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Review

Lay standards for reasoning predict people's acceptance of suspect claims

Tomas Ståhl¹ and Corey Cusimano²**Abstract**

People vary between each other and across contexts with respect to how important it is to them to think in logical, impartial, and evidence-based ways. Recent studies demonstrate that this variation in people's personal standards for thinking predicts the nature and quality of their beliefs. Strong commitments to epistemic virtues motivate careful thinking and protect people from suspicious claims. At the same time, people are more likely to knowingly hold biased or evidentially unsupported beliefs when they think that they are justified to think in biased or evidentially poor ways. People's personal standards for reasoning likely play an important role in shaping how suspect or unreasonable information is received.

Addresses¹ University of Illinois Chicago, USA² Yale School of Management, USACorresponding author: Ståhl, Tomas (tstahl@uic.edu)**Current Opinion in Psychology** 2024, 55:101727This review comes from a themed issue on **The Psychology of Misinformation 2024**Edited by **Gordon Pennycook** and **Lisa K. Fazio**For a complete overview see the [Issue](#) and the [Editorial](#)

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Introduction

A striking observation from recent research on misinformation is that people sometimes accept news that is not just false, but seemingly obviously so. Infamous examples include claims that Donald Trump's chef quit in protest after Trump ate exclusively fast food for six months, or that Hillary Clinton knowingly accepted a \$30,000 donation from a child sex cult [1]. These claims are *epistemically suspect* in the sense that they are inconsistent with the evidence readily available to most people who would encounter them. Whether or not these claims were true, someone thinking about them

rationally, considering everything they know, should be suspicious of them. Our approach to understanding people's susceptibility to misinformation focuses on why people sometimes form (and hold on to) epistemically suspect beliefs. Our central argument is that people's standards for reasoning, including the importance they place on being rational, logical, and open-minded, affect their tendency to accept epistemically suspect or irrational beliefs.

Reflecting on and critically appraising claims that diverge wildly from one's background knowledge often reveals why those claims are likely to be false. It is therefore not surprising that people who are more inclined toward these activities, or are forced to reflect or critically appraise claims, are less susceptible to outlandish misinformation, conspiracy theories, and paranormal and superstitious claims [2–12]. But what motivates people toward a tendency to question claims or seek out and reflect on evidence? And, when might people feel motivated to question a suspect claim when they aren't being induced by an experimenter to do so? We contend that people variably engage good epistemic practices as a result of their own, internal, and consciously accessible, standards for what constitutes good, responsible belief formation.

Lay “ethics of belief”

People's “ethics of belief” reflect their judgments about how they and others ought to reason and form beliefs [13,14]. A central concern in people's ethics of belief regards how much weight they give *epistemic values*, such as how much they care about *acquiring knowledge* and *avoiding falsehoods*, and which invoke injunctions to be open-minded, impartial, consistent, and logical, and support their beliefs with evidence [13,15,16]. We contend that people reason in certain ways, and accept (or not) certain beliefs, based in part on the weight and importance they place on epistemic values. Below we review two sources of variation in the importance that people place on epistemic value, and as a result, their motivation to reason in open-minded, impartial, and evidence-based ways. First, although many people pay lip service to epistemic values, there are substantial individual differences in the importance that people place on these values. And second, people sometimes face dilemmas between believing in ways that prioritize epistemic

values versus non-epistemic values. In these situations, people self-consciously try to adopt epistemically irrational or biased beliefs.

Correlates of individual differences in people's ethics of belief

People differ in the value they place on effortful thinking [17], active open-mindedness [18,19], and logic and evidence [20,21]. These individual differences correlate with people's tendency to believe epistemically irrational claims. For instance, people who especially value open-minded thinking are less prone to a host of errors and biases [3,15,19,22–27]. And, people who especially value logical and evidence-based reasoning tend not to hold paranormal, superstitious, conspiratorial, or religious beliefs [20,21,28]. Norms about what counts as evidence are similarly predictive of people's beliefs. Highly religious individuals are more likely to say that intuition counts as a source of evidence, and to say that beliefs could be justified simply because they encourage morally good behavior [29]. These individuals were also less likely to believe in evolution.

The weight that people give to epistemic norms like “follow the evidence” may be a stronger predictor of their acceptance of science compared to other individual differences, such as their tendency to reflect [24]. This may be because measures of reflective thinking primarily assess the *amount* of thinking one is liable to do, whereas measures of epistemic values invoke people's beliefs about *how* they should think (e.g., open-mindedly [19]). Indeed, prompting people to be especially cognizant of the accuracy of a claim may make them think more rationally without necessarily making them think more [30].

Valuing strict and sophisticated epistemic standards seems to improve reasoning by motivating people to marshal their capacity to detect suspect and unreasonable claims [15]. Consistent with this idea, individual differences in cognitive ability (and reflective thinking) more strongly associate with rational skepticism among people who ascribe especially high value to logic and evidence [20,31]. Likewise, reflective thinking more often leads to epistemically rational belief among people who especially value epistemically good reasoning [32]. Indeed, prompting people to think about the value of being “rational” strengthens the connection between their cognitive ability and their susceptibility to unreasonable claims [33]. Additional evidence comes from studies that interfere with people's opportunity to marshal their cognitive ability. People who tend not to value epistemic rationality also tend to accept bullshit statements whether they read them normally or under cognitive load. By contrast, people who value epistemic rationality are more likely to accept bullshit statements under cognitive load (compared to when they could reason normally) [34].

Epistemic values may also relate to how people evaluate other's credibility. People often have to defer their judgment to others — including news organizations, pundits, and local rumor-mongers. One role for people's ethics of belief is to guide how they interpret information from others, and to trust (or attempt to change) others claims accordingly. People who think that it is important to engage in actively open-minded thinking discount sources who think close-mindedly [19]. People who tend to value good epistemic practices tend to be more trusting of objectively more reliable sources (like scientists). For instance, bullshit statements generally seem more credible when coming from a scientist compared to a spiritual leader [35] and this difference is especially pronounced among non-religious people and people who value science [34,35]. However, there is still little work investigating the connection between people's ethics of belief and their evaluation of news sources. And recent evidence suggests that, in some cases, people's ethics of belief do not moderate the impact of source credibility on acceptance of suspect claims [34].

Moral and instrumental benefits intuitively justify departures from evidence

Beliefs can vary in their *epistemic* quality, such as how well they are supported by an impartial weighing of evidence, as well as their *non-epistemic* quality, such as how useful, loyal, or risky they are. Recent studies show that people generally attend to both the epistemic and non-epistemic qualities of beliefs and think that they and others are justified to hold beliefs that are epistemically suspect when the non-epistemic benefits of belief seem high [14].

For instance, people believe that over-confidence, one-sided thinking, and positivity illusions, are justified when they are instrumentally and morally beneficial to their believers [29,36–39]. One study shows that people believe that confidence helps sustain motivation, and so, helps people achieve their goals [38]. And accordingly, people routinely think that, when someone is trying to achieve something, they ought to be overconfident. People also think that overconfidence is especially valuable in close relationships: In one study, participants rated someone's pessimistic-but-clear-eyed view of their marriage as less justified compared to when that person held a rosy, unrealistic belief [36].

People likewise sometimes think that people ought to ignore evidence when doing so would be respectful or would signal the right kinds of commitments [36,40,41]. So, for instance, many people (but especially liberals) think that others ought to ignore base rate information about minorities when judging whether that person is dangerous or will act selfishly [36,42,43]. Likewise, religious individuals often want their religious peers to avoid questioning or inquiring into their religious beliefs [42,44]. Observers enforce these belief norms: People by

and large think that others can choose what they believe and blame others for holding bad beliefs (even when those beliefs are supported by evidence) [20,45,46].

Even people who normally endorse epistemically rigorous thinking may think that epistemically irrational beliefs are occasionally justified. Indeed, the same people who endorsed morally desirable motivated reasoning in the studies above thought that run-of-the-mill motivated reasoning (i.e., reasoning motivated by mere hedonic wishful thinking) was unjustified [36]. Furthermore, people who normally value actively open-minded thinking, and who normally derogate others who reason one-sidedly, still thought well of someone who engaged in one-sided thinking about their relationship [19]. Overall, it seems like many people endorse impartial, evidence-based reasoning up until it is morally inconvenient to do so [40].

These judgments about when, and on what grounds, people can permissibly hold biased or motivated beliefs predict what kinds of beliefs people are likely to hold. People can hold beliefs despite thinking that those beliefs are illogical or thinking that they cannot back them up with evidence [47–49]. These beliefs do not automatically change in the face of good epistemic reasons to do so, but may only change when people feel especially motivated to correct them. Consistent with this line of reasoning, one recent study found that people are most likely to hold beliefs that (they think) they lack evidence for when those beliefs seem morally valuable [37]. In this study, many people reported believing in God or believing that climate change could still be undone. These individuals also thought that they could not back these beliefs up with evidence, but instead, felt justified in holding these beliefs because they thought it motivated them to be better people.

Subjective feelings of justified due diligence

Beliefs also vary with respect to how much evidence they require before someone thinks they have *sufficient* evidence for them. When the stakes are especially high, people think that they should set an especially high threshold for evidence before accepting a claim [36,50–52].¹ This element of people's everyday ethics

¹ The pattern of reasoning described in this section is distinct from a closely related one, namely, requiring greater evidence to believe evidentially incongruent (compared to evidentially congruent) claims. People may rationally disregard evidence for claims when they have strong prior evidence that those claims are wrong. In such cases, it is more likely that the evidence is flawed than that it overrides one's evidence to the contrary [53,54]. So, when two people receive the same new information, there are at least two reasons why one person might accept the new information while the other does not: First, the new information might be incongruent with one person's prior evidence but not the other person's (i.e., the reason discussed here in this footnote). And second, one person might think that accepting the new evidence is especially risky while the other person does not, even if the new information is equally congruent with both individuals' prior evidence (the reason discussed in the main text).

of belief reveals a challenge in changing how people confront new information. It has long been recognized that people hold undesirable claims to stricter scrutiny compared to desirable ones [50,55,56]. This tendency to shift one's standard of evidence in response to desirable and undesirable new information is often interpreted as a form of biased and motivated reasoning [55,56].

Subjectively, however, this reaction to new information may often feel to people as though they are simply engaging in proper due diligence. In other words, applying double standards to new information may feel to people like they are doing something legitimate, such as resisting jumping to risky conclusions. Likewise, when people quickly accept new ideas based on flimsy evidence, they may think that it is permissible to do so because the stakes of the issue are low or the risks of non-acceptance are high. Accordingly, people may not scrutinize desirable (or politically congruent) claims because they think that the costs of being wrong are low. And likewise, they may especially scrutinize undesirable (or politically incongruent) claims because they think the costs of being wrong are (now) high. These people are apportioning their capacity to be savvy, critical reasoners in a biased way, all the while knowing that they are doing so, and all the while thinking that they are thinking as they ought to.

Recent evidence suggests that, when people accept or reject new scientific information, they may do so while self-consciously incorporating their impressions about the risks of error. In one investigation [37], participants read about a scientific study showing evidence for a claim that they found risky or offensive (e.g., “Black people tip less than white people” or “Puberty suppressants improve psychological functioning in teens with gender dysphoria”). Participants accepted and rejected these claims while self-consciously knowing that they did so in part because of their judgments about how risky it felt to accept (or reject) them. However, they did not think that it was inappropriate to incorporate their moral judgments into their scientific ones in this way.

Future directions

The research reviewed here examines people's tendency to attend to both the epistemic and non-epistemic features of belief when determining what they ought to believe. Research on this topic is still in its infancy, and many questions remain.

Even people who reject illogical, partial, or epistemically irrational reasoning in some domains endorse these forms of reasoning in others. And, as reviewed above, there are substantial individual differences in people's ethics of belief. People who are more open to experience [57], more liberal [58], and less religious [28,59], tend to endorse virtues related to actively open-minded

thinking. These observations raise the question: Why do people endorse epistemically rational reasoning (when they do)? Common scales that measure people's dedication to open-minded thinking or evidence-based reasoning (e.g. Refs. [19,20,28]) do not tell us. People may value evidence and open-mindedness because they think that knowledge and understanding are intrinsically valuable, because they think that accurate beliefs are instrumentally valuable, or for other reasons (see Refs. [13,14] for discussion).

A closely related question concerns how people develop their internal standards for good reasoning [15]. Children endorse norms of actively open-minded thinking more strongly as they age [27,60]. By the time they are adolescents, they tend to strongly endorse explicit epistemic virtues like openness to disagreement and intellectual humility [61]. But why do children and adolescents endorse these virtues, and what role does education play in nurturing these virtues? Overall, we know little about the process through which epistemic virtues develop, or about their level of malleability once formed. Understanding why people believe that open-minded and evidence-based thinking is valuable may help predict when people will devalue epistemically desirable thinking, and potentially as a result, become more susceptible to suspect claims. Likewise, learning why people value epistemic virtues (when they do) is important for understanding how to increase the value that they place on these virtues when they are prone to devalue them [14].

Finally, although we have argued that it is important to learn more about the origin and malleability of people's ethics of belief, changing people's ethics of belief may not be the most cost-effective way to change how they think. We have reviewed evidence that people's standards for reasoning often predict good judgment. However, much of this data is correlational — there is no work to date showing that interventions that increase people's valuation of epistemic virtues result in better judgment. Likewise, in everyday contexts, it is unclear how often people are aware that their beliefs are epistemically irrational [62,63]. Many biases operate unconsciously, and some people may generally be worse at monitoring and understanding their thinking relative to others. If most of the cases in which people accept epistemically suspect misinformation are cases in which they thought that they were being perfectly rational, then interventions to change people's ethics of belief may have limited impact. Likewise, doubts remain about how effectively people regulate their beliefs to align with their standards (see discussion in Ref. [64]). People may adopt beliefs that fail to satisfy their personal standards of belief but maintain them anyway [47,49]. In these scenarios, modifying people's standards for belief will have limited impact.

A full account of people's susceptibility to misinformation needs to consider a large catalog of variables, including but not limited to the nature and supply of misinformation, people's cognitive capacities, people's metacognitive awareness of their reasoning, and people's ability to adopt the beliefs they want to adopt. However this complete account turns out, we suspect that there will be an important place for people's lay ethics of belief.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

No data was used for the research described in the article.

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