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The "Need for Chaos" and Motivations to Share Hostile Political Rumors

(Short title: "Need for Chaos" and Hostile Political Rumors)

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Abstract

Why are some people motivated to circulate hostile political information? While prior studies have focused on partisan motivations, we demonstrate that some individuals circulate hostile rumors because they wish to unleash chaos to "burn down" the entire political order in the hope they gain status in the process. To understand this psychology, we theorize and measure a novel psychological state, The Need for Chaos, emerging in an interplay of social marginalization and status-oriented personalities. Across eight studies of individuals living in the United States, we show that this need is a strong predictor of motivations to share hostile political rumors, even after accounting for partisan motivations, and can help illuminate differences and commonalities in the frustrations of both historically privileged and marginalized groups. To stem the tide of hostility on social media, the present findings suggest that real-world policy solutions are needed to address social frustrations in the United States.

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Social media provide citizens with power to craft and share news with each other. Unfortunately, this technological transformation has made it easier than before to spread what we call *hostile political rumors* in a way that goes "farther, faster, deeper, and more broadly than truth" (Vosoughi, Roy and Aral, 2018, 1147). Hostile political rumors portray politicians and political groups negatively and possess low evidential value. They encapsulate conspiracy theories, "fake news", discussions of political scandals and negative campaigns. Although these different types of news vary in substance and form, they all seek to incite hostility toward a specific target and are difficult to verify or disprove. Hostile political rumors can shape political outcomes in considerable ways, from sparking significant small-scale incidents — such as protests (Tucker et al., 2017) and cyberbullying of political opponents (Buckels, Trapnell and Paulhus, 2014) — to influencing large-scale political outcomes (e.g., Allcott and Gentzkow, 2017).

Extant research focuses on how partisan animus affects the likelihood of believing and sharing hostile news (Allcott and Gentzkow, 2017; Miller, Saunders and Farhart, 2016; Osmundsen et al., 2021; Van Bavel & Pereira, 2018). Nonetheless, political cleavages do not solely reflect differing allegiances to political parties. They also reflect the degree to which individuals feel disenfranchised by the entire political system (Uscinski et al., 2021). In this manuscript, we provide a detailed examination of how anti-systemic sentiments motivate the willingness to share and believe in hostile political rumors.

We outline a theoretical framework about an overlooked psychological strategy for acquiring social status – the incitement of chaos – and demonstrate the relevance of this strategy for contemporary politics. We build on research showing that status-oriented personality traits combined with social rejection can push people towards an escalation of aggressive motivations

(Krizan & Johar, 2015; Twenge & Campbell, 2003). We argue that such motivations, when sufficiently strong, take root as a general destructive mindset. Next, we develop and validate the novel Need for Chaos scale to measure this mindset. Across eight well-powered studies (including representative studies of the US population), we find evidence that the Need for Chaos emerges in an interplay between status-oriented personality traits and social contexts of real and perceived marginalization and is a strong predictor of willingness to share hostile political rumors, over and beyond partisanship. Overall, our findings imply that a challenge facing modern society is the existence of marginalized status-seekers who wish to incite chaos by spreading hostile rumors.

Hostile Rumors and Contexts of Conflict

Sharing hostile political rumors serves social goals beyond promoting the perceived truth, and is often linked to situations of social conflict (Horowitz, 2001; Petersen et al., 2021). In a comprehensive review of the factors involved in the onset of ethnic riots, Horowitz (2001: 74) contends that hostile rumors are more effective than accurate information at mobilizing violence, concluding, "Rumor prevails because it orders and organizes action-in-process."

The functions of hostile rumor sharing in the context of social conflict are manifold. The act of sharing signals the sharer's commitment to aggression, potentially creating mobilization cascades among others with similar preferences (Petersen et al., 2021); the content of hostile rumors may persuade neutral audiences to turn against the outgroup (Horowitz, 2001); and flooding informational ecosystems with false, hostile information can sow distraction and confusion among outgroup members as they spend energy on countering the misinformation (Heath, 2021). Finally, sharing offensive information may signal to others that the sharer has an aggressive and dominant personality (De Araujo et al., 2021).

Helping Your Party or Destroying the System?

Partisanship offers a common explanation for why people share hostile political rumors in the contemporary United States (Allcott and Gentzkow, 2017; Van Bavel & Pereira, 2018). Deepening political conflict has caused partisans in the U.S. and beyond to develop hostile feelings across party lines (Iyengar et al., 2019), making it plausible that deeply committed partisans will strategically share hostile political rumors to target members of the opposing party and mobilize co-partisans. Consistent with this, studies find that partisanship predicts political conspiracy beliefs about the out-party (Miller, Saunders and Farhart, 2016) as well as belief in and sharing of political "fake news" (Allcott and Gentzkow, 2017; Osmundsen et al, 2021; Van Bavel and Pereira, 2018).

Yet, motivations to share hostile political rumors may also reflect dissatisfaction with the entire political system, including all its traditional actors. In fact, alongside growing partisan polarization, democracies have experienced rising levels of income inequality and stagnation in real wages (Turchin, 2016). As social wellbeing has worsened, some citizens increasingly express feelings of "losing out" and discontent with the political establishment (Kriesi & Schulte-Cloos, 2020). These feelings of status-loss and marginalization, even if imagined rather than real, have shaped recent political events, including the election of Donald Trump as president of the United States (Mutz, 2018) and the rise of populism in Europe (Kriesi & Schulte-Cloos, 2020). Frustrations about status loss have been observed among members of traditionally privileged groups (e.g., white men), but actual experiences of historical injustices by members of marginalized groups can also trigger deep dissatisfaction with the political system (e.g., among Black individuals; Kimmel, 2017; Mutz, 2018).

Prior research suggests that experiences of marginalization activate disruptive views and

behaviors. For example, indicators of marginalization, such as lack of trust, predict conspiratorial beliefs beyond the effects of partisanship (Miller, Saunders and Farhart, 2016). For some individuals, political discontent can lead to radicalized behavior and violence (e.g., Turchin, 2016). Psychological research also shows that uncertainty about one's own social standing predicts identification with radicalized groups (Hogg, Kruglanski & van den Bos, 2013) and support for political violence (Gøtzsche-Astrup, 2019).

Individuals who are motivated by partisan animus to share hostile political rumors tend to share only those that strategically help their "own" party by denigrating the opposing party (Osmundsen et al., 2021). In contrast, individuals' discontent with the entire political system should motivate sharing of hostile political rumors that they believe could damage the system itself. As a result, these individuals should share hostile political rumors, irrespective of which party it helps or hurts.

A Theoretical Model: The Dual Role of Status Orientations and Social Marginalization

We hypothesize that some individuals are so disaffected with current society and their (perceived) status in it, that they indiscriminately share hostile political rumors as a way to disrupt the established democratic "cosmos" and start anew.

Prior research has made considerable progress in understanding non-mainstream but legitimate forms of political activism such as voting for populist or radical right-wing parties and how this is fueled by feelings of marginalization in the face of globalization, unemployment and immigration (Kriesi & Schulte-Cloos, 2020). Nonetheless, the current spread of hostile political rumors is linked to events that go far beyond legitimate activism, such as the violent protests against state interventions during the corona pandemic (Bartusevičius et al., 2021) or the

insurrection against the US Congress in January 2021.

In order to understand the psychological motivations of these individuals, we must consider the interaction of personality dispositions and situational triggers (Crocker et al., 1987). Recent work on radicalization shows that feelings of marginalization, even if extreme, mostly lead to radicalization for individuals with "dark" personalities (Gøtzsche-Astrup, 2019).

Individual differences in the importance attributed to social status are particularly important for understanding aggression. Individuals who feel entitled to have a high social status are more prone to engage in antisocial behavior, such as participation in violent events (Bartusevičius et al., 2020) and online bullying (Buckels, Trapnell and Paulhus, 2014; Bor & Petersen, 2021). More specifically, psychological research differentiates between prestige and dominance as differential routes to status (Cheng et al., 2013) and suggests that dominance orientations are particularly likely to engender feelings of entitlement that motivate aggression. Prestige entails earning status in exchange for competence. Dominance entails achieving status via "the induction of fear, through intimidation and coercion," which in turn motivates aggressive behavior (Bartusevičius et al., 2020), including in the online domain (Bor & Petersen, 2021). Individuals who are disposed to use dominance to sustain their perceived entitlements to status may therefore be particularly likely to react aggressively in the face of challenges to their status.

While the relationship between dominance and antisocial behavior in politics is well-established, we know significantly less about the dynamics between such traits and motivations to *disrupt* established hierarchies, especially in politics. In fact, dominance-oriented individuals often *support* existing social hierarchies (Ho et al., 2015).

A fuller understanding of the relationship between dominance motivations and discontent requires us to take situational triggers into account – particularly, feelings of marginalization as

highlighted in prior research on populism (Kriesi & Schulte-Cloos, 2020). A key driver of some people's discontent with the political system is discrepancy between their perceived social standing and the social standing to which they feel entitled (Crocker et al., 1987). Dominance-oriented individuals feel greater entitlement and greater motivation to obtain a superior position within the hierarchy. Marginalization should therefore activate greater feelings of dissatisfaction with the current system among those who are oriented towards dominance-based status.

Marginalization exists in many forms and some may trigger status-oriented individuals more strongly to share hostile political rumors. First, a consistent finding in psychology is that losing a resource looms larger than failing to gain a resource of a similar size (Tversky & Kahnemann, 1991). This has also been found to be the case in relation to social status (Osmundsen & Petersen, 2020) and, accordingly, the loss of a privileged position may be particularly likely to generate strong anti-systemic sentiments. This is consistent with research suggesting that feelings of "aggrieved entitlement" are particularly disruptive and found among historically privileged groups such as white men (Kimmel, 2017).

Second, marginalization can be personal but it can also be felt with reference to one's social group. Feelings of insecurity about one's personal social status have consistently been found to propel people towards extremism (Hogg et al., 2013). At the group level, however, prior research suggests that extremism is often related to *inflated* appraisals of one's ingroup (e.g., in the form of collective narcissism) rather than feelings of inferiority (de Zavala & Lantos, 2020). In fact, such inflated group appraisals often reflect personal marginalization. In their review of the literature on collective narcissism, de Zavala & Lantos (2020) thus argues that "the in-group's image is used as a vehicle to satisfy frustrated self-importance and to protect the undermined self-esteem." Overall, these lines of research converge on the prediction that personal status losses may trigger

particularly disruptive responses.

Destruction as a Dominance Strategy: The Need for Chaos

Dominance strategies have mostly been analyzed as ways to protect the status of individuals in high-status groups (Cheng & Tracy, 2014). In contrast, we are interested in understanding how dominance strategies are adopted by individuals who perceive themselves to be at the periphery of society. We hypothesize that when coupled with feelings of marginalization, dominance-oriented strategies may flip from using targeted aggression towards specific individuals to indiscriminate tactics that sow chaos as a means to disrupt the system and advance up the social hierarchy.

Extant research offers some empirical support for our thesis that marginalization and status loss can motivate some individuals to sow chaos through indiscriminate aggression. For example, the cross-cultural phenomenon of "running amok" emerges in the face of severe status-loss (Hempel et al., 2000). Similarly, in Western societies, shooting rampages are sometimes a response to chronic feelings of marginalization among individuals with antisocial dispositions (Twenge & Campbell, 2003). In the words of one of the shooters from the Columbine school massacre, “The lonely man strikes with absolute rage!” (Krizan & Johar, 2015: 797). At the less extreme end, psychological studies of exclusion and aggression show that the combination of situational exclusion and dispositional sensitivity to rejection can lead to aggressiveness, even against innocent bystanders (DeWall et al., 20016). Similarly, reviews on the frustration-aggression hypothesis, finds that displaced aggression is a reliable phenomenon (Marcus-Newhall et al., 2000), and that it emerges in individuals with antisocial personalities when they face the continuous presence of multiple small provocations (Miller et al., 2003; Twenge & Campbell, 2003).

While generalized destructive tendencies, such as displaced aggression, are often interpreted as maladaptive (Miller et al., 2003), there may be functional benefits to displays of destructive intent for marginalized individuals. First, displays of destructive tendencies may serve as hard-to-fake signals of the motivation to impose costs and, hence, operate as a general deterrence device (Fessler et al., 2014). Second, if individuals react with severe aggression to rejection, others may be pressured to invest in burnishing the person's sense of self as a way to reduce the person's ire. For example, among vulnerable narcissists minor rejections may trigger "narcissistic rage" involving disproportionate aggression (Krizan & Johar, 2015). Finally, as a dominance strategy, marginalized individuals may see destruction as a form of "niche construction" in which they cultivate a social ecology where they are more likely to be successful. Antisocial individuals are better at navigating social conflict than others (Sell et al., 2009). If they can stir up conflict, they create a context in which they have an advantage.

Our aim is to measure the destructive mindset that emerges from the combination of dominance dispositions and social marginalization. We call this mindset the *Need for Chaos* and define it as a desire for a new beginning through the destruction of order and established structures. We chose the term "chaos" to reflect both the modern meaning of disorder and the original Greek meaning where it refers to a state from which order is produced. Need for Chaos is a mindset to gain status by disrupting the established order. We use the term "need" in the same way as it is used in studies of other psychological individual differences, i.e., as something that "...directs behavior towards a goal and cause tension when this goal is not attained" (Cacioppo and Petty, 1982: 117). It is not a biological need in the sense of thirst or hunger. Rather, the underlying evolutionary problem that the desire for chaos expresses relates status maintenance and acquisition. The Need for Chaos is not a stable personality trait but is expected to emerge in the

interplay of environments related to personal status loss and traits related to dominance. It is thus a "characteristic adaptation" (McAdams et al., 2006: 208-209) that matches behavioral tendencies in dispositions to a specific context.

We contend that individuals who are high in Need for Chaos share hostile rumors as a way to destabilize the established political system. As discussed above, these individuals may believe that sharing hostile rumors mobilizes like-minded others and creates confusion among those with the status they seek. In addition, the normative transgressions involved in the sharing of offensive and outrageous information may in itself be seen as attempts to assert the dominance that people high in Need for Chaos so strongly crave.

Overview of Research Questions and Studies

Empirically, we address the two key central research questions outlined above: First, to what extent do extreme anti-systemic sentiments encapsulated in a Need for Chaos predict the sharing of hostile political rumors over and beyond partisan motivations? Second, does the Need for Chaos emerge through the combination of dominance-oriented dispositions and marginalization? We address these research questions through six empirical tests. The empirical basis is eight survey studies (combined N = 10,921) conducted in the United States in the period from February 2018 to February 2022. Table 1 provides an overview of the surveys and the Supplementary Materials (SM) Section SM1 details the sample characteristics and procedures.

Study #	Sampling Protocol	Sample size	Purpose of Study
1	Socially diverse sample of Americans recruited through CloudResearch (February 2018)	1,004	**Test 1:** Developing the *Need for Chaos* scale **Test 2**: Is *Need for Chaos* associated with endorsement of hostile political rumors?
2	Socially diverse sample of Americans recruited through CloudResearch (September 2018)	1,011	**Test 1:** Developing the *Need for Chaos-Revised* scale **Test 2:** Is Need for Chaos associated with endorsement of hostile political rumors?
3	Nationally representative sample (approx.): Quota-sampled by YouGov to match population on gender, age, education, and region (June-August 2018)	1,529	**Test 2**: Is *Need for Chaos* associated with endorsement of hostile political rumors?
4	Socially diverse sample of Americans recruited through CloudResearch (September 2018)	1,105	**Test 2**: Is *Need for Chaos* associated with endorsement of hostile political rumors? **Test 3**: Why is *Need for Chaos* associated with rumor endorsement?
5	Socially diverse sample of Americans recruited through CloudResearch (March 2018)	1,088	**Test 2**: Is *Need for Chaos* associated with endorsement of hostile political rumors?
6	Socially diverse sample of Americans recruited through CloudResearch (April 2018)	1,533	**Test 2**: Is *Need for Chaos* associated with endorsement of hostile political rumors? **Test 4**: Who Needs Chaos?
7	Preregistered[1], socially diverse sample of Americans recruited through CloudResearch (February 2020)	1,508	**Test 3**: Why is *Need for Chaos* associated with rumor endorsement?
8a	Nationally representative sample of Americans identifying as "white": Quota-sampled by YouGov to match population on gender, age, education, and region (January-February 2022)	1,006	**Test 5**: The *Need for Chaos* and Distinct Types of Marginalization **Test 6**: Historically Privileged Groups and the *Need for Chaos*
8b	Convenience sample of Americans identifying as "black" sampled by YouGov (January-February 2022)	1,157	**Test 5**: The *Need for Chaos* and Distinct Types of Marginalization **Test 6**: Historically Privileged Groups and the *Need for Chaos*

Table 1. Overview of Studies. The number of respondents in the *Sample Size* column indicate those who consented to participate. In some studies, the actual number of respondents used for analysis will be slightly lower due to failed (preregistered) attention checks and missing values on key variables (see SM1 for details).

[1] See https://aspredicted.org/IFJ_BNG

The first three empirical tests focus on the Need for Chaos as an alternative motivation for hostile rumor sharing over and beyond partisan animosity. Test 1 develops and validates a one-dimensional measure of chaotic sentiments to tear down the political system – the *Need for Chaos*. Test 2 marshals data from six studies to demonstrate the relevance of the *Need for Chaos* for understanding the spread of hostile rumors about political elites affiliated with the Democratic and Republican Party. We show that while party identifiers favor rumors targeting political opponents, individuals with high levels of Need for Chaos ("chaos-seekers") are motivated to indiscriminately share hostile rumors targeting elites from both parties. These analyses also reveal that chaos-seekers share hostile rumors about both Democrats and Republicans, even if they report to identify with one of these parties.

Test 3 examines why a Need for Chaos motivates indiscriminate sharing of rumors, even against political elites with whom they share a partisan identity. Test 3 shows that chaos-seekers view hostile rumor sharing as a tool for mobilizing against all political elites they consider corrupt, whether from the in-party or the out-party. This is motivated by deeply negative views of voters and elites from both parties, including from their party, reflecting in part a feeling of "abandonment" by their own party.

The role of feelings of abandonment provides a bridge to our second research question on the causes of a Need for Chaos. In Test 4, we ask: Who needs chaos? In this test, we demonstrate that the Need for Chaos is pronounced among individuals with a combination of Status-Driven Risk-Taking, a key measure of dominance orientations (Ashton et al., 2010), and feelings of marginalization.

In Test 5, we provide additional evidence on the type marginalization most likely to trigger a Need for Chaos. Specifically, we examine the association between Need for Chaos and

perceptions of status gains and status losses at the level of groups and individuals, respectively. We find that a Need for Chaos is most strongly associated with perceptions of personal status losses.

In the final test, Test 6, we use these insights to shed light on the politics of contemporary American society and how a Need for Chaos is distributed across indicators of historically marginalized groups based on gender and race. We find that Need for Chaos is highest among racial groups facing historical injustice - in particular, Black males - reflecting their higher concerns about their societal standing. At the same time, consistent with notions of aggrieved entitlement among members of historically privileged groups, we show that white men react more aggressively than any other group to perceived status challenges. While white men do not feel highly status-challenged on average, they are more likely to seek chaos when they do. Test 6 thus shows that a desire to "burn it all down" may emerge from multiple pathways shaped by current societal cleavages, yet for different reasons. Figure 1 presents an overview of the proposed theoretical model and how the empirical assessments of the individual parts of the model are distributed across tests.

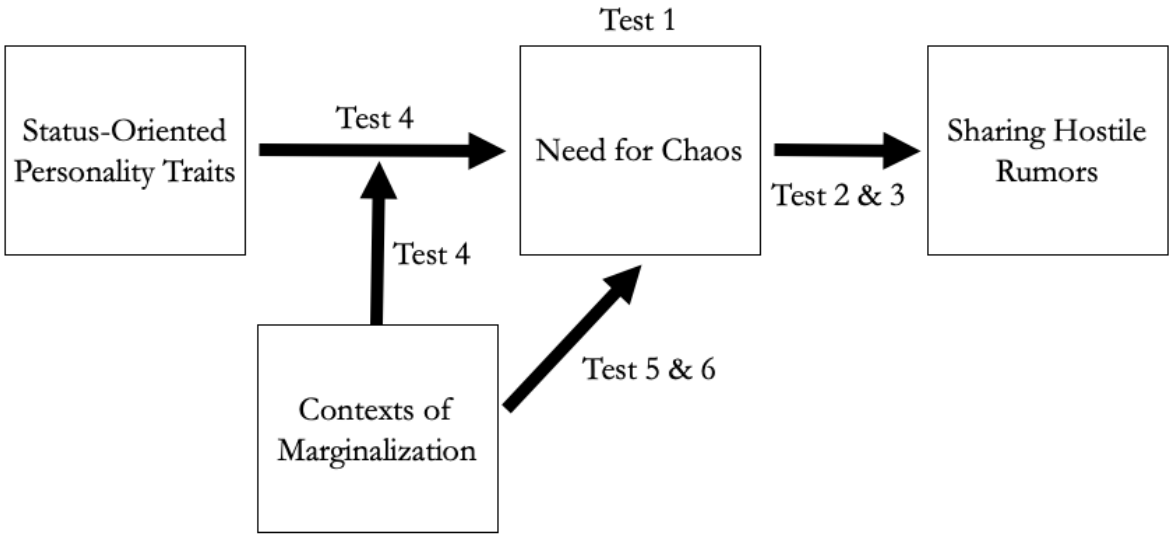

Figure 1. Overview of the relationship between the theoretical model and six empirical tests.

All studies were conducted in accordance with the Code of Conduct for Research Integrity of the primary investigator's university and associated policies of the National Committee for Health Research Ethics. Studies were conducted online and involved voluntary and informed consent with the possibility of ending participation at any time. In SM1, we outline participant compensation. For studies conducted via a survey company, consent for participation and data processing was obtained by the company on the author's behalf. For studies conducted via a crowd-sourcing platform, we obtained consent for participation and data processing ourselves. Given the potential sensitive nature of the topic of hostile political rumors, no studies in the main text used deception. Data and codes to reproduce all results are available on Dataverse.

Test 1. Developing the Need for Chaos scale

The aim of Test 1 is to develop the Need for Chaos scale. To establish the scale, we use survey data from a socially diverse sample of 1,004 American adults ("Study 1" of Table 1). The survey

fielded an initial pool of eleven items intended to reflect the central features of the Need for Chaos scale: A desire for upending social institutions, tearing down established political hierarchies, and rebuilding society from scratch. Participants were asked on seven-point scales whether they disagreed or agreed with each item. We then conducted an exploratory factor analysis to identify the latent construct(s) underlying this battery of measured items, anticipating that the items mapped onto a one-dimensional construct of chaotic motivations. The details of the analysis are presented in SM2 of the supplemental materials.

Results

Table 2 presents the final items used to measure the Need for Chaos (NFC_{Chaos} for short). Based on item clarity, item loadings and cross-loadings from an exploratory factor analysis, we retained seven of the items that most comprehensively described the one-dimensional structure of the data (i.e., items in bold font in Table 2). This one-dimensional solution produced an Eigenvalue of 4.53 and explained 65% of the shared variance (see Table S3 in SM). As Table 2 demonstrates, the items making up NFC_{Chaos} tap disruptive political sentiments – e.g., "When I think about our political and social institutions, I cannot help thinking "just let them all burn"" – as well as general tendencies towards destruction – e.g., "Sometimes I just feel like destroying beautiful things". The final scale displayed high reliability ($\alpha = .90$).

The Need for Chaos captures motivations to tear down society's political order, but how commonplace are such sentiments? Figure 2 shows the distribution of NFC_{Chaos}, scaled to range from 0 to 1, in the socially diverse Study 1. The measure skews towards the low end of the distribution, with a mean value of .17 and a standard deviation of .22. In other words, most participants accept the current political system. Nonetheless, a non-trivial minority of participants

place themselves towards the scale's higher end, expressing "some" to "strong" agreement with many of the statements. The skewed nature of the distribution of the Need for Chaos presents analytical challenges (e.g., outliers), which we deal with in subsequent tests.

All items of NFC_{Chaos} are worded such that agreement reflects strong disruptive motivations. This question format may induce acquiescence bias in which some participants tend to agree with statements irrespective of content. Study 2 therefore developed a revised measure of the Need for Chaos ($NFC_{Chaos\text{-}R}$) that includes two reverse-coded items on the top of the original items (presented in italics in Table 2 and used in studies 2, 7 and 8). SM2 describes the construction of $NFC_{Chaos\text{-}R}$ while the right-hand panel of Figure 2 plots its distribution. Reassuringly, the distributions of the two versions are very similar.

To assess the distinct contribution of the Need for Chaos measure, analyses presented in SM2 (pp. 6-9) reveal that the Need for Chaos can be reliably distinguished from a range of measures of anti-social dispositions (e.g., psychopathy, social dominance orientation). Finally, analyses presented in SM3, Figure S3 and associated tests provide evidence for the measurement stability of the scale.

1.	**I get a kick when natural disasters strike in foreign countries**
2.	**I fantasize about a natural disaster wiping out most of humanity such that a small group of people can start all over**
3.	**I think society should be burned to the ground**
4.	**When I think about our political and social institutions, I cannot help thinking "just let them all burn"**
5.	**We cannot fix the problems in our social institutions, we need to tear them down and start over**
6.	**I need chaos around me - it is too boring if nothing is going on**
7.	**Sometimes I just feel like destroying beautiful things**
8.	*We need to uphold order by doing what is right, not what is wrong (R)**
9.	*It's better to live in a society where there is order and clear rules than one where anything goes (R)**

Table 2. **Final Items of the *Need for Chaos* scale**. Items in **bold** are used to construct NFC_{Chaos}. Reverse-coded items in *italics* are added in construction of $NFC_{Chaos\text{-}R}$.

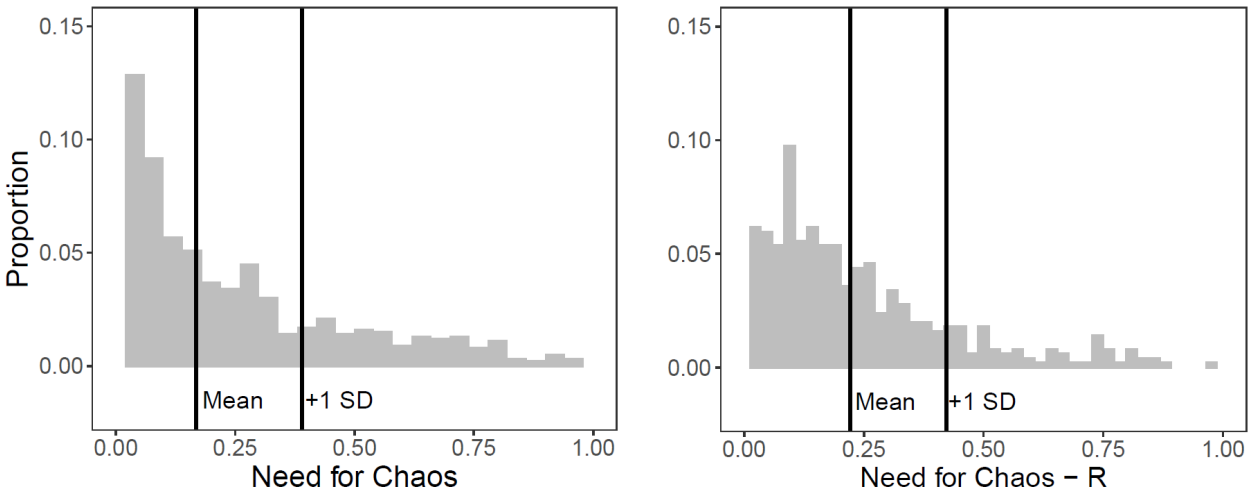

Figure 2. **Distributions of *Need for Chaos* and alternative measure**. The figure displays histograms of Need for Chaos (left) and alternative $NFC_{Chaos\text{-}R}$ measure with two-reverse coded items (right).

Test 2. **The Need for Chaos and Hostile Political Rumors**

Test 1 established the Need for Chaos scale. Test 2 examines NFC_{Chaos} as a predictor of people's beliefs and motivations to share hostile political rumors. Our claim is that chaos-seeking individuals will endorse vilifying rumors about political elites because they have grown disillusioned with the political system. In American politics, the Democratic and Republican Party are the established parties within mainstream politics. We therefore expect a strong Need for Chaos to predict endorsement of rumors about politicians from both the Democratic and Republican parties.

This expectation differs from accounts focused on partisan motivations. These accounts predict that in polarized political contexts, partisans – due to warm feelings toward their party and/or animus toward the out-party – will accept rumors targeting members of opposition parties, but reject rumors reflecting badly on their own party. From a partisan perspective, the party affiliation of the rumor target should significantly influence the strength and direction of the association between partisanship and rumor uptake.

Research Design

We use survey data from Study 2-6 to test these conflicting expectations. The surveys were not identical but shared a common template in which participants were asked about their beliefs and intentions to share a series of hostile rumors, their Need for Chaos, whether they identified with the Democratic or Republican Party, and a number of sociodemographic questions.

Beliefs and intentions to share hostile rumors. All studies asked respondents whether they believed and intended to share a number of hostile political rumors. The rumor content differed across the studies but always included either three or five rumors about Democrats

(e.g., "Former President Obama has been creating a 'shadow-government' to take down President Trump") and three or five rumors about Republicans (e.g., "Republican Tax Bill Passed in December Stops Medicare from Covering Cancer Treatment"). SM3 lists all rumors. The rumors were "real" – that is, they enjoyed widespread circulation online at the time of the studies – and included damaging information about the political actors portrayed in the stories. These were deliberate choices: We wanted authentic rumors that could both fulfill partisan goals of denigrating political opponents and, alternatively, disruptive goals of harming the reputation of politicians from both camps.

For each rumor, respondents expressed on five-point scales if they "strongly disagreed" or "strongly agreed" with two statements: (1) "I think the story is true" and (2) "I might share the story on a social media platform (e.g., Facebook, Twitter)". In Study 5, to guard against acquiescence bias, respondents read the rumors with reverse-coded responses: (1) "I think the story is false" and (2) "I would never share the story on a social media platform (e.g., Facebook, Twitter)." We averaged responses to the three rumors about Democrats and the three rumors about Republicans to create separate scales of (1) beliefs and (2) intentions to share hostile rumors about the two parties.

Partisanship. We used the familiar two-step branching measure from the American National Election Studies to measure partisanship. The final measure was coded 0 for respondents identifying with the Republican Party or leaning towards the Republicans and 1 for respondents identifying with the Democratic Party Democrats or leaning that direction. This measure was included in all studies except Study 4. To simplify, Independents are removed from analyses of partisanship but we present key analyses of Independents in Figure S2 of the SM.

Need for Chaos. Respondents in Study 1, 3, 4, 5, and 6 completed the original NFC_{Chaos} battery, while respondents in Study 2 filled out the $NFC_{Chaos\text{-}R}$ battery. Confirmatory Factor Analyses confirm the scales' one-dimensional structure (see SM2).

Analysis strategy. In all subsequent regression models, we z-score the continuous independent variables while we scale the dependent variables to run from 0 to 1. Coefficients thus reflect percentage points changes in the dependent variables as the independent variables increase by one standard deviation. To ensure that results are not driven by outliers, SM8 reproduces all figures of the main text after having removed the 5 % of respondents highest in Need for Chaos.

Results

Is the Need for Chaos associated with motivations to believe and share hostile political rumors? We examine this question in Figure 3. The figure shows estimated coefficients from models that regress motivations to believe (left panel) and share (right panel) hostile rumors about Democratic (black) and Republican (grey) elites on the Need for Chaos, partisanship and a set of covariates (education, gender, income, age and race).[2] Figure 3 displays the coefficients separately for each

[2] Additionally, in Study 3, we follow recommendations from Lopez and Hillygus (2018) and exclude "survey trolls" and "straight-liners". To guard against survey trolls, we only retain participants responding "never" to the question: "We sometimes find people don't always take surveys seriously, instead providing humorous, or insincere responses to questions. How often do you do this?" We guard against straight-liners by excluding participants who, on five-point scales, gave the exact same favorability rating to Bernie Sanders, Ted Cruz, Hilary Clinton, and Donald Trump.

study. The top panels show the association between Need for Chaos and rumor endorsement while the lower panels show the association between partisanship and rumor endorsement. Tables S8-S13 in the SM present the regression tables.

As expected, across the various samples, chaos-seeking participants report a significantly greater acceptance of the rumors. Taken as a whole, when the Need for Chaos increases by one standard deviation, intentions to share hostile rumors increase by around 10 percentage points of the outcome scale (ranging from 4 in Study 3 to 19 in Study 6; all p's < .05). The increase in rumor beliefs is slightly smaller – about seven points across samples (ranging from 2 percentage points in Study 4 to 15 percentage points in Study 6) – but it remains statistically significant and in the direction of our expectations. Figure 3 also supports the argument that disruptive sentiments fuel animosity of politicians regardless of their party affiliation. Accordingly, participants with a high Need for Chaos are more likely to endorse rumors targeting both Democrats and Republicans.[3]

What about partisanship? Figure 3's lower panels reveal that Democratic respondents generally endorse anti-Republican rumors but are less persuaded by rumors reflecting badly on their in-party. Among Republican identifiers, the opposite pattern of results occurs. These results confirm a partisan story of rumor endorsement. But they come with a caveat: In contrast to Need for Chaos, partisanship matters more for rumor *beliefs* than intentions to *share* the rumors on social media. Believing is a private act while sharing is a public - and therefore more activistic - act. Furthermore, the absolute size of the coefficients when averaging across rumors appears to be

[3] SM3 (pp. 26-28) reports results from a two-wave panel study showing that changes in the Need for Chaos are associated with changes in rumor endorsement, demonstrating that the association is unconfounded by time-invariant factors related to, for example, personality.

roughly similar for Need for Chaos and partisanship. Together, these observations suggest that Need for Chaos and partisanship may be equally strong, yet different drivers of non-normative forms of political activism.

A final question concerns the interplay between partisanship and the Need for Chaos. Theoretically, a strong party bond could dampen the inclination to share maligning rumors about one's in-party, even among chaos-seeking citizens. On the other hand, chaos-seekers may feel so politically disillusioned that they will share harmful rumors even about the party with which they nominally identify. To examine this question, Figure 4 splits the top panels of Figure 3 by respondents' party identification. The figure supports the latter expectation: Irrespective of party allegiances, a greater Need for Chaos is significantly associated with endorsement of both in-party and out-party rumors.

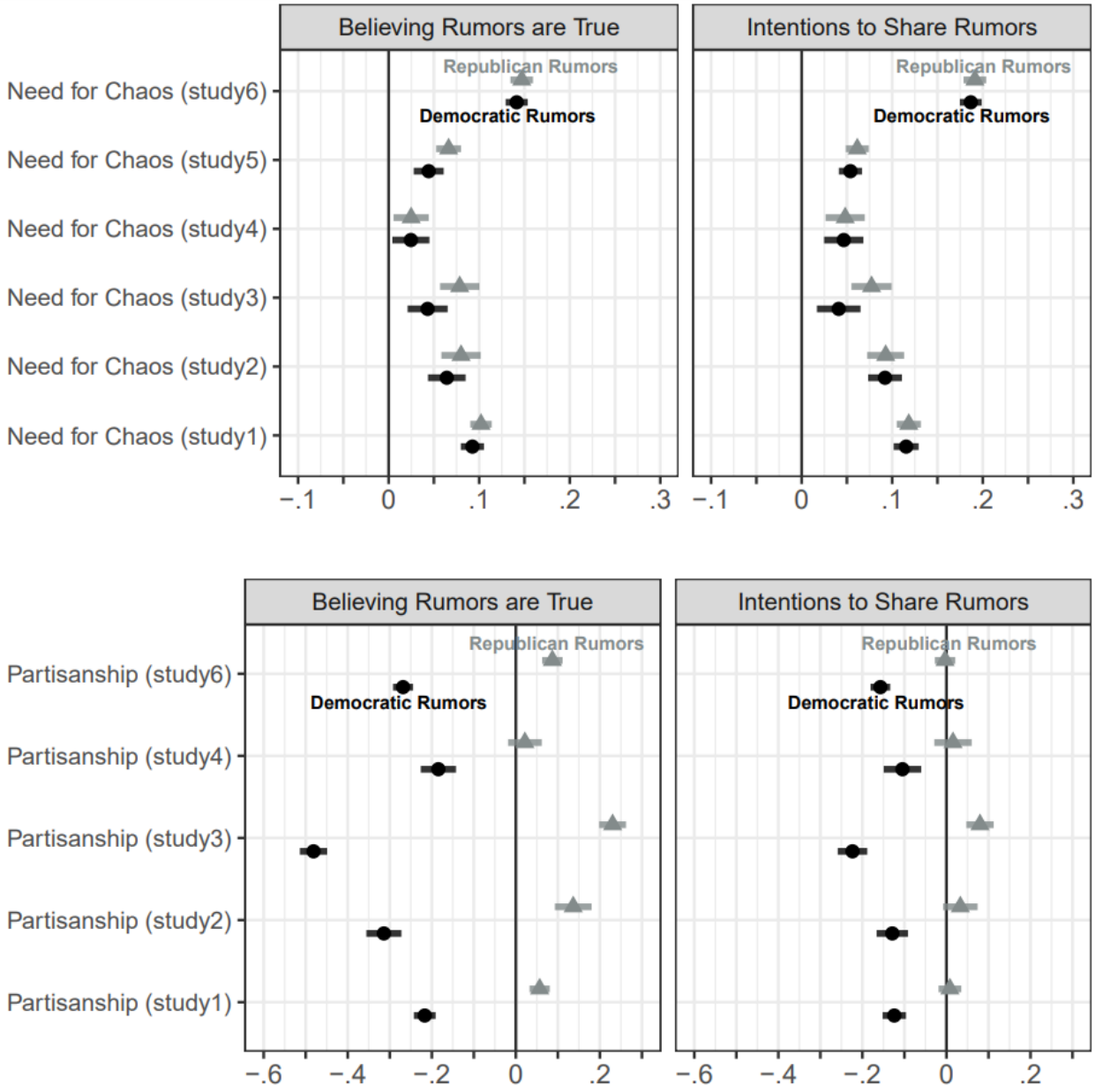

Figure 3. Estimated regression coefficients from models that examine the relationship between Need for Chaos (top) and partisanship (bottom) and the motivation to believe (left) and share (right) hostile political rumors about Democratic (black) and Republican (grey) elites. Horizontal bands give 95% confidence intervals. Dependent variables scaled to range from 0 to 1, with higher values indicating greater belief and intention to share the rumors. The Need for Chaos has been z-scored. Partisanship is a dichotomous variable (0 = Republican Identifier; 1 = Democratic Identifier). All models adjust for education, gender, income, age, and race.

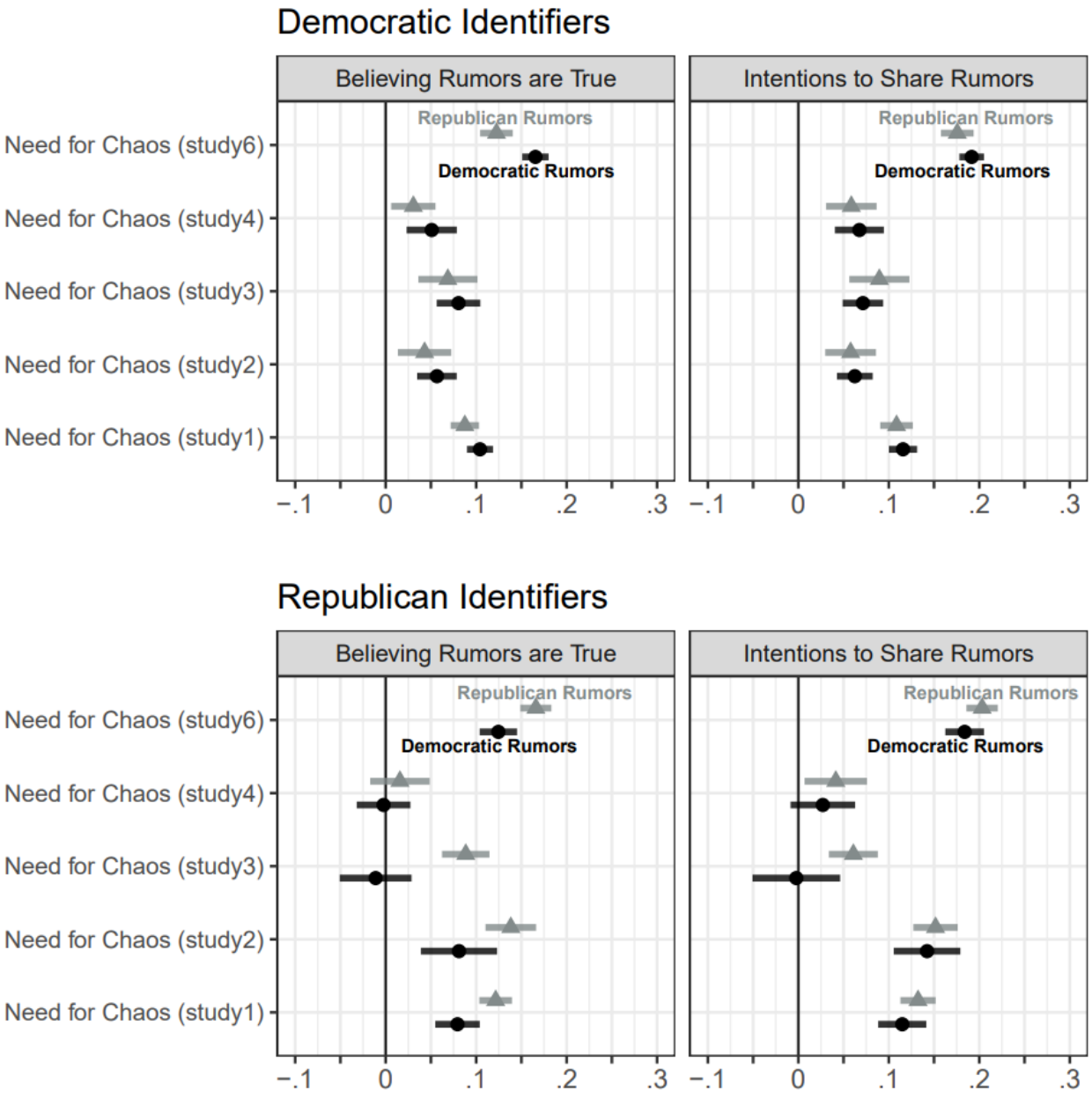

Figure 4. Estimated regression coefficients from models that examine the relationship between Need for Chaos and the motivation to believe (left) and share (right) hostile political rumors about Democratic (black) and Republican (grey) elites among Democratic (top) and Republican identifiers (bottom). Horizontal bands give 95% confidence intervals. Dependent variables scaled to range from 0 to 1, with higher values indicating greater belief and intention to share the rumors. The Need for Chaos has been z-scored. All models adjust for education, gender, income, age, and race.

Test 3. Why is Need for Chaos associated with motivations to share rumors?

Test 2 demonstrated a consistent association between the Need for Chaos and motivations to share hostile political rumors. This association existed beyond partisan animosity and even extended to rumors targeting party elites with whom the sharer ostensibly identified. Test 3 investigates the goals that individuals high in Need for Chaos seek to accomplish by indiscriminately sharing hostile information targeting partisan elites.

Our theoretical framework contends that the sharing of hostile rumors is a social and instrumental act aimed at escalating social conflict by, for example, mobilizing like-minded others. Yet, there are multiple reasons for why people share rumors - even hostile ones - including, first, epistemic reasons oriented towards enlightening audiences about information believed to be true (Pennycook et al., 2021) and, second, for social but non-instrumental entertainment purposes as encapsulated by Buckels et al.'s (2014) study on how "trolls just want to have fun." Finally, sometimes misinformation is shared with the explicit goal of countering it, for example, by exposing or ridiculing those believing in it (Johansen et al., 2022). This latter possibility opens for an alternative explanation for chaos-seekers' indiscriminate sharing, which could be in line with the traditional partisan account: Perhaps those high in Need for Chaos share rumors about their in-party not to hurt the in-party but rather to expose the out-party's lies. In contrast, our account argues that such behavior reflects disdain for all actors within the political system, even those with whom the chaos-seeker ostensibly identifies. In Test 3, we recruit data from Study 4 and 7 to test all these accounts (see SM4 for details).

Research Design

Motivations for sharing hostile political rumors. In Study 4, respondents were asked to pick the rumors that they were "most motivated to share" from a list of six anti-Democratic rumors and a list of six anti-Republican rumors, drawn from Study 1. They then indicated their agreement on seven-point scales with four statements about their motives for sharing the rumors: (a) they helped mobilize against disliked groups, (b) they came closest to the truth, (c) they had the largest consequences if they turned out to be true, and (d) their friends would find them amusing. Motive (a) corresponds to our theoretical argument, motives (b)-(c) reflect two key epistemic reasons for rumor sharing while motive (d) assesses whether sharers are simply looking for "fun."

In Study 7, we focus directly on why individuals high in Need for Chaos share rumors that denigrate their own party. Specifically, respondents were again asked to pick rumors from lists of anti-Democratic and anti-Republican rumors. After selecting a Democratic or Republican rumor, respondents then described how accurately two statements reflected their motivation for sharing these particular stories: (1) "This story would be the most useful story for mobilizing people against the corrupt Democratic[/Republican elites]" and (2) "This story would be the most useful story for mobilizing people against lying Republicans[/Democrats]. It shows what ridiculous stuff they post." These questions allowed us to explore two potential motives for sharing rumors. From a partisan perspective, participants should strategically share stories to help their party. For example, someone identifying as a Republican should share hostile rumors about Democrats in order to reveal their corruption and share anti-Republican rumors to expose the lies propagated by Democrats. However, for a person fueled by disruptive motivations, the pull of partisan incentives should be replaced by the motivation to share rumors to hurt both in- and out-party elites. This expectation amounts to an interaction effect: When Need for Chaos is weak, partisan motivations

should determine sharing decisions; when Need for Chaos is strong, partisanship should matter little.

Need for Chaos and partisanship. In Study 4, respondents completed the original NFC_{Chaos} battery while respondents in Study 7 completed the $NFC_{Chaos\text{-}R}$ battery. Respondents in both studies completed the ANES measure of partisanship. As in Test 2, we remove Independents from analyses that focus on partisanship.

Results

Do individuals high in Need for Chaos share rumors to escalate social conflict or for other purposes? To examine this, Figure 5 presents estimated coefficients from OLS models that regress responses to the questions about the four different potential motives for rumor sharing (0-1 coded) on NFC_{Chaos} (z-scored) and a set of sociodemographic covariates (see Table S15 for regression tables).[4] Consistent with findings on "trolling", we find a significant association between NFC_{Chaos} and intentions to share hostile rumors to amuse friends ($\beta_{Amuse} = .04$, $p < .001$). In contrast, we find no evidence that people with disruptive intentions share rumors because they believe the rumors are true — in fact, the coefficient is negative ($\beta_{Truth} = -.03$, $p < .001$) — or because they believe they could have major consequences ($\beta_{Consequence} = .01$, $p = .36$). Finally, corroborating our core theoretical expectation, we find that chaos-seekers share rumors to mobilize against disliked groups, Democrats and Republicans alike ($\beta_{Mobilize} = .04$, $p < 0.01$).

[4] For brevity, we average participants' responses to the Democratic and Republican rumors. Analyzing the rumors separately yields similar results, see Table S16.

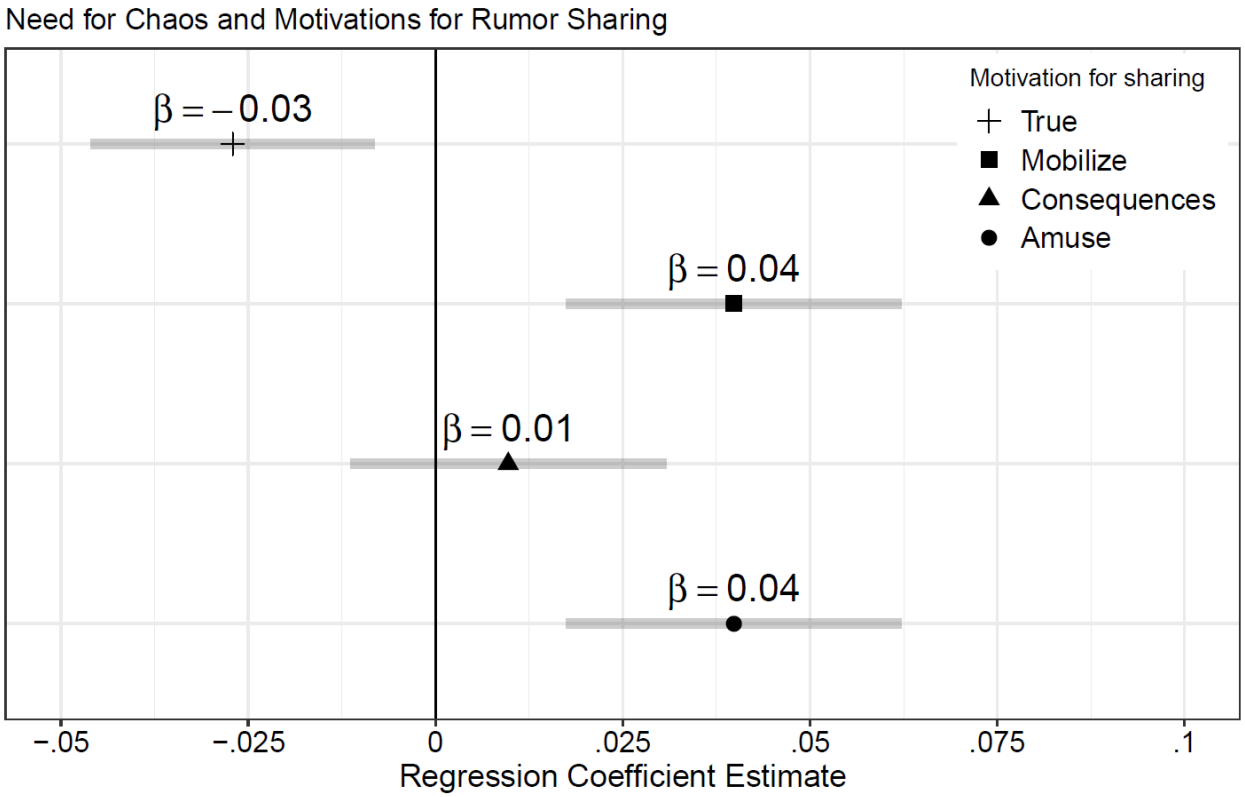

Figure 5. Estimated regression coefficients for association between Need for Chaos and four motivations for sharing hostile political rumors: (1) because the story is *true*, (2) to *mobilize* against disliked groups, (3) because the story has major *consequences* if true, (4) to *amuse* friends. Horizontal bands give 95% confidence intervals. Dependent variables scaled to range from 0 to 1. The Need for Chaos has been standardized. All models adjust for gender, age, education, and race.

Does this motivation to mobilize against a disliked group only apply to sharing hostile rumors that target the out-party, or does it also apply to rumors that target the in-party? Using data from Study 7, Figure 6 shows predictions from OLS models regressing motives for sharing rumors on $NFC_{Chaos\text{-}R}$, partisanship, the interaction between the two variables, and a set of covariates (see Table S17 for regression tables). The figure's top panels plot the two motives for sharing hostile

rumors about Democratic elites–i.e., to mobilize against either corrupt Democrats (left) or lying Republicans (right)–among Democratic (black lines) and Republican (grey lines) identifiers across levels of $NFC_{Chaos\text{-}R}$ (x-axis). The bottom panels present results for sharing anti-Republican rumors.

Figure 6 shows that when the Need for Chaos is low, partisans of different stripes have widely different motives for sharing rumors. Consider first the anti-Democratic rumors (top panels). Here, Republican identifiers are much more motivated than Democratic identifiers to mobilize against corrupt Democratic politicians (left panel), while Democratic identifiers largely concentrate on exposing Republicans of propagating hurtful lies about their party (right panel). At the lowest level of Need for Chaos, these partisan gaps in motives amount to around 35 percentage points of the outcome scales. Moving to the bottom panels, we see a similar picture with efforts to mobilize against the out-party underpinning sharing of anti-Republican rumors. Here, Republican identifiers share rumors to expose the lying Democrats while Democratic identifiers share rumors to organize opposition against corrupt Republicans. These are clear signs of politically motivated reasoning.

But what happens when the Need for Chaos increases? In each of the four models, the interaction between partisanship and $NFC_{Chaos\text{-}R}$ was statistically significant (all p's $< .005$). The result of this interaction is readily apparent in Figure 6: As the Need for Chaos grows stronger, partisanship gradually loses power and the partisan gaps shrink. In fact, when Need for Chaos reaches its peak level, partisans of both stripes become equally -- and strongly -- willing to share rumors to hurt *both* parties. Consequently, for chaos-seekers, political sympathies toward political parties appear to matter little for sharing decisions; instead, what matters is that rumors can be used as an instrument to mobilize against the entire political establishment.

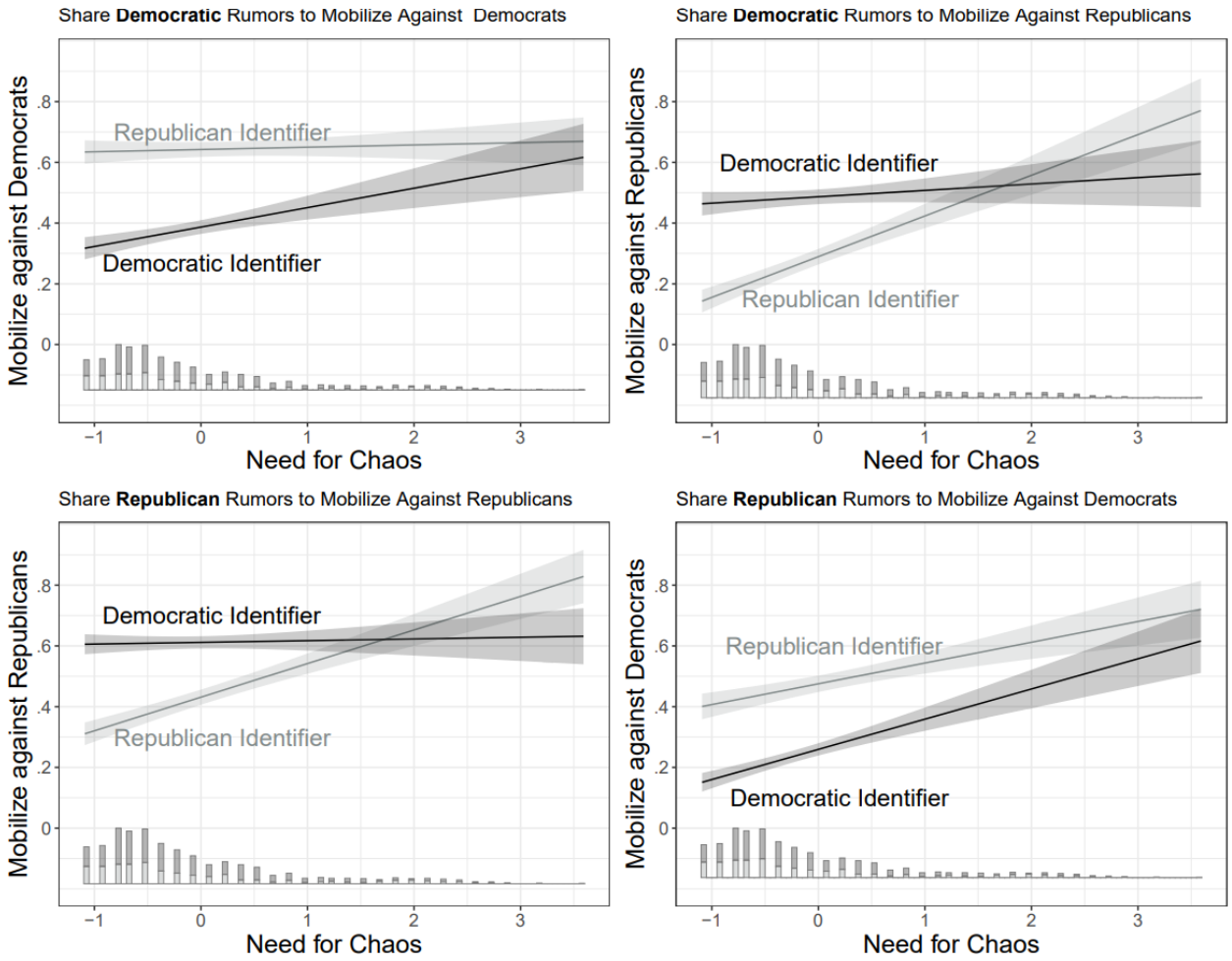

Figure 6. Predicted values from regression models that regress motivations for sharing rumors about Democrats (upper panels) and Republicans (lower panels) on the Need for Chaos (x-axis) among Democratic (black lines) and Republican (grey lines) identifiers. Dependent variables have been scaled to range from 0 to 1. The Need for Chaos has been z-scored. Histograms show the distribution of the Need for Chaos and the number of Democratic and Republican identifiers at each bin. All models adjust for gender, age, ethnicity, education and the interactions between the covariates and the Need for Chaos. The predictions are made by setting covariates equal to their mean (continuous covariate) or median (categorical covariate) value.

The above findings suggest that chaos-seekers' motivations to share hostile political rumors about both parties - even the party with which they ostensibly identify - reflect a genuine disdain for both parties. In SM4 (pp. 37-40), we provide additional analyses demonstrating that partisans with strong chaotic motivations feel explicit hostility towards political actors - both elites and rank-and-file voters - from both parties. Furthermore, the analyses show that this reflects a feeling of being abandoned: Even if they feel close to a particular party, they feel that both party elites and other ordinary party members have turned their back on them and, as consequence, they want to punish them by sharing denigrating rumors.

Test 4. Who Needs Chaos?

Test 1-3 addressed our first research question: Does Need for Chaos shape motivations to indiscriminately share hostile political rumors, above and beyond partisanship? The answer was affirmative and provided evidence that chaos-seekers actively seek to mobilize others against all actors within a loathed political system. In Test 4-6, we turn towards our second research question: Does Need for Chaos - as a characteristic adaptation - emerge from the combination of a dominance-oriented personality and social experiences of personal status loss? Test 4 provides an initial test with a focus on broad experiences of marginalization, whereas Test 5 and 6 differentiates between distinct types of marginalization.

Research Design

We test the key prediction of Need for Chaos as associated with the dual causes of, first, dispositions to acquire and maintain status in the form of dominance and, second, marginalization using survey data from Study 6 in Table 1 (see SM5 for details).

Status dispositions. To measure an orientation towards dominance-based status, we rely on the fourteen-item Status-Driven Risk-Taking scale from Ashton et al. (2010) (e.g., "I would like to live in a country where people who take huge risks have the chance to gain superior social status," response on seven-point scale: 0 = Strongly Disagree, 1 = Strongly Agree. $\alpha = .92$, M = .30, SD = .21). This scale measures willingness to take risks to acquire status and has been argued to reflect dominance orientations (Bor & Petersen, 2021; see also Figure S1 in the SM).

Social Marginalization. We included two measures of social marginalization. First, we use Hays and DiMatteo's (1987) seven-item loneliness scale to measure interpersonal marginalization e.g., "I feel isolated from others," response on four-point scale: 0 = Never, 1 = Always. $\alpha = .90$, M = .34, SD = .26). Second, to measure societal marginalization broadly construed, we asked participants to place themselves on a ten-step ladder (Adler et al., 2000), where people at the top of the ladder (step 10) are those in society that are best off in terms of job security and respect, and where people at the bottom of the ladder (step 1) are those that are worst off (M = .53, SD = .21).

Need for Chaos. We used the seven-item measure of NFC_{Chaos} from Study 1 ($\alpha = .94$, M = .22, SD = .25).

Results

Is the Need for Chaos associated with dominance orientations and social marginalization? Yes. Figure 7, panel A displays estimated coefficients from models that regress the NFC_{Chaos} on status-driven risk-taking, perceived social ladder placement and loneliness (see Table S20 for regression tables). These models show that NFC_{Chaos} is significantly higher among participants who readily take risks to obtain status and among participants who feel lonely. In contrast, participants believing they belong at the top of the social ladder are significantly less willing to express chaotic

motivations. Collectively, these findings support our characterization: Chaos-seekers strive for status and feel rejected by friends and society as a whole.[5]

But how does an orientation towards status interact with social marginalization? Panels B-C of Figure 7 show the interaction between status orientations, on the one hand, and perceived social status and loneliness, on the other hand. These panels – where the y-axes display the marginal effect of status-driven risk-taking -- allow us to determine whether the association between the Need for Chaos and status aspirations grow stronger as people feel more socially marginalized. In the panels, the Need for Chaos is 0-1 coded while our measures of status aspirations and social marginalization are z-scored.

We find support for this prediction. The association between status aspirations and NFC_{Chaos} becomes significantly stronger as perceived loneliness increases ($\beta_{\text{Status-Driven Risk-Taking X Loneliness}} = .06$, $p < .001$), whereas the association becomes weaker as people's perceived placement on society's ladder grows stronger ($\beta_{\text{Status-Driven Risk-Taking X Social Ladder Placement}} = -.05$, $p < .001$). These results suggest that status aspirations only lead to extreme political discontent among people who feel ostracized; among participants who perceive themselves to be at the top of society's hierarchy, or do not feel lonely at all, the association between Status-Driven Risk-Taking and chaotic motivations disappears. As such, the findings highlight the importance of considering both dispositional traits as well as situational triggers of destructive political motivations.

[5] In SM Section 5, Table S21 and associated text, we present some experimental evidence for this effect of social marginalization.

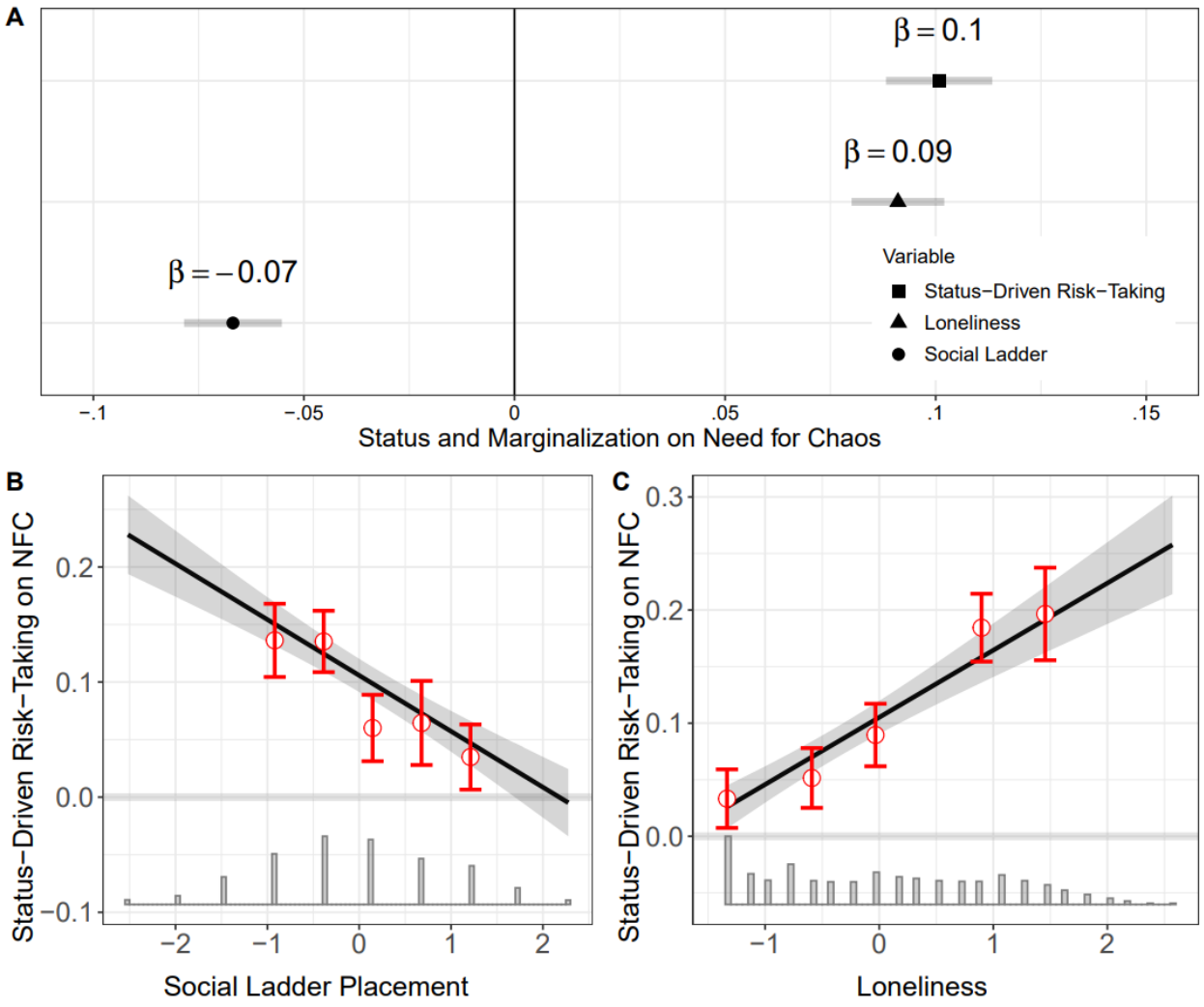

Figure 7. *Panel A:* Estimated regression coefficients with 95% confidence intervals from models that regress *Need for Chaos* on Status-Driven Risk-Taking, loneliness and perceived social status without interaction terms. *Panels B-C*: Marginal effect of Status-Driven Risk-Taking on Need for Chaos, conditional on perceived social status and loneliness. Hollow circles give marginal effects from a binning estimator that discretizes the data into five equally-sized bins (Hainmueller, Mummulo and Xu 2019). The models adjust for gender, age, educational level and race. In all panels, the Need for Chaos has been scaled to range from 0 to 1 while the independent variables have been z-scored.

Test 5. The Need for Chaos and Distinct Types of Marginalization

Test 4 demonstrates that Need for Chaos is activated when status-oriented individuals feel socially marginalized. As theoretically discussed, however, these situational status challenges can take many forms. First, marginalization could reflect a loss of status or the inability to gain status. Second, unmet expectations can relate to personal status expectations or to expectations about the status of one's group. Whereas Test 4 did not distinguish between these different forms of status challenges, the aim of Test 5 is to directly examine how status losses and gains at the personal and group level, respectively, predict a Need for Chaos. As discussed above, there are theoretical reasons to expect that personal status losses are particularly likely to fuel the form of extreme dissatisfaction that triggers a Need for Chaos.

Research Design

We examine the relative role of losses and lack of gains at the personal and group levels, respectively, using data from Study 8 (see SM2 and SM6 for details). The data consist of two independent samples: a representative sample of 1,006 US respondents identifying as white and a convenience sample of 1,157 US identifying as Black. The two samples were collected simultaneously on the basis of the same questionnaire and is treated as one large sample in the analysis.

Status Measures. To measure perceived status *loss* experienced at the personal level [/group level], participants were asked on a scale ranging from "1. Not at all" to "11. Very much", "I feel that my [/my group's] deserved place in society is being taken away from me [/them]". To

measure perceived inability to *gain* status, participants were asked "I feel that I [/my group] am [/is] kept back from gaining the place in society I [/they] deserve".

Need for Chaos. We used $NFC_{Chaos\text{-}R}$ from Study 2 (α = .94, M = .22, SD = .25).

Results

We regressed the $NFC_{Chaos\text{-}R}$ on the four status measures as well as a set of sociodemographic covariates (age, gender, education and income). Figure 8 displays estimated coefficients from these models (see Table S22 for regression tables). It shows that the $NFC_{Chaos\text{-}R}$ is most strongly associated with worries about losing one's own position in the social hierarchy ($\beta_{Personal\ Status:\ Loss}$ = .05, p < .001) and – to a lesser, but still significant extent – the perception that one is personally being kept back from climbing the social status ladder ($\beta_{Personal\ Status:\ Gain}$ = .02, p < .001). In this model, where all four status measures are entered simultaneously, considerations about status experienced as part of a group seem far less influential: The association between the $NFC_{Chaos\text{-}R}$ and perceptions about one's group's inability to gain status is almost nil ($\beta_{Group\ Status:\ Gain}$ = -.00, p =.86), while considerations about group-based status loss may be associated with less willingness to disrupt the system ($\beta_{Group\ Status:\ Loss}$ = -.02, p < .001).[6] This latter finding is consistent with work suggesting that *inflated* perceptions of the ingroup's worth, rather than the opposite, is associated with extreme behavior (de Zavala & Lantos, 2020).

[6] For statistical models where the status measures are entered separately, see Table SM22.

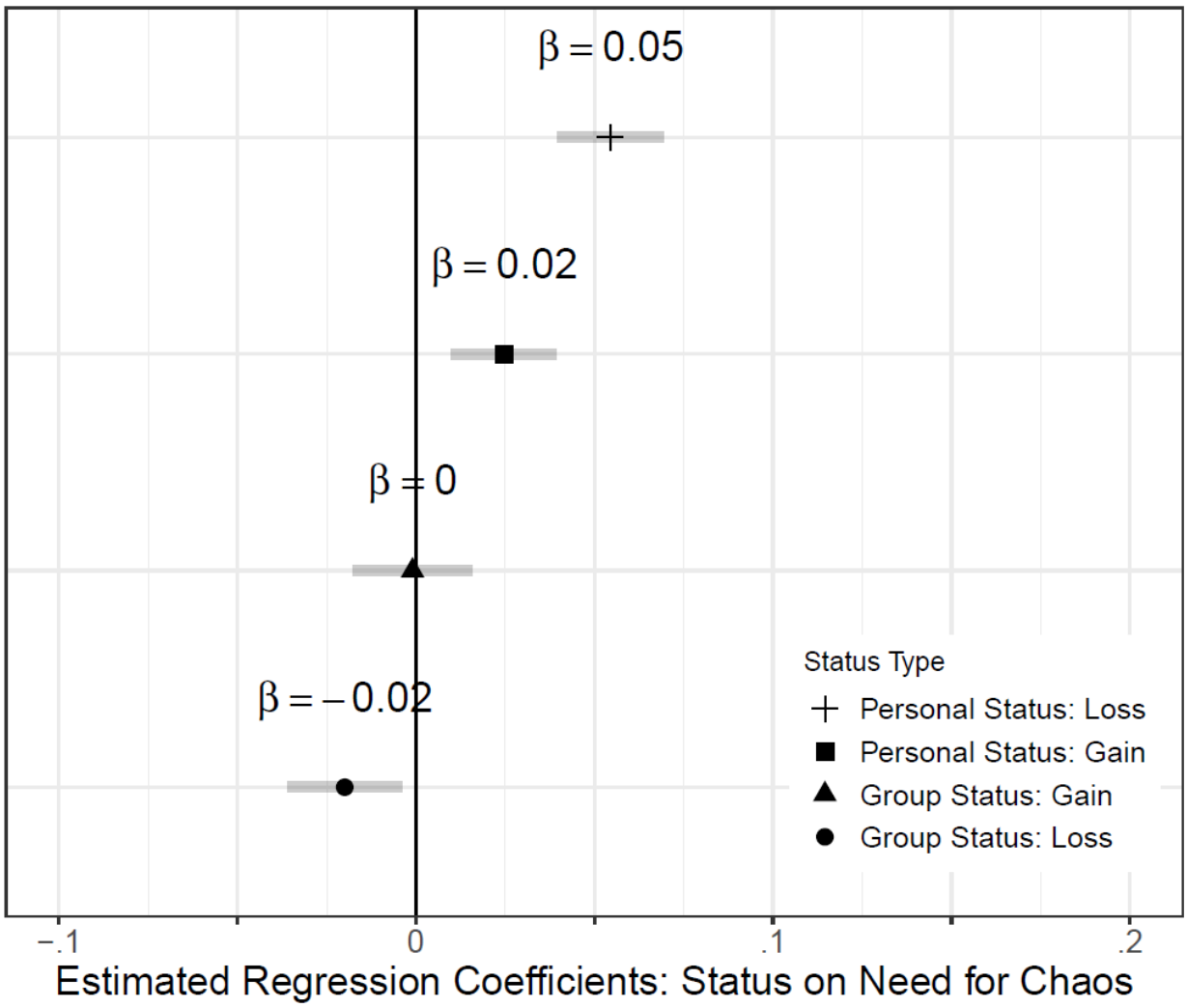

Figure 8. Estimated regression coefficients with 95% confidence intervals from the model that regress *Need for Chaos* on four measures of status. The models adjust for gender, age, educational level and race. *Need for* Chaos has been scaled to range from 0 to 1 while the status measures have been z-scored.

Taken together, the results indicate that *personal* status concerns–especially the threat of *losing* status--motivate citizens to disrupt the status hierarchy. When people are confronted with threats to their own position in the hierarchy, they may endorse chaotic policies as a defense mechanism to regain a sense of dominance.

Test 6. Historical Privilege and the *Need for Chaos*

Test 5 demonstrated that chaos seeking is linked to personal status concerns and, especially, status losses. In Test 6, we ask whether the framework of Need of Chaos - and the central role played by status concerns - helps shed light on contemporary political cleavages. In particular, we focus on the intersection of two of the most potent sociodemographic fault lines in current US politics – gender and race – and whether and how gender and race shapes anti-systemic sentiments. From the outset, it is clear that status challenges are a central background of political activism at the intersection of gender and race. For example, overt and subtle forms of discrimination have limited the opportunities for upward social advancement among women and Black people and the resulting frustrations have been fueling political activism, for example, in the context of the Black Lives Matter movement. Furthermore, arguments about status loss are also central to populist rhetoric about being marginalized, which has been shown to resonate with members of traditionally high-status groups such as white people and men (Mutz, 2018). These different feelings of disenfranchisement could ultimately lead both historically disadvantaged and historically privileged groups to endorse overthrowing a system that denies them the status and respect to which they feel entitled (whether justified or not). Such multiple pathways to destructive sentiments may help explain the combustibility of current US politics.

On this background, Test 6 is an exploratory analysis of how the intersection of gender and race shapes levels of the Need for Chaos as well as levels of the different status concerns that underlies the Need for Chaos. Furthermore, we explore how the intersection of gender and race

shapes the predictors of Need for Chaos; specifically, by examining whether different status concerns are stronger predictors for some groups than others.

Research design

We again use data from Study 8 and test how the average levels of the Need for Chaos vary across participants of different sociodemographic backgrounds (see SM2, SM7 and Test 5 for further details).

We conduct two main analyses. First, we examine the average levels of the Need for Chaos and status concerns across sociodemographic groups defined by race and gender. Second, we use OLS regressions to examine whether and how the four types of status concerns differentially predict Need for Chaos across the different racial and gender groups. Here, we present the main results while SM Section SM7 reports full model results.

Results

The left-hand panel of Figure 9 displays the average levels of Need for Chaos across groups defined by gender and race. The figure reveals a small but clear set of differences in the felt Need for Chaos (see also Table S23). White women have, on average, the lowest score of Need for Chaos (M=.22, 95%CI = [.20-.24] on a 0-1 scale), followed by white men (M=.25, 95%CI = [.23-.27]), Black women (M=.28, 95%CI = [.26-.30]) and Black men (M=.30, 95% CI = [.28-.33]). This initial observation suggests that a Need for Chaos is particularly related to race-based historical disadvantages and less so to gender-based, potentially because of lower general aggressiveness among women (Bartusevičius et al., 2020). In the following set of analyses, we explore whether status concerns can help us understand this pattern

The right-hand panel of Figure 9 displays the average levels of each of the four status concerns from Test 5 across the four demographic groups (see also Table S24). On each and every measure of status concern, both Black women and Black men score substantially and significantly higher than white women and men. This pattern is particularly evident for those measures that assess group-based status challenges but it is also the case for the key driver of a Need for Chaos, feelings of personal status loss. These findings suggest that both experiences of racism not only provoke feelings among Black individuals of being held back relative to other groups in American society, but they also fuel anti-systemic sentiments by generating a fear of losing the gains that Black people have achieved compared to previous generations.

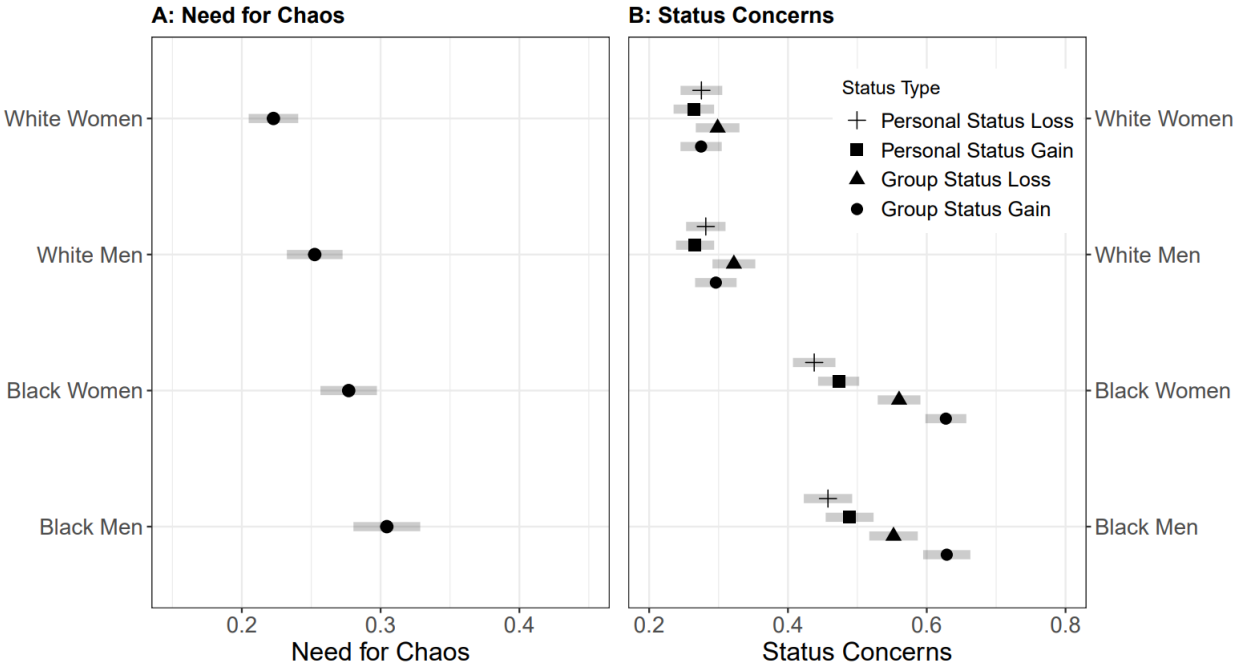

Figure 9. Average level of the *Need for Chaos (left) and status concerns (right)* among sociodemographic subgroups. Status Concerns and the Need for Chaos have been scaled to range from 0 to 1. Horizontal bands give 95% confidence intervals.

Figure 10 examines status concerns as predictors of the Need for Chaos across the intersection of gender and race (see Table S25 for interaction models). While the levels of status concern illuminate the higher Need for Chaos among Black individuals, Figure 10 provides a deeper understanding of chaos-seeking among white men. As is clear, the association between status concerns and the Need for Chaos is stronger among white men compared to any other group. The differences between white men and all other groups are significant for all status concerns, except personal status loss. While group-based marginalization tempers a Need for Chaos among Black individuals, group-based feelings of being unable to advance in society fuels a Need for Chaos among white men. Consistent with notions of aggrieved entitlement among historically dominant groups (Kimmel, 2017), many white men are preoccupied with their societal standing and react with aggression against any threat. This also suggests that the average level of Need for Chaos among white men in Figure 9 covers that many white men are quite low in Need for Chaos but that some–specifically, those feeling threatened in terms of their status–habor strong chaotic sentiments.

For all other groups, the association between status concerns and Need for Chaos is roughly comparable. In tandem with the observation that both Black men and Black women feel equally threatened in terms of their status, this raises the question of why Black women display a lower level of Need for Chaos. In the supplementary materials, we examine another measure: Reported fear of opposing the system (i.e., engaging in anti-system actions). Consistent with their historical marginalized position, we find that Black individuals, independently of gender, experience significantly higher fear of opposing the system than white individuals (Figure S6). Importantly, however, for Black women, but not Black men, this fear of opposing the system correlates negatively with a Need for Chaos (Table S26).

In sum, Test 6 suggests that there are multiple routes to having a high Need for Chaos. While both Black men and women feel marginalized, Black women's Need for Chaos is inhibited by fear, whereas Black men's marginalization more readily translates into a high Need for Chaos. In contrast, white men - experiencing both less marginalization and less fear of opposing the system - express a Need for Chaos because of extreme reactions to any perceived status threat including, for example, the expansion of racial and gender equality. While chaos-seeking unites these different groups, it is important to note that they are political adversaries rather than political allies and their goal is to address the specific status challenges they personally face. This may help explain the instability of current US politics: Dissatisfaction with the current system is widespread, but comes from diametrically opposed challenges.

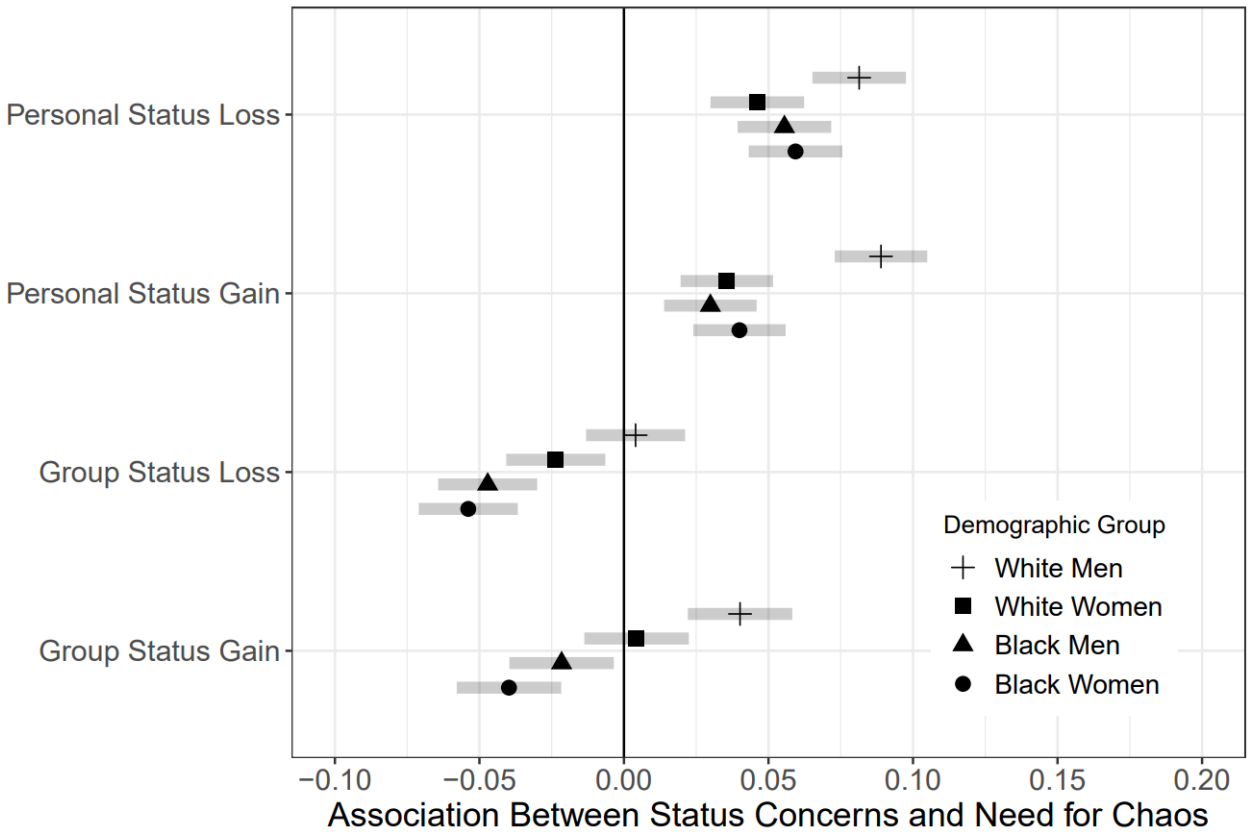

Figure 10. Estimated regression coefficients for the association between Status Concerns and the Need for Chaos among demographic subgroups. The Need for Chaos has been scaled to range

from 0 to 1 while the four measures of status concerns have been z-scored. Horizontal bands give 95% confidence intervals.

Conclusion and Discussion

We have provided a comprehensive psychological assessment of motivations to share hostile political rumors. Consistent with prior work, we find evidence that motivations to share hostile political rumors operate via a partisan logic in which partisans seek to aid their party against their mainstream opponents. Nonetheless, sharing hostile political rumors is not exclusively motivated by a desire to aid co-partisans. An element of the US public indiscriminately shares hostile political rumors because they want to tear down the established system. Among this element, the normal partisan logic of sharing hostile political rumors does not apply and the associated sentiments are as important as partisanship in explaining overall sharing (Test 1-3). We show that these individuals are motivated by an underlying characteristic adaptation, which we call *Need for Chaos*, that emerges from the interplay between dominance-oriented traits and marginalized states (Test 4). We find that Need for Chaos is associated with anger towards elites and people of all political allegiances (Test 3) and a craving for personal status (Test 5). These individuals are not idealists seeking to tear down the established order so that they can build a better society for everyone. Rather, they indiscriminately share hostile political rumors as a way to unleash chaos and mobilize individuals against the established order that fails to accord them the respect that they feel they personally deserve. Yet, because there are different routes to feeling marginalized, the goals of distinct groups of chaos-seekers are not compatible. For example, both Black men and white men may be high in Need for Chaos but for different reasons. Thus, Black men on average face more significant status threats than white men but, consistent with theories of aggrieved

entitlement of historically privileged groups, white men react more aggressively when they feel threatened (Test 6). These multiple routes to anti-systematic sentiments - and the potential incompatible goals involved - may explain the combustibility of current US politics.

It should be noted that this is a study on self-reported psychological motivations. While prior work suggests that behavioral intentions of sharing translate into actual sharing on social media (Mosleh et al., 2020), this is a clear limitation. Nonetheless, our study provides insights into the kinds of thoughts and behaviors that people are motivated to entertain when they sit alone (and, perhaps, lonely) in front of the computer, answering surveys or surfing social media platforms. In an age of hostile political rumors, behavior aimed at disrupting the system does not require much more than that. A few chaotic thoughts that lead to a few clicks to retweet or share is enough.[7]

Every society contains discontented radicals. In the age of social media, however, these radicalized individuals can more easily find like-minded others and can more easily share their views. On the one hand, these findings suggest that the problem of misinformation is a relatively localized problem, confined to people with extraordinary negative sentiments rather than a broad population-wide problem (see also Osmundsen et al., 2021). On the other hand, even if few individuals are responsible for the circulation of misinformation, these individuals may still have a large reach and a societal impact. This is especially the case because desires for chaos emerge as part of larger frustrations with society and, hence, may not only reveal themselves in the sharing

[7] To assess whether the Need for Chaos also has behavioral consequences, SM8 (pp. 66-68) reports the results of an economically incentivized Hawk-Dove Game and how behavior in that game is associated with the Need for Chaos. We find that individuals high in Need for Chaos are more likely to play the aggressive Hawk-strategy in this game.

of hostile information on social media. The insurrection against the US Congress on January 6, 2021 is an example in point. Consistent with this, we provide additional analyses in SM8 (pp. 63-65) that reveals a reliable association between Need for Chaos and behavioral intentions to engage in violence for a political cause.

These later findings highlight the importance of considering the policy implications of the present findings and how to address the feelings of status-frustration that underlie chaos-seeking. First, these findings imply that the ultimate policy solution to many problems on social media does not lie in fact-checking or small nudges (but see Pennycook et al., 2021). Rather, politicians must tackle the more difficult problem of investing in policies that address offline feelings of discontent. Second, prior work suggests that these feelings have both economic and cultural causes. Economically, research on populism and political instability suggests that reduced economic and social inequality are important policy solutions (Sokice, 2020). This does not imply that anti-systemic sentiments are only widespread among individuals low in socio-economic status. Increased inequality intensifies status-competitions across the entire status-hierarchy (Turchin, 2016) and can induce even those who are objectively well off to feel that they are losing ground as others pass them. A sense of loss can be further intensified by cultural factors as rapidly changing cultural norms and customs may increase feelings of threat (Inglehart & Norris, 2016). According to research on populism, such feelings may intensify further, if people do not feel politically represented or heard (Sokice, 2020).

This last observation entails a difficult dilemma. In today's polarized society, taking seriously the experiences of chaos-mongering opponents is the last thing many people want to do. Nonetheless, the present findings suggest that silencing, ridicule and other exclusionary reactions will only exacerbate the feelings of marginalization that drive anti-systemic views in the first place.

A key political challenge of our time may thus be to address anti-systemic sentiments in ways that remedies the underlying frustrations while remaining committed to democratic norms and principles of equal treatment.

Supplementary materials

Supplementary materials referenced in the main text are available in the APSR Dataverse at https://doi.org/10.7910/DVN/1SU7J4.

Data availability statement

Research documentation and data that support the findings of this study are openly available in the APSR Dataverse at https://doi.org/10.7910/DVN/1SU7J4.

Conflict of interest

The authors declare no ethical issues or conflicts of interest in this research.

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Ethical standards

The authors affirm that this article adheres to APSA's Principles and Guidance on Human Subject Research. The studies were exempt by Danish law from formal review by an Institutional Review Board. As per section 14(2) of the act underlying the Danish National Research Ethics Committee,

"notification of questionnaire surveys ... to the system of research ethics committee system is only required if the project involves human biological material." All participants provided informed consent.

References

Adler, Nancy E., Elissa S. Epel, Grace Castellazzo, and Jeanette R. Ickovics. 2000. "Relationship of subjective and objective social status with psychological and physiological functioning: Preliminary data in healthy, White women." *Health psychology* 19(6): 586.

Allcott, Hunt and Matthew Gentzkow. 2017. "Social media and fake news in the 2016 election." *Journal of Economic Perspectives* 31(2):211–36.

Ashton, Michael. C., Kibeom Lee, Julie A. Pozzebon, J., Beth A. Visser, and Narnia C. Worth. 2010. "Status-driven risk taking and the major dimensions of personality." *Journal of Research in Personality* 44(6): 734-737.

Bartusevičius, Henrikas, Florian van Leeuwen, and Michael Bang Petersen. 2020. "Dominance-driven autocratic political orientations predict political violence in non-WEIRD and WEIRD samples." *Psychological Science* 31(12): 1511-1530.

Bor, Alexander and Michael Bang Petersen. 2022. "The psychology of online political hostility: A comprehensive, cross-national test of the mismatch hypothesis." *American Political Science Review* 116(1): 1-18.

Buckels, Erin E., Paul D. Trapnell, and Delroy L. Paulhus. 2014. "Trolls just want to have fun." *Personality and Individual Differences* 67: 97-102.

Cacioppo, John T. and Richard E. Petty. 1982. "The Need for Cognition." *Journal of Personality and Social Psychology* 42:116–131.

Cheng, Joey T., Jessica L. Tracy, Tom Foulsham, Alan Kingstone, and Joseph Henrich. 2013. "Two ways to the top: Evidence that dominance and prestige are distinct yet viable avenues to social rank and influence." *Journal of Personality and Social Psychology* 104(1): 103-125

Crocker, Jennifer, Leigh L. Thompson, Kathleen M. McGraw, and Cindy Igerman. 1987. "Downward comparison, prejudice, and evaluations of others: effects of self-esteem and threat." *Journal of Personality and Social Psychology* 52(5): 907-916.

De Araujo, Emma, Sacha Altay, Alexander Bor, and Hugo Mercier. 2021. "Dominant jerks: People infer dominance from the utterance of challenging and offensive statements." *Social Psychological Bulletin* 16(4): 1-17.

de Zavala, Agnieszka and Dorottya Lantos. 2020. "Collective narcissism and its social consequences: The bad and the ugly." *Current Directions in Psychological Science* 29(3): 273-278.

DeWall, Nathan C., Brian Enjaian, and Sarah B. Bell. 2016. "Only the Lonely: The Curious Case of Exclusion and Aggression." In *Ostracism, Exclusion, and Rejection*, eds. Kipling D. Williams and Steve A. Nida. Routledge, 95-112.

Gøtzsche-Astrup, Oluf. 2019. "Personality moderates the relationship between uncertainty and political violence: Evidence from two large US samples." *Personality and Individual Differences* 139: 102-109.

Hays, Ronald D. and Robin M. DiMatteo. 1987. "A Short-Form Measure of Loneliness." *Journal of Personality Assessment* 51(1): 69-81.

Heath, Joseph. 2021. "Post-deliberative Democracy." *Analyse & Kritik* 43(2): 285-308.

Hempel, Anthony G., Ruth E. Levine, John R. Meloy, and Joseph Westermeyer. 2000. "A cross-cultural review of sudden mass assault by a single individual in the oriental and occidental cultures." *Journal of Forensic Science* 45(3): 582-588.

Ho, Arnold K., Jim Sidanius, Nour Kteily, Jennifer Sheehy-Skeffington, Felicia Pratto, Kristin E. Henkel, Rob Foels and Andrew L. Stewart. 2015. "The nature of social dominance orientation: Theorizing and measuring preferences for intergroup inequality using the new SDO7 scale." *Journal of Personality and Social Psychology* 109(6):1003-1028.

Hogg, Michael A., Arie Kruglanski, and Kees van den Bos. 2013. "Uncertainty and the roots of extremism." *Journal of Social Issues* 69(3): 407-418.

Horowitz, Donald L. 2001. *The deadly ethnic riot*. University of California Press.

Inglehart, R. F., & Norris, P. (2016). Trump, Brexit, and the rise of populism: Economic have-nots and cultural backlash. HKS Working paper no. RWP16-026.

Iyengar, Shanto, Yphtach Lelkes, Matthew Levendusky, Neil Malhotra, and Sean J. Westwood. 2019. "The origins and consequences of affective polarization in the United States." *Annual Review of Political Science* 22: 129-146.

Johansen, Nicklas, Sara V. Marjanovic, Cathrine V. Kjaer, Rebekah B. Baglini, and Rebecca Adler-Nissen. 2022. "Ridiculing the "tinfoil hats:" Citizen responses to COVID-19 misinformation in the Danish facemask debate on Twitter." *Harvard Misinformation Review* 3(2).

Kimmel, Michael. 2017. *Angry white men: American masculinity at the end of an era*. Hachette: Avalon Publishing Group.

Kriesi, Hanspeter and Julia Schulte-Cloos. 2020. "Support for radical parties in Western Europe: Structural conflicts and political dynamics." *Electoral Studies* 65: 102138.

Krizan, Zlatan and Omesh Johar. 2015. “Narcissistic rage revisited.” *Journal of Personality and Social Psychology* 108(5): 784-801.

Lopez, Jesse and Sunshine D. Hillygus. 2018. “Why So Serious?: Survey Trolls and Misinformation”. *SSRN*: https://ssrn.com/abstract=3131087 or http://dx.doi.org/10.2139/ssrn.3131087

McAdams, Dan P. and Jennifer L. Pals. 2006. “A New Big Five: Fundamental Principles for an Integrative Science of Personality.” *American Psychologist* 61(3): 204–17.

Miller, Joanne M., Kyle L. Saunders, and Christina E. Farhart. 2016. “Conspiracy endorsement as motivated reasoning: The moderating roles of political knowledge and trust.” *American Journal of Political Science* 60(4):824–844.

Miller, Norman, William C. Pedersen, Mitchell Earleywine, and Vicki E. Pollock. 2003. “A theoretical model of triggered displaced aggression.” *Personality and Social Psychology Review* 7(1): 75-97.

Mosleh, Mohsen, Gordon Pennycook, and David G. Rand. 2020. “Self-reported willingness to share political news articles in online surveys correlates with actual sharing on Twitter.” *PLOS ONE*, 15(2), e0228882.

Mutz, Diana C. 2018. “Status threat, not economic hardship, explains the 2016 presidential vote.” *Proceedings of the National Academy of Sciences* 115(19): E4330-E4339.

Osmundsen, Mathias and Michael Bang Petersen. 2020. “Framing political risks: Individual differences and loss aversion in personal and political situations.” *Political Psychology* 41(1): 53-70.

Pennycook, Gordon, Ziv Epstein, Mohsen Mosleh, Antonio A. Arechar, Dean Eckles, and David G. Rand. 2021. “Shifting attention to accuracy can reduce misinformation online.” *Nature* 592(7855): 590-595.

Petersen, M. B., Osmundsen, M., & Tooby, J. (2021). The evolutionary psychology of conflict and the functions of falsehood. In The Politics of Truth in Polarized America (eds. Barker, D. C & Suhay, E.), Oxford University Press.

Sell, Aaron, John Tooby, and Leda Cosmides. 2009. “Formidability and the logic of human anger.” *Proceedings of the National Academy of Sciences* 106(35): 15073-15078.

Soskice, David. 2020. “The technological revolution, segregation and populism-a long-term strategic response.” *LSE Public Policy Review*, *1*(1): 6.

Tucker, Joshua A., Yannis Theocharis, Margaret E. Roberts and Pablo Barbera. 2017. “From liberation to turmoil: social media and democracy.” *Journal of democracy* 28(4):46–59.

Turchin, Peter. 2016. *Ages of discord: A structural-demographic analysis of American history*. Beresta Books.

Tversky, Amos and Daniel Kahneman. 1991. "Loss aversion in riskless choice: A reference-dependent model.” *The Quarterly Journal of Economics* 106(4): 1039-1061.

Twenge, Jean M. and Keith W. Campbell. 2003. “Isn’t it fun to get the respect that we’re going to deserve?” Narcissism, social rejection, and aggression. *Personality and Social Psychology Bulletin* 29(2): 261-272.

Uscinski, Joseph. E., Adam M. Enders, Michelle I. Seelig, Casey A. Klofstad, John R. Funchion, Caleb Everett, Stefan Wuchty, Kamal Premaratne, and Manohar N. Murthi. N. 2021. “American politics in two dimensions: Partisan and ideological identities versus anti-establishment orientations.” *American Journal of Political Science* 65(4): 877-895.

Van Bavel, Jay J., and Andrea Pereira. 2018. “The partisan brain: An identity-based model of political belief.” *Trends in Cognitive Sciences* 22(3): 213-224.

Vosoughi, Soroush, Deb Roy, and Sinan Aral. 2018. “The spread of true and false news online.” *Science* 359(6380):1146–1151.