

Depressive Rumination and Political Engagement

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Abstract

Rumination, or negative repetitive thinking, is a significant risk factor for depression and a common and pervasive habit of thought. Using original data from two online surveys of British adults conducted in March 2021 and February 2022, we examine associations between measures of political engagement and the two types of depressive rumination computed from Nolen-Hoeksema's Response Styles Theory: brooding (the maladaptive component that assesses negative aspects of self-reflection) and reflective pondering (the adaptive component focused on problem-solving). We show that (1) higher brooding is associated with lower internal political efficacy and voting; (2) higher reflective pondering is associated with higher external political efficacy; and (3) reflective pondering increases voting propensity for nonpartisans but not for partisans. Thus, while maladaptive rumination is detrimental to political engagement, adaptive rumination appears to be beneficial. Our findings advance our understanding of the role of reflection in democratic citizenship.

Keywords: rumination; brooding; reflective pondering; political efficacy; voting; representation

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“Human beings are the only species who can reflect upon themselves” (Nolen-Hoeksema, Wisco, and Lyubomirsky 2008, p. 400). The motivation to think about past events (and to wonder about the future) is central to the human condition and is pervasive in everyday life (Kazdin 2015). Reflecting on past experiences can help individuals attain personal goals and understand what they did wrong and how to correct it in the future (Clark 2020).

For many people, reflection is a normal response to situations on which we would dwell (Watkins 2018); however, this tendency can be maladaptive when individuals focus repetitively on emotionally troublesome experiences (De Raedt, Hertel, and Watkins 2015). This mindset is common. Everyone can experience uncontrollable and intrusive, repetitive negative thoughts about upsetting personal experiences. Repetitive negative thinking that is focused predominantly on the past is referred to as rumination (Watkins 2018). Rumination as a trait, or habit of thought (Hertel 2004; Watkins and Nolen-Hoeksema 2014), and its relation to political engagement is the subject of this paper. Although central and pervasive in everyday life and shared across a range of mental disorders (Aldao, Nolen-Hoeksema, and Schweizer 2010), rumination has been neglected in political behavior.

This study is the first to generate and test hypotheses concerning possible associations of rumination with three cognitive domains of politics: attention, judgment, and decision-making. We focus on *depressive* rumination because it has been found to be a significant risk factor for the onset and maintenance of depression (Nolen-Hoeksema, Wisco, and Lyubomirsky 2008) and is a plausible mechanism linking depression and political efficacy (Bernardi et al. 2023). Depressive rumination is defined as thinking repetitively and passively about negative mood states or about the causes and consequences of negative mood (Nolen-Hoeksema, Wisco, and Lyubomirsky 2008). By focusing on depressive rumination and applying this construct to political engagement, we contribute to research both examining the

social consequences of emotion regulation (Gross 2002) and analyzing the effect of reasoning on political behavior (Arceneaux and Vander Wielen 2017; Muradova and Arceneaux 2022).

Consistent with Response Styles Theory, we operationalize depressive rumination as brooding and reflective pondering (Treyner, Gonzalez, and Nolen-Hoeksema 2003). Whereas brooding refers to negative aspects of self-reflection and, therefore, is considered to be a maladaptive component of rumination, reflective pondering is a more problem-solving orientation to problems and, therefore, is considered to be an adaptive component of rumination (Treyner, Gonzalez, and Nolen-Hoeksema 2003; Andrews and Thomson 2009).

We use knowledge from psychological research on rumination to propose two broad hypotheses linking these two facets of rumination to political engagement, which we test using data from two original online surveys conducted in Britain in March 2021 and February 2022. Given its maladaptive nature, we expect brooding to be negatively associated with political engagement by maintaining negative repetitive thinking because it should consume cognitive resources and fixate attention on negative mood and problems, impair problem-solving, and deplete motivation and initiative. In contrast, given its adaptive nature, we expect reflective pondering to be positively associated with political engagement because it should promote problem-solving and reflective analysis and has been found to be negatively correlated with depression (Treyner, Gonzalez, and Nolen-Hoeksema 2003).

In the next section we discuss the conceptual differences among rumination, depression and the notion of reflection as understood in political psychology. Then we present our theoretical arguments and the analyses based on two data sets. Lastly, we discuss the implications of our findings.

Rumination, Depression, and Reflection: Conceptual Differences

Rumination is defined as repetitive, prolonged, and recurrent negative thinking about one's self, feelings, personal concerns and upsetting experiences (Watkins 2008). Rumination is a habit of thought; the initiation of an episode of rumination can occur automatically, without conscious awareness or effort (Hertel 2004). Individual differences in rumination have been found to be stable across situations and repeated testing (Nolen-Hoeksema, Wisco, and Lyubomirsky 2008). As Watkins explains, habitual behavior typically involves some automaticity and a behavior can be conceptualized as automatic on several distinct dimensions: lack of conscious awareness, not requiring extensive resources to be performed, lack of control, and lack of conscious intent (2018, 24). As a response that occurs frequently, unintentionally, and repetitively in the same emotional context, rumination fulfills all of these conceptualizations of habit (Watkins 2018, 24; see also Hertel 2004; Watkins and Nolen-Hoeksema 2014).

Theoretical analysis suggests two main reasons for why people ruminate. Either individuals set goals that are difficult to attain and hard to abandon because either their standards are extremely high or their goals are poorly defined; or individuals do not know how best to attain their goals because of poor problem-solving skills (Watkins 2018, 22).

Traditionally, rumination has been considered to be a maladaptive emotion regulation strategy because it is a risk factor for depression and, indeed, has been found to be associated with both the onset and maintenance of depression (Nolen-Hoeksema, Wisco, and Lyubomirsky 2008; Aldao, Nolen-Hoeksema, and Schweizer 2010).¹ Thus, there is a strong link between rumination and depression. As LeMoult and Gotlib (2019) further explain,

¹ As summarized by LeMoult and Gotlib, “[c]ognitive emotion regulation strategies describe what people think about following an emotion-eliciting event in order to consciously or unconsciously cope with the event or influence the experience, magnitude, or duration of the resulting emotional response” (2019, 58).

researchers have posited that the association between rumination and depression is driven by the fact that the most commonly used measure to assess rumination, the Ruminative Response Scale (RRS) of the Response Styles Questionnaire (Nolen-Hoeksema and Morrow 1991), contains overlapping content assessing both depression and rumination (Treyner, Gonzalez, and Nolen-Hoeksema 2003). In this context, Treyner et al. isolated two distinct components of rumination – brooding and reflective pondering.

To document how these distinct styles or processing modes of rumination operate, we rely on Watkins (2018). Briefly, an adaptive style of rumination is characterized by concrete, process-focused, and specific thinking, and a maladaptive style of rumination is characterized by abstract, evaluative thinking. Thus, analyzing and evaluating the meanings and implications of one's experiences (e.g., "What does this failure mean about me?") increases over-generalization (e.g., "I can never get it right"), impairs problem solving, and exacerbates depressed mood. However, thinking about symptoms and difficulties in a more concrete and specific way, reflecting on how to do something about the difficulties, can improve problem solving and reduce depression.

Thus, rumination can be constructive (Martin and Tesser 1996). However, there is some evidence that reflective pondering is not always adaptive (Whitmer and Gotlib 2011). For instance, previous research reviewed by Whitmer and Gotlib has shown that reflective pondering, and not just brooding, predicts increased suicidal ideation and, among depressed individuals, brooding and reflective pondering may exacerbate each other. Although less intrusive than brooding, reflective pondering may still impede disengagement from analyzing the causes of one's emotional problems.

Reflective pondering differs from the concept of reflection as used in political psychology. For instance, Arceneaux and Vander Wielen (2017) define reflection as second-guessing oneself and being open to new information. It denotes bypassing intuition, stopping,

and thinking. Reflective pondering is different because it focuses on analyzing concretely problems and mood. Similarly, the concepts of need for cognition and need for affect (Arceneaux and Vander Wielen 2017) tap into different constructs than the two components of rumination. Whereas need for cognition aims to capture the extent to which people rely on their habits versus more systematic thinking, need for affect aims to capture the extent to which people rely on emotion when reflecting. While future research should examine the relation between these two sets of constructs more explicitly, the key difference lies in the goals of the measures: unlike need for cognition and need for affect, rumination (and its two components) were designed to capture emotion regulation / coping strategies.

Rumination and Cognitive Domains of Political Behavior

We make arguments in favor of differential associations between the two components of rumination and three cognitive domains of politics: attention, judgment, and decision-making. Because there is some agreement in the rumination literature (cited above) that one component of rumination is more maladaptive (brooding) while the other is more adaptive (reflective pondering), our broad expectation is that brooding will be associated with lower political engagement whereas reflective pondering will be associated with higher political engagement. Below we present more specific hypotheses.

Political Attention, Cognitive Control, and Rumination

The first aspects of rumination that we consider involve attention and cognitive control. We evaluate these domains of cognitive functioning together because we believe that jointly they may have implications for political attention. Although a ruminative episode “is often thoughtless or automatic” and can happen without conscious awareness, rumination can be “an intensely attention-demanding process” (Hertel 2004, 187). Rumination involves

passive thinking about one's mood and its consequences (Nolen-Hoeksema 1991) and its use was associated with difficulty inhibiting negative information from working memory (Gotlib and Joormann 2010). People who tend to ruminate "remain fixated on the problems and on their feelings about them without taking action" (Nolen-Hoeksema, Wisco, and Lyubomirsky 2008, 400). Consistent with this view, as hypothesized in a recent model of rumination, habit development leads to trait rumination through repeated rehearsal of repetitive thinking with low mood and executive functioning deficits impair the ability to both shift out of an abstract processing mode and inhibit habitual responses (Watkins and Roberts 2020).

Our argument about how brooding may be associated with political attention is straightforward and builds on the simple assumptions that attention is not unlimited and that cognitive resources are needed to engage in politics (Jones 1994; Lau and Redlawsk 2006; Verba, Scholzman, and Brady 1995). Given that brooding involves automatic, prolonged and repetitive thinking about one's mood and problems in an abstract way, and that brooding makes it hard for people to inhibit the processing of negative stimuli and expel them from working memory, then we would expect that people who tend to engage in brooding rumination more frequently have lower levels of attention to political information.

It is difficult to expect a unique association between reflective pondering and political attention. Although reflective pondering is considered to be the adaptive component of rumination, more concrete, specific, and aimed at promoting problem-solving, it still is a way to ruminate about one's mood and problems, and so it fixates attention on the problems. Thus, reflective pondering may not differ from brooding, but by being more proactive, it may reduce the passive and automatic thinking typical of brooding, increasing space for expanding attention on other aspects of life like politics.

Political Judgment and Rumination

Next, we consider the relation between rumination and negative biases. Theoretical analysis hypothesizes that rumination exacerbates negative biases and that negative information processing become habitual and increases susceptibility to rumination (Watkins and Roberts 2020). Relatedly, the majority of work on the association between cognitive emotion regulation strategies and cognitive biases has indeed focused on rumination (LeMoult and Gotlib 2019). For instance, research has found that higher levels of brooding have been associated with more negative autobiographical memories (Lyubomirsky and Tucker 1998) and with an attentional bias for negative words (Donaldson, Lam, and Mathews 2007). Further, research has documented correlations between brooding and a variety of maladaptive cognitive styles, including negative inferential or attributional styles, dysfunctional attitudes, hopelessness, pessimism, self-criticism, low mastery, dependency, sociotropy, neediness, and neuroticism (even after controlling for levels of depression) (for a review, see Nolen-Hoeksema, Wisco, and Lyubomirsky 2008, 400).

The content of ruminative thought is typically negative in valence: rumination enhances negative thinking and leads people to think more negatively about the past, the present, and the future (Nolen-Hoeksema, Wisco, and Lyubomirsky 2008, 400-402). Based on research on rumination and dysphoria, ruminators are found to be more negative, more self-critical, and more likely to blame themselves for their current problems, and they express reduced self-confidence and optimism in overcoming those problems (Nolen-Hoeksema, Wisco, and Lyubomirsky 2008; Lyubomirsky et al. 1999). However, negative evaluations are not only self-related. When presented with hypothetical negative life events, ruminators choose more negatively biased and distorted interpretations of those events, and their predictions about the future are more gloomy and with lower expectations (Nolen-Hoeksema, Wisco, and Lyubomirsky 2008; Lyubomirsky et al. 1999).

Evidence from above research on rumination and cognitive biases suggests that ruminators interpret and process information more negatively than nonruminators. Not only ruminators have lower levels of self-efficacy, but they are also more certain that important outcomes are uncontrollable (Lyubomirsky et al. 1999). We extend these propositions to perceptions of self-efficacy and evaluation of objects in the political realm. That is, we would expect those people who engage more in brooding rumination to have lower levels of internal political efficacy, but we also do not exclude that the negative thinking, negative biases, lack of confidence, and gloomy expectations about the future that are associated with brooding are extended to political objects (e.g., the government). In this respect, a possibility is that brooding ruminators will exhibit lower feelings of representation (external political efficacy), lower trust in government, and more negative evaluations of government performance. This intuition comes not only from the strong links between emotion regulation strategies and cognitive biases (Joormann and Gotlib 2010) and between rumination and depression (Nolen-Hoeksema, Wisco, and Lyubomirsky 2008), but is also informed by recent research on depression and political efficacy, trust in, and evaluation of government, which has documented a negative association between depression and political objects and has proposed that rumination can be a mechanism linking depression and perception of political objects (Bernardi et al. 2023; Bernardi and Gotlib 2022).

Theorizing about the relation between reflective pondering and political self-efficacy and perceptions of political objects is not easy. If reflective pondering helps to correct the negative biases associated with brooding and aims to promote problem-solving, then we can speculate in favor of a positive, or at least less negative, association between the adaptive component of rumination and self-efficacy in politics but also perceptions of political objects. However, we cannot exclude that engaging more in reflective pondering is still associated

with negative perceptions of political objects not because of the cognitive biases mentioned above but because of more analytic information processing (Andrews and Thomson 2009).

Voting Decision-Making and Rumination

Both rumination and voting are considered as habits. Voting as a habit received broad empirical support both in the United States and in Europe (Gerber, Green, and Shachar 2003; Green and Shachar 2000; Denny and Doyle 2009; Franklin 2002; Plutzer 2002). Yet there still is room for advancing theoretical reasons for such an observed regularity. Fowler (2006) has found that most people either habitually vote or habitually abstain. Fowler and colleagues argue that the “always vote” and “always abstain” types could emerge from an adaptive process but turnout may be driven from the expression of a trait that some people have and others do not, and not by some thoughtful deliberative process (Fowler et al. 2011). Previous research has identified altruism and patience as pro-voting traits (Fowler 2006; Fowler and Kam 2006). We build on this research and propose three sets of arguments suggesting that brooding may be an additional trait that, instead, leads to nonvoting.

First, the negative biases described above may prone ruminators to be more self-critical and less self-confident about themselves. Lack of personal efficacy may discourage ruminators from voting, if they hold the belief that their vote will not make a difference. Although many voters surely have such perception about their political efficacy and the latter is an important determinant of political engagement (Finkel 1985; Vecchione and Caprara 2009), the mutual reinforcement of negative bias and rumination is likely to make this belief even stronger for ruminators than for nonruminators. Relatedly, negative biases are hypothesized to increase the perception of unsatisfactory goal progress which encourages rumination (Watkins and Roberts 2020). In turn, rumination interferes with effective problem solving, in part by making thinking more pessimistic and fatalistic and in part by sapping

people's motivation and initiative (Nolen-Hoeksema, Wisco, and Lyubomirsky 2008, 401-403). The fact that rumination is a process driven by unresolved goals (Watkins 2018) and that negative biases increase this perception of goal discrepancy (Watkins and Roberts 2020) might reinforce lack of personal efficacy in ruminators which may explain why they tend to abstain.

Second, repetitive negative thinking and avoidance may discourage from voting. Rumination has often been conceptualized as “an avoidance behavior that is negatively reinforced by the removal of aversive experience” (Watkins 2018, 27). As Watkins further explains, “rumination may put off overt action and avoid the risk of actual failure and humiliation, or serve to avoid unwanted personal characteristics through constant vigilance and criticism of one's performance” (ibid.). Thus, rumination is a cause and consequence of avoidance. Namely, rumination encourages procrastination which becomes avoidance while, at the same time, avoidance of trying the plan out can be a source of further rumination. If rumination leads to procrastination and then to avoidance and if voting may be perceived as a big responsibility, then avoidance behavior may be potentially adopted in decisions that involve politics.

Third, it may simply be that by being stuck in their repetitive negative thoughts and preoccupied with their problems and troublesome experiences, ruminators have less time and cognitive resources (Verba, Scholzman, and Brady 1995) than do nonruminators to seek and process information that would lead them to construct a “good enough” (Redlawsk and Lau 2013, 136) informed and conscious voting decision. Psychological research on rumination and difficulties in cognitive control (LeMoult and Gotlib 2019) suggests this idea.

The relation between reflective pondering and voting may not be unidirectional. If the adaptive component of rumination promotes problem-solving and helps to correct the negative features of brooding, then we should expect a positive association between reflective

pondering and voting because analytic reasoning is an important component of decision-making situations, including social dilemmas (Andrews and Thomson 2009). However, research on analytic rumination proposes that avoidant behaviors can be used when facing difficult social dilemmas (Andrews and Thomson 2009), and so we cannot exclude that even reflective pondering promotes avoidant behavior, including non-voting, when the decision is particularly difficult.

In sum, while there seems to be more agreement about negative associations between brooding and different domains of political engagement, the picture is mixed concerning the role of reflective pondering (Table 1). Below we examine these associations empirically.

Table 1: Summary of Expected Effects

Measure	Brooding	Reflective Pondering
Political attention	Negative	Positive / Unclear
Internal political efficacy	Negative	Positive / Unclear
External political efficacy	Negative	Positive / Unclear
Trust in government	Negative	Positive / Unclear
Government satisfaction	Negative	Positive / Unclear
Turnout / Vote intention	Negative	Positive / Unclear

Study 1

Participants

We commissioned an online survey in March 2021 of a demographically and politically representative sample of the GB adult population (aged 18+) to the polling firm YouGov using their ‘Political Omnibus’ approach (N=1,651). The sample was recruited from an online panel using active sampling based on quotas relating to age, gender, social grade, education, region, political attention and the 2016 EU Referendum and 2019 General Election votes. The quotas were based on the following publicly available data: ONS mid-year estimates, The Census, Election and Referendum Results, and British Election Study face-to-face study.

YouGov does not rely on consent but on legitimate interests for processing panelist data. When individuals join YouGov, they are asked to agree to their terms and conditions and are offered the chance to read their privacy and cookies notice. Before starting the survey, participants were shown a short text briefing them about the nature of the study and the approximate duration of the survey. The data were fully anonymized after the fieldwork and individual ID numbers were created. We submitted an ethics application for our study that received ethical approval on 13th July 2020 by the School of Histories, Languages and Cultures Ethics Committee of the University of Liverpool (reference number 7774).

Measures

Brooding rumination. To measure negative repetitive thinking we used the five-item brooding rumination subscale derived from Nolen-Hoeksema’s Ruminative Response Scale (RSS) of the Response Styles Questionnaire (Nolen-Hoeksema and Morrow 1991). Nolen-Hoeksema and colleagues examined the distinct components of the RSS and isolated two unique components of rumination: brooding and reflective pondering (Treynor, Gonzalez, and Nolen-Hoeksema 2003). In Study 1 we only measured brooding which is defined as

passive and judgmental thoughts about one's mood (Treyner, Gonzalez, and Nolen-Hoeksema 2003). The brooding rumination subscale asks respondents to state how often they think the following when they feel down, sad or depressed: think "Why do I always react this way?"; think about a certain situation, wishing it had gone better; think "Why do I have problems other people don't have?"; think "Why can't I handle things better?"; think "What am I doing to deserve this?". The variable *brooding* ranges from 0 to 15, with higher values denoting higher engagement with brooding rumination (Cronbach's alpha=0.87, mean=4.46, and SD=3.50).

Political attention. Interest in politics is "typically the most powerful predictor of political behaviors that make democracy work" (Prior 2010, 747) and is strongly related to political knowledge and participation (Delli Carpini and Keeter 1996; Verba, Scholzman, and Brady 1995). To measure political interest, we used a 0-10 scale question that YouGov had previously asked their panelists: "How much attention do you generally pay to politics?", where 0 indicates "pay no attention and 10 indicates "pay a great deal of attention".

Internal political efficacy. The concept of internal political efficacy denotes citizens' perceptions of their ability to understand and to participate effectively in politics (Craig, Niemi, and Silver 1990) and originates from the psychological concept of self-efficacy (Bandura, Freeman, and Lightsey 1999). We operationalized internal political efficacy by asking respondents to indicate the extent to which they agreed with two questions ("I think I understand quite well the most important political issue that affect the country" and "Sometimes politics seems so complicated to me that I can't understand what's going on"), where the response options were: 1 "strongly disagree", 2 "somewhat disagree", 3 neither agree nor disagree", 4 "somewhat agree", and 5 "strongly agree". Combined, these questions result in a standard measure of internal political efficacy with values from 2 to 10 (Cronbach's alpha=0.64).

External political efficacy. External political efficacy also has psychological roots in the notion of locus of control, namely the sense of being in control of one's own life rather than feeling powerless in the face of external forces (Renshon 1974; Levy 2013). To measure perceptions of how responsive political institutions and actors are in reacting to citizens' demands (Morrell 2003) we used two questions ("Public officials don't care much about what people like me think" and "The political system allows people like me to influence what the government does") that have the same range as the questions about internal political efficacy and, combined, result in a standard measure of external political efficacy with values from 2 to 10 (Cronbach's alpha=0.61).

Trust in and satisfaction with government. The constructs of political trust and satisfaction are related to Easton's (1975) support of the output of government (Norris 2011). We asked a 0-10 scale question about trust in government (0=not at all, 10=completely) and a question about government performance on the pandemic ("How well or badly do you think the UK Government are handling the issue of the Coronavirus (COVID-19)?" where 1 "very well", 2 "fairly well", 3 "fairly badly", and 4 "very badly"). The inclusion of external political efficacy, trust in and satisfaction with government relies on Pippa Norris' work on diffuse versus specific support (Norris 2011). Although we cannot speak to associations with 'national identities' and 'approval of core regime principles and values,' we included questions assessing 'evaluation of regime performance' (external efficacy), 'confidence in regime institutions' (trust in government), and 'approval of incumbent office-holders' (satisfaction with government).

Turnout. To measure turnout we relied on a question on vote recall in the 2019 general elections. Turnout is coded as 1 if the respondent stated that she has voted in the 2019 general election and 0 if she did not. Table 2 displays a summary of descriptive statistics for our measures of political engagement.

Sociodemographics. We control for sex (1=male, 2=female), age, education (1=university or higher, 0=otherwise), ethnicity (1=British, 0=otherwise), and social grade (AB=higher and intermediate managerial, administrative, professional occupations, C1=supervisory, clerical and junior managerial, administrative, professional occupations, C2=skilled manual occupations, DE=semi-skilled and unskilled manual occupations, unemployed and lowest grade occupations). We selected these sociodemographic factors because they were found to be predictors of political engagement or because – like sex (Nolen-Hoeksema 1995) – they may moderate the relationship with rumination.²

Party identification. Our data set includes a question on party identification that we use to control for potential partisanship effects. We coded party identification as a set of dummy variables (no party identification, identification with the Conservative Party, Labour Party, Liberal Democrats, or identification with other parties).

Depressive symptoms. We control for symptoms of depression. On the one hand, as described above, rumination has been found to be strongly associated with depressive symptoms, said to be responsible for the onset and maintenance of depression and reinforced by depressive symptoms. On the other hand, depression was found to be associated with political participation and political outcomes (Landwehr and Ojeda 2021; Bernardi et al. 2023; Bernardi and Gotlib 2022). Depression was measured with the 9-item form of the Center for Epidemiologic Studies Depression Scale (Radloff 1977). Respondents were asked about their feelings in the past two weeks on the following items: “I felt depressed;” “I felt that everything I did was an effort;” “I felt hopeful about the future;” “my sleep was restless;”

² Given the established finding on the gender difference in rumination (Nolen-Hoeksema, Wisco, and Lyubomirsky 2008), we have estimated our models interacting the two components of rumination with gender (Table S12). We find no evidence of a moderation effect.

“I was happy;” “I felt lonely;” “I enjoyed life;” “I felt sad;” and “I could not get ‘going.’” Response options range from 1 (rarely or none of the time) to 4 (most or all of the time). Scores on the *CESD-9* range from 0 to 27 and were recoded so that higher values denote higher levels of depressive symptoms. Summary statistics of all control variables are reported in Table S1 and correlations among brooding, depression and political outcomes in Table S6.

Negative biases. Given the strong link between rumination and cognitive biases, we included in our survey a measure of negativity biases in news selection (NBNS) developed by Bachleda et al. (2020). Consistent with the authors’ method, we repeated a question for each of five topics: “Imagine that you are going to read a news story in order to learn something interesting, important or useful about the [economy/ environment/ health care/ politics/ foreign affairs]. You have four headlines from which to make one selection. Which of the following would you read?” Respondents are then given four headlines, and they select one. Following the authors, we randomized both topics and headlines. The headline groupings always included two positive headlines and two negative headlines. We used exactly the same headlines except for the politics headlines which we adapted to refer to British politics. The *NBNS* measure ranges from 0 to 5 and captures the number of questions for which the respondent selects a negative headline (Mean=2.16, SD=1.40).

Table 2: Measures of Political Engagement in Studies 1-2

Measure	Mean (SD) or Percentage (Study 1 Study 2)		Min	Max	Model
Political attention	6.07 (2.38)	6.08 (2.46)	0	10	Linear (OLS)
Internal political efficacy	6.60 (1.88)	6.76 (1.88)	2	10	Linear (OLS)
External political efficacy	4.45	4.06	2	10	Linear

	(1.75)	(1.70)			(OLS)
Trust in government	5.16 (2.88)	3.96 (2.83)	1	10	Linear (OLS)
Government satisfaction	2.37 (0.93)	2.25 (0.93)	1	4	Linear (OLS)
Turnout / Vote intention	80	70	0	1	Logit (ML)

Analyses

To ease comparison of coefficients across models, in the analyses we rescaled all our key dependent and independent variables ranging from 0 to 1 and used the weight variable suggested by YouGov as a fine-tuning measure to correct any discrepancies (our results do not change substantively using the unweighted data). All models are estimated with OLS except for those with turnout, which are logistic regressions estimated with maximum likelihood (the correlations among brooding, depression and political outcomes are reported in Table S3).³

With respect to the control variables, our analyses show that, consistent with previous research, there is a gender difference in political interest and internal efficacy, while females exhibit a higher external efficacy, and are more satisfied and trustful with government. Further, those with higher education are more interested in politics, have a higher internal

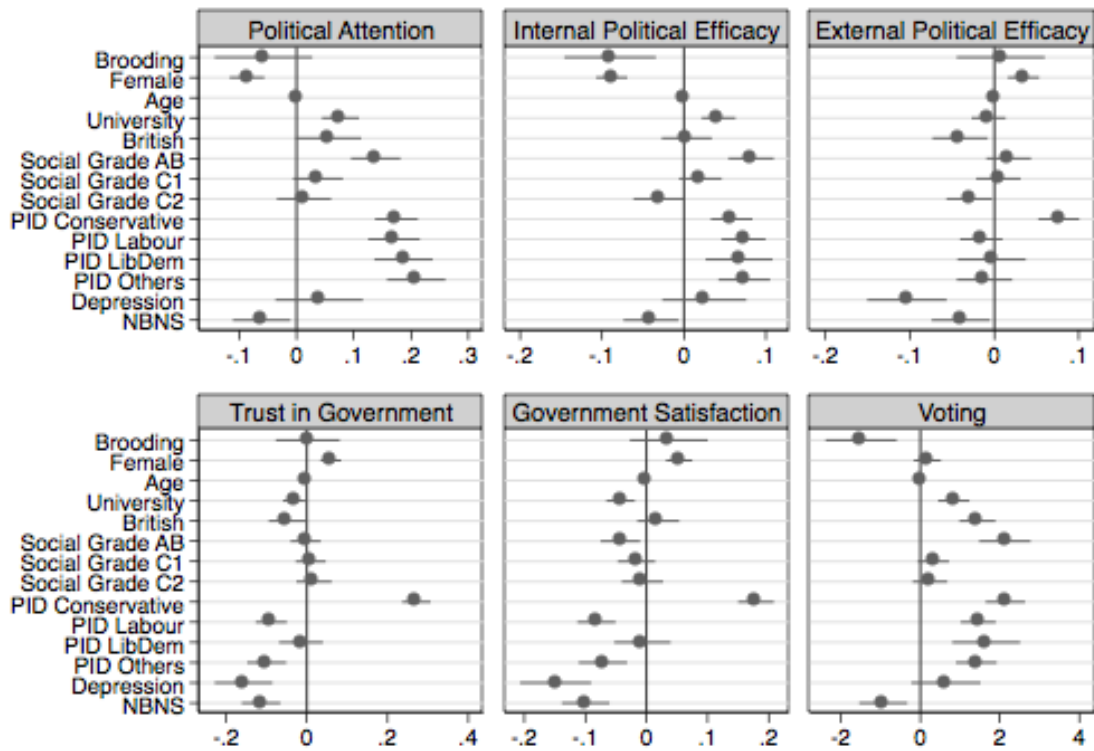
³ The differences among depression, brooding and reflective pondering are well-established (Whitmer and Gotlib 2011; Miranda and Nolen-Hoeksema 2007; Schoofs, Hermans, and Raes 2010) and factor analysis using our data supports this view (Table S3-S5). The correlation between brooding and reflective pondering is .65; the correlation between brooding and depression is .63; the correlation between reflective pondering and depression is .45. The distribution of these variables is available in Figure S1.

efficacy, and more critical towards the government. Moreover, British people are more interested in politics, show higher satisfaction with the incumbent party, and vote more. Finally, those with higher socioeconomic status pay more attention to politics, have higher internal political efficacy, and vote more. Not surprisingly, party identification is an important predictor of and heuristic for political engagement. Symptoms of depression are negatively associated with external political efficacy, trust in and satisfaction with government. Unlike findings of previous research (Landwehr and Ojeda 2021; Bernardi et al. 2023), depression is not associated with lower turnout. NBNS is negatively associated with all political outcomes.

We now turn to our main independent variable. Consistent with our expectations, those who engage more frequently in brooding have lower internal political efficacy and lower turnout. These effects are substantive: brooding is the predictor with the largest effect in the internal efficacy model and among the largest in the voting model. They also report lower levels of political attention, but this association is not statistically significant. We note that when including depressive symptoms, the effect of brooding on trust, satisfaction, and external efficacy disappears, suggesting that confidence in regime institutions and evaluations of regime performance are better predicted by depressive symptoms than by rumination. Importantly, however, the effect of rumination on internal efficacy and voting holds even after controlling for depressive symptoms.

Figure 1: Brooding Coefficient Plot, March 2021

March 2021



Notes: Coefficient plots with 95% confidence intervals. Reference category for socioeconomic status: social grade DE. Reference category for party identification: no party identification. NBNS = negativity biases in news selection. Analyses are reported in Table S8.

Study 2

Participants

We commissioned another online survey in February 2022 of a demographically and politically representative sample of the GB adult population (aged 18+) to the polling firm YouGov using their ‘Political Omnibus’ approach (N=1,742). The sample was based on a mix

of respondents who took the survey in March 2021 (recontact rate was 70%) increased by 600 new respondents.⁴

Measures

Reflective pondering. Study 2 includes the same questions used for Study 1 with the exception of NBNS and the addition of the reflective pondering subscale of Nolen-Hoeksema's Ruminative Response Scale (see Table 2 for descriptive statistics of political outcomes, Table S2 for descriptive statistics of control variables, and Table S7 for correlations among brooding, reflective pondering, depression, and political outcomes). The reflective pondering subscale asks respondents to state how often they do the following when they feel down, sad or depressed: analyze recent events to try to understand why you are depressed; go away by yourself and think about why you feel this way; write down what you are thinking about and analyze it; analyze your personality to try to understand why you are depressed; go someplace alone to think about your feelings. Scores for the variable *reflective pondering* range from 0 to 15, with higher values denoting higher engagement with reflective rumination (Cronbach's alpha=0.82, mean=3.11, and SD=3.06). The only difference in political outcomes is that this time we were able to ask a question on vote intention, which is more appropriate than vote recall. Results do not change when re-estimating the analysis with vote recall.

Analyses

⁴ We computed intra-class correlations (ICC) for individuals who completed the follow-up survey to examine the stability of the brooding construct. The ICC value for the individual measurement is .71, and for the average measurement is .83.

Figure 3 displays the coefficient plots of brooding, reflective pondering and the same set of controls used in Study 1.⁵ Study 2 confirms the association between brooding and internal political efficacy observed in Study 1. However, although still negative, the association between brooding and voting is no longer statistically significant. As found in Study 1, the association between brooding and political attention remains negative but not statistically significant.

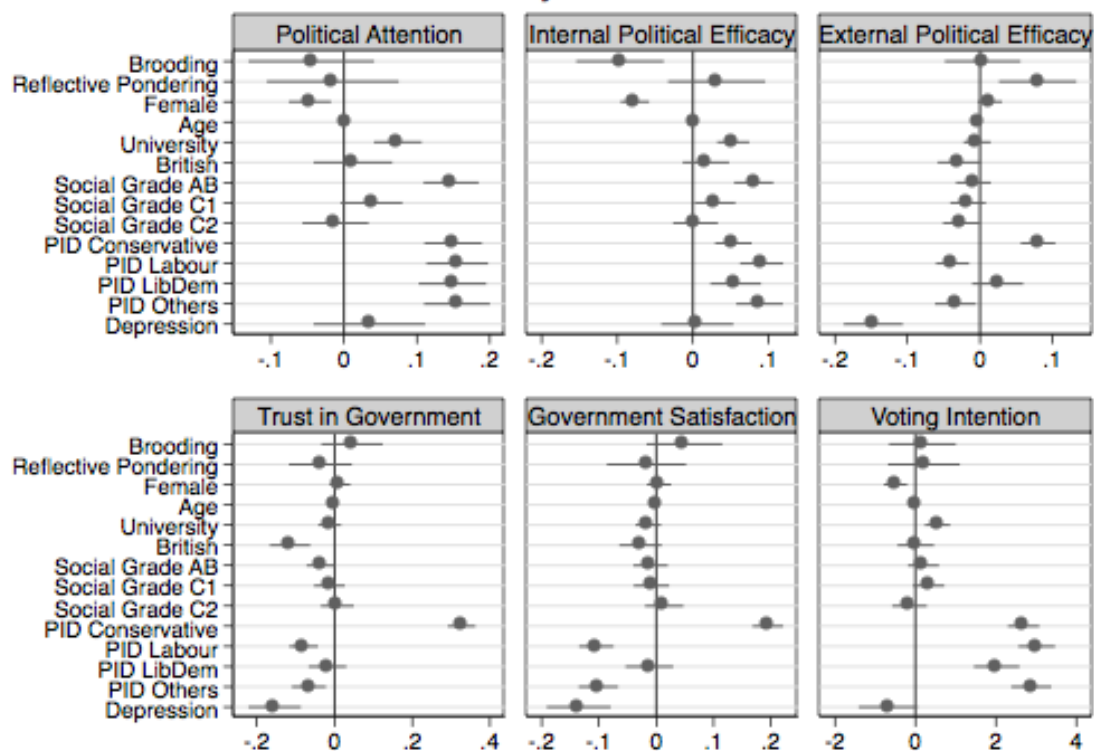
We now move to the results linking reflective pondering and political outcomes. Interestingly, higher reflective pondering is related to higher internal political efficacy and external political efficacy, but only the latter is statistically significant. Further, those who engage more in reflective pondering tend to trust the government less, to be less satisfied with government, and report lower levels of political attention and lower probabilities of voting. These relations, too, however, are not statistically significant. Full analyses are reported in Table S9.

Figure 2: Brooding and Reflective Pondering Coefficient Plot, February

2022

⁵ Given that brooding, reflective pondering, and symptoms of depression are highly correlated, we conducted an analysis of variance inflation factor for each of our models; based on the results we can conclude that multicollinearity is not an issue.

February 2022

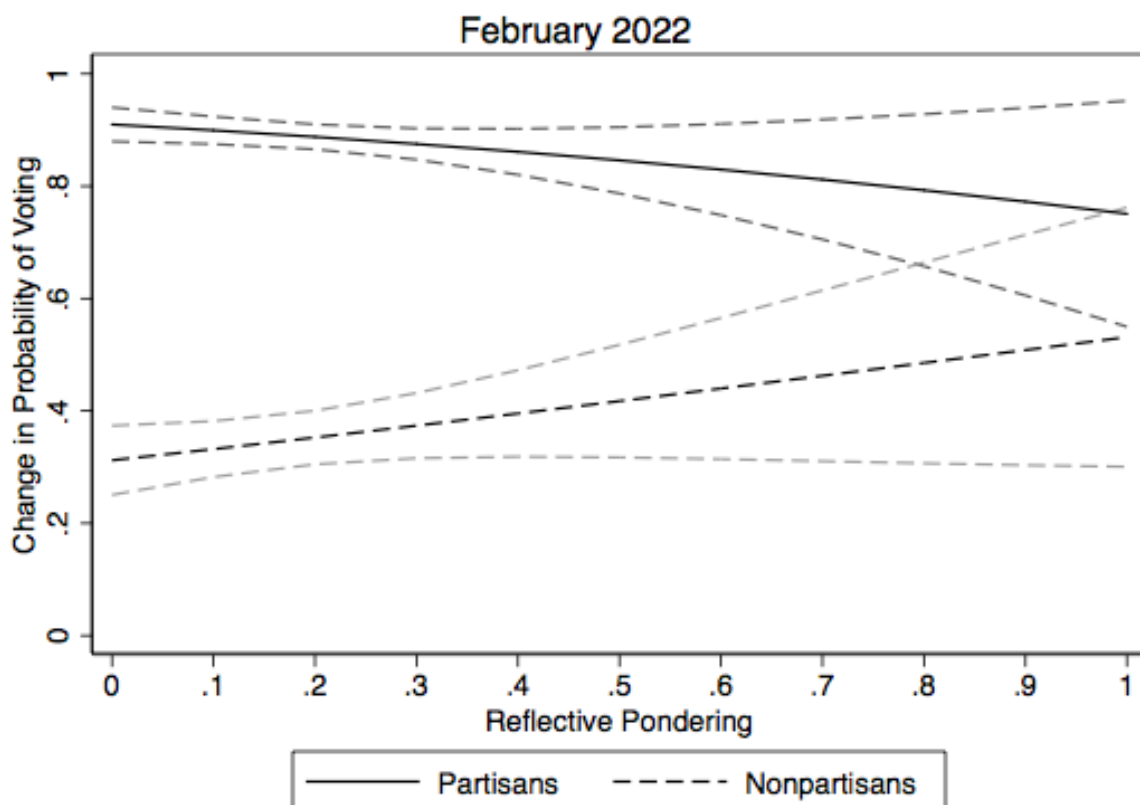


Notes: Coefficient plots with 95% confidence intervals. Reference category for socioeconomic status: social grade DE. Reference category for party identification: no party identification. Analyses are reported in Table S9.

We noted above that brooding may lead to avoidant behavior which in the context of voting, may in turn lead to the decision to abstain when voting is perceived as a big responsibility. Instead, reflective pondering may correct avoidant tendencies driven by brooding. This suggests that processes are different for political sophisticates. We can test this argument by testing for a three-way interaction of brooding, reflective pondering, and a measure of partisanship (coded as 1 if the respondent identifies with a political party and 0 if they do not). The analysis is reported in Table S10 of the Online Appendix. The analysis shows that while the three-way interaction is not statistically significant, suggesting that the slopes for brooding and reflective pondering on partisans (nonpartisans) do not differ

significantly from each other, partisans and nonpartisans have different change in probability of voting as a function of their level of reflective pondering. The interaction of brooding and partisanship is not statistically significant ($p < .10$); therefore, we only focus on the interaction of reflective pondering and partisanship ($p < .05$), which we plot in Figure 3. The analysis shows that when reflective pondering increases, the voting probability for partisans decreases and for nonpartisans increases. We elaborate on this finding in the discussion.

Figure 3: Reflective Pondering, Partisanship, and Voting Intention



Discussion

Although habits can be broken, people require considerable effort to change their thinking patterns. Therefore, our findings are important for understanding how people engage with politics, and have at least three important implications for political behavior.

The first implication concerns voting. Rumination is stable, and has been posited to be learned in childhood (Nolen-Hoeksema, Wisco, and Lyubomirsky 2008; Watkins and Nolen-Hoeksema 2014), either modeled by parents who themselves had a passive coping style or a consequence of early physical/sexual/emotional abuse (Watkins 2018, 24). Our finding that brooding is negatively associated with voting – at least in one sample – is thus relevant for political socialization (Plutzer 2002) and dispositions (Fowler 2006) and suggests that brooding rumination is an important source of nonvoting that can be adopted in early life. However, the fact that the finding from the March 2021 survey was not replicated in the follow-up survey calls into question the robustness of this result.

Relatedly, our finding that brooding, and not depression, is negatively associated with voting increases our understanding of how cognitive emotion regulation might be related to a key dimension of political participation. By studying depressive symptoms, previous research has emphasized lack of motivation as an important resource missing for political participation (Landwehr and Ojeda 2021; Bernardi et al. 2023). However, our finding suggests that other mechanisms are involved. Another mechanism may be cognitive deficits. Namely, rumination requires cognitive resources, leaving fewer resources for adaptive functioning. Indeed, rumination is related to multiple aspects of cognitive control, including difficulties inhibiting negative information from entering working memory, updating information in working memory, and removing irrelevant negative material from working memory (LeMoult and Gotlib 2019). Hence, our results suggest that lack of cognitive control can be as important as is lack of motivation for explaining the cognitive decision of nonvoting.

Our second implication is related to our findings that brooding is negatively associated with internal political efficacy while reflective pondering is positively associated with external political efficacy. Our finding for internal political efficacy is consistent with psychological research cited above that has reported associations between rumination and negative self-evaluations. The present study is the first to extend these findings to political self-efficacy, and these findings are consistent across two samples. The finding on reflective pondering and external efficacy echoes previous research that points to the adaptive implications of reflective pondering. Our finding that individuals who engage more in constructive repetitive thinking have more positive perceptions of government responsiveness suggests that not all rumination is necessarily bad for political engagement.⁶

Overall, our finding that reflective pondering may have adaptive implications for some facets of political engagement adds to previous research which found that reflective pondering is linked to creativity (Verhaeghen, Joormann, and Aikman 2014), is efficient in regulating negative mood and anxiety (Cristea et al. 2013), and may alleviate post-decisional regret (Dey et al. 2018). Further research should go beyond the associations reported in our study and test whether cognitive therapies designed to improve reflection can increase some aspects of political engagement of depressed people.

Our third implication is related to our finding that reflective pondering is associated with a higher voting propensity for nonpartisans but not for partisans. This is interesting because some research has documented that individuals who fall into the trap of motivated reasoning are those who are more politically sophisticated (Taber and Lodge 2006; Redlawsk 2002). We speculate that our finding that reflective pondering may have an adaptive effect on nonpartisans but not on partisans goes in the direction offered by the research on motivated

⁶ This is further supported by the fact that the interaction between brooding and reflective pondering is not statistically significant in our models of political engagement (Table S11).

reasoning, whereby partisans are more prone to information seeking and processing biases. However, it may also be the case that reflective pondering interrupts the habit of voting for those who are more capable of recognizing that voting does not necessarily solve the problems and, as they reflect adaptively on their mood and problems, they may be interfering with the habit of voting. For the less sophisticated, they presumably do not have a real voting habit, but it may be that reflective pondering stimulates them to take action.

Conclusion

We show that depressive rumination as a habit of thought can be an important predictor of some facets of political engagement in different ways. Our findings should be seen in the context of psychological treatment. We know not only that rumination, especially brooding, is strongly associated with depression, but also that scholars have started to conceptualize rumination as a transdiagnostic process (Harvey et al. 2004) that is shared across multiple disorders and may contribute to the onset, maintenance, recurrence, and recovery from disorder. Indeed, rumination has been found to be characterize people experiencing not only depression, but also generalized anxiety disorder, social anxiety, PTSD, and eating disorders (Aldao, Nolen-Hoeksema, and Schweizer 2010). Therefore, including rumination in political science surveys can be a useful endeavor to yield a more comprehensive understanding of how emotional disorders may influence political behavior.

More importantly and for the benefits of political engagement, we suggest that ruminating in a concrete, constructive and adaptive way will increase engagement with politics. In this respect, our finding on the association between reflective pondering and perceptions of government responsiveness speaks well to the core finding by Arceneaux and Wielen (2017) that reflection promotes democratic accountability. We argue that this can be of special interest to depressed people, in whom we and other scholars found a significant

voting gap. Although our studies have limited causal evidence, we posit that rumination-based cognitive therapies that aim to reduce maladaptive, and increase adaptive, repetitive thinking may be beneficial for increasing depressed people's political engagement.

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Supplementary Information Memo for “Depressive Rumination and Political Engagement”

Table S1-S2: Summary statistics of independent variables

Table S3-S5: Factor analysis on brooding, reflective pondering and depression

Figure S1: Distribution of brooding, reflective pondering and depression

Table S6-S7: Correlations between rumination and political outcomes

Table S8: Analyses from Figure 1, March 2021

Table S9: Analyses from Figure 2, February 2022

Table S10: Analyses from Figure 3, February 2022

Table S11: Joint effect of brooding and reflective pondering

Table S12: Gender differences in the effect of brooding and reflective pondering

Table S1: Summary Statistics of Independent Variables Study 1

Variable	Obs	Mean	Std.Dev.	Min	Max
Brooding	1651	.297	.234	0	1
Female	1651	1.579	.494	1	2
Age	1651	51.393	16.556	18	86
University	1651	.375	.484	0	1
British	1651	.886	.318	0	1
Social grade AB	1651	.336	.473	0	1
Social grade C1	1651	.271	.445	0	1
Social grade C2	1651	.151	.358	0	1
Social grade DE	1651	.242	.428	0	1
No PID	1651	.286	.452	0	1
PID Conservative Party	1651	.296	.457	0	1
PID Labour Party	1651	.24	.427	0	1
PID LibDems	1651	.067	.249	0	1
PID others	1651	.111	.314	0	1
Depressive symptoms	1651	.434	.247	0	1
NBNS	1651	.419	.279	0	1

Table S2: Summary Statistics of Independent Variables Study 2

Variable	Obs	Mean	Std.Dev.	Min	Max
Brooding	1742	.281	.235	0	1
Reflective pondering	1742	.207	.203	0	1
Female	1742	1.563	.496	1	2
Age	1742	53.121	16.342	18	87
University	1742	.365	.482	0	1
British	1742	.886	.318	0	1
Social grade AB	1742	.331	.471	0	1
Social grade C1	1742	.262	.44	0	1
Social grade C2	1742	.171	.377	0	1
Social grade DE	1742	.235	.424	0	1
No PID	1742	.348	.477	0	1
PID Conservative Party	1742	.238	.426	0	1
PID Labour Party	1742	.214	.41	0	1
PID Libdems	1742	.068	.251	0	1
PID others	1742	.133	.339	0	1
Depressive symptoms	1742	.41	.252	0	1

**Table S3: Rotated Factor Analysis for Brooding and Reflective Pondering
(February 2022)**

Variable	Factor 1	Factor 2	Uniqueness
Brooding 1	0.7146	0.3363	0.3762
Brooding 2	0.7379	0.2488	0.3936
Brooding 3	0.7979	0.1520	0.3403
Brooding 4	0.7828	0.3014	0.2963
Brooding 5	0.7932	0.1580	0.3459
Reflection 1	0.4911	0.6054	0.3923
Reflection 2	0.2392	0.8072	0.2913
Reflection 3	0.1350	0.6394	0.5730
Reflection 4	0.4731	0.6151	0.3978
Reflection 5	0.1731	0.7904	0.3453

Table S4: Rotated Factor Analysis for Brooding and Depression (February 2022)

Variable	Factor 1	Factor 2	Factor 3	Uniqueness
Brooding 1	0.8148	0.1146	0.0960	0.3138
Brooding 2	0.7139	0.2525	0.1659	0.3991
Brooding 3	0.7185	0.2791	0.1988	0.3664
Brooding 4	0.7966	0.2410	0.1807	0.2746
Brooding 5	0.7127	0.2796	0.2015	0.3733
Depression 1	0.3638	0.6541	0.4221	0.2616
Depression 2	0.2438	0.7563	0.2755	0.2926
Depression 3	0.1299	0.0813	0.8386	0.2732
Depression 4	0.1230	0.7135	0.1215	0.4610
Depression 5	0.1622	0.3155	0.8332	0.1799
Depression 6	0.3599	0.5756	0.2785	0.4616
Depression 7	0.1642	0.3161	0.8322	0.1807
Depression 8	0.3474	0.6603	0.3886	0.2923
Depression 9	0.2191	0.7529	0.2667	0.3139

**Table S5: Rotated Factor Analysis for Reflective Pondering, and
Depression (February 2022)**

Variable	Factor 1	Factor 2	Factor 3	Uniqueness
Reflection 1	0.2589	0.7246	0.1762	0.3769
Reflection 2	0.1220	0.8136	0.0712	0.3181
Reflection 3	0.1142	0.6400	-0.0885	0.5695
Reflection 4	0.2263	0.7287	0.1915	0.3811
Reflection 5	0.1181	0.7575	0.0952	0.4032
Depression 1	0.7035	0.2770	0.4184	0.2533
Depression 2	0.7835	0.1468	0.2644	0.2946
Depression 3	0.1180	0.0586	0.8434	0.2713
Depression 4	0.7060	0.0665	0.1117	0.4847
Depression 5	0.3424	0.1211	0.8253	0.1869
Depression 6	0.6368	0.2517	0.2725	0.4569
Depression 7	0.3547	0.0818	0.8235	0.1894
Depression 8	0.7092	0.2471	0.3863	0.2868
Depression 9	0.7781	0.1211	0.2545	0.3151

**Figure S1: Distribution of Brooding, Reflective Pondering, and Depression
(February 2022)**

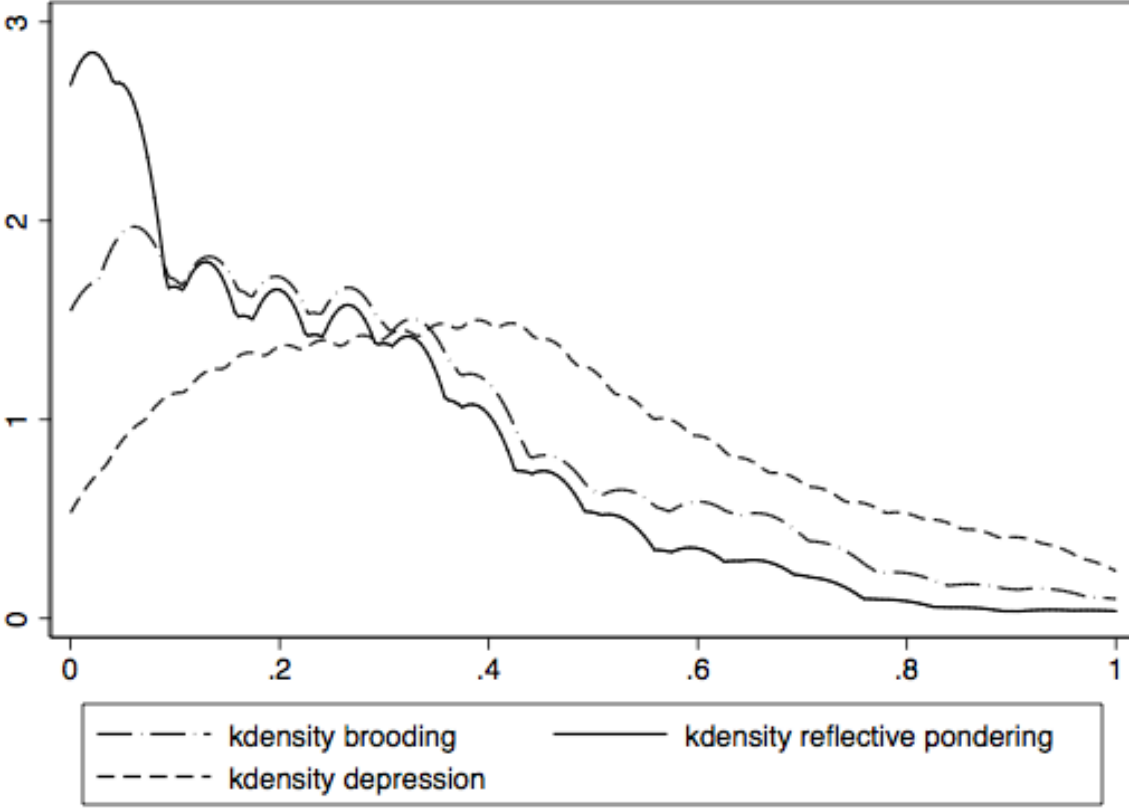


Table S6: Correlations between Brooding and Political Outcomes (March 2021)

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(1) Brooding	1.000								
(2) Depression	0.637	1.000							
(3) NBNS	0.234	0.213	1.000						
(4) Political attention	-0.141	-0.108	-0.112	1.000					
(5) Internal efficacy	-0.202	-0.140	-0.093	0.535	1.000				
(6) External efficacy	-0.135	-0.177	-0.137	0.021	0.025	1.000			
(7) Trust in government	-0.153	-0.205	-0.237	-0.045	-0.136	0.466	1.000		
(8) Gov't satisfaction	-0.127	-0.187	-0.246	-0.097	-0.163	0.373	0.734	1.000	
(9) Voted in 2019 election	-0.175	-0.126	-0.150	0.361	0.256	0.052	0.075	0.038	1.000

Table S7: Correlations between Brooding, Reflective Pondering, and Political Outcomes (February 2022)

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(1) Brooding	1.000								
(2) Reflection	0.645	1.000							
(3) Depression	0.626	0.446	1.000						
(4) Political attention	-0.127	-0.053	-0.119	1.000					
(5) Internal efficacy	-0.191	-0.090	-0.149	0.529	1.000				
(6) External efficacy	-0.092	-0.031	-0.207	0.002	0.002	1.000			
(7) Trust in gov't	-0.128	-0.135	-0.220	-0.029	-0.108	0.477	1.000		
(8) Gov't satisfaction	-0.160	-0.172	-0.231	-0.053	-0.135	0.361	0.662	1.000	
(9) Vote intention	-0.083	-0.023	-0.133	0.326	0.300	0.080	0.115	0.026	1.000

Table S8: Analyses from Figure 1 (March 2021)

VARIABLES	Model OLS 1	Model OLS 2	Model OLS 3	Model OLS 4	Model OLS 5	Model ML 6
Brooding	-0.0578 (0.0435)	-0.0901*** (0.0285)	0.00753 (0.0266)	0.00213 (0.0404)	0.0365 (0.0325)	-1.489*** (0.457)
Female	-0.0864*** (0.0154)	-0.0881*** (0.00967)	0.0345*** (0.00944)	0.0593*** (0.0130)	0.0534*** (0.0109)	0.176 (0.173)
Age	0.00178*** (0.000456)	0.000677** (0.000286)	-0.000602** (0.000273)	-0.000981*** (0.000378)	-3.20e-05 (0.000330)	0.00706 (0.00487)
University	0.0766*** (0.0165)	0.0422*** (0.0106)	-0.00684 (0.0103)	-0.0321** (0.0140)	-0.0425*** (0.0119)	0.842*** (0.201)
British	0.0557* (0.0292)	0.00342 (0.0156)	-0.0407** (0.0167)	-0.0493** (0.0231)	0.0193 (0.0175)	1.437*** (0.231)
Social Grade AB	0.138*** (0.0221)	0.0820*** (0.0141)	0.0171 (0.0135)	-0.00323 (0.0191)	-0.0428*** (0.0164)	2.127*** (0.330)
Social Grade C1	0.0374* (0.0222)	0.0200 (0.0133)	0.00476 (0.0134)	0.00946 (0.0190)	-0.0164 (0.0156)	0.327 (0.202)
Social Grade C2	0.0131 (0.0241)	-0.0310** (0.0156)	-0.0298** (0.0137)	0.0177 (0.0222)	-0.00672 (0.0173)	0.242 (0.223)
PID Con	0.175*** (0.0191)	0.0582*** (0.0130)	0.0764*** (0.0124)	0.271*** (0.0179)	0.179*** (0.0149)	2.138*** (0.252)
PID Lab	0.170*** (0.0230)	0.0727*** (0.0137)	-0.0155 (0.0128)	-0.0883*** (0.0196)	-0.0819*** (0.0159)	1.456*** (0.225)
PID LibDem	0.187*** (0.0259)	0.0673*** (0.0208)	-0.00325 (0.0206)	-0.0146 (0.0276)	-0.00665 (0.0235)	1.656*** (0.435)
PID Others	0.209*** (0.0260)	0.0738*** (0.0160)	-0.0117 (0.0168)	-0.0995*** (0.0246)	-0.0713*** (0.0202)	1.409*** (0.261)
Depression	0.0395 (0.0389)	0.0248 (0.0261)	-0.104*** (0.0240)	-0.157*** (0.0365)	-0.149*** (0.0296)	0.644 (0.443)
NBNS	-0.0610** (0.0257)	-0.0403** (0.0171)	-0.0397** (0.0176)	-0.114*** (0.0244)	-0.0996*** (0.0199)	-0.933*** (0.308)
Constant	0.286*** (0.0452)	0.605*** (0.0259)	0.537*** (0.0259)	0.658*** (0.0401)	0.650*** (0.0322)	-1.429*** (0.425)
Observations	1,651	1,651	1,651	1,554	1,560	1,632
R2 / Pseudo R2	0.286	0.214	0.109	0.356	0.316	0.277

Notes: Dependent variables: Model OLS 1 = political attention; Model OLS 2 = internal political efficacy; Model OLS 3 = external political efficacy; Model OLS 4 = trust in government; Model OLS 5 = satisfaction with government performance on COVID-19; Model ML 6 = voting in 2019 general election. Reference category for socioeconomic status: social grade DE. Reference category for party identification: no party identification. NBNS = negativity biases in news selection. *** p<0.01, ** p<0.05, * p<0.1

Table S9: Analyses from Figure 2 (February 2022)

VARIABLES	Model OLS 1	Model OLS 2	Model OLS 3	Model OLS 4	Model OLS 5	Model ML 6
Brooding	-0.0447 (0.0439)	-0.0965*** (0.0295)	0.00368 (0.0266)	0.0450 (0.0402)	0.0490 (0.0337)	0.175 (0.424)
Reflection	-0.0153 (0.0460)	0.0313 (0.0327)	0.0796*** (0.0272)	-0.0364 (0.0413)	-0.0170 (0.0352)	0.211 (0.456)
Female	-0.0465*** (0.0147)	-0.0769*** (0.00961)	0.0136 (0.00859)	0.0142 (0.0135)	0.00476 (0.0107)	-0.493*** (0.147)
Age	0.00122*** (0.000465)	0.000786** (0.000328)	-0.000627** (0.000303)	0.000353 (0.000486)	0.00160*** (0.000347)	-0.00400 (0.00483)
University	0.0738*** (0.0166)	0.0533*** (0.0108)	-0.00389 (0.00951)	-0.0126 (0.0149)	-0.0139 (0.0114)	0.548*** (0.160)
British	0.0124 (0.0275)	0.0171 (0.0157)	-0.0288* (0.0150)	-0.115*** (0.0266)	-0.0275 (0.0188)	0.00929 (0.231)
Social Grade AB	0.147*** (0.0193)	0.0804*** (0.0132)	-0.00900 (0.0122)	-0.0355* (0.0186)	-0.00994 (0.0153)	0.201 (0.197)
Social Grade C1	0.0378* (0.0216)	0.0291** (0.0138)	-0.0164 (0.0125)	-0.0133 (0.0201)	-0.00853 (0.0158)	0.329* (0.199)
Social Grade C2	-0.0115 (0.0231)	0.00330 (0.0151)	-0.0258** (0.0128)	0.00693 (0.0216)	0.0138 (0.0171)	-0.145 (0.220)
PID Con	0.150*** (0.0201)	0.0535*** (0.0124)	0.0801*** (0.0122)	0.327*** (0.0180)	0.195*** (0.0136)	2.690*** (0.199)
PID Lab	0.155*** (0.0215)	0.0908*** (0.0145)	-0.0377*** (0.0116)	-0.0796*** (0.0188)	-0.105*** (0.0153)	3.016*** (0.232)
PID LibDem	0.149*** (0.0236)	0.0565*** (0.0170)	0.0244 (0.0180)	-0.0181 (0.0247)	-0.0121 (0.0212)	2.020*** (0.289)
PID Others	0.155*** (0.0230)	0.0881*** (0.0157)	-0.0337** (0.0144)	-0.0662*** (0.0224)	-0.101*** (0.0175)	2.882*** (0.253)
Depression	0.0349 (0.0389)	0.00575 (0.0243)	-0.147*** (0.0207)	-0.154*** (0.0343)	-0.135*** (0.0285)	-0.674* (0.374)
Constant	0.340*** (0.0412)	0.568*** (0.0288)	0.506*** (0.0255)	0.505*** (0.0435)	0.545*** (0.0308)	-0.298 (0.376)
Observations	1,742	1,742	1,742	1,660	1,622	1,742
R2 / Pseudo R2	0.220	0.193	0.112	0.343	0.324	0.300

Notes: Dependent variables: Model OLS 1 = political attention; Model OLS 2 = internal political efficacy; Model OLS 3 = external political efficacy; Model OLS 4 = trust in government; Model OLS 5 = satisfaction with government performance on COVID-19; Model ML 6 = voting intention. Reference category for socioeconomic status: social grade DE. Reference category for party identification: no party identification. *** p<0.01, ** p<0.05, * p<0.1

**Table S10: Brooding, Reflective Pondering, and Voting by Partisanship
(February 2022)**

VARIABLES	Model ML Vote Intention
Brooding	1.073 (0.897)
Reflection	-1.449* (0.860)
Brooding x Reflection	0.782 (1.818)
No PID	-2.729*** (0.281)
No PID x Brooding	-1.722* (1.041)
No PID x Reflection	2.323** (1.181)
No PID x Brooding x Reflection	-0.457 (2.339)
Female	-0.460*** (0.150)
Age	-0.00510 (0.00482)
University	0.530*** (0.161)
British	0.0507 (0.230)
Social Grade AB	0.168 (0.195)
Social Grade C1	0.318 (0.200)
Social Grade C2	-0.171 (0.221)
Depression	-0.610 (0.383)
Constant	2.485*** (0.417)
Observations	1,742
Pseudo R2	0.300

Notes: Reference category for socioeconomic status: social grade DE. *** p<0.01, ** p<0.05, * p<0.1

Table S11: Joint Effect of Brooding and Reflective Pondering (February 2022)

VARIABLES	Model OLS 1	Model OLS 2	Model OLS 3	Model OLS 4	Model OLS 5	Model ML 6
Brooding	-0.0720 (0.0584)	-0.0805** (0.0355)	-0.0270 (0.0339)	0.0240 (0.0563)	0.0452 (0.0444)	-0.0109 (0.543)
Reflection	-0.0530 (0.0704)	0.0534 (0.0495)	0.0370 (0.0401)	-0.0642 (0.0641)	-0.0221 (0.0528)	-0.0531 (0.674)
Brooding x Reflection	0.0912 (0.131)	-0.0534 (0.0757)	0.103 (0.0724)	0.0723 (0.139)	0.0137 (0.110)	0.611 (1.197)
Female	-0.045*** (0.0151)	-0.0777*** (0.00973)	0.0152* (0.00855)	0.0149 (0.0134)	0.00488 (0.0107)	-0.48*** (0.148)
Age	0.00120** (0.000464)	0.000797** (0.000329)	-0.0006** (0.000304)	0.000332 (0.000487)	0.00160*** (0.000349)	-0.00411 (0.00485)
University	0.0744*** (0.0165)	0.0529*** (0.0108)	-0.00321 (0.00949)	-0.0123 (0.0148)	-0.0139 (0.0113)	0.556*** (0.160)
British	0.0127 (0.0275)	0.0169 (0.0157)	-0.0284* (0.0150)	-0.114*** (0.0266)	-0.0275 (0.0188)	0.0116 (0.231)
Social Grade AB	0.147*** (0.0193)	0.0801*** (0.0132)	-0.00838 (0.0122)	-0.0351* (0.0187)	-0.00985 (0.0153)	0.204 (0.197)
Social Grade C1	0.0381* (0.0215)	0.0289** (0.0138)	-0.0160 (0.0125)	-0.0132 (0.0201)	-0.00852 (0.0158)	0.331* (0.199)
Social Grade C2	-0.0107 (0.0232)	0.00285 (0.0150)	-0.0250* (0.0128)	0.00724 (0.0216)	0.0139 (0.0171)	-0.139 (0.220)
PID Con	0.150*** (0.0201)	0.0535*** (0.0123)	0.0800*** (0.0122)	0.327*** (0.0181)	0.195*** (0.0137)	2.692*** (0.199)
PID Lab	0.156*** (0.0214)	0.0902*** (0.0146)	-0.037*** (0.0117)	-0.079*** (0.0188)	-0.105*** (0.0153)	3.022*** (0.232)
PID LibDem	0.150*** (0.0237)	0.0559*** (0.0171)	0.0256 (0.0180)	-0.0176 (0.0247)	-0.0120 (0.0212)	2.026*** (0.289)
PID Others	0.155*** (0.0230)	0.0879*** (0.0157)	-0.0334** (0.0144)	-0.067*** (0.0225)	-0.101*** (0.0175)	2.883*** (0.253)
Depression	0.0396 (0.0400)	0.00296 (0.0246)	-0.142*** (0.0210)	-0.151*** (0.0347)	-0.135*** (0.0285)	-0.635* (0.379)
Constant	0.345*** (0.0409)	0.565*** (0.0292)	0.511*** (0.0257)	0.509*** (0.0447)	0.546*** (0.0319)	-0.272 (0.381)
Observations	1,742	1,742	1,742	1,660	1,622	1,742
R2 / Pseudo R2	0.220	0.193	0.113	0.343	0.324	0.300

Notes: Dependent variables: Model OLS 1 = political attention; Model OLS 2 = internal political efficacy; Model OLS 3 = external political efficacy; Model OLS 4 = trust in government; Model OLS 5 = satisfaction with government performance on COVID-19; Model ML 6 = voting intention. Reference category for socioeconomic status: social grade DE. Reference category for party identification: no party identification. *** p<0.01, ** p<0.05, * p<0.1

**Table S12: Interaction between Sex and Brooding / Reflective Pondering
(February 2022)**

VARIABLES	Model OLS 1	Model OLS 2	Model OLS 3	Model OLS 4	Model OLS 5	Model ML 6
Brooding	-0.0895 (0.0715)	-0.0903* (0.0464)	-0.0343 (0.0366)	0.0269 (0.0591)	0.0369 (0.0542)	0.165 (0.670)
Female	-0.0887*** (0.0214)	-0.0923*** (0.0153)	0.0193 (0.0135)	0.0122 (0.0208)	0.0202 (0.0169)	-0.968*** (0.227)
Brooding x Female	0.0878 (0.0814)	-0.00373 (0.0557)	0.0581 (0.0459)	0.0300 (0.0722)	0.0164 (0.0649)	0.236 (0.766)
Reflection	-0.0449 (0.0813)	-0.00781 (0.0562)	0.139*** (0.0403)	-0.0174 (0.0674)	0.0380 (0.0597)	-0.684 (0.788)
Reflection x Female	0.0749 (0.0975)	0.0743 (0.0675)	-0.102* (0.0536)	-0.0305 (0.0844)	-0.0960 (0.0743)	1.804* (0.961)
Age	0.00125*** (0.000465)	0.000783** (0.000329)	-0.000603** (0.000303)	0.000365 (0.000490)	0.00161*** (0.000347)	-0.00374 (0.00489)
University	0.0743*** (0.0167)	0.0530*** (0.0109)	-0.00316 (0.00950)	-0.0123 (0.0149)	-0.0137 (0.0113)	0.536*** (0.161)
British	0.0102 (0.0274)	0.0165 (0.0157)	-0.0288* (0.0149)	-0.115*** (0.0265)	-0.0278 (0.0187)	-0.0236 (0.233)
Social Grade AB	0.147*** (0.0193)	0.0803*** (0.0132)	-0.00893 (0.0122)	-0.0355* (0.0186)	-0.00997 (0.0153)	0.200 (0.197)
Social Grade C1	0.0386* (0.0216)	0.0294** (0.0138)	-0.0164 (0.0124)	-0.0133 (0.0201)	-0.00889 (0.0157)	0.338* (0.200)
Social Grade C2	-0.0114 (0.0230)	0.00322 (0.0151)	-0.0256** (0.0128)	0.00702 (0.0216)	0.0138 (0.0172)	-0.150 (0.217)
PID Con	0.149*** (0.0201)	0.0530*** (0.0123)	0.0806*** (0.0122)	0.327*** (0.0180)	0.195*** (0.0136)	2.703*** (0.202)
PID Lab	0.155*** (0.0216)	0.0899*** (0.0145)	-0.0365*** (0.0117)	-0.0792*** (0.0189)	-0.104*** (0.0153)	3.017*** (0.230)
PID LibDem	0.146*** (0.0238)	0.0551*** (0.0172)	0.0258 (0.0179)	-0.0178 (0.0247)	-0.0108 (0.0212)	2.001*** (0.288)
PID Others	0.152*** (0.0232)	0.0864*** (0.0158)	-0.0322** (0.0143)	-0.0658*** (0.0225)	-0.0996*** (0.0175)	2.861*** (0.254)
Depression	0.0314 (0.0385)	0.00473 (0.0243)	-0.147*** (0.0207)	-0.155*** (0.0345)	-0.137*** (0.0284)	-0.735* (0.381)
Constant	0.360*** (0.0428)	0.576*** (0.0305)	0.502*** (0.0265)	0.505*** (0.0451)	0.538*** (0.0321)	-0.0573 (0.394)
Observations	1,742	1,742	1,742	1,660	1,622	1,742
R2 / Pseudo R2	0.223	0.194	0.114	0.343	0.325	0.305

Notes: Dependent variables: Model OLS 1 = political attention; Model OLS 2 = internal political efficacy; Model OLS 3 = external political efficacy; Model OLS 4 = trust in government; Model OLS 5 = satisfaction with government performance on COVID-19; Model ML 6 = voting intention. Reference category for socioeconomic status: social grade DE. Reference category for party identification: no party identification. *** p<0.01, ** p<0.05, * p<0.1