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Conspiracy beliefs and majority influence

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ABSTRACT

Conspiracy beliefs (i.e. beliefs in specific conspiracy theories or the more general conspiracy mentality) are associated with a need for uniqueness and lower adherence to social norms. These findings suggest that conspiracy beliefs might be generally associated with less influence by majority opinions – absolutely and compared to minority opinions. In five experiments involving scenarios unrelated to conspiracy theories (overall $N = 1669$), participants were informed about the majority/minority opinion on a given issue (e.g. the building of a tunnel), afterward indicating their evaluation or voting intentions regarding the issue. We then tested whether the influence of a majority/minority opinion on evaluation or voting intentions is moderated by conspiracy beliefs. Across studies, we find no significant moderation. A meta-analysis confirms no correlation between conspiracy beliefs and susceptibility to majority influence. Taken together, our studies provide no evidence for the assumption that those holding conspiracy beliefs reject majority opinions per se.

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Conspiracy mentality; conspiracy theory; majority influence; need for uniqueness; social influence

The term"conspiracy beliefs" – here, used as an umbrella term to describe both, the belief in specific conspiracy theories, as well as the more general predisposition to interpret events as secret and malevolent arrangements coined conspiracy mentality (Pummerer, 2024) – have been repeatedly related to behaviors deviating from the majority. This includes behaviors relevant to societal functioning such as lower voting intentions (Jolley & Douglas, 2014), lower adherence to social norms (Pummerer et al., 2022) and intentions for non-normative (including violent) political action (Imhoff et al., 2021). They also have been associated with a higher need for uniqueness (Imhoff & Lamberty, 2017; Lantian et al., 2017). Moreover, conspiracy theories themselves commonly deviate from mainstream explanations (i.e., majority positions) for societal events (Brotherton, 2013). This pattern suggests that individuals higher in conspiracy beliefs could generally be less susceptible to majority influence (i.e., information about the opinion of the majority) and more susceptible to minority influence (i.e., information about the opinion of the minority). If that is indeed the case, this would have important implications for interventions based on the communication of descriptive norms, such as those designed to tackle consequences of conspiracy beliefs (e.g., Cookson et al., 2021) or to improve general health behaviors (Prentice, 2018).

In the current study, we tested the influence of a majority compared to a minority or another majority position on later attitudes (i.e., evaluation of a new sport) and behavioral intentions (i.e., voting in a fictitious scenario). We did so regarding two forms of conspiracy beliefs: (1) The *belief in specific conspiracy theories*, that is, specific theories alleging that a group of powerful people is making secret arrangements with the intention of harming others (e.g., Douglas et al., 2017), such as the

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theories that the assassination of John F. Kennedy was a detailed organized conspiracy to kill the President, or that the U.S. government allowed the 9–11 attacks to take place to reach foreign and domestic goals. (2) *Conspiracy mentality*, which is defined as an individual's readiness and propensity to interpret events as secret and malevolent arrangements (Imhoff & Bruder, 2014). Overall, our studies aim to better understand processes of social influence among individuals believing in conspiracy theories. Thereby, we put the often implicitly held (and reasonable) assumption that those holding conspiracy beliefs reject majority opinions per se (i.e., for the sake of going against the mainstream) to a first empirical test.

Majority influence

Usually, people use the opinion of a majority around them as a cue that influences their own thoughts and behaviors (Cialdini et al., 1990; Nolan et al., 2008; Prentice & Miller, 1993). This tendency occurs for *social* reasons – to gain acceptance or to avoid sanctions – and because of *informational* value of the majority behavior, as behavior that is done by many people seems to be functional and less risky (Deutsch & Gerard, 1955). The influence thereby seems to be especially strong when there is no motivation or capacity to engage in systematic thinking (Chaiken, 1980; Petty & Cacioppo, 1984), when individuals hold a moderate opinion (Erb et al., 2002) or when they are not invested in a topic (Erb et al., 1998). The power of majority influence has famously been shown in Solomon Asch's studies, demonstrating that participants even choose an obviously wrong answer when confronted with a consistent majority group (Asch, 1955). Furthermore, individuals tune in to majority opinions even to the extent that repeated exposure leads to a perceptual bias toward interpreting new information in line with the previously displayed majority opinion (Germar & Mojzisch, 2019). Overall, the influence of a majority opinion is relatively strong.

For that reason, information about majority opinions and behaviors have – under the label of normative influence or descriptive norms – also been used in interventions successfully initiating behavior change (for an overview, see Prentice, 2018). These interventions either provide information about the majority behavior or make the majority behavior more salient (Cialdini et al., 1990), thereby promoting environmentally friendly behaviors (Schultz et al., 2007), reducing alcohol consumption (Perkins & Craig, 2006; Prentice & Miller, 1993) or supporting prosocial behaviors (Nook et al., 2016).

Conspiracy beliefs and majority influence

There are many studies showing that people higher in conspiracy beliefs report more behavior that deviates from the mainstream: They are more likely to report deviance from prosocial norms (Pummerer et al., 2022), intentions to engage in everyday crimes and non-normative political action (Imhoff & Bruder, 2014; Imhoff et al., 2021; Jolley et al., 2019), and fewer intentions to vaccinate (Hornsey et al., 2018; Winter; Pummerer et al., 2022) – to just mention some examples. In fact, the belief in a specific conspiracy theory itself usually means believing in a theory that is not in line with mainstream thinking (Brotherton, 2013). The fact that individuals higher in conspiracy beliefs often deviate from the thoughts and behaviors of a majority raises the question of whether they are less susceptible to majority influence.

There are two reasons why this might be the case. *First*, conspiracy beliefs are associated with a general distrust of other people (Goertzel, 1994; Green & Douglas, 2018). Trustworthiness, though, is one important predictor of persuasion generally (Milliman & Fugate, 1988) and majority influence partly results from individuals' trust in the judgment of other people (Kruglanski & Mackie, 1990). Thus, if people high in conspiracy beliefs have lower trust in other people, they should also be less influenced by them. *Second*, conspiracy beliefs are related to a higher need for uniqueness (Imhoff & Lamberty, 2017; Lantian et al., 2017). Need for uniqueness, in turn, decreases the influence of a majority (Imhoff & Erb, 2009). Individuals higher in the need for uniqueness are also more likely to hold and express

minority opinions as a way to express their uniqueness (Imhoff & Erb, 2009; Rios, 2012; Rios & Chen, 2014). This also seems to be the case for conspiracy theories, as individuals higher in conspiracy beliefs were more likely to agree with a fictitious conspiracy theory when they were told that a minority agreed with it compared to when a majority did (Imhoff & Lamberty, 2017, Study 3). Thus, higher conspiracy beliefs might yield a lower influence of a majority opinion on later attitudes and behavioral intentions, but a higher influence by minority opinions.

Recently, researchers have begun to pay closer attention to differences between conceptualizations and measurements of conspiracy beliefs (see, e.g. Douglas & Sutton, 2023; Imhoff et al., 2022; Nera & Schöpfer, 2023; Pummerer, 2024; Sutton & Douglas, 2020), distinguishing the belief in specific conspiracy theories (measured as the average agreement to specific conspiracy theories) from conspiracy mentality (measured as the agreement to statements that imply secret arrangements between powerholders). One distinguishing factor between the two concepts is how epistemically risky the statements included in the measurements are (Pummerer, 2024), with the belief in specific conspiracy theories implying a higher epistemic risk than conspiracy mentality (Douglas & Sutton, 2023). As epistemic risk is related to the majority opinion (i.e. going against the majority opinion typically also carries higher epistemic risk), we sought to include both measures of conspiracy beliefs. As the belief in specific conspiracy theories and conspiracy mentality usually are highly correlated (e.g. Swami et al., 2017; Wood et al., 2012), we did not have specific hypotheses regarding one or the other.[1]

Overall, we hypothesized that conspiracy beliefs (i.e., the belief in specific conspiracy theories as well as conspiracy mentality) moderate the influence of a majority opinion on later attitudes and behavioral intentions compared to a minority opinion (H1), as well as the influence by a majority opinion in general (H2).

Overview of current studies

In five studies, we examined whether conspiracy beliefs moderate the effect of a majority (vs. minority, or other majority) opinion on later attitudes and behavioral intentions. In Studies 1 and 2, we tested the preregistered experimental hypothesis that the influence of the majority *compared to a minority* opinion on later behavioral intentions is lower the higher the conspiracy beliefs (Hypothesis 1), whereas Studies 3 to 5 only tested the likewise preregistered hypothesis that the influence of the majority *compared to another majority opinion* on later attitudes and behavioral intentions is lower the higher the conspiracy beliefs (Hypothesis 2). The studies are not presented in the order in which they were conducted but based on the hypothesis they test.

For manipulating majority and minority influence, we built on commonly used manipulations of majority influence (e.g. De Dreu & De Vries, 1996; Martin et al., 2002). Typically, this research involves confronting participants with the opinion of a majority or minority regarding an issue at stake while not giving information about the remaining percentages. In line with this research, our scenarios also informed participants either on the (ostensible) opinion of a majority or of a minority regarding an issue that was changed between studies. The topics were always chosen so that individuals would not have a preexisting opinion and that participants should not assume any conspiracy taking place in the scenarios (i.e. no mentioning of secrecy or malevolent intentions). Details about research materials, preregistered analyses, and additional analyses can be found in the Supplementary Material. Preregistrations, data and scripts are available under https://doi.org/10.23668/psycharchives.15211 (Preregistrations), https://doi.org/10.23668/psycharchives.15209 (Data), and https://doi.org/10.23668/psycharchives.15210 (Code). All studies, measures, manipulations, and data exclusions are reported in the manuscript and in more detail in the Supplement. Sample sizes for all studies were determined by a priori power calculations and

Table 1. Demographic information for the samples of studies 1–5.

	N	M_{age} (SD)	Age Range	Gender
Study 1	215	37.23 (12.88)	18-75	72 male, 142 female, 1 non-binary
Study 2	429	37.17 (12.26)	18-76	122 male, 307 female
Study 3	181	23.43 (3.27)	18-35	46 male, 132 female, 3 non-binary
Study 4	427	36.18 (12.48)	18-78	118 male, 308 female, 1 non-binary
Study 5	417	39.38 (12.34)	18-76	260 male, 155 female, 2 non-binary

Table 2. Descriptive statistics of the scales.

		Conspiracy Mentality (CM)			Belief in Specific Conspiracy Theories (CT)		
	N	*M*	*SD*	*α*	*M*	*SD*	*α*
Study 1	215	4.83	1.01	.90	2.97	1.36	.86
Study 2	429	4.80	1.00	.91	2.91	1.26	.83
Study 3	181	4.03	1.18	.90	2.45	2.44	.88
Study 4	427	4.78	1.04	.91	2.90	1.34	.85
Study 5	417	3.64	1.51	.92	2.49	1.37	.87

specified in the respective preregistrations.[2] Details regarding the demographic information for all studies can be found in Table 1. Descriptives and reliability of the scales for all studies are in Table 2.

Testing lower influence by the majority compared to a minority (H1): study 1 & 2

Study 1

Participants and procedure

For study 1, 224 participants were recruited via Prolific, of which 9 were excluded for indicating that their data shouldn't be used ($N = 3$), potential knowledge regarding the scenario ($N = 4$), and outlier criteria ($N = 2$), leaving a final sample of $N = 215$. According to a sensitivity power analysis, the sample size of Study 1 was sufficient to detect an interaction effect of $f^2 = 0.037$ with 80% power, and an interaction effect of $f^2 = 0.061$ with 95% power, respectively. As the exclusion criteria for statistical outliers differed between preregistrations (among other reasons, due to a copy mistake), we decided to apply the preregistered outlier criterion from Study 5 to all studies consistently. However, all analyses with exclusions exactly as preregistered are reported in the supplement and do not change the findings of the meta-analysis.

Participants were first informed that they would read about an important topic, namely about the construction of a tunnel in Antwerp underneath the harbor. They then received information that either the majority (67% of the general population, and 69% of the population directly affected) or minority (12% or 11%, respectively) of the population supports the building of the tunnel. Participants were informed that the city council plans to hold a referendum in a few weeks. They also received a flyer, ostensibly stemming from a group that was supporting the building of the tunnel, including arguments for the respective majority or minority position. After the manipulation, participants were asked how they would vote in the upcoming referendum if they could take part in the voting. In the end, conspiracy mentality and the belief in specific conspiracy theories were assessed.[3]

Measures

Dependent variable was the *Voting Intention* in the referendum about the tunnel, assessed on a slider from *-100 = would definitely vote against it* to *100 = I would definitely vote in favor.*

Conspiracy beliefs. Two measures of conspiracy beliefs were used. First, *Conspiracy Mentality* (CM, Imhoff & Bruder, 2014, sample item: "Most people do not recognise to what extent our life is determined by conspiracies that are conducted in secret") was measured with 12 items. Second, the *Belief in specific conspiracy theories* (CT) was measured with six items adapted

from Lewandowsky et al. (2013) (sample item: "The assassination of John F. Kennedy was not committed by the lone gunman Lee Harvey Oswald but was rather a detailed organized conspiracy to kill the President."). Both measures were assessed on a 7-point scale ranging from 1 = *strongly disagree* to 7 = *strongly agree*.

Results

To test whether conspiracy beliefs moderate the effect of a majority compared to a minority opinion on later behavioral intentions (*H1)*, we conducted regression analyses predicting voting intention by effect-coded condition (+1 Majority, −1 Minority), conspiracy beliefs, and their interaction, respectively for conspiracy mentality and the belief in specific conspiracy theories. All continuous predictors were mean-centered. Our preregistered hypothesis corresponds to a negative regression weight, which indicates that higher conspiracy beliefs are related to less influence by the majority opinion and more influence by the minority opinion. Tables 3 and 4 report the results for conspiracy mentality (Table 3) and the belief in specific conspiracy theories (Table 4). Overall, there was a main effect of the condition ($B = 7.65$, $SE = 2.41$, $\beta = 0.211$, $p = .002$ for conspiracy mentality; $B = 7.51$, $SE = 2.42$, $\beta = 0.207$, $p = .002$ for belief in specific conspiracy theories), showing that the experimental manipulation was effective, as individuals were more likely to support the building of the tunnel when a majority of the population supported it compared to when only a minority supported the building. In addition, the p-value for the interaction effect between condition and conspiracy beliefs was between $p = .05$ and $p = .10$ for conspiracy mentality ($B = -4.19$, $SE = 2.41$, $\beta = -0.115$, $p = .083$), but not the belief in specific conspiracy theories ($B = -3.39$, $SE = 2.43$, $\beta = -0.093$, $p = .165$). Simple slope analyses indicated that a higher conspiracy mentality was related to lower support for the tunnel in the majority condition ($B = -8.87$, $SE = 3.48$, $\beta = -0.244$, $p = .012$), while there was no effect of conspiracy mentality in the minority condition ($B = -0.48$, $SE = 3.33$, $\beta = -0.013$, $p = .885$). In order to rule out the possibility that we missed an interaction due to low power, we sought to replicate the study with a larger sample size. Additionally, we were worried that the arguments (rather than the majority information) swayed participants into a direction. Thus, we omitted them in the following study.

Table 3. Voting predicted by majority vs minority condition, conspiracy mentality and their interaction (effect size estimate r calculated from β following Peterson & Brown, 2005).

	Study 1 (df = 211)				Study 2 (df = 425)			
	B (SE)	β	r	p	B (SE)	β	r	p
Intercept	41.26 (2.40)				11.41 (1.67)			
Majority (1) vs. Minority (−1)	7.65 (2.41)	.211	.26	.002	15.30 (1.67)	.404	.45	<.001
Conspiracy Mentality	−4.67 (2.41)	−.129	−.18	.054	−3.20 (1.67)	−.085	−.14	.056
Interaction	−4.19 (2.41),	−.115	−.17	.083	−0.61 (1.67)	−.016	−.07	.715

Table 4. Voting predicted by majority vs minority condition, belief in specific conspiracy theories and their interaction (effect size estimate r calculated from β following Peterson & Brown, 2005).

	Study 1 (df = 211)				Study 2 (df = 425)			
	B (SE)	β	r	p	B (SE)	β	r	p
Intercept	41.26 (2.43)				11.48 (1.67)			
Majority (1) vs. Minority (−1)	7.51 (2.42)	.207	.26	.002	15.53 (1.67)	.410	.46	<.001
CT	−3.61 (2.43)	−.099	−.15	.139	−3.50 (1.68)	−.092	−.14	.038
Interaction	−3.39 (2.43)	−.093	−.14	.165	−0.90 (1.68)	−.024	−.07	.592

Study 2

Participants and procedure

In sum, $N = 460$ participants were recruited via Prolific. Some participants were excluded for indicating that their data should not be used ($N = 10$), not answering all questions honestly ($N = 2$), potential knowledge regarding the scenario (i.e., having lived near Antwerp for at least 6 months or having heard about the tunnel construction before the study, $N = 9$) or due to being statistical outliers ($N = 10$), leaving a final sample of $N = 429$. According to a sensitivity power analysis, the sample size was sufficient to detect an interaction effect of $f^2 = 0.018$ with 80% power, and an interaction effect of $f^2 = 0.030$ with 95% power, respectively.

Procedure was the same as in Study 1, with the only difference being that participants did not receive the information in the flyer and, thus, no arguments regarding the building of the tunnel.

Measures

Measures were exactly the same as Study 1.

Results

We conducted the same regression analyses as described for Study 1 (see Tables 3 and 4 for results). Again, there was a main effect of the condition ($B = 15.30$, $SE = 1.67$, $\beta = 0.404$, $p < .001$ for conspiracy mentality; $B = 15.53$, $SE = 1.67$, $\beta = 0.410$, $p < .001$ for belief in specific conspiracy theories). Additionally, we found a significant main effect of the belief in specific conspiracy theories ($B = -3.50$, $SE = 1.68$, $\beta = -0.092$, $p = .038$), indicating that individuals higher[4] in this type of conspiracy belief were less likely to support the building of the tunnel, no matter if the issue was brought forward by a majority or minority. Different from what was predicted, there was no significant interaction ($B = -0.61$, $SE = 1.67$, $\beta = -0.016$, $p = .715$ for conspiracy mentality; $B = -0.90$, $SE = 1.68$, $\beta = 0.024$, $p = .592$ for belief in specific conspiracy theories), which would have indicated a moderating effect of conspiracy beliefs.

In the first two studies, we did not find that conspiracy beliefs moderate the impact of a majority (vs. minority) opinion, suggesting no general preference for minority over majority opinions among individuals higher in conspiracy beliefs. While the p-value for the interaction in the first study was between $p = .05$ and $p = .10$, if anything, it was more in line with a reduced susceptibility to majority influence rather than an increased susceptibility to minority influence. In order to further investigate a majority influence and to increase the potential effect, we only focused on the influence of two opposing majorities in Studies 3 to 5.[5]

Testing lower influence by the majority (H2): studies 3 to 5

Study 3

Participants and procedure

In Study 3, we relied on an ad-hoc student sample from a German university (see Table 1 for demographic information). Of the original sample ($N = 198$), participants were excluded for not being students ($N = 11$), knowledge relating to the material (i.e., already knowing the sport, $N = 4$), or for being statistical outliers ($N = 2$), leaving a final sample of $N = 181$. According to a sensitivity power analysis, the sample size was sufficient to detect an interaction effect of $f^2 = 0.044$ with 80% power, and an interaction effect of $f^2 = 0.073$ with 95% power, respectively.

In this study, both conspiracy beliefs scales were measured at the beginning. Afterward, participants received information about a (so far relatively unknown) sport called Jai Alai. Participants read that the majority of other students (68–79%) either likes the sport or does not like the sport, as reported in three categories of it being (no) fun, being (not) easy to

learn and (not) being an interesting sport. Percentages were displayed as a pie chart, so technically the opinion of a majority and minority of students were visible, but the opinion of the majority was highlighted through the pie chart as well as through a quote of one student that was displayed at the side. Participants were then asked to indicate their own evaluation of the sport.

Measures

Evaluation of sport. The dependent variable was the evaluation of the sport averaged over three items ("This sport is fun," "This sport should be offered at our university," "I would like to try this sport") on an 11-point scale ranging from 1 = *Do not agree* to 11 = *Agree*.

Conspiracy beliefs. We used the same two measures of conspiracy beliefs as in Study 1 and 2, except that we removed one of the items of the *Belief in specific conspiracy theories* (CT), the conspiracy theory about the assassination of Martin Luther King, as this theory is not well known among German participants.

Results

We conducted regression analyses predicting the evaluation of the new sport by effect-coded condition (+1 Majority pro sport, −1 Majority contra sport), conspiracy beliefs, and their interaction, respectively for conspiracy mentality and the belief in specific conspiracy theories. All continuous predictors were mean-centered. Again, our preregistered hypotheses correspond to a negative regression weight of the interaction between conspiracy beliefs (i.e., either conspiracy mentality or the belief in specific conspiracy theories) and condition, which would have indicated that the higher the conspiracy beliefs, the smaller the differences between conditions (one favoring the sport, the other rejecting it). This would have shown a moderating effect of conspiracy beliefs on influence by the majority, as individuals higher in conspiracy beliefs in both conditions would have voted more toward the mean, or even might have been swayed toward choosing the option opposite to the majority. However, this was not the case ($B = -0.02$, $SE = 0.17$, $\beta = -0.006$, $p = .929$ for conspiracy mentality; $B = -0.05$, $SE = 0.16$, $\beta = -0.021$, $p = .758$ for belief in specific conspiracy theories), as Table 5 (conspiracy mentality) and Table 6 (belief in specific conspiracy theories) show. Again, we found a main effect of the condition ($B = 1.04$, $SE = 0.17$, $\beta = 0.430$, $p < .001$ for conspiracy mentality; $B = 1.04$,

Table 5. Voting predicted by majority influence, conspiracy mentality and their interaction (effect size estimate r calculated from β following Peterson & Brown, 2005).

	Study 3 (df = 177)				Study 4 (df = 423)				Study 5 (df = 413)			
	B (SE)	β	r	p	B (SE)	β	r	p	B (SE)	β	r	p
Intercept	6.64 (0.17)				−10.46 (2.14)				3.28 (2.73)			
Majority (1) vs. Majority (−1)	1.04 (0.17)	.430	.48	<.001	39.15 (2.14)	.660	N/A[6]	<.001	23.15 (2.73)	.385	.44	<.001
CM	0.10 (0.17)	.041	.09	.552	−6.315 (2.14)	−.106	−.16	.003	−2.03 (2.74)	−.034	−.08	.459
Interaction	−0.02 (0.17)	−.006	−.06	.929	−3.00 (2.14)	−.050	−.10	.163	2.91 (2.74)	.048	.10	.288

Table 6. Voting predicted by majority influence, belief in specific conspiracy theories and their interaction (effect size estimate r calculated from β following Peterson & Brown, 2005).

	Study 3 (df = 177)				Study 4 (df = 423)				Study 5 (df = 413)			
	B (SE)	β	r	p	B (SE)	β	r	p	B (SE)	β	r	p
Intercept	6.64 (0.16)				−10.46 (2.16)				3.36 (2.71)			
Majority (1) vs. Majority (−1)	1.04 (0.16)	.428	.48	<.001	39.12 (2.16)	.659	N/A[4]	<.001	23.10 (2.71)	.385	.44	<.001
CT	0.21 (0.16)	.086	.14	.207	−3.52 (2.175)	−.059	−.11	.059	−5.25 (2.71)	−.087	.14	.053
Interaction	−0.05 (0.16)	−.021	−.07	.758	−0.93 (2.18)	−.016	−.07	.668	5.21 (2.70)	.087	.14	.055

$SE = 0.16$, $\beta = 0.428$, $p < .001$ for belief in specific conspiracy theories), indicating that the experimental manipulation was indeed effective and that the opinion of the majority had an influence on the evaluation of the participants independent of conspiracy beliefs. Overall, our hypothesis (lower susceptibility to majority influence the stronger the conspiracy beliefs) was not confirmed. Again, we wanted to replicate our null-finding in a next study. Given that the biggest (but also non-significant) effect so far stemmed from a majority manipulation regarding the tunnel in Antwerp, we again turned to this scenario, comparing it against the majority being in favor of building a bridge.

Study 4

Participants and procedure

Overall, $N = 456$ participants were recruited via Prolific, of which some were excluded for indicating that their data shouldn't be used ($N = 11$), potential knowledge regarding the material ($N = 9$), being underage ($N = 1$) or being statistical outliers ($N = 8$), leaving a final sample of $N = 427$. Sensitivity power analysis indicated that the sample size was sufficient to detect an interaction effect of $f^2 = 0.018$ with 80% power, and an interaction effect of $f^2 = 0.031$ with 95% power, respectively.

The procedure was very similar to Study 2, only that participants were informed that the city of Antwerp is considering to build either a tunnel or a bridge across the Antwerp harbor. Again, participants were told that the city council is planning to hold a public referendum to decide about the project. Like in the majority condition of Study 2, participants received information that the majority (67% of the general population, and 69% of the population directly affected) of the population either supports the building of the tunnel (condition 1) or the bridge (condition 2). They were then asked how they would vote, and filled out measures for conspiracy beliefs.

Measures

Measurement for *Voting Intentions* was similar to Study 1 and 2 with a slider going from −100 *I would definitely vote for the bridge [tunnel]* to + 100 *I would definitely vote for the tunnel [bridge]*. The slider was presented in a way that the anchor on the right (i.e., 100) was consistent with the majority opinion presented in the text. Measures for conspiracy beliefs were exactly the same as in Study 1 and 2.

Results

We conducted the same regression analyses as in Study 3, predicting voting intentions by effect-coded condition (+1 Majority pro tunnel, −1 Majority pro bridge), conspiracy beliefs (mean-centered), and their interaction, respectively for conspiracy mentality and the belief in specific conspiracy theories. Again, there was no significant interaction effect ($B = -3.00$, $SE = 2.14$, $\beta = -0.050$, $p = .163$ for conspiracy mentality; $B = -0.93$, $SE = 2.18$, $\beta = -0.016$, $p = .668$ for belief in specific conspiracy theories, see also Tables 5 and 6). There was a main effect of condition, indicating that the experimental manipulation was indeed effective ($B = 39.15$, $SE = 2.14$, $\beta = 0.660$, $p < .001$ for conspiracy mentality; $B = 39.12$, $SE = 2.16$, $\beta = 0.659$, $p < .001$ for belief in specific conspiracy theories). Additionally, there was a main effect of conspiracy mentality ($B = -6.315$, $SE = 2.14$, $\beta = -0.106$, $p = .003$) in the sense that individuals higher in conspiracy mentality were more likely to vote for the bridge in both conditions. Due to this main effect and in order to rule out any (null-)effect due to this specific scenario, we wanted to do a final replication, again contrasting two majority opinions but in a different setting.

Study 5

Participants and procedure

Participants for this final study were recruited via a German crowdsourcing websites named Clickworker. Of the $N = 434$ participants who finished, $N = 7$ were excluded for indicating that their data should not be used, $N = 9$ were excluded for failing an attention check, and one participant was

excluded for being underage, leaving a final sample of $N = 417$. According to a sensitivity power analysis, the sample size was sufficient to detect an interaction effect of $f^2 = 0.019$ with 80% power, and an interaction effect of $f^2 = 0.031$ with 95% power, respectively.

Again, participants were informed and then had to decide about a potential new construction, here in a fictitious city called "Gummerberg." The citizens here had to decide whether to use a previous factory hall for a museum about pottery or a museum about shoemaking. Again, participants were told that the city council is planning to hold a public referendum to decide about the project, and that the majority of the population (71%) was either in favor of the establishment of a pottery museum or shoemaker museum according to a representative opinion poll. Again, the city council was said to hold a public referendum. Conspiracy mentality was measured before the experimental manipulation, and the belief in specific conspiracy theories was measured afterward.

Measures

Measurement for the *Voting Intention* was similar to Study 4, only that the anchors mentioned the pottery museum or the shoemaker museum, again, with the anchor on the right referring to the respective majority opinion presented in the text.

Regarding the measures for conspiracy beliefs, we used the short version of the *Conspiracy Mentality* scale (CM), consisting of only five items (Bruder et al., 2013), but also on a 7-point scale ranging from 1 = *strongly disagree* to 7 = *strongly agree*. The measure for the *Belief in Specific Conspiracy Theories* (CT) was the same as in Study 3.

Results

Again, we conducted regression analyses predicting voting intentions by effect-coded condition (+1 Majority pro pottery, −1 Majority pro shoemaker), conspiracy beliefs (mean-centered), and their interaction, respectively for conspiracy mentality and the belief in specific conspiracy theories. As in the other studies, there was a main effect of the condition (proving effectiveness of the manipulation, $B = 23.15$, $SE = 2.73$, $\beta = 0.385$, $p < .001$ for conspiracy mentality; $B = 23.10$, $SE = 2.71$, $\beta = 0.385$, $p < .001$ for belief in specific conspiracy theories), but no interaction effect ($B = 2.91$, $SE = 2.74$, $\beta = 0.048$, $p = .288$ for conspiracy mentality; $B = 5.21$, $SE = 2.70$, $\beta = 0.087$, $p = .055$ for belief in specific conspiracy theories, see also Table 5 and Table 6). While the p-value of the interaction between the belief in specific conspiracy theories and condition was between $p = .05$ and $p = .10$, the regression weight was positive and, thus, in the opposite direction as predicted. Overall, across Studies 3 to 5, our hypothesis (lower susceptibility to majority influence the stronger the conspiracy beliefs) was not confirmed.

Meta-analysis majority influence

Given that several conditions across the five studies included information about the opinion of the majority, we sought to conduct a meta-analysis testing whether higher conspiracy beliefs are connected to less influence by the majority across studies. As the topics in each case were new to the participants, the evaluation or voting intention without the experimental manipulation should be, on average, neutral, while a higher susceptibility to majority influence should result in an evaluation of voting intention more in agreement with the majority opinion. For that goal, all conditions which gave information about the opinion of a majority opinion were regarded as single studies, and dependent variables were recoded such that higher values indicated higher agreement with the majority opinion. In line with hypothesis 2, we expected a negative correlation between conspiracy beliefs (conspiracy mentality and the belief in specific conspiracy theories) and agreement with the majority. In sum, a total number of $N = 1251$ participants were included in the meta-analysis. For details on the mean and correlations in each condition, see Table 7.

Table 7. Correlation conspiracy beliefs and agreement with majority.

	Condition	M_{DV}	*N*	*r (CM ~ Agreement with Majority*	*r (CT ~ Agreement with Majority*
Study 1	Majority pro tunnel	48.83	113	−.243**	−.206*
Study 2	Majority pro tunnel	26.90	203	−.123†	−.137†
Study 3	Majority pro sport	7.68	91	.042	.077
	Majority contra sport	5.61	90	.047	.110
Study 4	Majority pro tunnel	28.77	214	−.183**	−.093
	Majority pro bridge	49.64	213	.088	.064
Study 5	Majority pro Pottery	26.46	211	.017	−.001
	Majority pro Shoemaker	19.73	206	.085	.185**

†p < .10. *p < .05. **p < .01.

Conspiracy mentality indeed was related to lower agreement with the majority in Studies 1 and 4. Importantly, both conditions all featured the scenario in which the city council considered building a tunnel beneath the harbor of Antwerp. In all other conditions (including the condition in which the majority favored building a bridge instead of a tunnel across the harbor of Antwerp), conspiracy beliefs were not related to lower agreement with the majority. In one condition of Study 5, the belief in specific conspiracy theories even was significantly positively related to an agreement with the majority. Overall, there does not seem to be a consistent effect pro or contra the majority opinion. This is also shown by the meta-analysis, which indicates no significant effect of conspiracy mentality or the belief in specific conspiracy theories on the agreement with the majority, with an average correlation of $r = -.04$, $p = .443$ (conspiracy mentality) and $r = -.002$, $p = .966$ (belief in specific conspiracy theories), see Figures 1 and 2.

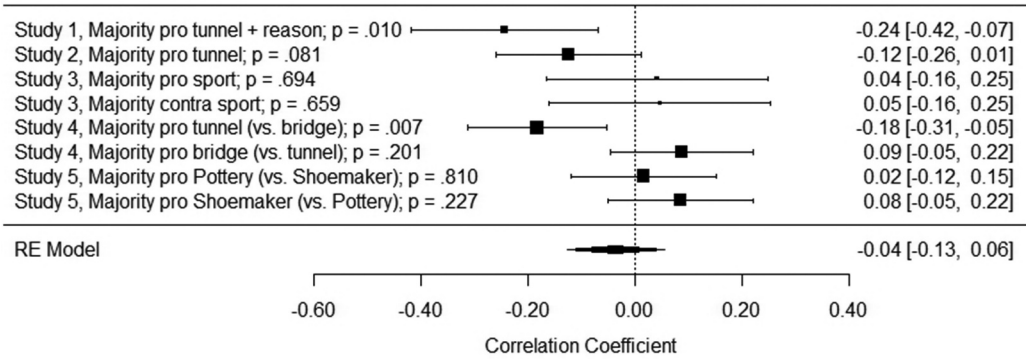

Figure 1. Meta-analysis of correlation between conspiracy mentality and agreement with majority (error bars depict 95% confidence intervals).

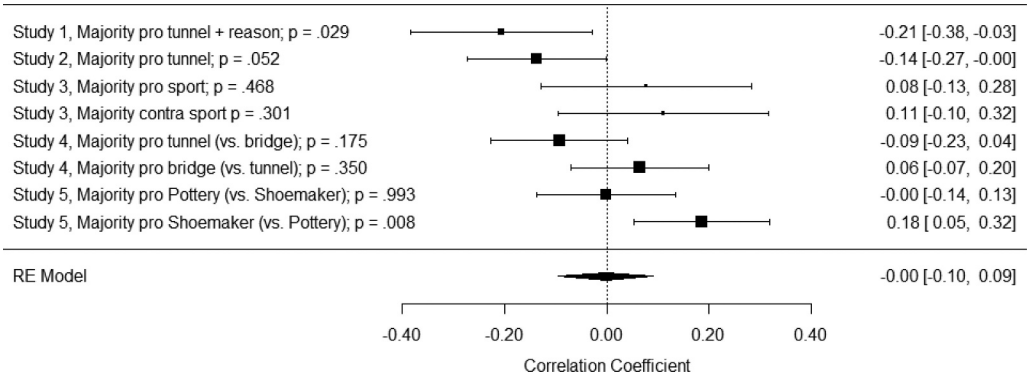

Figure 2. Meta-analysis of correlation between belief in specific conspiracy theories and agreement with majority (error bars depict 95% confidence intervals).

Table 8. Correlation conspiracy mentality and agreement with a Minority.

	Condition	M (Agreement with Minority)	N	r (CM ~ Agreement with Minority	r (CT ~ Agreement with Minority
Study 1	Minority pro tunnel	33.62	102	−.014	−.006
Study 2	Minority pro tunnel	−4.00	226	−.069	−.071

All $p > .10$.

Minority influence

We also compared those two conditions, which featured the opinion of a minority, examining whether conspiracy beliefs might relate to a higher agreement with an opinion that is put forth by a minority (see Table 8). In none of the conditions were conspiracy beliefs related to a higher agreement with the minority, rendering a meta-analysis pointless. A meta-analysis including type of influence (majority vs. minority) as a factor confirmed no difference between majority or minority influence and no overall effect. It is reported in the supplement.

Summary and general discussion

Across five studies with three different scenarios, conspiracy beliefs did not moderate the effect of exposure to a majority (vs. a minority or another majority) opinion on a later attitude or behavioral intentions, neither in the form of beliefs in a specific conspiracy theory nor conspiracy mentality. Instead, participants were influenced by the respective information about the opinion of the majority (as indicated by the main effect of condition) independent of their conspiracy beliefs. To our knowledge, this is the first test of this kind, offering more clarity regarding potential differences among individuals believing in conspiracy theories and processes of social influence. Overall, our studies show no such differences, suggesting that the reported relationship between conspiracy beliefs and need for uniqueness (Imhoff & Lamberty, 2017; Lantian et al., 2017) does not generalize to a lower susceptibility for the opinion of the majority or higher susceptibility for the opinion of the minority per se. This applies to both measures of conspiracy beliefs, a general conspiracy mentality as well as the belief in specific conspiracy theories.

One potential explanation of this finding might be the idea that conspiracy beliefs are related to higher feelings of uncertainty. Uncertainty can be one motivation for individuals to turn to cues such as the majority opinion (Deutsch & Gerard, 1955) in order to seek cognitive closure. Thus, this motivation might nullify what otherwise would have been a rejection of the majority opinion. In other words, the tendency to seek cognitive closure and the tendency to reject the mainstream among those higher in conspiracy beliefs might have leveled each other out in our studies. However, recent meta-analyses (Biddlestone et al., 2022; Bowes et al., 2023) do not confirm a relation between conspiracy beliefs and a higher need for cognitive closure,[7] rendering this explanation less plausible.

In contrast to the common narrative that individuals (prone to) believing in conspiracy theories are hard to reach, our findings show that they are as much influenced by the opinion of a majority as individuals lower in conspiracy beliefs. This is in line with other studies showing that individuals higher in conspiracy beliefs are influenced by internal and external factors. They are, for example, influenced by subjective norms (Winter, Pummerer, et al., 2022), presented arguments (Winter, Hornsey, et al., 2022), and seem to be influenced by their own arguments becoming evident after deliberation (Pummerer et al., 2022). Furthermore, even though individual high in conspiracy belief claim to solely rely on their own judgments when forming opinions, in low-stakes situations they were as likely to use social cues as anyone (Altay et al., 2023). Overall, our studies support that conspiracy beliefs are not related to lower susceptibility to social influence per se. This has important and promising implications for interventions. First, it shows that existing interventions building on majority

influence against potentially dangerous behaviors such as heavy drinking (Perkins & Craig, 2006; Prentice & Miller, 1993) likely are also effective among individuals higher in conspiracy beliefs. Second, it also opens the possibility of using information about the opinion of the majority for potentially harmful consequences of conspiracy beliefs (see, e.g. Cookson et al., 2021).

In order to tackle (and rule out) a trait-like susceptibility or resistance to majority opinions, none of the scenarios referred to any conspiratorial content (e.g., suggesting secrecy or malevolent intention). While this resembles the real-life confrontation with majority opinions across all kinds of life domains unrelated to conspiracy theories, it is possible that majority or minority information plays a different role among individuals higher in conspiracy beliefs once there is secrecy or suspected malevolent intentions involved or when evaluating new conspiracy theories (see e.g. Imhoff & Lamberty, 2017, Study 3). After all, it is fairly reasonable to think that a (true) conspiracy is first discovered by a minority, especially when the alleged conspirators are assumed to be powerful enough to influence the public opinion (see Dutilh Novaes, 2024 for a similar argument). Thus, future studies might investigate the role of majority/minority opinions in evaluating scenarios that involve secrecy or suspected malevolent intention to future studies.

The question remains of what drives deviant behavior among individuals believing in conspiracy theories. Our studies ruled out the factor of a general lower susceptibility to social (i.e., majority) influence regarding behavioral intentions. While, generally, the relation between behavioral intentions and behavior is relatively high (Sheeran, 2002; see also Webb & Sheeran, 2006), it is, of course, a possibility that the link between behavioral intentions and behavior is different for individuals higher in conspiracy beliefs. Additionally, other aspects of the link between conspiracy beliefs and norm-deviating behaviors still need to be further examined in future research. For example, it is possible that norm-deviating behavior is driven by specific interests (see e.g. Miller, 2020), reactance (Imhoff et al., 2018; Marinthe et al., 2020) against the authoritative nature of social norms, or the result of a different perception of the majority (Weinschenk et al., 2021) fueled by exposure to (belief) congruent messages on social media platforms (Luzsa & Mayr, 2021). Overall, it seems worthwhile to look into social and contextual cues to examine deviant behaviors of individuals believing in conspiracy theories (Pummerer, 2022).

One strength of the studies is the inclusion of different scenarios, different samples, and different forms of conspiracy beliefs. However, there are also limitations. One limitation seems to be that three of the five scenarios included the building of a tunnel. Given that specifically these scenarios showed a slightly negative correlation between conspiracy beliefs and majority influence, it might well be that there was something about the scenario or tunnels producing this tendency. For example, it might be possible that this tendency was driven by conspiracy theories involving the alleged capture of children in underground bunkers, included in theories alleging deep state and QAnon (Kolankiewicz, 2020). This tendency was not found in other scenarios and, accordingly, also not in the meta-analysis, emphasizing the importance of replications and the usage of different scenarios. Another limitation is that all our studies relied on information of the opinion of the majority administered by text only, where a deviation from the majority had little (social) consequences. While such an approach is typical for examining the influence of majority and minority opinions (e.g. De Dreu & De Vries, 1996; Martin et al., 2002), future studies should also test these effects in group settings such as during the studies of Solomon Asch (e.g. Asch, 1955) or involve decisions that are consequential for participants.

Overall, our studies show that conspiracy beliefs do not moderate the effect of a majority (vs. minority or different majority) opinion on attitudes or behavioral intentions regarding a given issue, and overall report no relation between higher conspiracy beliefs and a generally lower susceptibility to majority influence or a higher susceptibility to minority influence, hereby ruling out one explanation for the link between conspiracy beliefs and behavioral intentions deviating from the mainstream, and supporting the idea that individuals higher in conspiracy beliefs are also subject to social influence by the environment.

Notes

1. Preregistrations change in this regard, with some preregistrations featuring the main hypothesis for both scales (Study 3), or only the belief in specific conspiracy theories (Study 1, 2 and 4), or only conspiracy mentality (Study 5), while the other concept is mentioned as exploratory analysis.
2. For Study 1: https://aspredicted.org/7qr9k.pdf, Study 2: https://aspredicted.org/8nz24.pdf, Study 3: https://aspredicted.org/hr3wx.pdf, Study 4: https://aspredicted.org/wp69c.pdf, Study 5: https://aspredicted.org/en4we.pdf. They are also included at https://doi.org/10.23668/psycharchives.15211.
3. We checked whether conspiracy beliefs differed between scenarios (potentially indicating that the scenario affected conspiracy beliefs) for those studies in which conspiracy beliefs were measured after the experimental manipulation (Studies 1,2,4 and partly 5). This was not the case for any of these studies. For more details, see Supplementary Materials.
4. Here and throughout the manuscript, we use the term "higher in conspiracy beliefs" in relative terms, meaning higher compared to other people in the sample. For the belief in specific conspiracy theories, this might still refer to a score below the midpoint of the scale.
5. The attentive reader might note that this categorization is not unequivocal, as participants might have tried to infer the minority opinion from the percentages. The categorization as studies testing majority influence is, thus, based on the information that we presented to the participants.
6. Transformation into r is only advised for beta weights between −.50 and .50 (Peterson & Brown, 2005)
7. While Biddlestone et al. (2022) report an overall correlation of $r = .10$ (uncorrected), it is not supported by Bayes analyses, rendering this result somewhat speculative, and at least not clearly confirmative of a relation between those concepts.

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Publication ethics

Informed consent was obtained from all participants included in the study. All procedures in studies involving human participants were performed in accordance with the ethical standards of the institution's Human Research Ethics Committee (reference LEK 2019/036).

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