



Commentary

Are conspiracy beliefs a sign of flawed cognition? Reexamining the association of cognitive style and skills with conspiracy beliefs

Throughout human history, political leaders, oppositional forces, and businesspeople have frequently coordinated in secret for their own benefit and the public's disadvantage. In these cases, conspiracy theories are capable of accurately describing our environment. However, the vast majority of research today operationalizes conspiracy theories as irrational beliefs that contradict our everyday knowledge. It is not surprising, then, that belief in implausible conspiracy theories has been associated with suboptimal information processing. To get a richer understanding of the phenomenon, we argue that researchers should have this limitation in mind when designing future studies.

Authors: Roland Imhoff (1), Tisa Bertlich (1)

Affiliations: (1) Social and Legal Psychology, Johannes Gutenberg University Mainz, Germany

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Are all conspiracy theories necessarily wrong?

Public understanding of conspiracy theories often expects them to be false, sometimes bizarre claims that run counter to the available evidence. Prominent examples such as the idea of political leaders being shape-shifting reptilians (lizard people) or the claim that the earth is flat have certainly added to this stereotype. However, this everyday understanding may not do justice to the phenomenon, as some conspiracy theories are clearly less problematic than others (for a philosophical demarcation of problematic and unproblematic conspiracy theories, see Cassam, 2019; Jaster, 2023). Undoubtedly, humans have the capacity to conspire, to plot in secret for their own advantage and the public's disadvantage (Imhoff & Lamberty, 2020). To highlight only some examples, most people would agree that the NSA PRISM program actually *did* secretly surveil electronic communication as exposed by Edward Snowden or that Mohamed Atta and his co-plotters *did* indeed secretly plan to hijack passenger planes and fly them into the World Trade Center and Pentagon on 9/11. These examples show that there is good evidence that sometimes groups of people do conspire, i.e., act out malevolent plans in secret. Arguably, however, there have not been prior conspiracy theories suspecting these actions that were then validated by the evidence. Other suspicions, however, have circulated as conspiracy theories before it had been

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exposed to be true. As only one example, in the 1960s, suspicions arose among different political activists in the United States that the U.S. government would infiltrate and undermine their movements. As it turned out, the U.S. government indeed tried to discredit political activists as part of the infamous COINTELPRO (Counterintelligence Program). It was exposed after members of the so-called “Citizens’ Commission to Investigate the FBI” stole evidence from an FBI field office and shared it with the press. Some researchers have gone one step further and theorized that suspecting conspiracies could have developed as an adaptive evolutionary mechanism that helped humans survive dangerous outgroup coalitions (van Prooijen & van Vugt, 2018). The resulting question, then, is whether researchers restrict their definition of conspiracy theories to those that are indeed “epistemically risky—that is, inherently prone to being false,” (Douglas & Sutton, 2023, p. 284), “typically false” (Pierre, 2020, p. 617), or “epistemically unwarranted beliefs” (Lobato et al., 2014, p. 617). We have argued elsewhere in more detail that the focus on implausible conspiracy theories might introduce both pragmatic and epistemic difficulties (Imhoff & Lamberty, 2020). For example, if researchers were to define conspiracy theories as counterfactual, they would first have to establish ground truth before classifying a statement as a conspiracy theory. Finding ground truth, however, is complicated and sometimes impossible. Against this background, it seems reasonable to exclude the issue of veracity from the definition of a conspiracy theory, making it a more inclusive term for both suspicions about conspiracy theories that have evidence in their favor and those that do not.

Once we accept this basic premise, it necessitates a reexamination of the psychological literature. If researchers primarily measure conspiracy beliefs as the general tendency to endorse suspicions about secret malevolent actors by almost exclusively tapping into the agreement with problematic (i.e., empirically not well-supported) conspiracy theories, they effectively confound conspiracy beliefs with the tendency to agree with empirically unsupported claims. In effect, we cannot know whether the respondents’ variance in agreeing with a statement is due to its conspiracy rhetoric or due to its truth status or plausibility. While this is less problematic from an applied perspective (research trying to understand the antecedents of problematic conspiracy beliefs), it has its pitfalls for the basic research goal of understanding the specificity of conspiracy belief—independent of its real-world overlap with wrong beliefs.

Conspiracy beliefs and cognitive abilities reexamined

Given that conspiracy beliefs are frequently explained with cognitive variables, the tendency to base research on empirically unsupported claims is particularly problematic. Research has provided support for the notion that conspiracy endorsement results from less analytical thinking (Swami et al., 2014, but see Većkalov et al., 2024 for failed replications) and that conspiracy theories are particularly endorsed by people low in cognitive reflection, analytic or actively open-minded thinking, and high in intuitive thinking (for an overview see Binnendyk & Pennycook, 2022). Meta-analytically, there seems to be a robust negative relationship between conspiracy beliefs and cognitive abilities (Stasielowicz, 2022), so there may remain little doubt that low cognitive efforts or skills are to be blamed for conspiracy beliefs. Keeping in mind that most studies employ factually problematic conspiracy theories, these research outcomes call into question whether people low in cognitive sophistication really see the world as governed by secret forces or, to put it bluntly, whether they simply agree with any “bullshit” (e.g., as measured by the bullshit receptivity scale; Pennycook et al., 2015).

Recent research from our lab indeed suggests that cognitive skills and thinking styles are associated with the endorsement of conspiracy theories regarded as extremely implausible but not with the endorsement of those regarded as plausible (Frenken et al., 2024). To investigate the differential patterns of implausible and plausible conspiracy theories, we conducted a pilot study. As a first step, we asked

participants to rate a range of (fictitious) conspiracy theories in terms of plausibility. As a result, we identified three conspiracy theories that participants perceived as rather plausible and three conspiracy theories that participants perceived as rather implausible (see Table 1 for examples).

Table 1. *Examples of the plausible and implausible conspiracy beliefs used in Study 1 (Frenken et al., 2024).*

Plausible	Implausible
The shadowy organization “New Horizon” uses advanced AI technology to manipulate public opinion and influence the outcomes of elections, although their ultimate goals remain unclear. This includes spreading disinformation and propaganda through social media and other online platforms, as well as targeting specific demographics with personalized content.	The Lumarian government, facing declining support, staged a false flag terrorist attack on a crowded train station with the help of its intelligence service. As the election approached, tensions rose and the government used fear to rally the population against a perceived terrorist threat in order to maintain its grip on power.

In the subsequent study (Study 1), a new sample of participants rated their agreement with the implausible and plausible conspiracy theories identified by the pilot study and answered questions to assess their cognitive skills and dispositions. The implausible theories were more strongly endorsed by participants who performed worse on the cognitive reflection test (a measure for analytic thinking), who more readily agreed with pseudo-profound bullshit, and who self-reported a less rational, but more experiential thinking style. Notably, none of these variables were associated with the endorsement of plausible conspiracy theories. This study may be limited by the reliance on pilot-testing the plausibility of (fictitious) conspiracy theories. It cannot be excluded that the correlational patterns might be due to other characteristics that differ between the plausible and implausible conspiracy theories.

To address this shortcoming, in Study 2, we experimentally manipulated the plausibility of a conspiracy theory in a belief-updating task. Participants were confronted with an event and a series of explanations for the event. One of the explanations was a conspiracy theory. Over three trials, either the conspiracy-based explanation or a non-conspiracy-based explanation was backed by corroborating evidence. The additional evidence led to two conditions, one in which the conspiracy-based explanation became rather plausible because it was backed by evidence, and one in which the same explanation became rather implausible because it was not backed by evidence (as the provided evidence supported a non-conspiracy-based explanation). Endorsement of the theories that were made implausible by the evidence showed a similar correlation pattern as the implausible conspiracy theories in Study 1 (positive association with pseudo-profound statements, also called “bullshit receptivity,” and negative correlation with rational thinking), but endorsement of the conspiracy theories that were made plausible by the evidence was not associated with the cognitive variables. Together, these findings strongly support the idea that the frequently reported and meta-analytically robust association of conspiracy beliefs with cognitive skills and styles may be an artefact of measuring conspiracy beliefs only with conspiracy theories that are of low veracity or plausibility.

In another recent research project in our lab (Bertlich & Imhoff, 2024), we reexamined the connection between the endorsement of democratic principles and a measure of rather implausible conspiracy beliefs reported previously (Swami et al., 2010). Previous research showed that support for democratic principles is associated with conspiracy beliefs if measured using the generic conspiracy belief scale (GCBS; Brotherton et al., 2013) but not if measured using the conspiracy mentality questionnaire (CMQ; Bruder et al., 2013, see Stojanov & Douglas, 2022). It could be argued that the GCBS measures rather implausible conspiracy beliefs as it refers to ideas and technologies that contradict available evidence (e.g., claiming

that alien life or mind-control technologies exist). The CMQ, on the other hand, is a less specific measure and could entail plausible as well as more implausible conspiracy beliefs (e.g., claiming that many important things happen in society that the public is not informed about). The question that followed, thus, is whether support for democratic principles is related to an inherent quality of conspiracy beliefs (in the sense that a conspiracy mindset triggers disregard for democratic principles), or whether it is related to any kind of implausible belief (in the sense that people who indicate agreement with implausible statements also indicate agreement with a disregard for democratic principles, potentially because they just lack intellectual sophistication). To probe this idea, we conducted an additional study in which we measured support for democratic principles as well as conspiracy beliefs using the rather implausible GCBS. We found that people who indicated more statements from the GCBS to be true were less likely to support democratic principles. What yet another follow-up study showed, however, was that if we statistically controlled for believing in other, non-conspiracy-related implausible statements, the relationship between conspiracy beliefs and support for democratic principles collapsed. If the relationship between conspiracy beliefs and support for democratic principles was due to an inherent quality of conspiracy beliefs, we should have been able to observe a relationship between the two variables even when we controlled for other implausible beliefs. However, the fact that the relationship between conspiracy beliefs and support for democratic principles collapsed indicates that the association between democratic principles and conspiracy beliefs might not be a unique feature of conspiracy beliefs, but an association with (any) unwarranted beliefs: People who have a hard time differentiating implausible from plausible statements also have a hard time seeing the value in democratic principles.

Decontaminating measures for conspiracy beliefs?

Our findings reveal the importance for conspiracy research to apply measures that capture belief in both plausible and implausible conspiracy theories. One avenue might be to measure endorsement of conspiracy beliefs in a way that is less confounded with accuracy or plausibility. Another particularly popular approach is to increase the levels of abstractness (and vagueness) of the statements that participants must rate to measure conspiracy beliefs. Statements like, “there are secret organizations that have great influence on political decisions” or “most people do not see how much our lives are determined by plots hatched in secret” have been employed to measure individuals’ *conspiracy mentality*, or their general propensity to see the world as governed by secret plots (Imhoff & Bruder, 2014). These statements are neither *prima facie* right or wrong, nor can they be empirically falsified (or supported) straightforwardly. As such, the hope is that correlations with conspiracy mentality would be less plagued by contamination with cognitive variables.

Our initial hope, however, that the more abstract measure of conspiracy mentality would remedy this issue was not fully supported. Frenken et al.’s paper (2024), mentioned above, showed that conspiracy mentality was indeed positively associated with the endorsement of plausible as well as implausible conspiracy theories. Problematically, the association between conspiracy mentality and implausible beliefs was somewhat stronger than with plausible conspiracy beliefs. More problematically, conspiracy mentality also showed associations with the cognitive variables of cognitive reflection, bullshit receptivity, and rational and experiential thinking (see also Binnendyk & Pennycook, 2022). In other words, conspiracy mentality was also, though more weakly, associated with believing wrong stuff.

One way to look at this data is to contextualize it. Both studies were conducted in Germany, with German samples. On the one hand, claims like “Politicians and other leaders are nothing but the string puppets of powers operating in the background,” are more vague than specific conspiracy theories and hence in less clear contradiction to the factual world. On the other hand, an argument could be made that contexts vary in the degree to which such a statement corresponds with the state of affairs and for most

liberal democracies (including Germany), this claim is not well aligned with how political decisions are made. This might be different in contexts more plagued by intransparency or corruption. In highly corrupt countries, a pronounced conspiracy mentality is typically more prevalent than in less corrupt countries (Alper, 2023; Alper & Imhoff, 2023), arguably because there can be greater truth to the individual statements measuring the construct in such contexts (Imhoff, 2022). In contexts where a great deal of political decisions are made intransparently, more people will agree with statements scandalizing that decisions are taken secretly behind closed doors—and rightfully so. This pattern invites the prediction that the association between conspiracy mentality and cognitive variables should attenuate or even reverse in contexts rich in valid cues of deception and secrecy. In highly corrupt contexts, it is reasonable to suspect corruption and malicious intent. Future research should thus investigate the relationship between conspiracy mentality and cognitive variables across countries with differing levels of state corruption.

Conclusion

In large parts of public discourse, conspiracy theories are portrayed as inherently prone to being wrong. We argued that this may be true for a specific subclass of “problematic” conspiracy theories. Applying a minimal definition of conspiracy theories as theories about the occurrence of a conspiracy quickly reveals that there are instances in which conspiracy theories seem rather plausible or even turn out to be true. If accuracy is not a defining feature of conspiracy theories, however, it becomes important not to confound them on the empirical level.

Much research so far has operationalized conspiracy beliefs in a way that mainly captures those beliefs that contradict evidence or that seem implausible, thereby entangling them with believing in unfounded ideas in general. This has the advantage that this research is about the conspiracy theories that people actually care about—those that are probably false and come along with social costs. Such results thus lend themselves more easily to the application of the generated knowledge to the real-world social issue of conspiracy disinformation.

Despite its practical value, this strategy has two disadvantages on the conceptual level. First, it makes the finding that believing in purely unfounded conspiracy theories is related to lower cognitive abilities somewhat trivial: Less cognitively sophisticated people more readily believe wrong statements. It ends up being a proof of concept but might not teach us anything about conspiracy beliefs specifically. A second downside is that even correlations between conspiracy beliefs and other variables not related to cognitive abilities may be driven by both variables’ association with low cognitive sophistication, again introducing ambiguity to whether we learn anything about conspiracy beliefs or just about agreeing with questionable statements. Future research should therefore either explicitly restrict theoretical reach to conspiracy theories in the sense of inherently unwarranted beliefs (and justify this limitation) or employ measures that capture the variety of conspiracy theories.

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