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Social Psychological Bulletin

Cognitive Reflection and Endorsement of the “Great Replacement” Conspiracy Theory

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Supplementary Materials: Data, Materials [see [Index of Supplementary Materials](#)]



Abstract

According to the “great replacement” conspiracy theory, mass immigration to Europe and the U.S. is part of a secret plot to replace the autochthonous White and Christian population with non-White and Muslim immigrants. With the aim of exploring psychological factors that play a role in believing in the “great replacement” theory, the present research focused on individual differences in reflective thinking. Using data from a cross-sectional study (N = 906), we found that cognitive reflection was negatively associated with belief in the “great replacement” conspiracy theory, even when political ideology and sociodemographic characteristics were controlled in the analysis. The findings highlight the key role of reflective thinking in countering conspiracy theories.

Keywords

analytical cognitive style, conspiracy beliefs, immigrants, immigration policy, great replacement



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Highlights

- In recent years, an anti-immigration conspiracy theory has gained wide currency across the U.S. and Europe, becoming known as the “great replacement.”
- We investigated the association between reflective thinking as measured by the cognitive reflection test and belief in a planned population exchange.
- We found that reflective thinking is negatively related to beliefs in a “great replacement” conspiracy, over and above political ideology and education.
- Results suggest that improving reflective thinking skills might play an important part in countering anti-immigration conspiracy beliefs.

Conspiracy theories can be toxic to democratic political discourse. By insinuating that societal groups or global elites have hidden agendas, they delegitimize certain opinions and political preferences, which harms constructive debates and can facilitate radicalization and evoke acts of political violence, including terrorism (Davey & Ebner, 2019; Marcks & Pawelz, 2022; Obaidi et al., 2022; Rottweiler & Gill, 2022). A globally relevant topic of political discourse where conspiracy beliefs can be particularly harmful is immigration. Here, a conspiracy theory that has lived on the fringes of national and cross-national right-wing movements for decades has recently gained attention in more mainstream political discourses in Europe and Northern America: the “great replacement” theory (Bergmann, 2021; Cosentino, 2020; Önnersfors, 2021). According to this theory, welcoming immigration policies that facilitate mass immigration to Western States—particularly to Europe and the U.S.—are part of a secret plot by liberal political elites to gradually replace the autochthonous White and Christian population with non-White and Muslim immigrants. Because conspiratorial ideation can constitute a hidden root of openly expressed attitudes (Hornsey & Fielding, 2017), believing in the “great replacement” conspiracy has to be taken into account as a potentially relevant driver of anti-immigration attitudes within segments of society.

Believing in conspiracy theories can have multiple interacting causes. Even though several factors have been demonstrated to be associated with different conspiracy theories or a general conspiracy mentality (for an overview, see Douglas et al., 2019), there are good reasons for social scientific research to investigate the predictors of specific conspiracy theories separately. For example, Marchlewska et al. (2018) demonstrated that the direction of the association of need for cognitive closure with the endorsement of conspiracy theories can vary depending on the features of the event a theory refers to. As another example, religiosity tends to be positively correlated with conspiracy theory endorsement (Frenken et al., 2023) but can also be negatively associated with the endorsement of specific conspiracy theories (Newheiser et al., 2011). Scholars have also highlighted that the predictors of specific conspiracy beliefs are much more idiosyncratic than the predictors of general conspiracy mentality (Imhoff, Bertlich, et al., 2022).

The present research focused specifically on the “great replacement” conspiracy theory and the role of individual differences in analytic versus intuitive thinking to explain the endorsement of this conspiracy theory. Even though the extent to which individuals rely on their intuitions or on systematic deliberation in judgment and decision making depends strongly on the situation, there are also individual differences in the general tendency to rely on analytic versus intuitive thinking (Binnendyk & Pennycook, 2022). As research shows, stable individual differences in thinking styles do not only help in understanding the cognitive processes underlying judgment and decision making but are also systematically associated with the endorsement of various societal values, attitudes, and beliefs (Pennycook et al., 2015).

While the relevance of cognitive reflection for conspiracy theory endorsement has been demonstrated for several different conspiracy theories (see Binnendyk & Pennycook, 2022; Yelbuz et al., 2022), few studies have specifically focused on psychological predictors of anti-immigration conspiracies (for example, see Marchlewska et al., 2018; Obaidi et al., 2022). In line with the evidence on the association of intuitive versus analytic thinking with the endorsement of other conspiracy theories, we predicted that more reflective thinking decreases the likelihood of believing in the “great replacement” conspiracy. The theoretical arguments behind this hypothesis sustain that the appeal of conspiracy theories for certain individuals results from their functionality in addressing negative emotions rather than from rationally convincing arguments (van Prooijen & Douglas, 2018) and that increased analytic thinking decreases the endorsement of epistemically suspect beliefs (Pennycook, 2023). We reasoned that these arguments apply to the case of the “great replacement” conspiracy theory because it can have intuitive appeal to some individuals by morally justifying anti-immigration sentiments as a form of self-defense and by pointing out scapegoats for the problems resulting from escape and displacement. At the same time, it lacks plausibility from a more deliberative perspective because the claim of a secret plot of elites against their own country is essentially speculative and can hardly withstand critical scrutiny.

Our benchmark for concluding that the data support our hypothesis was finding empirical evidence that intuitive versus reflective thinking can predict the endorsement of “great replacement” conspiracy beliefs controlling for political ideology, education, place of residence, age, and gender as potential confounding variables. Controlling for political ideology is warranted given (a) that anti-immigration attitudes are a core element of right-wing political ideology, (b) that individual differences in intuitive versus reflective thinking have been shown to be associated with political ideology (Burger et al., 2020; Pennycook & Rand, 2019), and (c) that inclinations to believe in conspiracy theories have been shown to be associated with political orientations (Imhoff, Zimmer, et al., 2022; van der Linden et al., 2021). Sociodemographic factors are also related to belief in conspiracies (Douglas et al., 2019). Finally, place of residence is a crucial sociodemographic variable in the German case due to substantial differences between

East and West Germany in terms of anti-immigration attitudes, support for far-right parties, socioeconomic factors, as well as political and social trust (Weisskircher, 2020).

Method

Participants

The sample of the present study resulted from drawing $N = 1,000$ German citizens from the pool of respondents of a professional survey company (Respondi/Bilendi) using quotas, which matched the participants to the characteristics of the German population with internet access in terms of age, gender, region, and education. After the listwise deletion of missing answers, the final sample consisted of $N = 906$ participants. A sensitivity power analysis indicated that with this sample size we have a 99% probability of detecting a small effect ($f^2 = .02$, $\alpha = .05$). The median age was 52 years ($M = 49.6$, $SD = 15.4$), 51% were male and 49% female, 24% had a lower secondary education (usually eight or nine years of schooling), 42% had an intermediary secondary qualification (usually ten years of schooling), and 34% had a higher secondary qualification (usually twelve or thirteen years of schooling).

Measures

The study was part of a larger questionnaire that included measures of attitudes toward immigration and economic issues, conspiracy beliefs, cognitive style, partisan attitudes, and political ideology. For the present study, we focus on measures of specific conspiracy beliefs, reflective thinking, and left-right political ideology. The study was not preregistered. Detailed descriptive statistics and item wordings for all variables can be found in the [Supplementary Materials](#). Data and material to replicate the analysis are publicly available in the [Supplementary Materials](#).

Conspiracy Beliefs

Belief in “the great replacement” conspiracy theory was measured with a seven-item scale that was developed for the purpose of this study (Sample item: “I think in 2015 the government has planned to bring refugees to Germany to replace the native population with non-European immigrants”). Two of the seven items were adapted from a recent [YouGov \(2018\)](#) poll. All items were rated on seven-point scales ranging from 1 (*very unlikely*) to 7 (*very likely*). The items were averaged to produce a composite score ($M = 3.44$, $SD = 1.77$, Cronbach’s alpha = .93).¹

1) For explorative purposes, we also included additional items about other popular conspiracy beliefs. The results are similar to those reported below. For item wording and associations with reflective thinking, see the [Supplementary Materials](#).

Reflective Thinking

Reflective thinking was assessed by administering a multiple-choice version of the Cognitive Reflection Test (CRT MCQ-4; Sirota & Juanchich, 2018). The test is an extension of the original open-ended CRT that measures individual differences in the tendency to suppress intuitive cognitive processes and engage in analytical thinking. The CRT MCQ-4 presents the participants with six test items in a multiple-choice format, each containing an intuitively obvious but incorrect answer, two common incorrect answers, and one correct logical answer that can be obtained with effortful thinking. The scale is based on the original three items (Frederick, 2005) and three additional items developed by Toplak et al. (2014).² Past research has demonstrated that the CRT MCQ-4 is substantially faster to answer than open-ended versions of the CRT but has comparable reliability and validity (Sirota & Juanchich, 2018). Participants' answers were coded as either correct (1) or incorrect (0) and summed to construct an overall score of reflective thinking, which indicated the number of correct answers. The internal consistency reliability measured by Kuder-Richardson Formula 20 was .65.

Political Ideology

We used two items to assess participants' political ideology ("In terms of social issues, where do you place yourself on the political spectrum?" for social conservatism and "And in terms of economic and social policy issues, where do you place yourself on the political spectrum?" for economic conservatism). Participants reported their positions regarding social and economic issues on seven-point scales, ranging from 1 (*very left*) to 7 (*very right*). Both items were averaged, with higher scores indicating more right-wing political orientations ($M = 3.80$, $SD = 0.99$, $r = .82$).

Demographics

To account for potential confounding variables, the analysis included the sociodemographic variables age, gender, education, and region of residence. Participants were asked to indicate their age (in years), gender (1 = *male*, 0 = *female*), formal education (1 = *no school-leaving certificate*, 2 = *lower secondary qualification*, 3 = *intermediary secondary qualification*, 4 = *higher secondary qualification*, 5 = *higher secondary qualification with university entrance qualification*), and region of residence (0 = *West Germany*, 1 = *East Germany*).

2) A fourth item proposed by Toplak et al. (2014) was removed from the present test because it was the only question to use a qualitative response format.

Results

The prevalence of beliefs in planned population replacement is shown in Figure 1. As can be seen, the response distribution is skewed to the right with a plurality of participants (28.8%) considering the “great replacement” theory to be (very) unlikely, with scores ≤ 2 , 95% CI [25.9, 31.8]. Only 11.6% of participants say they think this conspiracy theory is (very) likely, with scores ≥ 6 , 95% CI [9.7, 13.8].³ On average, participants obtained a score of 1.63 ($SD = 1.59$) in the CRT and—with one exception—the intuitive response option was the most frequent one on the individual items.⁴ As expected, belief in a “great replacement” was negatively correlated with cognitive reflection, $r = -.27$, $p < .001$, 95% CI [-.33, -.21]. Endorsement of the “great replacement” conspiracy theory was positively related to right-wing political orientations, $r = .33$, $p < .001$, 95% CI [.27, .39], and living in East Germany, $r = .12$, $p < .001$, 95% CI [.05, .18], but negatively with education, $r = -.23$, $p < .001$, 95% CI [-.29, -.17]. Reflective thinking was negatively, albeit weakly, correlated with right-wing political views, $r = -.10$, $p = .003$, 95% CI [-.16, -.03].

We performed ordinary least squares (OLS) regression analyses controlling for political ideology and sociodemographic covariates to assess the partial association between cognitive reflection and conspiracy beliefs. Regression diagnostics revealed a relevant degree of heteroscedasticity. Thus, we estimated our regression model using heteroscedasticity-consistent (robust) standard errors. The regression model was significant, and all predictors combined accounted for 19% of the variance in conspiracy beliefs, $F(6, 899) = 35.81$, $p < .001$. The multivariate results, which are displayed in Figure 2, resemble the bivariate relationships. Cognitive reflection and education were significant negative predictors of beliefs in the “great replacement” conspiracy, $\beta = -0.18$, $t = -5.60$, $p < .001$, 95% CI [-0.25, -0.12], $r_{sp} = -.17$ and $\beta = -0.13$, $t = -3.96$, $p < .001$, 95% CI [-0.20, -0.07], $r_{sp} = -.12$, respectively. Right-wing political views emerged as a strong positive predictor of the “great replacement” conspiracy, $\beta = 0.30$, $t = 9.90$, $p < .001$, 95% CI [0.24, 0.36], $r_{sp} = .30$. Also, people living in East Germany were more likely to believe in this conspiracy theory, $\beta = 0.12$, $t = 3.87$, $p < .001$, 95% CI [0.06, 0.18], $r_{sp} = .12$, while gender and age were unrelated to this specific form of anti-migration conspiracy theory.

3) Because of the skewed distribution of specific conspiracy beliefs, concerns may arise that the reported associations are being inflated by a few dissenters who agree with the “great replacement” conspiracy theory (Imhoff, Bertlich, et al., 2022). Therefore, we performed a series of robustness tests, and the results suggest that non-normality does not substantively affect the conclusions (see the Supplementary Materials for details).

4) Although the mean number of correct responses to the CRT MCQ-4 is just slightly above what would be expected by chance, we consider it highly improbable that performance on the test reflects pure guessing. The (multiple-choice) CRT is constructed in such a way that there is an intuitively appealing but incorrect response that must be overridden by analytical thinking. As Sirota and Juanchich (2018) argued, “it seems less likely that participants would resort to guessing when an appealing intuitive option is available (p. 2519).” Considering the distribution of responses to each test item, the intuitive incorrect option is the most common response (with one exception, see the Supplementary Materials for details).

Figure 1

Histogram of the “Great Replacement” Conspiracy Beliefs Scale

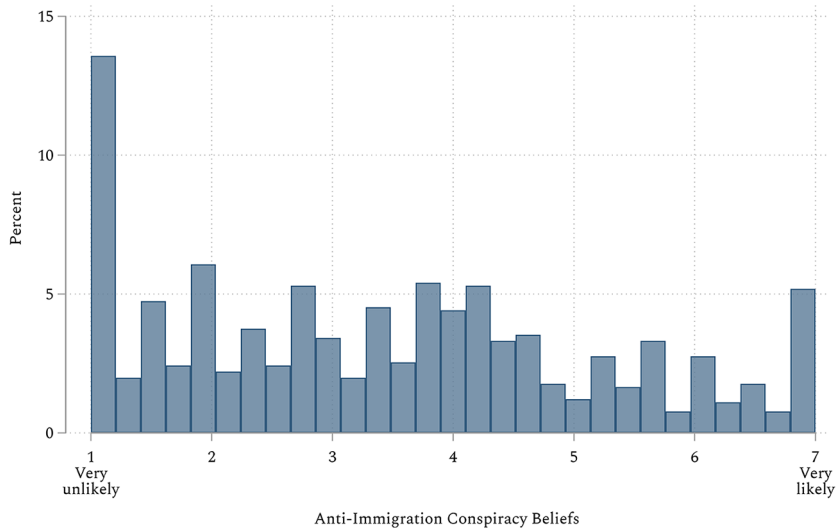
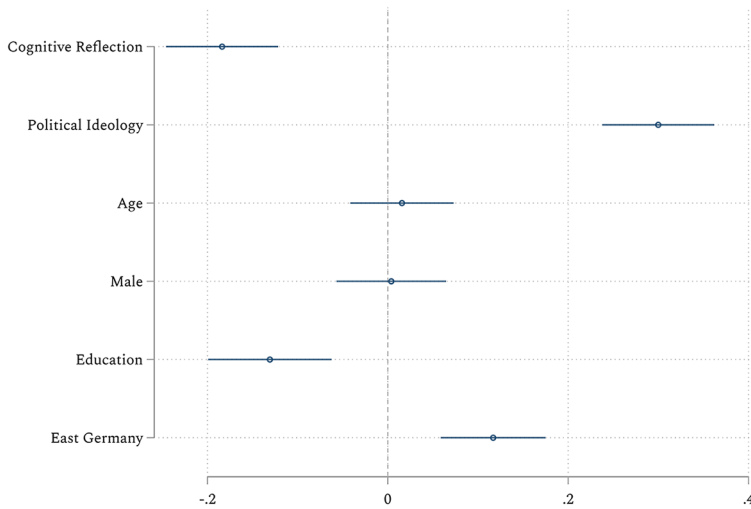


Figure 2

Multiple Regression Predicting “Great Replacement” Conspiracy Beliefs



Note. Displayed are standardized OLS regression coefficients and 95% confidence intervals. $F(6, 899) = 35.81, p < .001, \text{adj. } R^2 = 0.19, N = 906.$

Discussion

The “great replacement” is a conspiracy theory that has recently appeared more frequently in anti-immigrant political rhetoric within Western Societies. It has also been referred to by right-wing terrorists as a motive for their actions (e.g., Davey & Ebner, 2019). At present, few studies have specifically focused on understanding the psychological factors that play a role in making individuals susceptible to this conspiracy theory (Marchlewska et al., 2018; Obaidi et al., 2022). The results of the present study indicate that the extent to which people believe in orchestrated population replacement is associated with individual differences in cognitive style: Performance in a cognitive reflection task that measures individual differences in analytic versus intuitive thinking was negatively related to beliefs in the “great replacement” conspiracy. Importantly, this association emerged as a bivariate correlation and held up when we controlled for political ideology and sociodemographic characteristics. The effect sizes were in the small-to-moderate range (see Gignac & Szodorai, 2016).

Our findings are consistent with previous research on the association of cognitive reflection with the endorsement of conspiracy beliefs (see Binnendyk & Pennycook, 2022; Yelbuz et al., 2022). The insight that this association holds in the case of the “great replacement” conspiracy theory is relevant for the following reasons: First, research indicates that the association of thinking styles with conspiracy beliefs can go in both directions depending on the type of conspiracy theory (Marchlewska et al., 2018). Second, the association of analytic versus intuitive thinking with motivated reasoning in general is the subject of controversial debates. While some scholars maintain that increased analytic thinking generally decreases the likelihood of endorsing epistemically suspect beliefs (Pennycook, 2023), others point out that increased analytical thinking can also amplify motivationally biased information processing and beliefs (Kahan, 2013). Hence, despite similarities between conspiracy theories with respect to their psychological underpinnings, research focusing on the particularities of specific conspiracy theories allows for important insights into the underlying psychological mechanisms.

The results of this study are compatible with a causality hypothesis according to which intuitive thinking facilitates epistemically unsubstantiated beliefs, such as endorsing conspiracy theories (Bensley et al., 2022; Binnendyk & Pennycook, 2022; Swami et al., 2014). However, few studies have provided strong evidence for a causal effect of thinking styles on the endorsement of conspiracy beliefs so far (see Bago et al., 2022; Swami et al., 2014). Our own study is correlational and the conclusions that can be drawn with respect to causal mechanisms are limited. However, by showing that the association between thinking style and belief in the “great replacement” theory holds when education is statistically controlled, we provide evidence against a spurious correlation due to education as a common cause of both thinking style and conspiracy beliefs. Moreover, we show that cognitive reflection has predictive value beyond political ideology as a major

predictor of anti-immigrant beliefs and attitudes. Nonetheless, the evidence we provide refers to necessary but not sufficient conditions for the respective causal conclusions.

Assuming that the observed association reflects a causal influence of thinking style on conspiracy beliefs, our findings suggest that reflective thinking might increase resilience against conspiracist thinking. Given that studies indicate that reflective thinking can be improved and facilitated by systematic training and interventions (e.g., Gervais & Norenzayan, 2012; Yilmaz & Saribay, 2017), this might be one component of the strategic responses of liberal democracies against the proliferation of the “great replacement” conspiracy theory.

The present study investigated the association of the endorsement of “great replacement” conspiracy beliefs in one country (Germany) at one point in time. It is worth noting that the share of correct responses on the individual items of the CRT in our sample (see [Supplementary Materials](#)) was lower than reported in other studies (e.g., Sirota & Juanchich, 2018). While we employed quota-representative sampling and our findings proved to be robust to variations of the analytic approach, future studies are needed to explore the generalizability of our findings to other populations and societal contexts.

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Author Contributions: *Alexander Jedinger*—Idea, conceptualization | Design planning | Data analysis | Writing | Feedback, revisions. *Lena Masch*—Idea, conceptualization | Writing | Feedback, revisions. *Axel M. Burger*—Idea, conceptualization | Writing | Feedback, revisions.

Data Availability: For this article, data is freely available ([Jedinger et al., 2023a](#)).

Supplementary Materials

For this article, the following Supplementary Materials are available (for access see [Index of Supplementary Materials](#) below):

- Data, codebook
- Appendix A: Question wording
- Appendix B: Descriptive statistics and additional analyses
- Appendix C: Robustness checks

Index of Supplementary Materials

- Jedinger, A., Masch, L., & Burger, A. M. (2023a). *Supplementary materials to “Cognitive reflection and endorsement of the “great replacement” conspiracy theory”* [Data, codebook]. PsychOpen GOLD. <https://doi.org/10.23668/psycharchives.12940>
- Jedinger, A., Masch, L., & Burger, A. M. (2023b). *Supplementary materials to “Cognitive reflection and endorsement of the “great replacement” conspiracy theory”* [Appendices]. PsychOpen GOLD. <https://doi.org/10.23668/psycharchives.12939>

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