

The impact of emotions on polarization. Anger polarizes attitudes towards vaccine mandates and increases affective polarization

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Christoph G. Nguyen¹ , Sabrina J. Mayer^{2,3} and Susanne Veit²

Abstract

When does anger lead to greater polarization? As societal polarization and political polarization increase so does academic interest in its antecedents. One important cause of polarization appears to be anger. However, existing research linking anger and political polarization has focused primarily on the context of partisanship and did not distinguish between different types of anger nor different forms of polarization. To address this gap in the literature, we analyze how generalized versus issue-specific anger amplify issue-based and affective polarization in the highly charged context of the COVID-19 pandemic. We test these relationships through a survey experiment embedded in a national German sample ($n = 2857$) and show that anger is linked to polarization. However, we also show that different forms of anger influence different aspects of polarization. Issue polarization is driven primarily by generalized anger, while corona-specific anger increases affective polarization. Together, these results underline the importance of understanding the emotional nuances of polarization. More generally, the results illustrate the problems policy makers face when navigating heavily contested and emotionally charged topics. While increased anger may be helpful for mobilizing support among already supportive citizens, it does little to convince skeptical citizens and carries the cost of increasing societal polarization.

Keywords

COVID-19, emotions, vaccination, Germany, polarization

Introduction

Given its negative effects on social and political cohesion, the causes of political polarization have become one of the most studied topics in political science (for an overview see Iyengar et al., 2019). Among these causes, negative emotions such as anger have received considerable attention (Huber et al., 2015; Webster et al., 2022). However, existing research connecting anger and polarization is limited in three important ways: Previous studies focus on partisanship (in the United States), and neither differentiate between different types of polarization nor between different forms of anger. To address this gap, we study how anger amplifies polarization and explicitly distinguish between different types of polarization (issue and affective), as well as

different types of anger (generalized and issue-specific). To move beyond partisanship, we focus on another salient and emotionally charged context: The COVID-19 pandemic where anger surrounding vaccination policy (Betsch and Böhm, 2016) intersect with larger societal rifts over

¹Freie Universität Berlin, Berlin, Germany

²Research Data Center, DeZIM-Institut Berlin, Berlin, Germany

³Department of Political Science, University of Bamberg, Bamberg, Germany

Corresponding author:

Christoph G. Nguyen, Otto Suhr Institut, Freie Universität Berlin, Ihnestr. 22, Berlin 14195, Germany.

Email: christoph.nguyen@fu-berlin.de



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corona-related attitudes that often seems to transcend classical boundaries of political identity (Jamieson et al., 2021; Petersen et al., 2021).¹

One key insight from the polarization literature is the distinction between two related but unique facets: *issue polarization* and *affective polarization* (e.g., Iyengar et al., 2019). While issue polarization describes increasingly divergent and extreme policy positions, affective polarization captures increasing hostility towards members of other societal groups. As such, research connecting polarization and its antecedents has to differentiate between these two facets of polarization.

Additionally, taking the cognitive and evaluative consequences of anger seriously suggests that research also needs to distinguish between different forms of anger: generalized and issue specific. Anger can increase issue polarization because it leads to decreased cognitive processing (Marcus et al., 2000) and greater reliance on pre-existing beliefs and heuristics (Parker and Isbell, 2010), while also causing affective polarization due to its increased desire to punish perceived violations of rules or social norms and more negative evaluations of outgroups (Lerner and Tiedens, 2006). However, one key insight from the anger literature is that these effects are not limited to issue-specific anger. Even non-issue-specific anger can trigger the cognitive processes associated with anger, and thus impact judgments and decision-making in seemingly unrelated contexts (Lerner and Tiedens, 2006).

Taking these complexities into account reveals four distinct hypotheses about the relationship between anger and polarization. First of all, (H1a) generalized and (H1b) issue-specific anger could increase *issue polarization*, that is, support for vaccine mandates among those already vaccinated but reduces support among those already skeptical of vaccinations. Secondly, (H2a) generalized and (H2b) issue-specific anger could also increase COVID-related *affective polarization*, that is, the dislike and rejection of others because of divergent COVID-related attitudes.

Materials and methods

To estimate the causal effect of generalized and Corona-specific anger on issue and affective polarization in the context of the COVID-19 pandemic, we included an experimental study in a national survey of Germans aged 18 to 69 ($n = 2857$) that studies issue polarization through support for vaccine mandates and affective polarization through hostility towards those individuals who do not share one's opinion over the COVID-19 pandemic. The survey was fielded between the 14th and 21st of September 2021, when vaccine hesitancy became an increasing concern, but elite political support for vaccine mandates was still comparatively low (Stroh, 2021).

To induce specific negative emotions, we employed a 2x3 factorial between-subject design and an "emotional recall task" described in Table 1.² This design tasks respondents to recall and describe an instance in which they experienced anger, either in everyday life or during the corona pandemic. To distinguish anger from general negative affect, we also include two conditions that prime anxiety/worry, while the impact of priming the Pandemic itself is captured through a Corona condition without reference to a negative emotion. The emotional recall task has been widely used to elicit specific emotions (see e.g., Webster, 2018), and in our study reliably created more angry responses³ and led to higher self-reported levels of anger in a pre-test of a comparable population ($\Delta 0.54$, $p = 0.038$).⁴ Moreover, the corona-specific conditions generate references to the pandemic much more frequently than the generalized conditions do, suggesting that the experimental design successfully distinguishes between generalized and corona-specific anger.⁵

We measure *issue polarization* through an amplification of existing attitudes towards vaccines and vaccine mandates. Compared to the control condition, we expect respondents already skeptical of vaccines to reduce their vaccine mandate approval even further, while those respondents who already support vaccines to increase their support for a mandate. To establish pre-existing attitudes towards the COVID-19 vaccine, we differentiate between respondents who are already vaccinated ($n = 2283$) and those that were unvaccinated and categorically rejected any vaccination ($n = 313$). Although vaccines were widely available during the study period, some respondents reported being unvaccinated but with plans to be vaccinated ($n = 195$). Since this category is highly heterogeneous, we have excluded them from the analysis. The percentage of vaccinated individuals in our sample is in line with the over 18 vaccination rates in Germany during the data collection period (81%). *Affective polarization* is measured through an index that captures the degree to which respondents dislike or avoid others because of their attitudes about the corona pandemic (Cronbach $\alpha = 0.86$).⁶ Here we expect anger to increase dislike and avoidance for both vaccinated and unvaccinated individuals.

Results

The results displayed in Figure 1 show how polarized support for vaccine mandates is. However, this polarization is highly asymmetrical. Among vaccinated respondents only a slight, 55% majority supports vaccine mandates. Conversely, among the willingly unvaccinated, disapproval of vaccine mandates is almost universal (93%).

Does anger increase issue polarization? The results in Figure 2 support hypothesis 1, although not unconditionally. Compared to the neutral condition, triggering generalized

Table 1. Experimental condition summary.

		Context prime	
		Everyday context	Corona context
Emotion prime	Anger Anxiety Neutral	Generalized anger Generalized anxiety Control condition	Corona-specific anger Corona-specific anxiety Corona prime

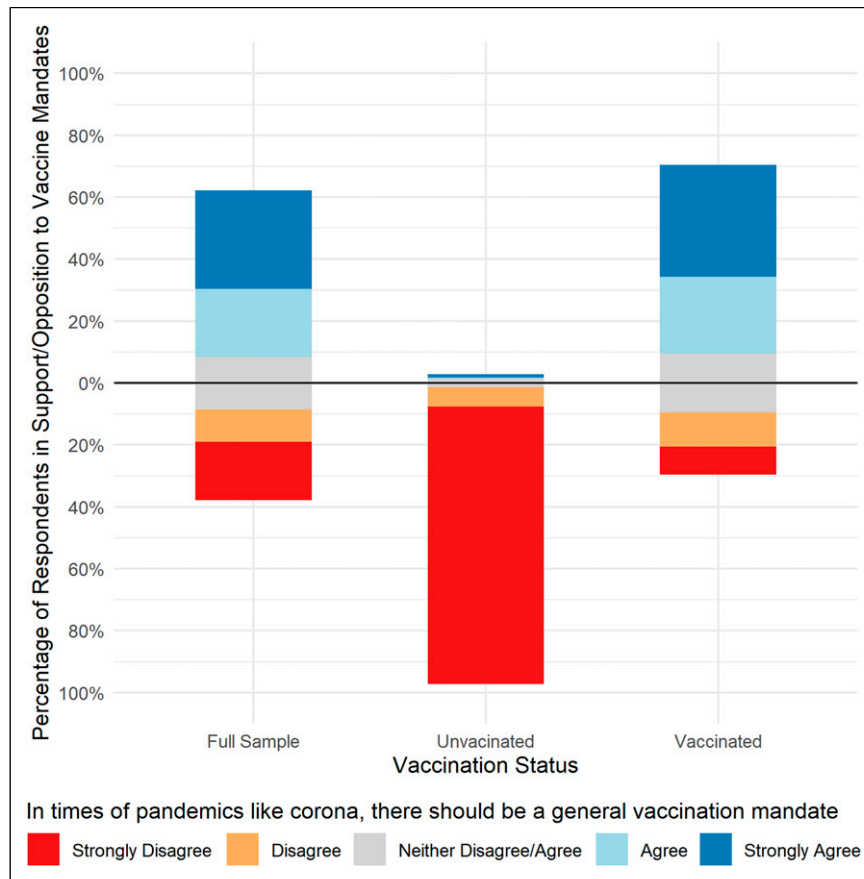


Figure 1. Support for vaccination mandates in the sample and by vaccination status.

anger increases vaccine mandate support among vaccinated individuals ($\Delta 0.15, p = 0.038$), and reduces support further among the willingly unvaccinated ($\Delta -0.23, p = 0.041$). Moreover, the difference in treatment effect is significantly different between vaccinated and unvaccinated group ($\Delta 0.383, p = 0.001$). Hypothesis 1A is therefore supported. Contrary to expectation, we find no significant change, either from priming the corona pandemic in general, or corona-specific anger (H1B). Similarly, across both groups we find no effect of triggering either generalized or corona-specific anxiety/worry.

While generalized anger increased issue polarization, we find no support for our hypothesis (H2a) that generalized

anger increases affective polarization. However, we do find evidence that corona-specific anger (H2b) leads to an increase in affective polarization. Figure 3 reports the marginal effect of the experimental treatments on respondents' affective polarization. Across the entire sample, priming corona-specific anger increases the degree of affective polarization ($\Delta 0.19, p = 0.018$). However, much like with the issue attitudes reported in Figure 1, this polarization is not symmetrical. Sub-group analysis of vaccinated and unvaccinated respondents shows that the increase in affective polarization is driven primarily by unvaccinated individuals ($\Delta 0.56, p = 0.035$). While we did not anticipate this sub-group effect, the function of anger might depend on

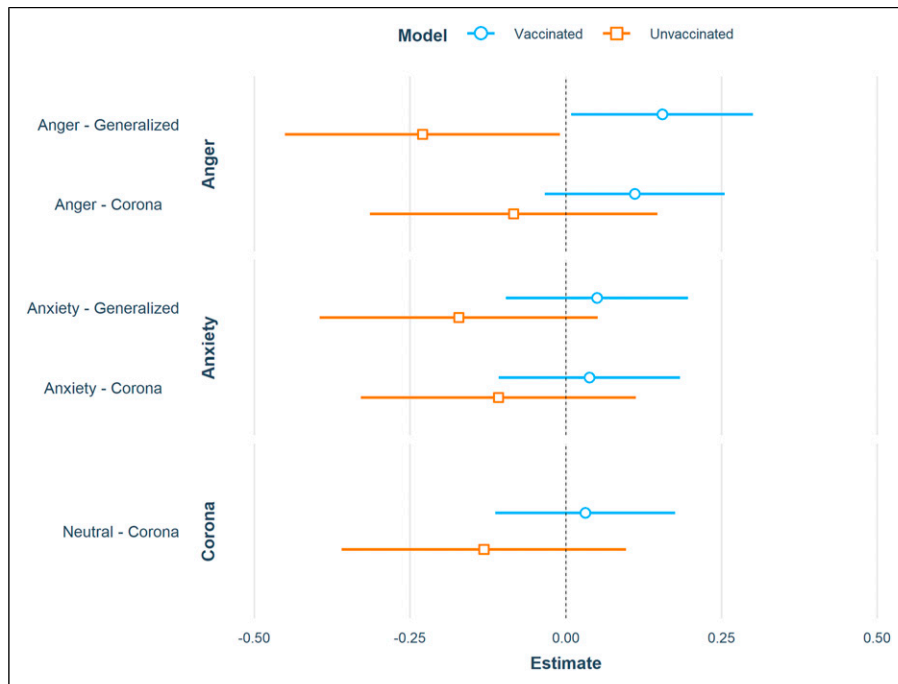


Figure 2. Issue polarization: Effect of experimental treatment on vaccine mandate support, compared to the control condition. Note: Figure 2 shows the marginal effect of generalized and targeted negative emotions on vaccine mandate support, scored between -2 (strong rejection) and 2 (strong support).

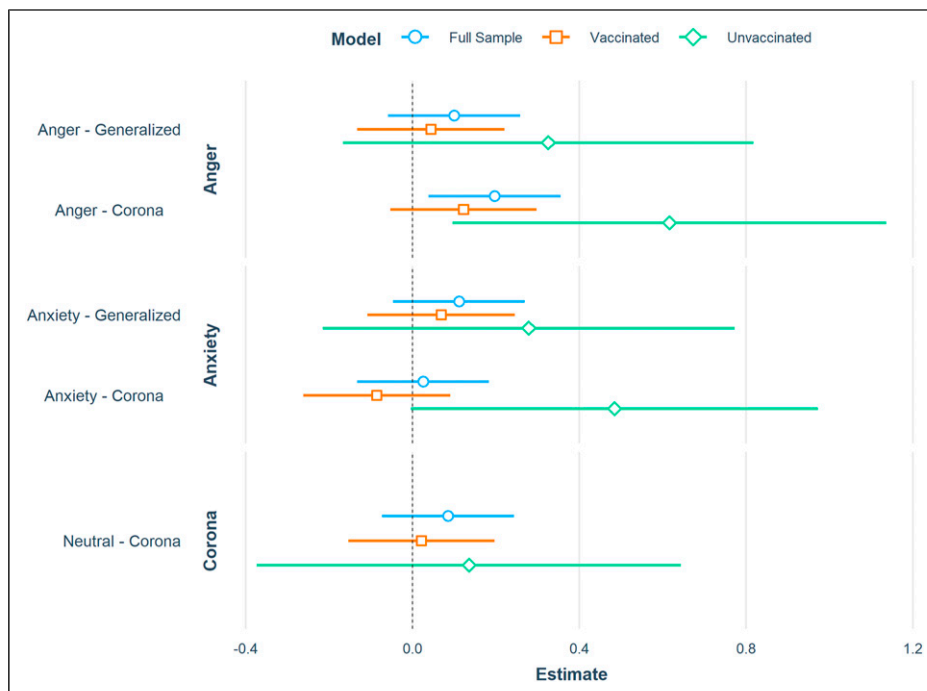


Figure 3. Affective polarization: Effect of experimental treatments on avoidance and dislike of others, compared to the control condition. Note: Figure 3 shows the marginal effect on corona-related affective polarization. Affective polarization measures range between 1 and 5, where higher values indicate higher levels of affective polarization.

context as well as group specifics such as group status or feelings of threats (e.g., Gutierrez et al., 2019; Lambert et al., 2019), where the unvaccinated feel particularly targeted in public discourse and thus are more likely to turn to anger against outgroups to foster internal cohesion.

Discussion

Our study shows that anger can play an important role in amplifying polarization, especially in emotionally contexts. More importantly, we demonstrate how complex this relationship can be. While anger drives polarization, different types of anger do so differently. Our randomized survey experiment shows that our hypotheses are partly confirmed: generalized anger significantly increases issue polarization, raising vaccine mandate support among the vaccinated, but decreasing it further among those opposed to vaccinations (H1a confirmed). However, issue-specific anger does not have any effects on issue polarization (H1b rejected). Contrary, generalized anger does not have an effect on affective polarization (H2a rejected). Instead, affective polarization is driven by issue-specific anger (H2a confirmed). Priming anger over the corona pandemic significantly increases affective polarization (i.e., alienation from others with divergent corona-attitudes), particularly among unvaccinated individuals.

Our findings thus echo previous studies on the consequences of anger for the polarization of issues (Huber et al., 2015; Webster et al., 2022), but also make several advances. It highlights once more to distinguish not just between different types of negative emotions, but also emphasizes that it is important to distinguish generalized and targeted anger and between issues and affective polarization.

Our results also highlight the challenges policy makers face when dealing with emotionally charged situations such as the Corona pandemic. While anger may be a useful tool for strengthening attitudes among existing supporters, it may further alienate those opposing the issue. For instance, mandatory, rather than voluntary, vaccination programs cause increased anger (Betsch and Böhm, 2016). These results might also be important for other emotionally charged policy fields such as climate change or migration. More importantly, our results suggest that even without specifically targeted anger, a general increase in frustration and anger could nevertheless increase polarization.

Author contributions

C.N., S.M., and S.V. designed research; C.N., S.M., and S.V. performed research; C.N. analyzed data; C.N. and S.M. wrote the paper

Declaration of Conflicting Interests

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ORCID iD

Christoph G. Nguyen  <https://orcid.org/0000-0003-2119-7263>

Supplemental Material

Supplemental material for this article is available online.

Notes

1. This should not suggest that partisanship does not influence vaccine attitudes in Germany, only that vaccine hesitancy can be found across the political spectrum.
2. The full analysis code and an anonymized replication dataset can be found at <https://dataverse.harvard.edu/dataset.xhtml?persistentId=doi:10.7910/DVN/CEIROC> and was also submitted for review.
3. For a full description of the sentiment analyses see Appendix Figure 2A.
4. For a full description of the pre-test, see attached Data Appendix Table 7.
5. For a full description of the word-frequency analysis see Data Appendix Figure 1 and Table 6.
6. Full item descriptions, notes on the study design, and priming texts are reported in the Data appendix.

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