Running head: Conscientiousness, Political Ideology, and Fake News

Of Pandemics, Politics, and Personality: The Role of Conscientiousness and Political

Ideology in Sharing of Fake News

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Abstract

Sharing of misinformation can be catastrophic, especially during times of national importance. Typically studied in political context, sharing of fake news has been positively linked with conservative political ideology. However, such sweeping generalizations run the risk of increasing already rampant political polarization. We offer a more nuanced account by proposing that sharing of fake news is largely driven by low conscientious conservatives. At high levels of conscientiousness there is no difference between liberals and conservatives. Using Covid-19 as a backdrop, we find support for our hypotheses across six studies (five pre-registered; one conceptual replication), with 3,195 participants and 73,108 unique participant-news observations. We find desire for chaos as the psychological mechanism driving the effect. Furthermore, fact-checker interventions were inadequate to deter the spread of fake news. This underscores the challenges associated with tackling fake news, especially during a crisis like Covid-19 where misinformation threatens to exacerbate the pandemic even further.

Keywords: Fake News, Misinformation, Conservatives, Liberals, Conscientiousness

Statement of Relevance

Conservative political ideology has been identified as a key predictor for sharing of fake news. However, despite scientific evidence, blaming all individuals on one side of the political divide runs the risk of further polarization and intergroup conflict which is already too high. We offer a more balanced perspective by demonstrating that low conscientiousness conservatives participate more in the spread of misinformation because of their desire to cause chaos. There are no differences among liberals and conservatives high in conscientiousness. Our findings were robust to fact checker interventions and other alternate explanations. In doing so, our work avoids denouncing all individuals who identify with conservative values. Finally, by testing our theory in the context of COVID-19, our results highlight the catastrophic consequences of misinformation and inadequacy of fact-checker interventions to curtail the dissemination of fake news.

Since the 2016 US Presidential Election, researchers have found evidence of the far-reaching malicious impact of misinformation on public opinion (Allcott & Gentzkow, 2017; Grinberg et al., 2019; Guess et al., 2020; Lazer et al., 2018; Vosoughi et al., 2018). However, the current 'fake news pandemic' (Rajan, 2020) has implications beyond voting preferences. False and misleading advice on Covid-19 is both spreading the virus and claiming lives: Hundreds of people have died in Iran after ingesting methanol in attempts to combat Covid-19, following erroneous medical advice on social media (The Associated Press, 2020).

Among various factors that propagate fake news, a positive association has emerged between conservative ideology and dissemination of false stories (Bago et al., 2020; Bail et al., 2018; Grinberg et al., 2019; Guess et al., 2020; Lazer et al., 2018; Pennycook et al., 2018; Pennycook & Rand, 2019b, 2019a, 2019c; Scheufele & Krause, 2019; Vosoughi et al., 2018). Additionally, political conservatives visit factually dubious news websites more than liberals (Guess et al., 2020). Typical explanations for above are based on motivated reasoning such that news aligned with one's political ideology is perceived as subjectively more accurate and hence shared (Kahan, 2017), or lack of reflective thinking among political conservatives (Pennycook & Rand, 2019b, 2019a). This has led some to conclude that conservatives are more likely to propagate misinformation than liberals (Pennycook & Rand, 2019c).

However, such statements smear all conservatives with the same brush, risking further polarization and conflict across the partisan divide. It is unclear why motivated reasoning would explain conservatives' subjective perception of news accuracy and sharing behavior but not that of liberals, as both display equivalent partisan bias towards ideologically concordant information (Ditto et al., 2019). Moreover, reflective thinking only partially accounts for differences among liberals and conservatives (Pennycook & Rand, 2019b, 2019a). Hence, it is possible that the

positive association between political conservatives and fake news sharing is more nuanced, and not applicable to everyone who identifies as a conservative. A more balanced approach in studying the role of political attitudes in the sharing of fake news is required that not only helps in combating political polarization, but also allows for greater political diversity in scholarly research (Duarte et al., 2015).

To achieve that, we draw on insights from the personality literature, as personality is a key determinant of individual behavior beyond one's political or general attitudes. One of the most studied and accepted personality taxonomies – The Big Five (McCrae & Costa, 2008; Soto & John, 2017) – organizes personal traits into five factors: Open-mindedness, Conscientiousness, Extraversion, Agreeableness and Negative emotionality. The Big Five personality traits have been shown to influence a range of behaviors including prejudice (Sibley et al., 2012) and morality (Tybur et al., 2009).

Despite the generality of all five personality factors in predicting individual behavior, we limit our focus to conscientiousness. Conscientiousness is associated with adjectives such as "reliable", "trustworthy" and "organized", and thus captures individuals' propensity to be responsible, dutiful, and efficient (Soto & John, 2017). Such individuals are diligent, hard-working and meticulous. Most importantly, conscientious individuals tend to have consistent pattern of attitudes and behavior across time (Roberts et al., 2009). Unsurprisingly, conscientiousness is related to a host of positive outcomes. For instance, highly conscientious individuals display greater grit in the face of challenging situations (Duckworth et al., 2007), register superior job performance (Behling, 1998), and exhibit greater integrity and moral character (Cohen et al., 2014). Given the judicious nature of conscientious individuals, we predict this diligence will be reflected in a lower propensity to share fake news.

Moving beyond the main effect of conscientiousness, we predict an interaction effect of conscientiousness and political ideology on propagation of fake news. We contend that conscientiousness will weaken the positive association between conservative ideology and the spreading of misinformation. We argue that diligent and prudent attributes of highly conscientious individuals will curtail the tendency to propagate falsehoods. However, low conscientiousness conservatives who lack diligence and are motivated to see the world through a conservative outlook will rely more on their subjective judgments of accuracy, resulting in the sharing of fake news. We contend that such individuals' behavior is not driven by traditional social or economic conservative values, or lack of trust in the mainstream media, rather a deep desire for creating havoc by disparaging other political groups they despise. Given unprecedented levels of political polarization, a steady rise in negative partisanship is observed that promotes interest of one's political group by denigrating the other (Abramowitz & Webster, 2016; Westwood et al., 2018). Thus, news objectivity is irrelevant for this group as they are motivated to cause chaos, by maligning others and throw political systems in despair (Petersen et al., 2018). Hence, we expect an interaction effect between conscientiousness and political ideology, such that a greater difference in the sharing of fake news is observed among conservatives in comparison to liberals only at lower levels of trait conscientiousness, driven sequentially by their desire to create chaos and subjective perception of news accuracy.

We performed six studies with 3,195 participants and 73,108 unique participant-news observations to examine the joint effect of personality and political ideology on fake news sharing behavior. Studies 1–2, tested whether conscientiousness and political ideology interactively predict the sharing of Covid-19 and political fake news. Studies 3–4 demonstrated the robustness of our effects in the presence of fact-checker warnings, and whether participants

updated their preferences in response to such warnings. Studies 5–6 revealed desire for chaos rather than traditional conservative values as the mechanism driving the interaction. We pre-registered five studies (Study 2 was a conceptual replication), determining sample sizes, exclusion criteria, and analytical approach in advance. The study materials, pre-registration, data and analysis code is available here:

https://osf.io/ahdsf/?view_only=9029566f8c47437485d9e4f2827e2382

951 words

Studies 1 and 2

Across two contexts – Covid-19 and politics – these studies tested our key hypothesis: If conscientiousness and political ideology interactively predict the tendency to share fake news.

25 words

Method

The pre-registration including information on sample size, exclusion criteria, hypotheses and analysis can be found here:

https://osf.io/mvu2r/?view_only=46d73b1fa77c45998a70e205ef9d05f1

Participants. We recruited 542 participants from Amazon's Mechanical Turk platform (Mturk). The study was not accessible via mobile devices and was restricted to only US participants. By *a priori* decision, we excluded 43 participants for failing the comprehension check question and further 11 for having a non-US IP address. The final sample consisted of 488 participants (M_{age} = 39.6y, 55.1% females, 1% non-binary). Participants were paid $1.01.

Procedure. Participants rated the accuracy of 12 real and 12 fake Covid-19 news stories, and how likely they were to share them on social media. Within each group of 12 real and fake stories, 4 were conservative-leaning, 4 democrat-leaning and 4 neutral respectively. In all there

were 8 each of conservative-leaning, democrat-leaning and neutral news stories. These stories

were found by searching fake news fact-checker websites (e.g. Snopes) and mainstream media

outlets. An example of a fake conservative-leaning headline is 'Even during coronavirus crisis,

liberal media can't resist spreading lies', whereas an example fake liberal-leaning headline is

'Trump is planning to bail out his corporate pals for pandemic losses – and leave taxpayers with

the bill: columnist'. The full stimuli can be found here

(https://osf.io/ahdsf/?view_only=9029566f8c47437485d9e4f2827e2382).

To validate this classification of stories, we conducted a pretest (N = 100) where

participants rated the partisanship of all of the 24 stories. Following prior research (Pennycook &

Rand, 2019a), participants were asked to assume the stories were entirely accurate and judge

how favorable they would be for Democrats versus Republicans (on a 5-point scale from "more

favorable to Democrats" to "more favorable to Republicans"). Participants' ratings confirmed the

order of partisanship (M_{Dem} = 2.36, $M_{Neutral}$ = 3.22, M_{Rep} = 3.50): Democrat-consistent stories

were more favorable for Democrats and Republican-consistent stories were more favorable for

Republicans. Neutral stories were rated close to the center of the scale and were significantly

different from both Democratic favoring (t = 8.03, p < 0.001) and Republican favoring (t = 3.90,

p < 0.001) news stories. Whilst the perceived partisanship of the Democrat-consistent stories (i.e.

their distance from the midpoint of the scale was greater than the perceived partisanship of

Republican-consistent stories, this difference was not statistically significant (t = 1.19, p =

0.235). Overall, the pilot analysis supported our classification of the news stories

We randomly presented the 24 news and also counterbalanced the positions of the 24

stories such that half of the participants responded to personality questionnaire before seeing the

news stories, and the other half after seeing the news stories. After rating the 24 stories and

responding to personality measures, participants answered items corresponding to the cognitive reflection test (CRT), their attitudes towards Covid-19, political orientation, and other demographic information.

Measures. We measured participants' personality using the BFI-2 personality inventory (Soto & John, 2017). This 60-item questionnaire asks individuals the extent to which they agree with different statements about themselves and classifies them on Big-5 personality factors using 12 items for each factor. For example, participants indicated whether they are 'outgoing, sociable' on a five-point scale ranging from 'Disagree strongly' to 'Agree strongly'. We then aggregated participants' responses into five domain scales of open-mindedness ($\alpha = 0.87$), conscientiousness ($\alpha = 0.89$), extraversion ($\alpha = 0.85$), agreeableness ($\alpha = 0.87$), and negative emotionality ($\alpha = 0.92$). Political orientation was measured using two instruments. First, we asked participants to describe their political orientation on a seven-point scale ranging from 1 = 'Very liberal' to 7 = 'Very conservative' (Graham et al., 2009). Thus, higher values on this measure represented individuals who identified more with conservative ideology. Second, we asked participants to choose between Democrats and Republicans in a forced choice: 'If you had to choose between Democrats and Republicans, who would you prefer?'. This is in line with procedure used in the literature (Pennycook, Bear, et al., 2020; Pennycook et al., 2018; Pennycook & Rand, 2019a). We report our results with the first measure but the results remained significant with the categorical measure as well. The categorical measure was mainly included for news concordance analysis and is reported in the supplementary information.

Participants rated subjective accuracy of news stories on a four-point continuous scale by responding to the following item, 'To the best of your knowledge, how accurate is the claim in the above headline?' The scale points ranged from 1 = 'Not at all accurate' to 4 = 'Very

accurate'. Participants' desire to share the news was operationalized using a single item: 'Would you consider sharing this story online (for example, through Facebook or Twitter)?' The responses for this item were 'No', 'Maybe' and 'Yes'. Consistent with the existing literature on fake news (Pennycook, Bear, et al., 2020; Pennycook et al., 2018; Pennycook & Rand, 2019a), the variable 'share' took the value of 0 if a respondent indicated 'no', and 1 if they indicated 'maybe' or 'yes'.

We measured several control variables in addition to our independent variables. We collected responses to the Cognitive Reflection Test (Frederick, 2005), a three-item scale measuring the extent to which participants' cognitive styles are deliberative. Prior research has demonstrated that the CRT is a reliable predictor of fake news sharing (Bago et al., 2020; Pennycook & Rand, 2019b, 2019a). We therefore wanted to demonstrate the interaction of conscientiousness and political ideology above and beyond the explanatory power of this variable. An example item of the CRT is the bat-and-ball problem, 'A bat and a ball cost $1.10 in total. The bat costs $1.00 more than the ball. How much does the ball cost? (in cents)'. We also measured the CRT-2, a non-numeric test of respondents' cognitive styles. The CRT-2 (Thomson & Oppenheimer, 2016) is a four-item scale including items such as, 'If you're running a race and you pass the person in second place, what place are you in?' This scale measures a similar construct to the CRT but removes the heavy dependency on numeracy. We collapsed these two scales to make a 7-item measure of general cognitive reflection, with scores ranging from 0 to 7.

We collected measures of participants' attitudes towards the virus to account for any variance in sharing of news based on individuals' attitudes towards the Covid-19 virus. Our items fell into two categories: how personally worried they were, and their beliefs about the extent to which the virus is dangerous. We collapsed all six items to create a single measure of

attitudes towards Covid-19, where a higher score indicated a greater perception of severity of Covid-19 (α=.92). We added two additional questions to study partisan differences perceptions of the extent to which the threat of the virus is exaggerated, and support for federally mandated quarantining. We collected participants' age and gender. Age was treated as a continuous variable, whereas gender was dummy coded (1 if male, 0 otherwise).

Results. Since each participant saw 24 different news stories, we performed analysis at the news story level, resulting in 11,712 observations. Our key dependent variable – the sharing of news – was categorical in nature, hence we ran logistic regression analysis estimated with Generalized Estimation Equations to test our hypotheses. Additionally, we clustered standard errors within each participant and used an "independence" correlation structure among the standard errors as it minimized the Quasi Information Criterion (QIC). The results are presented in Table 1.

Consistent with our hypothesis, participants who identified as conservative were more likely to share news stories, ($b = .154, p < 0.001$, *Model 1*), whereas participants who were high on conscientiousness were less likely to do so, ($b = -.648, p < 0.001$, *Model 1*). These effects were robust to the inclusion of several control variables (*Model 4*).

The interaction between political ideology and conscientiousness was statistically significant and negative, such that political ideology, where a higher score indicates greater conservatism, had less of a positive effect on the likelihood of sharing a story when conscientiousness was higher (*Models 2, 5 and 6*). This interaction remained statistically significant with and without the inclusion of several control variables ($b = -.231, b = -.198, p < 0.001$) including participants' ratings of subjective accuracy ($b = -.160, p = 0.004$). The interaction remained robust after including interactions between political ideology and all of the

other big five personality variables (see *Table S1* in supplementary information (SI)). Figure 1

plots the interaction pattern. The effect of political ideology on the likelihood of sharing a story

was significant at low levels of conscientiousness ($b = .297$, $p < 0.001$), but not at high ($b = -.045$, $p = 0.441$). To test if the observed effect varied based on news veracity, we re-ran the

analysis for Model 5 within the subsets of real and fake news stories. The effect was significant

for both the 'real' ($b = -0.182$, $p < 0.001$) and 'fake' samples ($b = -0.213$, $p < .001$). The three-

way interaction between political ideology, conscientiousness and news veracity did not attain

statistical significance. Overall, this analysis revealed that low conscientious conservatives

shared fake news to the same extent as the real ones (see *Table S1* in SI).

We next examined whether subjective accuracy mediated the interactive effect of

political ideology and conscientiousness on sharing of fake news. A moderated mediation

analysis using a WLSMV estimator (a robust version of diagonally-weighted least squares) and

Huber-White robust standard errors revealed conservative political ideology had a significant

positive indirect effect via subjective accuracy at low levels of conscientiousness ($b = .018$, $p < 0.001$, $CI_{95} = [0.015, 0.021]$), but a negative indirect effect at high levels of conscientiousness ($b = -.013$, $p < 0.001$, $CI_{95} = [-0.016, -0.009]$). In short, we found support for the moderated

mediation model (*Table S2* in the SI).

Our study design included a control condition, which enabled us to examine whether

news concordance or discordance drives the effect of political alignment on sharing of fake

news. Unlike past work (Pennycook et al., 2018; Pennycook & Rand, 2019a), we found an

aversion to discordant news rather than a preference for concordant news as the mechanism

behind dissemination of news (see SI for additional details). We generally found that discordance

drove partisan disparities in preference for sharing new stories. Additionally, for all studies we

tested for differences in our control variables and conscientiousness. We found no differences in conscientiousness based on political affiliation, except for Study 6 where Republicans were slightly higher on conscientiousness (see *Table S18*). Overall, Study 1 revealed that the effect of political orientation is more nuanced and largely driven by low conscientious conservatives.

Study 2

Method

 Participants. A total of 527 US MTurk participants completed the study in exchange of $1.01. We excluded participants who failed the comprehension check question (n=24), had a duplicate (n=1) or a non-US IP address (n=17). The final sample consisted of 485 participants (M_{age} = 39.3y, 46.4% females, 1% non-binary).

 Procedure. The procedure for this study was similar to Study 1 except participants rated the accuracy and their tendency to share 12 real and 12 fake political news stories taken from Pennycook and colleagues (Pennycook, Bear, et al., 2020). Within each group of 12 real and fake stories, 6 were conservative-leaning and 6 were democrat-leaning. In all there were 12 each of conservative-leaning and democrat-leaning. We randomly presented the 24 news and counterbalanced the positions of the 24 stories such that half of the participants responded to personality questionnaire before seeing the news stories, and the other half after seeing the news stories. Following this, participants reported their political orientation, CRT, and other demographic information.

 Measures. Our measures were similar to those of Study 1, with exceptions listed below.

Table 1: Likelihood of sharing a news story using GEE logistic regression (Study 1)

Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9
Political ideology (PI)	.154***	1.03***		.115**	.866***	.738***			
	(0.040)	(0.246)		(0.040)	(0.205)	(0.215)			
Conscientiousness (C)	-.648***	.229		-.693***	.044	-.092	-.683***	-.628***	-.500***
	(0.099)	(0.226)		(0.115)	(0.217)	(0.240)	(0.118)	(0.123)	(0.124)
PI X C		-.231***			-.198***	-.160**			
		(0.062)			(0.052)	(0.055)			
Fake[a]			-.428***	-.444***	-.452***	-.036	-.443***	-.443***	.430
			(0.033)	(0.034)	(0.035)	(0.041)	(0.034)	(0.034)	(0.326)
Extraversion			.464***	.486***	.488***	.584***	.526***	.526***	.529***
			(0.099)	(0.097)	(0.096)	(0.115)	(0.099)	(0.099)	(0.099)
Agreeableness			-.299*	-.059	-.031	0.062	-.066	-.066	-0.065
			(0.121)	(0.126)	(0.126)	(0.148)	(0.124)	(0.124)	(0.124)
Negative Emotionality			.149	-.031	-.010	-.003	-.012	-.012	-.011
			(0.089)	(0.095)	(0.095)	(0.110)	(0.094)	(0.094)	(0.095)
Open-mindedness			-.517***	-.327**	-.321**	-.436***	-.401***	-.400***	-.402***
			(0.101)	(0.101)	(0.104)	(0.118)	(0.099)	(0.099)	(0.099)
Attitude towards COVID-19			.274***	.335***	.320***	.289**	.283***	.283***	.285***
			(0.079)	(0.084)	(0.089)	(0.100)	(0.081)	(0.081)	(0.081)
General Cognitive Reflection			-.194***	-.179***	-.175***	-.191***	-.192***	-.192***	-.193***
			(0.032)	(0.032)	(0.032)	(0.038)	(0.032)	(0.032)	(0.032)
Age			-.00	-.00	-.00	-.005	.001	.002	.002
			(0.006)	(0.006)	(0.006)	(0.007)	(0.006)	(0.006)	(0.006)
Male[b]			.172	.109	.109	-.002	.131	.131	.132
			(0.144)	(0.143)	(0.144)	(0.163)	(0.145)	(0.145)	(0.145)
News - Conservative			-.240***	-.249***	-.254***	-.360***			
			(0.049)	(0.051)	(0.052)	(0.059)			
News - Democratic			-.142***	-.148*	-.150*	-.265***			
			(0.057)	(0.059)	(0.060)	(0.064)			
Counterbalance			.072	.023	-.024	-.029	.030	.030	.030
			(0.137)	(0.136)	(0.136)	(0.156)	(0.137)	(0.137)	(0.138)
Subjective Accuracy						1.25***			
						(0.055)			
Concordant							.017	-.012	-.114
							(0.054)	(0.265)	(0.331)
Discordant							-.427***	.294	.500
							(0.055)	(0.030)	(0.330)
C X Concordant								.007	-.055
								(0.071)	(0.086)
C X Discordant								-.192*	-.299***
								(0.080)	(0.089)
C X Fake									-.337***
									(0.087)
Concordant X Fake									-.032
									(0.425)
Discordant X Fake									-.623
									(0.405)
C X Concordant X Fake									.206
									(0.113)
C X Discordant X Fake									.285**
									(0.109)
Intercept	.999*	-2.33*	.178	1.00	-1.95	-4.68***	1.67*	1.46	1.12
	(0.397)	(0.921)	(0.712)	(0.820)	(1.07)	(1.30)	(0.806)	(0.804)	(0.811)
QIC	13437.9	13232.6	12900.3	12558	12420	10004	12562.1	12556.7	12499
CIC	33.7	49.2	90.4	104	117	136	96.9	98.7	102

Note: N= 11,712; [a] Categorical Variable 0 = Real News, 1 = Fake News; [b] Categorical Variable 1 = Male, 0 = Otherwise

* p < 0.05, ** p < 0.01, *** p < 0.001

Figure 1: The predicted probability of sharing a news story for high and low conscientiousness respondents across the range of political ideology in Study 1.
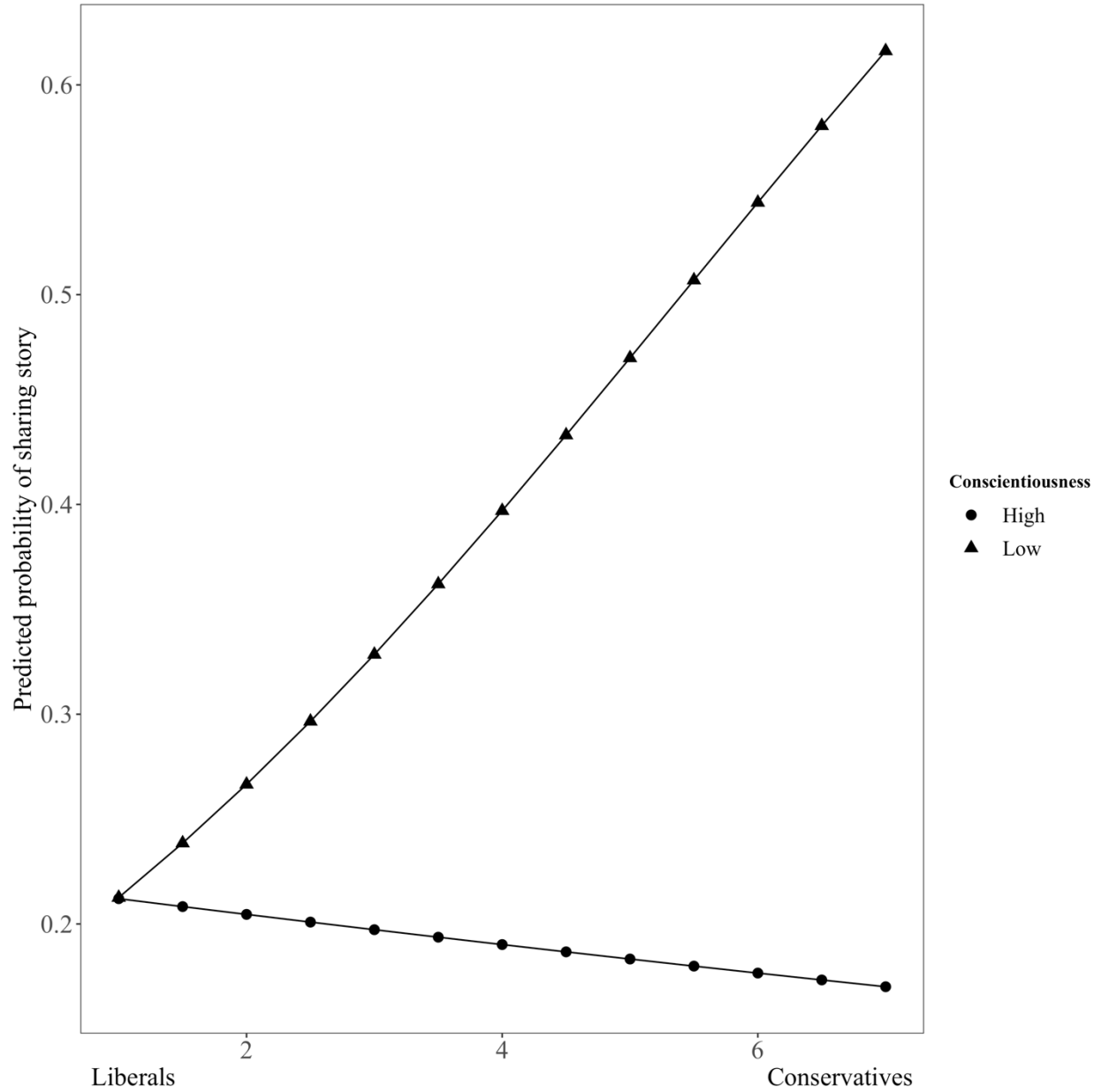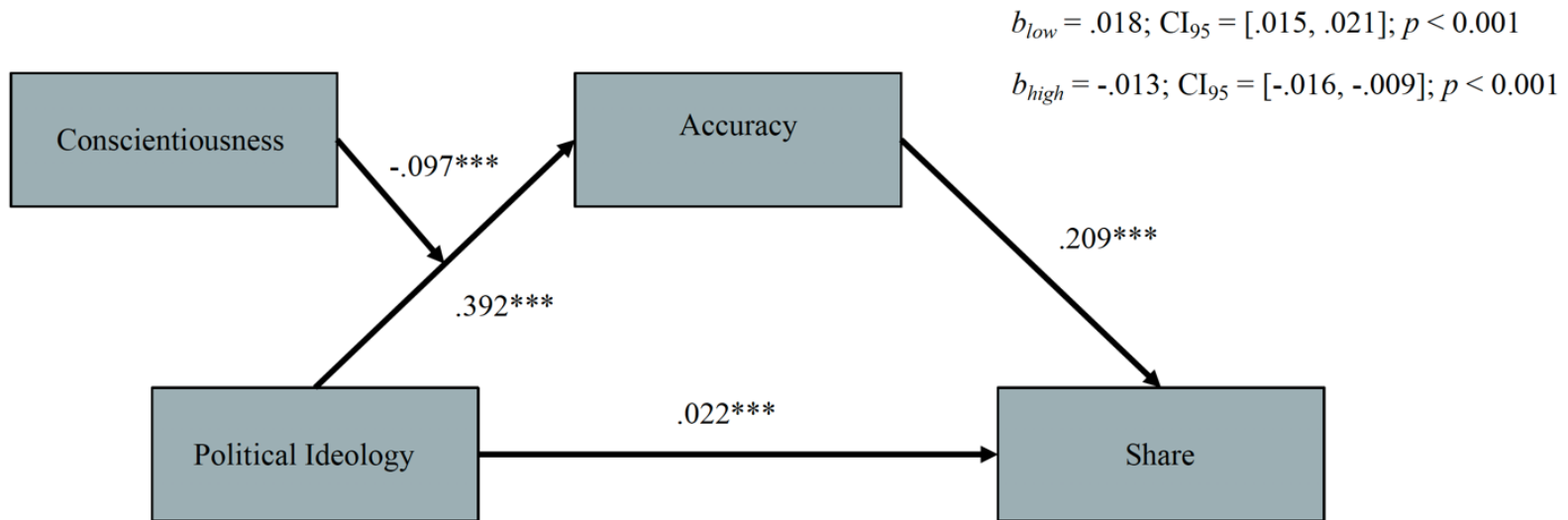
Figure 2: Moderated Mediation analysis

b_{low} = .018; CI$_{95}$ = [.015, .021]; p < 0.001

b_{high} = -.013; CI$_{95}$ = [-.016, -.009]; p < 0.001

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Personality was measured using the same BFI-2 personality inventory; open-mindedness ($\alpha = 0.88$), conscientiousness ($\alpha = 0.91$), extraversion ($\alpha = 0.87$), agreeableness ($\alpha = 0.85$), and negative emotionality ($\alpha = 0.91$). We used the same continuous measure of political orientation. For the categorical measure, participants chose whether they voted / would have voted for Donald Trump or Hilary Clinton in the 2016 election (Pennycook & Rand, 2019b). The measurement and coding of our dependent variables was identical to Study 1. We included a similar set of control variables as Study 1, with the exclusion of attitude towards Covid-19.

Results. We followed an identical modelling procedure to Study 1. The results are reported in Table 2. Conscientiousness had a negative main effect ($b = -.868$, $p < 0.001$, *Model 1*) and political ideology had a positive main effect ($b = .260$, $p < 0.001$, *Model 1*) on the likelihood of sharing a news story both with (*Model 4*) or without control variables. More importantly, political ideology and conscientiousness interacted to negatively predict the likelihood of sharing a news story, such that positive effect of conservative ideology on the likelihood of sharing a story was weaker when conscientiousness was higher (*Models, 2, 5 & 6*). The interaction effect ($b = .294$, $p < 0.001$) was robust to the inclusion of control variables ($b = -.188$, $p = 0.001$) and for perceptions of accuracy ($b = -.141$, $p = 0.012$). The likelihood of sharing a story was significant at low values of conscientiousness ($b = .409$, $p < 0.001$), but not when conscientiousness was high ($b = -.059$, $p = 0.346$, *Figure 3*). This interaction attained marginal significance ($b = -.130$, $p = 0.077$) when including the interactions between political ideology and all other personality variables (see *Table S4* in SI).

We also found support for the moderated mediation model (*Table S5* in the SI).

Table 2: Likelihood of sharing a news story using GEE logistic regression (Study 2)

Variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9
Political Ideology	.260***	1.33***		.137**	.843***	.659**			
	(0.045)	(0.199)		(0.045)	(0.228)	(0.221)			
Conscientiousness	-.868***	.194		-.753***	-.070	-.285	-.754***	-.895***	-.733***
	(0.103)	(0.205)		(0.133)	(0.268)	(0.264)	(0.134)	(0.140)	(0.148)
PI X C		-.294***			-.188**	-.141*			
		(0.051)			(0.058)	(0.056)			
Fake			-.583***	-.611***	-.625***	.179**	-.607***	-.608***	.806*
			(0.049)	(0.050)	(0.052)	(0.066)	(0.050)	(0.050)	(0.323)
Extraversion			.530***	.543***	.497***	.479***	.621***	.620***	.617***
			(0.121)	(0.122)	(0.122)	(0.130)	(0.120)	(0.120)	(0.120)
Agreeableness			-.282*	-.086	-.047	.058	-.137	-.138	-.139
			(0.124)	(0.128)	(0.134)	(0.146)	(0.126)	(0.126)	(0.126)
Negative Emotionality			.352***	.081	.118	.108	.046	.047	.049
			(0.100)	(0.117)	(0.119)	(0.131)	(0.120)	(0.120)	(0.120)
Open-mindedness			-.593***	-.371**	-.318*	-.374**	-.470***	-.469***	-.468***
			(0.123)	(0.120)	(0.129)	(0.130)	(0.119)	(0.119)	(0.119)
General Cognitive Reflection			-.235***	-.222***	-.199***	-.182***	-.239***	-.239***	-.240***
			(0.035)	(0.035)	(0.037)	(0.038)	(0.035)	(0.035)	(0.035)
Age			-.013*	-.011	-.009	-.011	-.009	-.009	-.009
			(0.006)	(0.006)	(0.007)	(0.007)	(0.006)	(0.006)	(0.006)
Male			.337	.226	.207	.205	.239	.239	.239
			(0.169)	(0.163)	(0.166)	(0.170)	(0.166)	(0.167)	(0.165)
News - Conservative			-.047	-.049	-.050	-.071			
			(0.049)	(0.052)	(0.053)	(0.055)			
Counterbalance			.092	.020	-.004	.007	.061	.060	.060
			(0.163)	(0.158)	(0.161)	(0.168)	(0.162)	(0.162)	(0.162)
Accuracy						1.32***			
						(0.064)			
Concordant							.427***	-.525	-.526
							(0.046)	(0.280)	(0.319)
C X Concordant								.258***	.270**
								(0.076)	(0.084)
C X Fake									-.369***
									(0.092)
Concordant X Fake									.044
									(0.362)
C X Concordant X Fake									-.040
									(0.104)
Intercept	1.07**	-2.78***	.849	2.31*	-.664	-3.53*	2.93**	3.45***	2.82**
	(0.376)	(0.816)	(0.800)	(0.949)	(1.48)	(1.53)	(0.958)	(0.977)	(0.992)
QIC	11270.4	10924.3	10733.4	10357.6	10278	8230	10374.1	10360.0	10322.6
CIC	32.2	43.1	79.1	83.4	105	103	79.6	80.8	81.9

Note: N = 11,640; * $p < 0.05$, ** $p < 0.01$, *** $p <= 0.001$; [a] Categorical Variable 0 = Real News, 1 = Fake News; [b] Categorical Variable 1 = Male, 0 = Otherwise

Figure 3: The predicted probability of sharing a news story for high and low conscientiousness respondents across the range of political ideology in Study 2.
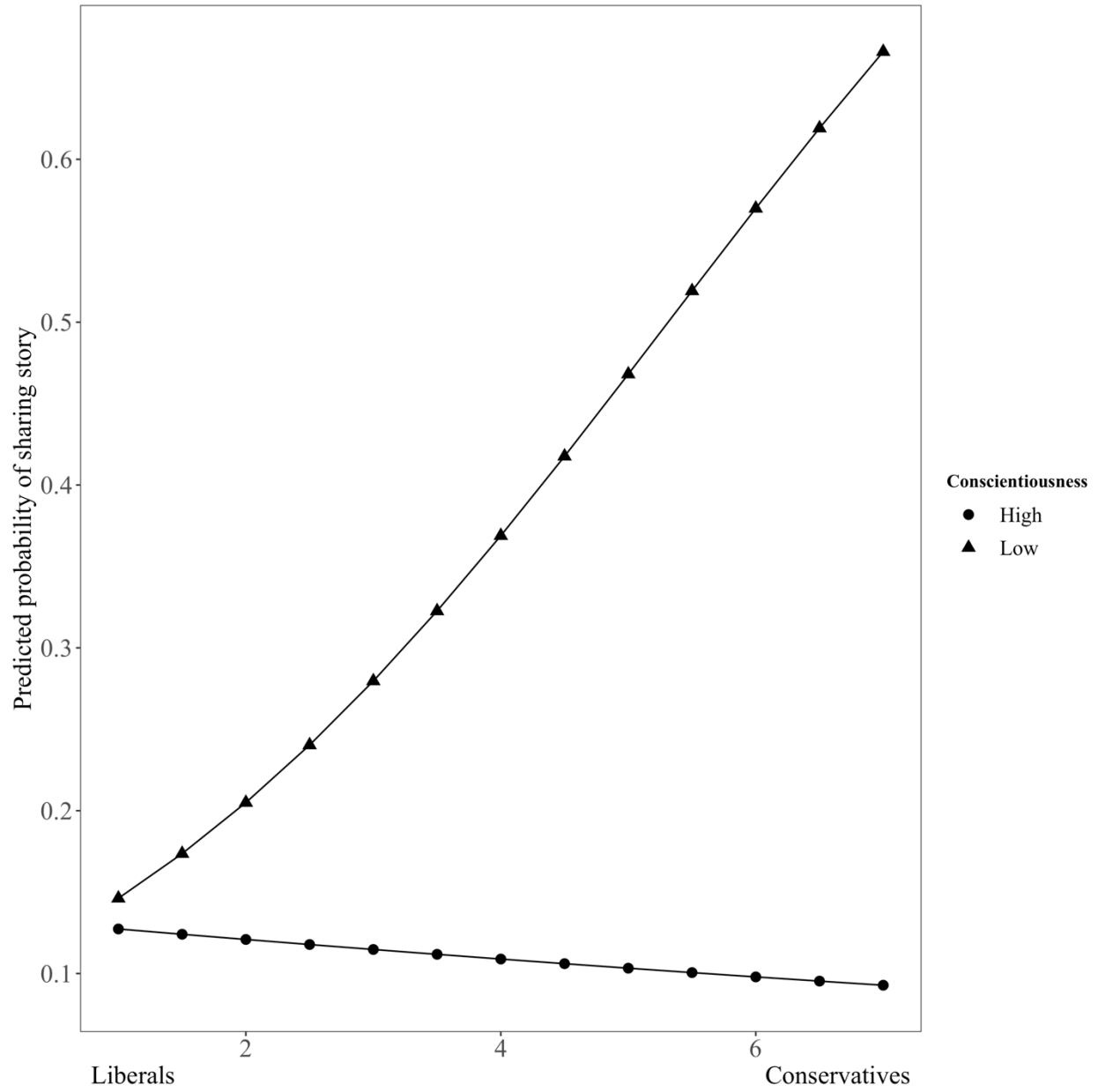
There was a positive indirect effect of a more conservative political ideology via subjective accuracy at low levels of conscientiousness ($b = .030$, $p < 0.001$, $CI_{95} = [0.027, 0.033]$), but a negative indirect effect at high levels of conscientiousness ($b = -.010$, $p < 0.001$, $CI_{95} = [-0.013, -0.007]$).

We repeated the analyses of Study 1 to understand the relationship between these interaction effects and news veracity. The interaction effect of conscientiousness and political ideology was significant in both the 'real' ($b = -0.161$, $p = 0.004$) and 'fake' ($b = -0.216$, $p = 0.002$) subsets of the stories. We also found a statistically significant negative three-way interaction between political ideology, conscientiousness and the news being 'fake' ($b = -0.127$, $p = 0.007$) (*Table S4, Figure S5* in SI) suggesting that the gap between conservatives and liberals is largest specifically for *fake* news, at low levels of conscientiousness. The simple slope was significant at low conscientiousness for both real ($b = .189$, $p = 0.002$) and fake news stories ($b = .320$, $p < 0.001$), but not at high conscientiousness (real: $b = -.021$, $p = 0.755$; fake: $b = -.093$, $p = 0.256$).

Study 3

Having found the support for our hypotheses across both Covid-19 and political news, in Study 3 we tested if sharing of misinformation persists *even* in the presence of explicit fact-checker warnings.

31 words

Method

We pre-registered our study design, sample size, exclusion criteria, hypotheses and analysis (https://osf.io/bv2yg/?view_only=fa04d06fdcef41f78f35292067c12526).

Participants. 530 US Mturk participants accepted to took part in our study for $1.26

payment. 51 participants were excluded from the analysis (37 for failing the comprehension

check question and 14 for having a non-US IP address), resulting in a final sample of 479

participants (M_{age} = 40.4y, 51.6% females).

Procedure. The study design was similar to Study 1, with the exception that stories were

(accurately) tagged with fact-checker warnings. The 12 fake COVID-19 news stories had the

warning 'Disputed by 3rd Party Fact-Checkers. Learn why this is disputed'. The 12 real COVID-

19 news stories had the message 'Supported by 3rd Party Fact-Checkers. Learn why this is

supported'. Similar to Study 1, participants indicated the subjective accuracy of the news, their

tendency to share it, self-reported on personality and CRT measures, provided their attitudes

towards the COVID-19 and demographic information.

Measures. Our measures were identical to Study 1. Personality was measured using the

BFI-2 personality inventory (Soto & John, 2017) and the constructs displayed reasonable

reliability – open-mindedness (α = 0.88), conscientiousness (α = 0.89), extraversion (α = 0.84),

agreeableness (α = 0.85), and negative emotionality (α = 0.91). Similar to Study 1, we measured

attitudes towards COVID-19, where a higher score indicated a greater perception of severity of

COVID-19 (α = 0.91). We also controlled for CRT and other demographic information.

Results. Consistent with our theory, we pre-registered several hypotheses. First, we

predicted a positive main effect of political ideology, where a higher score indicates greater

conservatism, and a negative main effect of conscientiousness on the likelihood of sharing a

news story. Second, we predicted a negative two-way interaction between conscientiousness and

political ideology, such that a more conservative political ideology has less of a positive impact

on the likelihood of sharing a story when conscientiousness is higher. Third, we predicted a

negative effect of a 'false warning' on the likelihood of sharing a story. Finally, we predicted a negative two-way interaction between conscientiousness and a false warning, such that a false warning has a greater negative impact on likelihood of sharing when conscientiousness is higher.

Similar to other studies, we performed analysis at the news level using GEE logit regressions with standard errors clustered within each individual. The results are presented in Table 3. We found support for our first hypothesis both with (*Model 4*) and without the control variables (*Model 1*). Political ideology positively predicted sharing of fake news (b = .128, p < 0.001, *Model 1*) whereas conscientiousness was negative and significant (b = -.560, p < 0.001, *Model 1*).

Models 2 and 5 support our second hypothesis. The interaction effect was significant with (b = -.119, p = 0.006, *Model 5*) and without (b = -.170, p < 0.001, *Model 2*) the inclusion of control variables. The effect of political ideology on the likelihood of sharing a story was significant only at low levels of conscientiousness (b = .244, p < 0.001), but not at high (b = -.013, p = 0.764, *Figure 4*). However, when participants' accuracy ratings are included as a covariate, this interaction was no longer significant (*Model 6*), suggesting that subjective accuracy mediated the interaction effect of conscientiousness and political ideology on sharing of news.

The interaction between conscientiousness and political ideology was negative and significant in both the real (b = -.108, p = 0.012) and fake (b = -.106, p = 0.047) subsets of the data. However, the three-way interaction between conscientiousness, political ideology and 'false warnings' did not attain statistical significance (see *Model 13*, Table S7). The significant

Table 3: Likelihood of sharing a news story using GEE logistic regression (Study 3)

Variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9
Political ideology (PI)	.128***	.777***		.087**	.546**	.378*			
	(0.031)	(0.179)		(0.034)	(0.176)	(0.193)			
Conscientiousness (C)	-.560***	.093		-.406***	.021	-.126	-.402***	-.369***	-.183
	(0.086)	(0.182)		(0.098)	(0.183)	(0.202)	(0.097)	(0.096)	(0.104)
PI X C		-.170***			-.119**	-.069			
		(0.044)			(0.043)	(0.048)			
Fake Warning[a] (FW)			-.856***	-.871***	-.878***	.015	-.873***	-.874***	.667
			(0.054)	(0.054)	(0.055)	(0.056)	(0.055)	(0.055)	(0.432)
Extraversion			.360***	.345***	.346***	.453***	.372***	.373***	.376***
			(0.096)	(0.096)	(0.095)	(0.115)	(0.096)	(0.055)	(0.097)
Agreeableness			-.460***	-.362***	-.361***	-.305*	-.394***	-.394***	-0.396***
			(0.108)	(0.108)	(0.106)	(0.127)	(0.107)	(0.108)	(0.109)
Negative Emotionality			.090	-.013	-.004	.009	-.037	-.036	-.036
			(0.085)	(0.092)	(0.093)	(0.105)	(0.090)	(0.090)	(0.091)
Open-mindedness			-.271**	-.149	-.117	-.178	-.208*	-.207*	-.206*
			(0.094)	(0.097)	(0.099)	(0.115)	(0.096)	(0.096)	(0.097)
Attitude towards COVID-19			.232**	.289***	.276***	.270**	.258***	.258***	.261***
			(0.073)	(0.078)	(0.079)	(0.090)	(0.077)	(0.077)	(0.077)
General Cognitive Reflection			-.152***	-.130***	-.119***	-.143***	-.144***	-.145***	-.145***
			(0.029)	(0.029)	(0.030)	(0.035)	(0.029)	(0.029)	(0.029)
Age			-.00	-.00	-.00	-.008	-.002	-.002	-.002
			(0.005)	(0.005)	(0.005)	(0.006)	(0.005)	(0.005)	(0.005)
Male[b]			.484***	.429**	.399**	.451**	.420**	.421**	.423**
			(0.136)	(0.134)	(0.134)	(0.152)	(0.136)	(0.136)	(0.137)
News - Conservative			-.144**	-.146**	-.147**	-.217***			
			(0.049)	(0.050)	(0.050)	(0.058)			
News - Democrat			-.127*	-.130*	-.131*	-.233***			
			(0.056)	(0.057)	(0.058)	(0.062)			
Counterbalance			-.116	-.090	-.079	-.197	-.090	-.091	-.093
			(0.128)	(0.126)	(0.126)	(0.144)	(0.127)	(0.128)	(0.128)
Subjective Accuracy						1.31***			
						(0.056)			
Concordant							.097	-.266	-.266
							(0.054)	(0.272)	(0.327)
Discordant							-.388***	.442	.250
							(0.051)	(0.260)	(0.328)
C X Concordant								.094	.006
								(0.071)	(0.084)
C X Discordant								-.220**	-.237**
								(0.070)	(0.087)
C X FW									-.537***
									(0.117)
Concordant X FW									-.517
									(0.448)
Discordant X FW									.039
									(0.415)
C X Concordant X FW									.351**
									(0.121)
C X Discordant X FW									.153
									(0.115)
Intercept	.965**	-1.53*	.883	1.27	-.451	-3.93**	2.02**	1.89*	1.36
	(0.354)	(0.745)	(0.732)	(0.827)	(1.05)	(1.21)	(0.774)	(0.777)	(0.784)
QIC	14087.6	13952.8	13252.7	13101.9	13053	10338	13057	13040.3	12939.4
CIC	28.2	38.1	87.1	98.6	107	115	92	93.7	97.2

Note: N= 11,496; [a] Categorical Variable 0 = Supported Warning, 1 = Disputed Warning; [b] Categorical Variable 1 = Male, 0 = Otherwise

* p < 0.05, ** p < 0.01, *** p < 0.001

Figure 4: The predicted probability of sharing a news story for high and low conscientiousness respondents across the range of political ideology in Study 3.
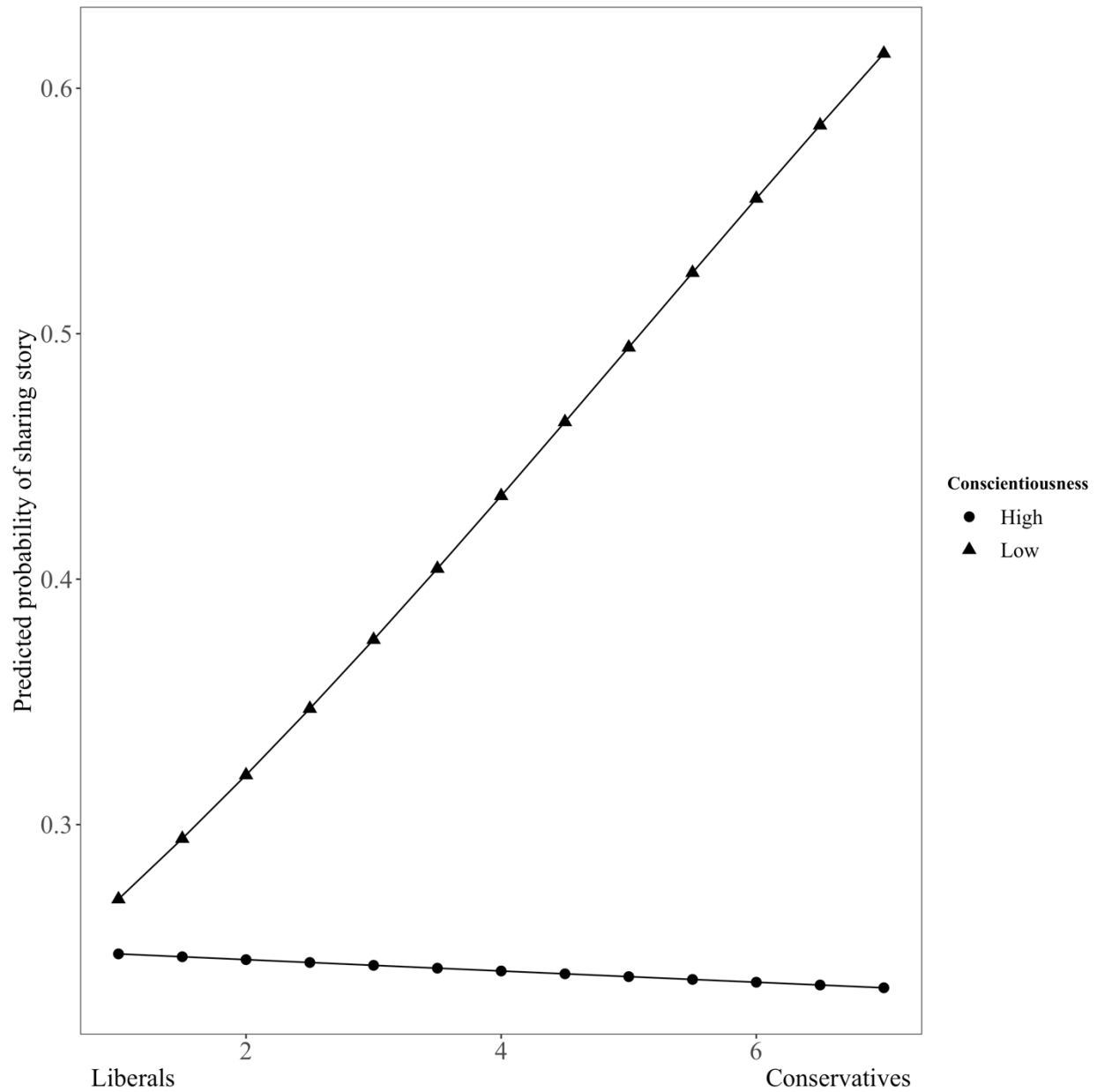
interaction for fake news stories despite the fact check warnings not only highlights the robustness of this effect but also points out the inability of such warnings to curtail the spread of misinformation especially among low conscientious conservatives.

We found a significant negative effect of the interaction between conscientiousness and a conservative political ideology on accuracy ($b = -0.086$, $p < 0.001$, *Table S8*). This is a noteworthy finding, as the participants were provided explicit judgments of accuracy, yet the interaction of conscientiousness and political ideology *still* played a key role in their subjective evaluation of news stories. In support of our theory, we again found a positive indirect effect of a more conservative political ideology via subjective accuracy at low levels of conscientiousness ($b = .016$, $p < 0.001$, $CI_{95} = [0.013, 0.019]$), and a negative indirect effect at high levels of conscientiousness ($b = -.012$, $p < 0.001$, $CI_{95} = [-0.016, -0.009]$).

Study 4

Despite fact-checker warnings, low conscientious conservatives were still more likely to spread falsehood. Study 4 provided an even stricter test of our hypotheses by warning participants that the news they indicated to share was false.

35 words

Method

We pre-registered our study design, sample size, exclusion criteria, hypotheses and analysis (https://osf.io/ku6fq/?view_only=764a4010807840349b35a7558834f40b).

Participants. We recruited 1048 US Mturk participants who could not access our study via a mobile device. A total of 81 participants were excluded from the analysis (51 for failing the comprehension check question and 30 for not having a US IP address), resulting in a final sample consisted of 967 participants ($M_{age} = 39.2y$, 51.8% female). Participants were paid \$1.51.

Procedure. The study design was similar to Study 1, with the difference that subjects were offered a chance to revise their response to sharing of fake news stories by informing them that the news was probably not genuine. Thus, the first part of the study was identical to Study 1 and the second half included an intervention only for fake news stories that participants were willing to share. We hoped that offering targeted warning for false news stories might be a more effective strategy to decrease falsehood. Similar to Study 1, participants indicated the subjective accuracy of the news and their likelihood of sharing it for 24 stories on COVID-19. These stimuli were identical to Studies 1 and comprised of neutral, democratic and republican leaning stories. Following that, participants reported on BFI personality inventory and CRT measures. At this point, we introduced our intervention only for fake news stories that participants indicated their willingness to share. Participants saw the following message, "*Prior to making your ultimate decision regarding your views of the accuracy and your likelihood of sharing these stories, you have the chance to see the results of an independent fact checker. If none of the stories you indicated you may share were disputed by third party fact checkers, the survey will automatically move on to asking questions about yourself.*" Participants then learned that the news story they were willing to share is disputed by 3rd party fact-checkers and if they would still like to share it. Following this, participants provided ratings of their political ideology, their attitudes towards the COVID-19, and demographic information. Given this study design, we expected to replicate our findings at news level before the intervention. Following intervention, we examined the average change in participants willingness to continue sharing the false story despite the warning. This latter analysis was performed at the individual level.

Measures. Our independent measures were identical to Studies 1 and 3. Personality was measured using the BFI-2 personality inventory (Soto & John, 2017) – open-mindedness (α =

0.88), conscientiousness (α = 0.89), extraversion (α = 0.88), agreeableness (α = 0.87), and negative emotionality (α = 0.91). As per our pre-registration, we constructed a variable 'change', which indicated the extent to which participants changed their mind to share fake stories after seeing the falsehood warnings from an independent third-party fact-checker. For example, if a participant might have selected 'maybe' or 'yes' to the sharing question for three stories initially and after seeing the warning participant chose to share 1 of them again. The variable 'change' would then take the value (3 – 1)/3 = 0.67. Thus, this variable ranged from 0 to 1, with 0 representing no change in preference and 1 representing total change in preference to share fake news. Hence, higher value on this variable represented greater reluctance to share fake news. Overall, this variable captured aggregate reduction in the sharing of fake news at a participant level.

Similar to Study 1, we created a composite measure, reflecting attitudes towards COVID-19, (α=.91), and also controlled for CRT and other demographic information.

Results. Consistent with other studies, we replicated all our findings before the fact-checker intervention. There was a negative interaction of conscientiousness and political ideology (see *Figure 5* and *Table S10* in the SI). This was robust to the inclusion of controls (b = -.164, p < 0.001, *Table S10)*, controlling for accuracy (b = -.150, p < 0.001, *Table S10*), and the inclusion of all other personality interactions (b = -.118, p = 0.007, *Table S11*). This interaction was significant in the subsets of 'real' and 'fake' stories (b_{real} = -.184, b_{fake} = -.139, p < 0.001, *Table S11*).

Next, we present our analysis examining whether fact checker warnings revise individuals' tendency to share fake news after learning its false. Of the 651 participants who initially indicated their willingness to share one or more fake story, their average willingness to

share false information reduced from 4.58 to 2.78 stories ($p < 0.001$) after seeing the fact-checker warning. This is encouraging as it shows that fact checkers were somewhat effective in reducing the sharing of misinformation. We next examined whether conscientiousness and political ideology predicted this change. The analyses are presented in Table 4.

Conscientiousness had a positive main effect on the extent to which participants updated their choices ($b = .060$, $p = 0.003$, *Model 1*), whereas political ideology was negatively correlated with changing ($b = -.059$, $p < 0.001$, *Model 1*), in support of first hypothesis. In Model 2, we found a significant positive interaction between political ideology, where a higher score indicates greater conservatism, and conscientiousness ($b = .034$, $p = 0.001$). The interaction was robust to the inclusion of control variables ($b = .024$, $p = 0.024$, *Model 5*). The effect of political ideology on 'change' was significant at both one standard deviation below mean conscientiousness ($b = -.083$, $p < 0.001$), and one standard deviation above ($b = -.032$, $p = 0.004$). However, the two slopes were significantly different, suggesting that low conscientiousness conservatives changed their news sharing behavior less than high conscientiousness conservatives (*Figure 6*). Overall, our hypothesis was supported.

Discussion. Study 4 revealed that conscientiousness and political ideology jointly predicted participants' tendency to update their fake news sharing behavior in response to fact checker warnings. Importantly, we also replicated results from other studies pre-intervention.

35 words

Figure 5: The predicted probability of sharing a news story for high and low conscientiousness respondents across the range of political ideology in Study 4.
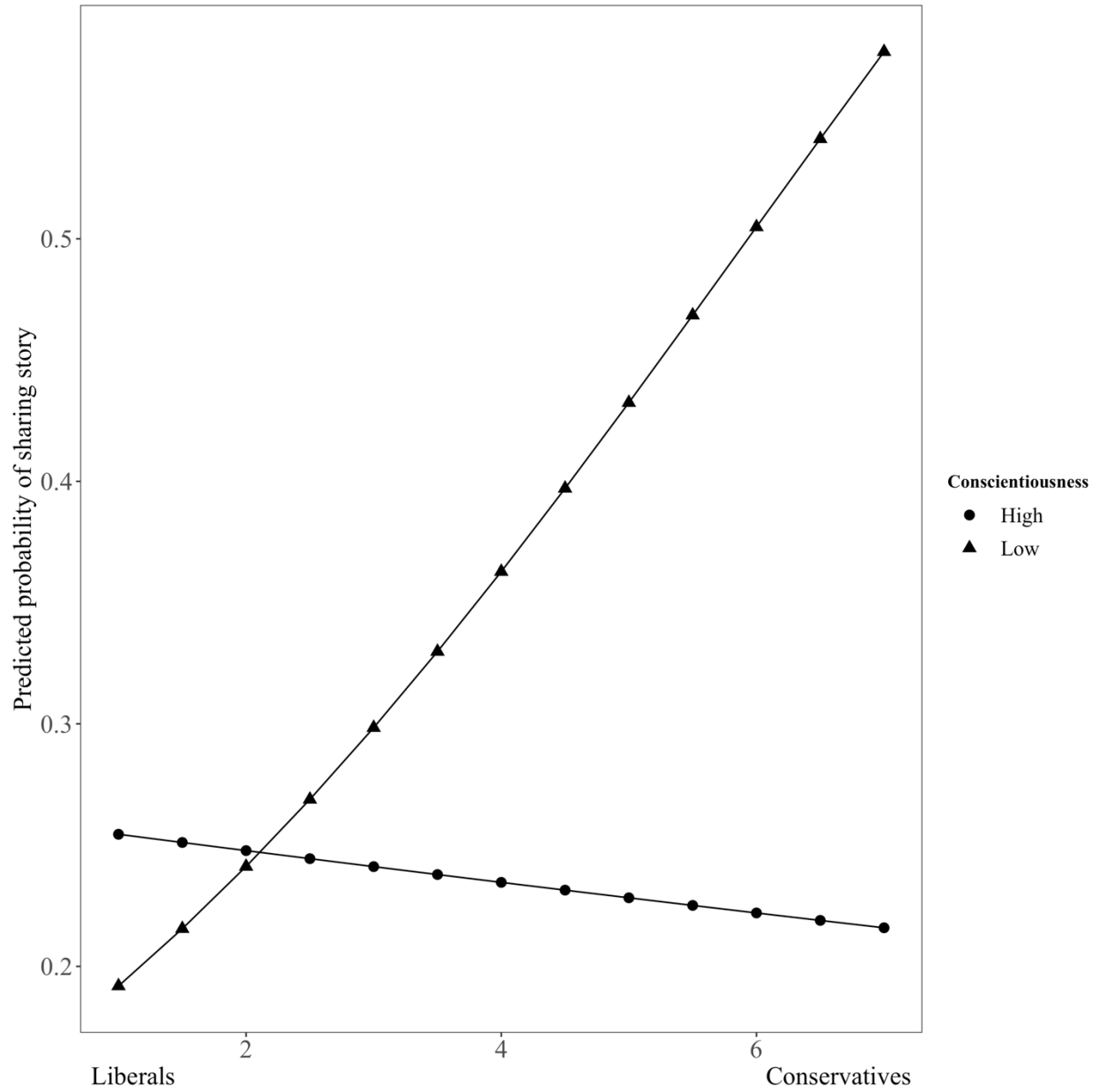
Table 4: The change of intent to share fake news stories using linear regression (Study 4)

Variable	Model 1	Model 2	Model 3	Model 4	Model 5
Political Ideology (PI)	-0.059***	-0.188***		-0.041***	-0.132**
	(0.008)	(0.040)		(0.009)	(0.041)
Conscientiousness (C)	0.060**	-0.068		0.031	-0.056
	(0.020)	(0.044)		(0.027)	(0.047)
PI X C		0.034**			0.024*
		(0.010)			(0.010)
Extraversion			-0.005	-0.005	0.000
			(0.023)	(0.023)	(0.023)
Agreeableness			0.059*	0.043†	0.044†
			(0.026)	(0.026)	(0.026)
Negative Emotionality			0.045*	0.045†	0.045†
			(0.023)	(0.025)	(0.024)
Open-mindedness			0.102***	0.066**	0.059*
			(0.023)	(0.024)	(0.024)
Attitude towards COVID-19			0.005	-0.007	-0.005
			(0.019)	(0.019)	(0.019)
General Cognitive Reflection			0.036***	0.029***	0.027***
			(0.007)	(0.007)	(0.008)
Age			-0.001	0.000	0.000
			(0.001)	(0.001)	(0.001)
Male[a]			-0.085**	-0.081*	-0.080*
			(0.031)	(0.031)	(0.031)
Intercept	0.550***	1.038***	-0.219	0.050	0.397
	(0.085)	(0.170)	(0.174)	(0.199)	(0.251)
R2	0.0909	0.106	0.118	0.151	0.157
Adj. R2	0.0881	0.102	0.107	0.137	0.143

Note: N= 651; [a] Categorical Variable 1 = Male, 0 = Otherwise

*† p < 0.10, * p < 0.05, ** p < 0.01, *** p < 0.001*

Figure 6: The predicted change in sharing behavior for high and low conscientiousness respondents across the range of political ideology in Study 4.
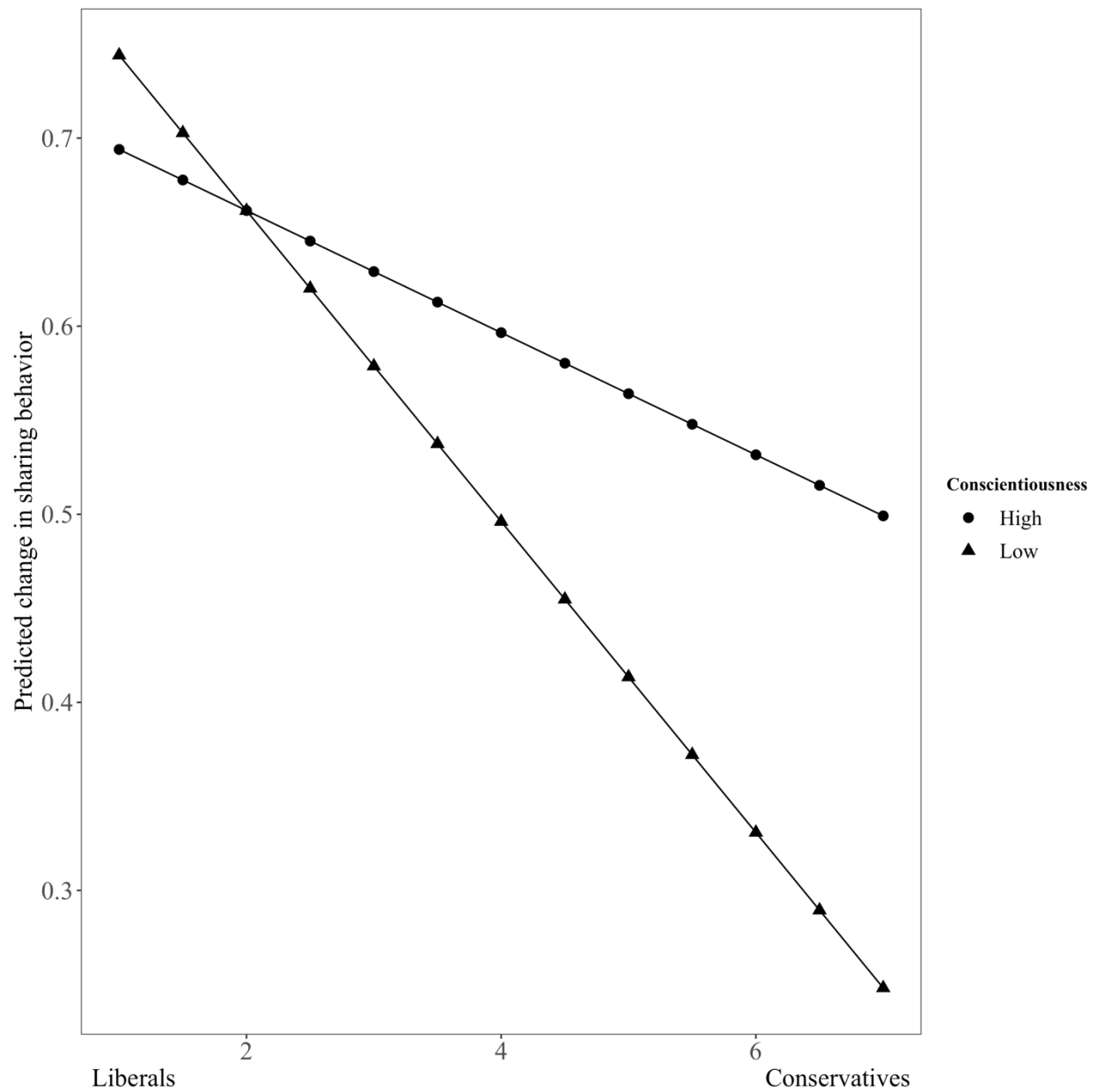
Studies 5 & 6

Having established the robustness of this effect to fact checker interventions, we next examined desire to create chaos as the mechanism driving this effect, while ruling out other alternate explanations. Study 5 offered initial support of the mechanism and Study 6 tested the complete model.

45 words

Method

The pre-registration containing information on study design, sample size, exclusion criteria, hypotheses and analyses can be found here:

(https://osf.io/6rsx5/?view_only=c95d35808b6a422f8c3f8c991d0c66a7).

Participants. On Mturk, we recruited 328 US participants in exchange for $1.01. We excluded 43 participants (28 for failing the comprehension check question and 15 for not having a US IP address), resulting in a final sample of 285 participants (M_{age} = 40.1y, 51.2% female).

Procedure. Participants first responded to personality questionnaire and indicated their political ideology, before answering a number of other scales. We measured five scales that were administered in a randomized order. We measured participants' desire for chaos (Petersen et al., 2018), support for social and economic conservatism (Everett, 2013), support for Donald Trump, trust in the mainstream media, and time spent on social media. Following this, participants reported their demographic information.

Measures. Consistent with other studies, political ideology was measured using a one item continuous measure and personality via the BFI-2 inventory. The reliability coefficients for the Big Five factors were acceptable; open-mindedness (α = 0.88), conscientiousness (α = 0.89), extraversion (α = 0.83), agreeableness (α = 0.84), and negative emotionality (α = 0.90).

We measured desire for chaos using an eight-item scale (Petersen et al., 2018) on a five-point scale ranging from "*Strongly Disagree*" to "*Strongly Agree*" . People who share fake news have been characterized as purposefully divisive or destructive (Bail et al., 2018). This scale allowed us to measure people's propensity for anarchy ($\alpha = 0.95$).

Another possibility is that the effect is explained by support for more traditional social and economic conservative values among low conscientious conservatives. To this end, we measured participants' alignment with both social and economic conservatism via the 12-item SECS scale (Everett, 2013). This scale captures participants opinion on a number of social (e.g., abortion) ($\alpha = 0.85$) and economic (e.g., welfare benefits) issues ($\alpha = 0.68$). We also measured support for Donald Trump as another alternate mechanism using a four-item scale. An example item was "President Trump has been very effective in his presidency" ($\alpha = 0.97$).

Finally, we measured participants' trust in the mainstream media. Prior research has established that there is declining trust in mainstream media (Allcott & Gentzkow, 2017), and this has been touted as a possible reason for the advent of the present fake news pandemic (Allen et al., 2020). Four items assessed participants' trust in the mainstream media. Sample item: "What is reported in the news is often not true" ($\alpha = 0.83$).

We also controlled for time spent on social and digital media in our analysis. Participants indicated the number of hours they spent on social media in a day and their reliance on news sources — adding up to 100% — from the following choices; social media, digital media, print press, friends and family, and other.

Results. We interacted political ideology and conscientiousness to predict desire for chaos, social conservatism, economic conservatism, support for Donald Trump, and trust in the mainstream media while controlling for participants' media diet composition, other personality

factors and demographic information. The results are reported in Table 5. We found a statistically significant negative interaction of political ideology and conscientiousness on desire for chaos (b = -.136, p < 0.001, *Figure 7*) indicating that low conscientiousness conservatives reported an elevated desire for chaos. The interaction of political ideology and conscientiousness was also statistically significant for trust in the mainstream media (b = -.088, p = 0.017), suggesting contrary to our expectations, low conscientiousness conservatives reported greater trust in the mainstream media. Notably, the political-ideology-conscientiousness interaction did not predict social conservatism (b = .072, p = 0.297), economic conservatism (b = .003, p = 0.955), or support for Trump (b = .046, p = 0.229). Overall, we found that low conscientiousness conservatives had a greater desire of chaos, which might be driving their tendency to share fake news. We tested the complete model next.

Study 6

Method

The pre-registered information on study design, sample size, exclusion criteria, hypotheses and analyses is available here:

(https://osf.io/98wx2/?view_only=b36170f2f67f46e2964c9522c1bf6a74).

Participants. 522 US Mturk workers signed up for a payment of $1.01. We excluded responses of 31 participants (24 for failing the comprehension check question and 7 for a non-US IP address). Our final sample consisted of 491 participants (M_{age} = 40.4y, 54.4% female). Participants were paid $1.01.

Procedure. The procedure was identical to that of Study 1, with the exception that we measured three additional variables; desire for chaos, trust in the mainstream media, and participants' media use.

Table 5: The relationship between the interaction between political ideology and conscientiousness and a range of dependent variables using linear regression (Study 5)

DV	Desire for chaos	Social Conservatism	Economic Conservatism	Support for Trump	Trust in Media
Conscientiousness (C)	0.318*	-0.476	0.223	-0.196	0.269
	(0.149)	(0.315)	(0.249)	(0.176)	(0.168)
Political Ideology (PI)	0.581***	0.544*	0.597**	0.409**	0.126
	(0.123)	(0.261)	(0.206)	(0.145)	(0.139)
PI X C	-0.136***	0.072	0.003	0.046	-0.088*
	(0.032)	(0.068	(0.054)	(0.038)	(0.037)
Extraversion	0.085	0.352*	0.149	0.129	-0.022
	(0.075)	(0.159)	(0.125)	(0.088)	(0.085)
Agreeableness	-0.556***	0.680***	0.039	-0.190	0.263**
	(0.088)	(0.187)	(0.148)	(0.104)	(0.100)
Negative Emotionality	0.003	-0.082	-0.046	-0.009	0.009
	(0.073)	(0.154)	(0.122)	(0.086)	(0.082)
Open-mindedness	-0.208**	-0.221	-0.026	-0.112	-0.181*
	(0.068)	(0.145)	(0.114)	(0.081)	(0.077)
Age	-0.004	0.012	0.010	0.002	-0.001
	(0.004)	(0.008)	(0.006)	(0.004)	(0.004)
Male[a]	0.280**	-0.487*	-0.215	-0.310**	0.088
	(0.100)	(0.211)	(0.167)	(0.118)	(0.113)
Social Media (time)	0.088***	-0.041	-0.101**	0.035	0.028
	(0.021)	(0.045)	(0.035)	(0.025)	(0.024)
Social Media (proportion)	-0.001	0.000	0.003	0.001	-0.002
	(0.002)	(0.005)	(0.004)	(0.003)	(0.003)
(Intercept)	2.921***	2.907	3.283**	1.698*	2.348**
	(0.720)	(1.523)	(1.203)	(0.849)	(0.813)

Note: N= 285; [a] Categorical Variable 1 = Male, 0 = Otherwise

* p < 0.05, ** p < 0.01, *** p < 0.001

Figure 7: The predicted desire for chaos for high and low conscientiousness respondents across the range of political ideology in Study 5.
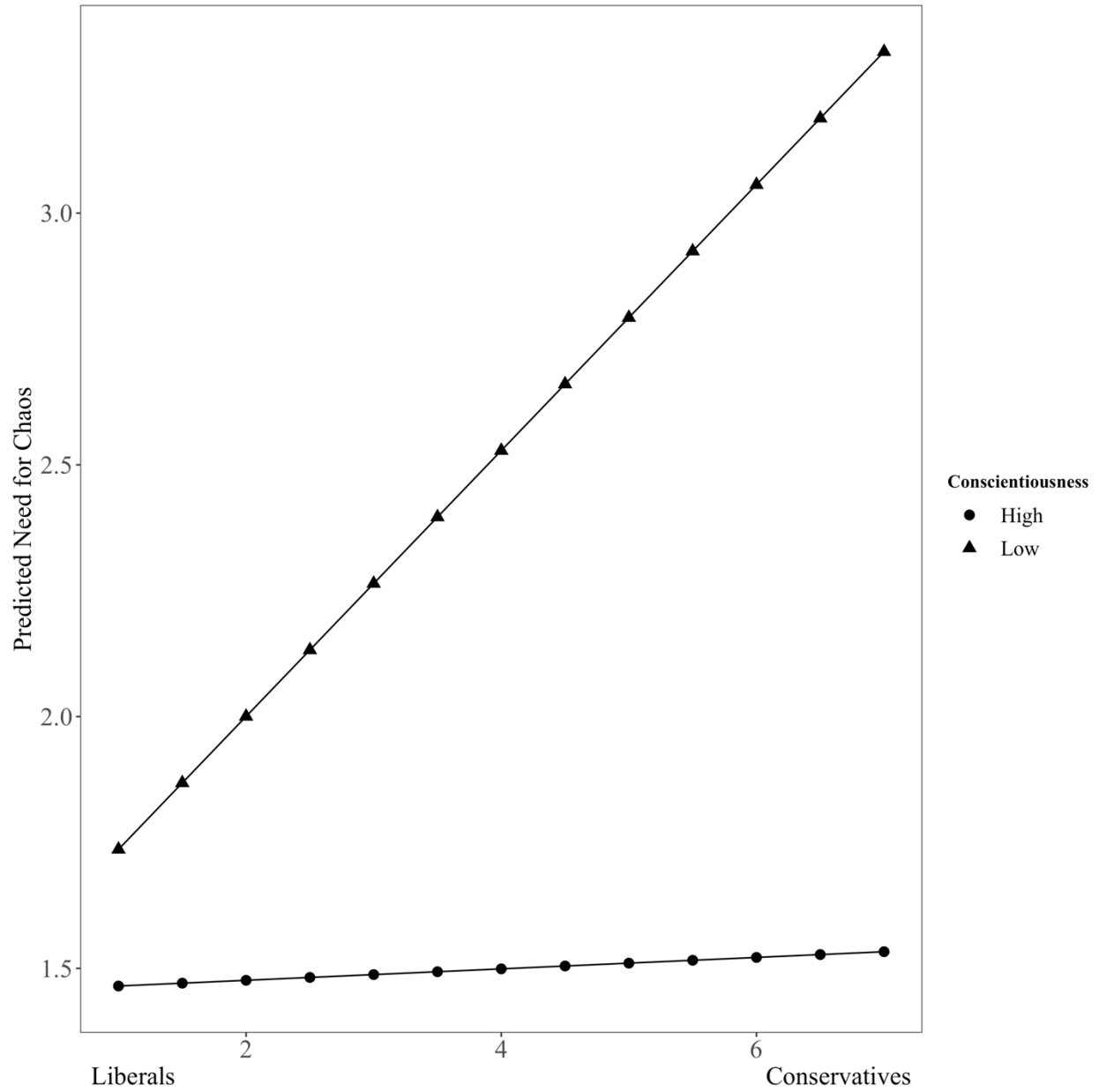
Participants faced either the 24 news stories or BFI-2 personality inventory in a counterbalanced order, before answering the desire for chaos, trust in the mainstream media and social media use scales in a randomized order. Participants then reported their political ideology, attitudes towards Covid-19, and demographic information.

Measures. We measured our independent variables in line with Studies 1-5. All reliability coefficients for the Big Five personality dimensions fell in the acceptable range; open-mindedness ($\alpha = 0.88$), conscientiousness ($\alpha = 0.90$), extraversion ($\alpha = 0.85$), agreeableness ($\alpha = 0.85$), and negative emotionality ($\alpha = 0.91$). We measured our mediating variable desire for chaos using the same 8-item scale as in Study 5, ($\alpha=.91$) (Petersen et al., 2018). We included participants' concern with the virus Covid-19, ($\alpha = 0.93$), and trust in the mainstream media as control variables, ($\alpha = 0.86$).

Results. We replicated all of our findings for sharing of fake news (see *Table 6*, *Table S14*). The interaction of political ideology and conscientiousness on sharing of fake news was statistically significant without ($b = -.116$, $p = 0.023$, *Model 2*) and with the inclusion of control variables ($b = -.108$, $p = 0.038$, *Model 5*). The interaction pattern revealed that the simple slope was significant at both low ($b = .326$, $p < 0.001$) and high values of conscientiousness ($b = .151$, $p = 0.003$, *Figure 8*). A possible reason for the significant simple slope observed at high values of conscientiousness is Republicans' higher average levels of conscientiousness in Study 6 (*Table S18*). However, the difference in the two slopes was negative and statistically significant ($b = -.175$, $p = 0.023$).

Additionally, we replicated our findings from Study 5 with a statistically significant interaction of political ideology and conscientiousness in predicting desire for chaos both without including control variables ($b = -.123$, $p < 0.001$, *Table S15*) and controlling for the other four

personality dimensions, trust in the mainstream media, attitudes towards Covid-19, age, gender, time spent on social media, and the proportion of news received from social media (b = -.082, p < .001, *Table S15*).

Finally, we tested the pre-registered moderated mediation model including both desire for chaos and subjective assessments of accuracy as sequential mediators and conscientiousness as a moderator (*Figure 9*). We found a significant indirect positive effect of political ideology on the likelihood of sharing stories at low levels of conscientiousness (b = .032, p < 0.001, CI_{95} = [.028, .036], *Table S16*), but also found a significant negative indirect effect at high levels of conscientiousness (b = -.004, p = 0.009, CI_{95} = [-.007,- .001], *Table S16*). Note that in Model 8 (*Table 6*) with the inclusion of desire for chaos, the interaction between political ideology and conscientiousness was no longer statistically significant (b = -.034, p = 0.520). This gives further weight to our contention that the interactive effect of political ideology and conscientiousness on the likelihood of sharing stories was mediated by desire for chaos.

Discussion. Altogether, Studies 5 and 6 supported desire for chaos as the underlying mechanism that mediates the interactive effect of political ideology and conscientiousness on sharing of fake news and ruled out other alternate explanations.

34 words

Table 6: Likelihood of sharing a news story using GEE logistic regression (Study 6)

Variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Political ideology (PI)	0.249***	0.683***		0.252***	0.662**	0.667**	0.262***	0.390
	(0.037)	(0.202)		(0.040)	(0.207)	(0.219)	(0.044)	(0.204)
Conscientiousness (C)	-0.574***	-0.131		-0.503***	-0.098	-0.231	-0.247*	-0.129
	(0.095)	(0.214)		(0.117)	(0.226)	(0.246)	(0.121)	(0.226)
PI X C		-0.116*			-0.108*	-0.100		-0.034
		(0.051)			(0.052)	(0.055)		(0.052)
Fake			-0.235***	-0.246***	-0.248***	0.141***	-0.263***	-0.263***
			(0.030)	(0.031)	(0.031)	(0.039)	(0.033)	(0.033)
Extraversion			0.312**	0.320**	0.320**	0.386***	0.239*	0.241*
			(0.096)	(0.103)	(0.104)	(0.116)	(0.104)	(0.104)
Agreeableness			-0.204	-0.034	0.002	0.033	0.234	0.241
			(0.127)	(0.126)	(0.129)	(0.147)	(0.133)	(0.133)
Negative Emotionality			0.251**	0.131	0.153	0.150	0.225*	0.229*
			(0.097)	(0.100)	(0.101)	(0.112)	(0.101)	(0.102)
Open-mindedness			-0.401***	-0.180	-0.162	-0.198	-0.009	-0.006
			(0.101)	(0.103)	(0.107)	(0.119)	(0.109)	(0.110)
Attitude towards COVID-19			0.057	0.183*	0.177*	0.136	0.069	0.071
			(0.076)	(0.078)	(0.080)	(0.086)	(0.082)	(0.082)
Age			-0.002	-0.004	-0.004	-0.003	0.001	0.001
			(0.005)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
Male			0.454**	0.343*	0.347*	0.292	0.276*	0.278*
			(0.151)	(0.147)	(0.146)	(0.160)	(0.141)	(0.140)
News - Conservative			-0.161***	-0.168***	-0.170***	-0.364***	-0.180***	-0.180***
			(0.046)	(0.048)	(0.049)	(0.055)	(0.051)	(0.052)
News - Democratic			-0.046	-0.048	-0.048	-0.366***	-0.051	-0.051
			(0.056)	(0.058)	(0.059)	(0.060)	(0.062)	(0.062)
Counterbalance			-0.080	-0.153	-0.164	-0.196	-0.075	-0.080
			(0.137)	(0.135)	(0.135)	(0.152)	(0.132)	(0.132)
Subjective Accuracy						1.250***		
						(0.052)		
Desire for chaos (DFC)							0.710***	0.701***
							(0.091)	(0.092)
Trust in Media							0.218**	0.211*
							(0.082)	(0.083)
Intercept	0.255	-1.386	-0.429	-0.982	-2.729*	-5.841***	-5.284***	-5.741***
	(0.359)	(0.831)	(0.765)	(0.827)	(1.194)	(1.274)	(0.886)	(1.186)
QIC	13190	13154	13498.8	13042	13019	10596	12460	12477
CIC	30.1	41	91.2	102	114	114	111	121

n = 11,784; N = 491

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

Figure 8: The predicted probability of sharing a news story for high and low conscientiousness respondents across the range of political ideology in Study 6.
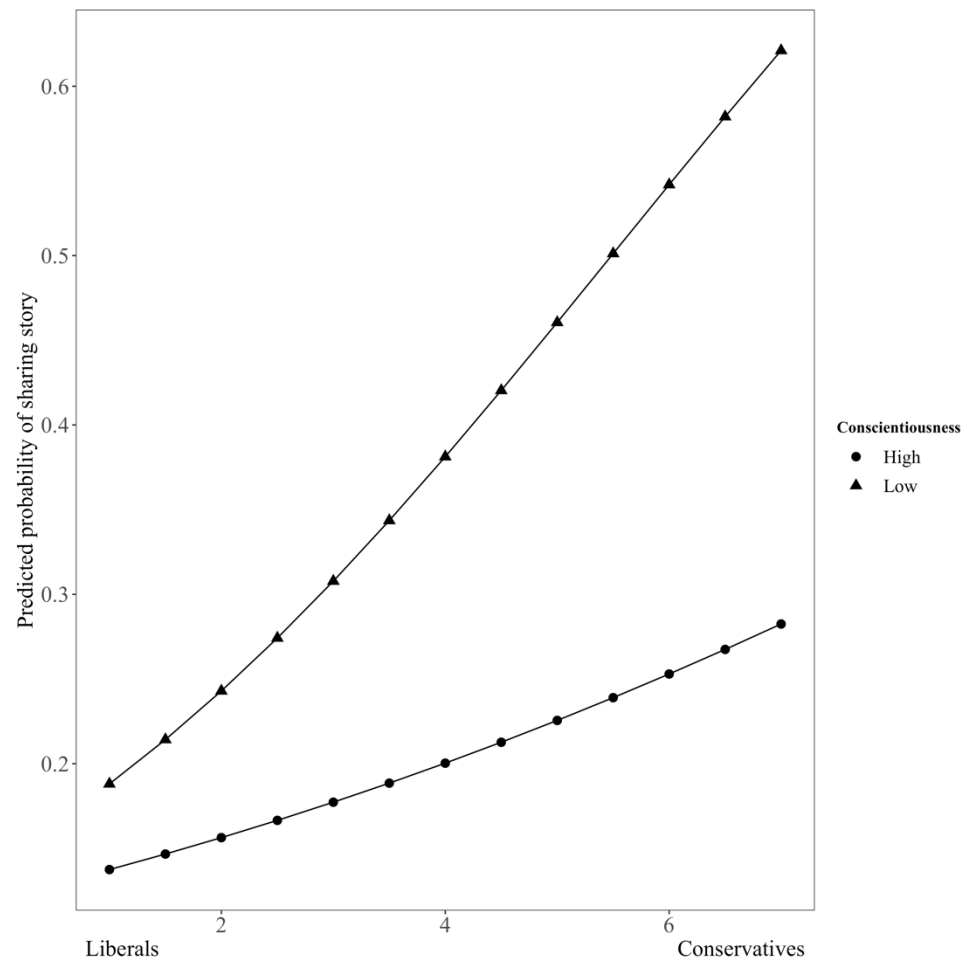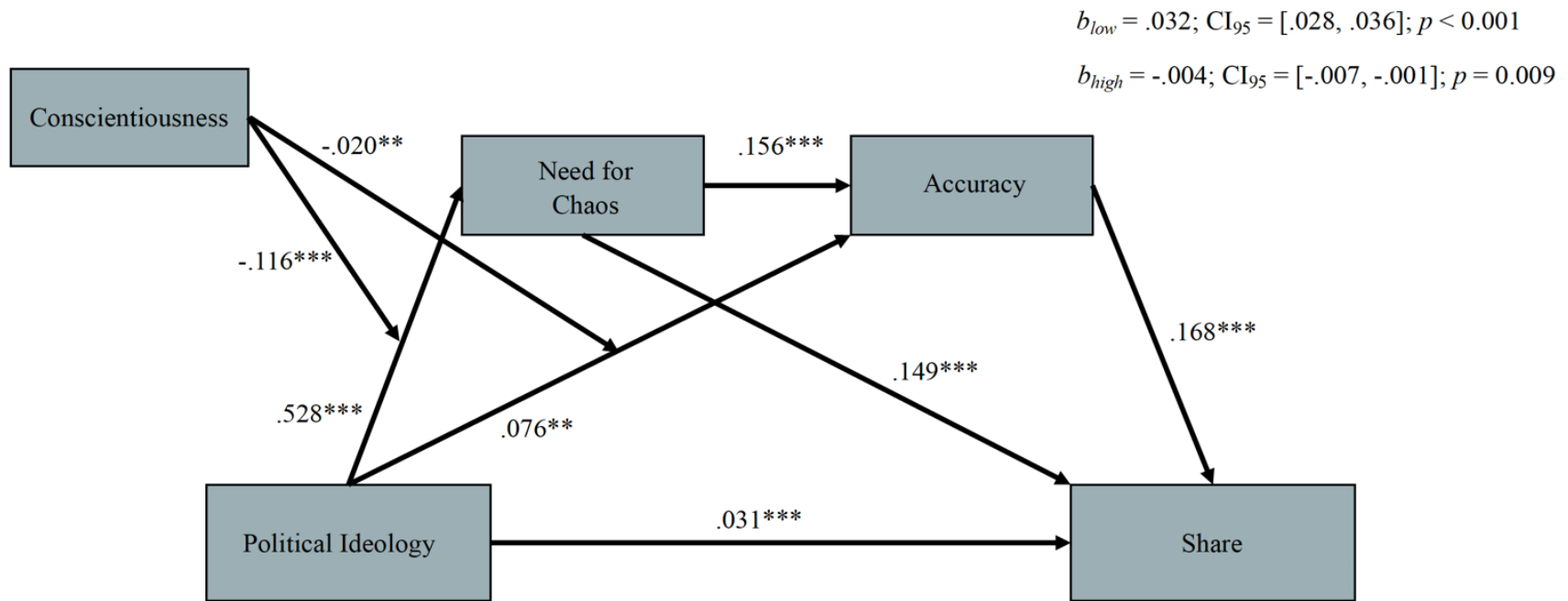
Figure 9: Moderated Mediation analysis (Study 6)

General Discussion

Our goal was to demonstrate that trait conscientiousness weakens the effect of conservative political ideology on the spread of misinformation. At the same time, we focused on news stories related to Covid-19 as it provided a context that has the potential to harm humanity irrespective of their political beliefs. This allowed us to shed light on why in the face of a pandemic, misinformation that could hamper our ability to deal with the virus may spread like wildfire.

Across six studies with a sample of 3,195 participants and 73,108 observations, we find that political ideology and conscientiousness interactively predict the likelihood of sharing news stories, such that differences in sharing behavior across party lines are driven by conservatives who are low in conscientiousness. We find no difference among liberals and conservatives at high levels of conscientiousness. This effect was consistent both for news articles regarding Covid-19 (Study 1) and the 2016 Presidential Election (Study 2). The interaction effect replicated within the subset of both real and fake news suggesting that conservatives with low conscientiousness shared fake news to the same extent as real news. The interaction was robust to the inclusion of several control variables, including the interaction of political ideology with other personality factors. This underscores the reliability of our effect and its role in disseminating misinformation. We move beyond the main effect of conservative political ideology on the sharing of fake news and provide a more nuanced and balanced opinion. Importantly, our theory and findings avoid painting all conservatives with the same brush.

Second, we find that our effects are driven by an indiscriminate desire to create chaos, as opposed to typical explanations based on social or economic conservative values, supporting Donald Trump, distrust in the mainstream media, or time spent on social media. This explanation

underscores the negative effect of political polarization leading a subset of individuals (low conscientious-conservatives) to promote the interest of their political group by actively denigrating and sharing misleading information about the other group – a form of radical political activism (Moskalenko & McCauley, 2009). More importantly, desire for chaos remained a significant explanation of our effects even after controlling for above factors, highlighting the robustness of this psychological mechanism.

Third, we do not find that respondents have a preference for sharing concordant news but rather have an aversion for sharing discordant news. Comparing our neutral news condition to the news associated with political undertones allowed us to tease apart this effect. These results are presented in the supplementary information. Furthermore, we demonstrate the importance of studying personality in relation to understanding fake news as a phenomenon. Our focus on a single personality trait rather than all the Big 5 factors contributes to calls in the personality literature to identify the impact of specific traits rather than investigating all personality attributes simultaneously (Moskalenko & McCauley, 2009; Paunonen & Ashton, 2001). Future research can benefit from studying other facets of personality. We also found a positive main effect of extraversion on the likelihood of sharing stories, and some evidence of a negative effect of open-mindedness.

A more worrying aspect of our findings is the inadequacy of fact checker interventions. Though in Study 4 we found some reduction in the sharing of fake news after participants learned the news that they were willing to share was phony, it still wasn't enough to stop low conscientious conservatives from spreading falsehood. The interaction effect between political ideology and conscientiousness was robust to removing ambiguity regarding the veracity of news in both Study 3 and 4. Our data troublingly suggests that low conscientiousness conservatives are

deliberately choosing to propagate false stories. This poses a serious challenge for policy intervention aimed at mitigating false propaganda. Whereas previous intervention designs have focused on emphasizing the veracity of news (Pennycook, McPhetres, et al., 2020; Pennycook & Rand, 2019c) or preserving access to reputable news (Allen et al., 2020), interventions may need to target aspects of individuals' personality such as conscientiousness to reduce the spread of fake news (Magidson et al., 2014; Roberts et al., 2017).

Dr. Anthony Fauci, the director of the National Institute of Allergy and Infectious Diseases, has publicly disagreed with President Trump's stance on the Coronavirus, leading to a malicious backlash. Fake stories discrediting his expert opinion were shared millions of times on social media (Alba & Frenkel, 2020). The reconciliation of public opinion with scientific experts is paramount (Scheufele & Krause, 2019), and becomes even more critical during a crisis. For if expert opinions are dismissed as fake news and such recommendations are ignored, the consequences can be palpable. Hence, it is not surprising to see the United States having catapulted into the number one location of Covid-19 infections in the world, with thousands dead and the count rising. Our work provides further understanding of what leads to such false propaganda and offers a sobering perspective on interventions aimed at counteracting the dissemination of fake news.

818 words

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