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Wishful Thinking: Belief, Desire, and the Motivated Evaluation of Scientific Evidence

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What people believe to be true and what they wish were true can be quite different. One way to resolve conflicts between belief and desire is to engage in biased reasoning in a way that brings beliefs about facts in line with heartfelt desires. Indeed, considerable research has documented ways in which people evaluate evidence in a biased manner in order to reach a particular conclusion (Kunda, 1990). For instance, classic work on biased assimilation indicates that people whose political convictions are inconsistent with the findings of scientific studies derogate the methodology of such studies (Lord, Ross, & Lepper, 1979). However, the question of whether such bias in reasoning is due to the motivation to reach a particular conclusion or to purely cognitive factors, such as preexisting theories, expectations, and beliefs, remains an important theoretical issue (Ditto & Lopez, 1992; Dunning, Leuenberger, & Sherman, 1995; Kunda, 1990; Pyszczynski & Greenberg, 1987; Sherman & Cohen, 2002; Tetlock & Levi, 1982).

In the present study, we examined whether desires would trump beliefs based on facts when participants evaluated scientific evidence and whether, after being exposed to ambiguous evidence, participants would change their initial beliefs to conform to their plans and desires. We focused on would-be parents who planned to use day care for their children even though they believed day care to be inferior to home care. Such conflicted individuals, despite their initial belief that home care is superior, should desire to conclude that day care is just as good for children as home care.

Method

Participants

Thirty-six participants were recruited for the study on the basis of their responses to a preselection survey. All had indicated that they believed home care is superior to day care (scale from 1, *day care far superior*, to 9, *home care far superior*) and that they were very likely to have children in the future. The *conflicted* group (n = 18) consisted of participants who had indicated an intention to use day care for their own children in the future and were therefore motivated to discover that it was as good as home care. The *unconflicted* group (n = 18) consisted of participants who had indicated an intention to use only home care and were therefore motivated to discover that it was superior to day care. The two groups did not differ significantly in their initial beliefs about the relative efficacy of the two types of care (conflicted group: $M = 7.72$, $SD = 0.75$; unconflicted group: $M = 7.89$, $SD = 0.76$), $t < 1$.

Materials and procedure

Child-care studies. Participants were given descriptions of two fictional studies, which we called the Thompson and Cummings studies. In the Thompson study, children were randomly assigned to either day care or home care. In the Cummings study, children in day-care and home-care groups were statistically matched on several relevant variables. Half of the participants were led to believe that the results of the Thompson study favored day care and the results of the Cummings study favored home care; the other half were led to believe the opposite.

Evaluations of studies and changes in beliefs. After reading the studies, participants first indicated which of the two research designs they thought would provide more valid conclusions (scale from 1, *random assignment much more valid*, to 9, *statistical matching much more valid*). They then listed what they perceived to be the strengths and weaknesses of each research design; the score for this measure was calculated as the ratio of the number of strengths listed to the number weaknesses listed. Participants also indicated how convincing or valid each study seemed overall (scale from 1, *extremely unconvincing/invalid*, to 7, *extremely convincing/valid*). Scores on these three outcome measures were standardized and averaged into a reliable *evaluations of studies* composite measure (α = .74). Finally, as in the preselection questionnaire, participants indicated which form of care they

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believed would have better overall effects on the development of their children.

Results

Evaluations of studies

A 2 (study results: Cummings study supports day care vs. Cummings study supports home care) × 2 (participant group: conflicted vs. unconflicted) ANOVA revealed a significant interaction effect, $F(1, 32) = 5.16$, $p = .03$ (see Fig. 1). Unconflicted participants, who initially believed that home care was superior and intended to use it for their own children, evaluated the Cummings study (relative to the Thompson study) marginally more negatively when its results supported day care ($M = -0.43$, $SD = 0.47$) than when its results supported home care ($M = 0.02$, $SD = 0.85$), $t(32) = 1.67$, $p = .10$. By contrast, conflicted participants' evaluations were consistent with their desires (but not with their initial beliefs); they evaluated the Cummings study much more positively relative to the Thompson study when it its results favored day care ($M = 0.55$, $SD = 0.79$) than when its results favored home care ($M = -0.14$, $SD = 0.86$), $t(32) = 2.56$, $p = .01$.

Postexperimental evaluation of day care versus home care

The conflicted group responded to new evidence by dramatically changing their initial belief in the superiority of home care (from a mean of 7.72 to a mean of 4.89), $t(17) = 6.27$, $p < .0001$. By contrast, the unconflicted group continued to believe home care to be superior, although they did show a marginal decrease in the strength of that conviction (from a mean of 7.89 to a mean of 7.17), $t(17) = 1.91$, $p = .07$. More important, the change in belief to reflect more positive views of day care was significantly greater for conflicted participants than for unconflicted participants, $t(34) = 3.59$, $p < .001$.

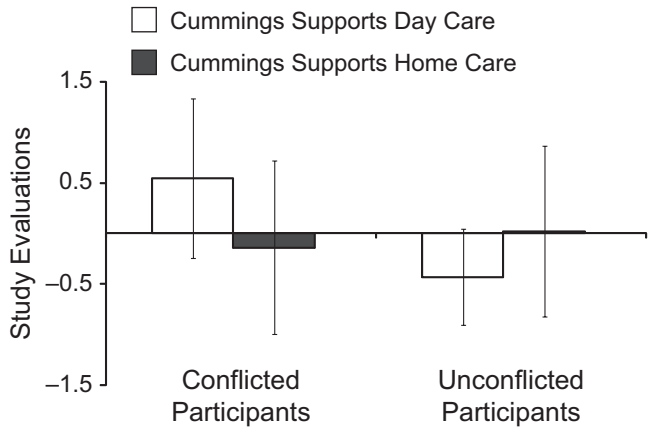

Fig. 1. Conflicted and unconflicted participants' evaluations of the validity of the Cummings study (relative to the Thompson study) as a function of whether the Cummings study supported day care or home care. Higher numbers indicate more positive evaluations of the Cummings study. Error bars represent standard deviations.

Discussion

Evaluations of purported scientific evidence were shaped more by what participants desired to be true than by what they had initially believed to be true. Conflicted participants, who planned to use day care for their children but initially believed such care to be markedly inferior to home care, interpreted ambiguous scientific evidence in a manner congruent with their desire to believe that their plans would not be disadvantageous for their children. After they examined mixed scientific evidence, these conflicted participants shifted their beliefs and considered home care to be no better than day care. By contrast, after exposure to the same mixed evidence, unconflicted participants—those who shared the same initial belief in the superiority of home care and intended to use only home care when they became parents—maintained their strong initial belief. Further investigation is needed to determine whether our findings are generalizable to other important domains in which hopes, fears, needs, and other motivational factors combine with, or compete with, prior beliefs as people confront scientific evidence and discourse.

Declaration of Conflicting Interests

The authors declared that they had no conflicts of interest with respect to their authorship or the publication of this article.

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