How People Think Genes Affect Our Metabolism

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Abstract

We show that people think about genetic explanations of metabolism differently than other explanations of metabolism by ascribing different levels of control to the individual, and power to the particular cause. Moreover, different explanations are associated with different causal attributions, suggestive of an additional set of genetic essentialist biases.

Introduction

There is much evidence that people perceive genes as being a powerful causal force behind many behaviours, sometimes even more powerful than the environment, despite the lack of consistent evidence validating this belief (e.g. Aspinwall, Brown, & Tabery, 2012; Dar-Nimrod & Heine, 2006). This phenomenon is known as genetic essentialism (Dar-Nimrod & Heine, 2011).

Genetic essentialism has been shown to impact perceptions of volition on the part of the agent, with important implications for judgments about legal cases (Dar-Nimrod, Heine, Cheung, & Schaller, 2011). The current study examines genetic essentialism in the context of people’s understanding of metabolism while pitting genetic explanations against another biological (but non-genetic) cause of behaviour.

Methods

- 136 participants from the University of British Columbia (34 males, 102 females, 1 "Other"), ages 17 – 45 (M = 20.56, SD = 3.58)
- Stimulus: 1 of 3 randomly assigned vignettes, differing in explanation of individual differences in metabolic rates
- Control: No explanation
- Gene: A genetic explanation
- Biological: Childhood feeding as explanation
- Dependent variables:
  - Control over weight
  - Comparative metabolic efficacy
- Attributional Style Questionnaire (ASQ; Peterson et al., 1982) (adapted for our scenario)

Results

Comparison of metabolic efficacy

- Control over weight
  - Control: 1.5
  - Genetic: 2.1
  - Biological: 2.1
  - p = .011

- Comparative metabolic efficacy
  - Control: 1.2
  - Genetic: 1.3
  - Biological: 1.6
  - p = .019

Causal attribution

- Internal: Stable; Controllable: Domain-General, Malleable
  - p = .006
- External: Unstable; Uncontrollable: Specific; Non-malleable
  - p = .004

Discussion

- In the context of metabolism, people perceive less volition in relation to learning about a genetic cause compared to a non-genetic biological cause for metabolism
- Genetic explanations of metabolism consistently lead to different causal attributions compared to non-genetic biological explanation
- Genetic causes are seen as being more causally internal, less causally controllable, more domain specific, and less malleable compared to non-genetic biological causes
- Cross-condition similarities for causal stability suggest that people do not think genes continue to impact the person across their lifespan while non-genetic biological causes do not
- Future work should focus on behaviors resulting from such attributions, as well as possible interventions

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References