

Deliberative thinking protects against the decay of corrections to misinformation

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Abstract

Corrections to misinformation can decay over time. Using the framework of dual process theory, we hypothesized that corrections would decay less for people who are more deliberative, compared to more intuitive thinkers. Across two studies, we found that less deliberative thinkers had more inaccurate beliefs at baseline, and showed more decay of corrections (but not affirmations) over time. Thus, corrections were least effective for those who need them most.

Introduction

The most straightforward response to falsehoods is to fact-check and debunk them. However, a few decades of research have found that corrections, even when believed and remembered, can lose effectiveness over time (e.g. Seifert 2002). Here, we examined the decay of corrections through the framework of dual process theory. Prior work has found that individuals who rely more on automatic, intuitive reasoning (system 1) are less likely to update their beliefs in response to new information (Tappin et al. 2020), and more likely to “fall” for false news (Pennycook & Rand 2019), than those more reliant on analytical, deliberative reasoning (system 2). Thus, we hypothesized that corrections to misinformation would be more effective among more deliberative thinkers.

References

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Methods

We conducted Study 1 in a behavioral research lab ($n = 102$ enrolled university students), and replicated it with Study 2 on Amazon Mechanical Turk ($n = 818$). Following the procedure in Swire et al. (2017), participants rated their belief in a set of statements (half facts, half myths) on a 0-10 scale, then read an explanation for whether each statement was a fact or myth (a correction for a myth, or an affirmation for a fact). Participants then rated their belief in all of the statements a second time, and again after a 12hr interval (Study 1 only) and one week later. Cognitive style was measured with a 7-item version of the Cognitive Reflection Test (CRT; Frederick 2005), for which a higher score corresponds to more deliberative reasoning.

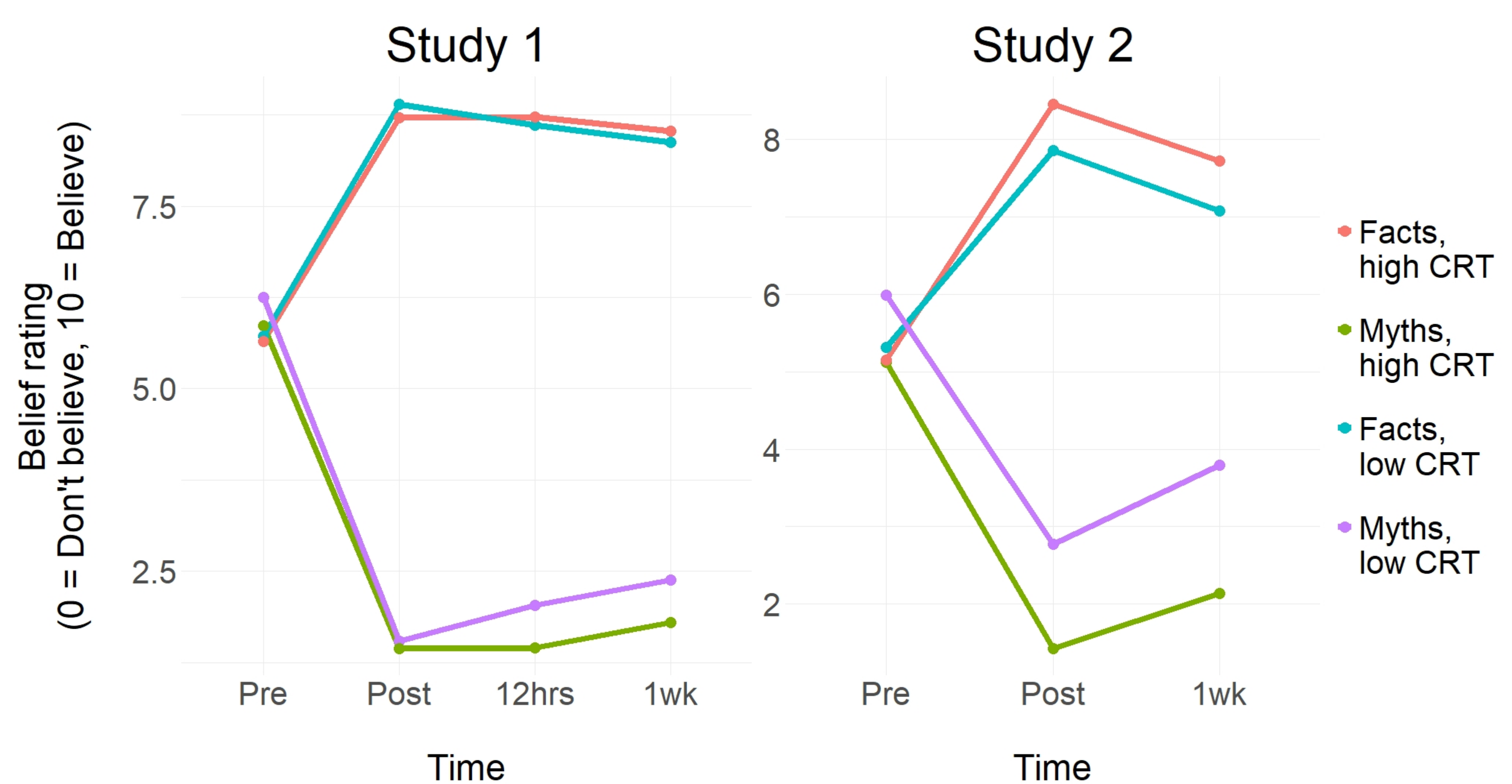


Figure 1: Participants rated their belief in each statement prior to receiving explanations (Pre), immediately after the explanations (Post), 12 hours later (12hrs; Study 1 only), and 1 week later (1wk). "High CRT" refers to participants whose CRT score was at or above the median score for the study; "low CRT" refers to participants whose score was below the median.

Results and Discussion

Analyses were done at the level of the statement, predicting change in belief correctness from immediately post-explanation to one week later using linear mixed effect models with crossed robust intercepts for subject and statement. CRT scores predicted baseline belief correctness in both studies, and thus we controlled for it in our analyses (Study 1: $\beta = .03$, $p = .012$; Study 2: $\beta = .20$, $p < .001$).

Between the post-explanation ratings and the one-week-later ratings, belief in myths increased less among those who scored higher on the CRT, indicating less decay of corrections among those with deliberative cognitive style (Study 1: $\beta = -.26$, $p = .003$; Study 2: $\beta = -.14$, $p = .018$). The interaction between myth/fact and CRT was also significant for Study 1, though not for Study 2 (Study 1: $\beta = .17$, $p = .027$; Study 2: $\beta = .11$, $p = .131$). Conversely, change in belief in facts was unrelated to CRT score.

These results suggests that deliberation may be associated with less belief in false statements (Pennycook & Rand 2019) due to a more long-lasting impact of corrections. Additionally, because more intuitive thinkers are more likely to believe misinformation in the first place, the greater decay of corrections for more intuitive thinkers that we observe here is particularly problematic. Even if corrections reach those most in need, they are less likely to stick. This underscores the need for strategies beyond corrections to combat misinformation.