Can Statistics Change our Minds? The Role of Causal Explanation in Accommodation of Base Rate Statistics

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Abstract: Can statistics change our minds? Base rate statistics are taken into account when they are causally relevant (e.g., Tversky & Kahneman, 1980). However, evidence is mixed on whether causally-relevant statistics can drive revision of existing beliefs: Hagmayer and Sloman (2009) found that those providing direct causal explanations for statistical patterns were more likely to recommend action than those providing incidental explanations. By contrast, Hewstone et al. (1988) found that the causal relevance of statistics only affected assignment of guilt when consistent with one's prejudices. To examine the extent to which beliefs can be revised due to statistics, we asked participants about statistics before and after feedback. Specifically, participants estimated quantities (e.g., U.S. traffic fatalities), provided explanations for trends in those statistics, and indicated what action they would take. We then provided actual statistics, and either a direct or incidental causal explanation for trends—and observed changes in actions participants would take.