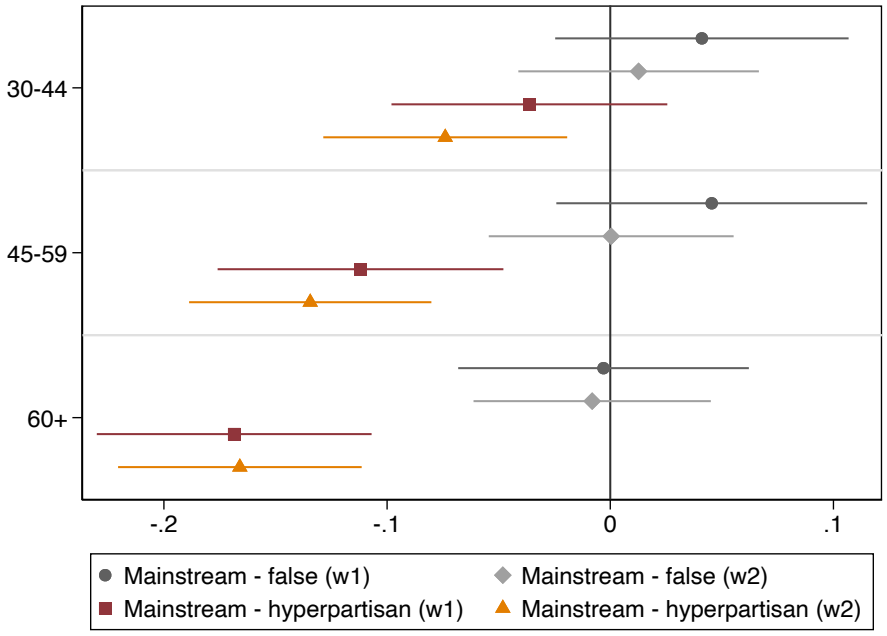
Supplemental results: RQ 5

Table D.17: Age and discernment, computed using (a) false news and (b) hyperpartisan news (linear)

	mainstream-false w1	mainstream-false w2	mainstream-hyper w1	mainstream-hyper w2
Age (linear)	-0.0006 (0.0007)	-0.0004 (0.0005)	-0.0041*** (0.0006)	-0.0039*** (0.0005)
Control variables	✓	✓	✓	✓
R^2	0.17	0.24	0.14	0.20
N	9944	8682	9944	8683

* $p < .05$, ** $p < .01$, *** $p < .005$ (two-sided). Cell entries are OLS coefficients. All models include controls for Democrat, Republican, college education, political knowledge, political interest, gender, and nonwhite racial background.

Figure D.1: Age and discernment, computed using (a) false news and (b) hyperpartisan news



Note: Point estimates are OLS coefficients with 95% CIs. Age group 18-29 is the reference group. All models include controls for Democrat, Republican, college education, political knowledge, political interest, gender, and nonwhite racial background. Full results are shown in Tables 3 and 6 .