

# Revealing the Water/Energy Demands of Meat Production Reduces Intentions to Consume Red Meat, But No Spillover to Other Pro-Environmental Behaviors

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## Abstract

Does increasing knowledge about the environmental impact of meat production increase intentions to perform a variety of pro-environmental behaviors (PEB)? Participants read infographics that either did or did not reveal the amount of energy and water required to produce one pound of beef. Beliefs about the amount of water/energy required to produce beef, intentions to use less energy and water via food choice and intentions to adopt other PEBs were measured. Path analyses returned a significant indirect effect of infographic condition on intentions to reduce red meat consumption through beliefs. Implications for spillover are discussed.

**Background.** Many people have positive attitudes toward sustainability, yet continue to engage in unsustainable behaviors (Prothero et al., 2011). While there are multiple reasons for this attitude-behavior gap, the present work examined whether increasing knowledge about the impact of certain unsustainable behaviors can motivate behavior change.

**Hypothesis:** Impact knowledge would reduce intentions to consume red meat through changing beliefs and attitudes about meat production and its environmental impact.

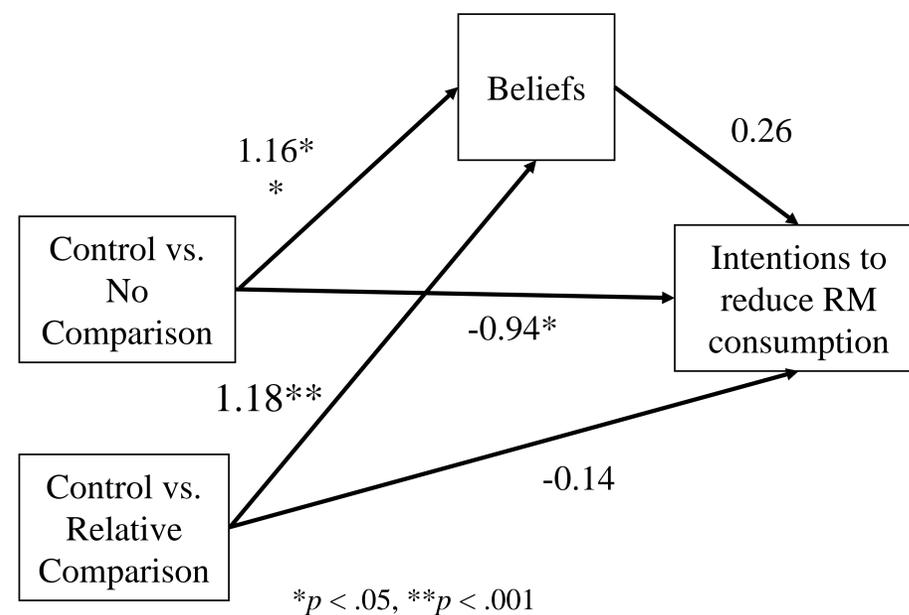
## Study 1

184 omnivorous undergraduates read one of the following infographics which displayed the:

- 1) Amount of beef and chicken consumed by Americans & amount spent on these products (**Control**)
- 2) Amount of water/energy required to produce 1 pound of beef (**no comparison**)
- 3) Amount of water/energy required to produce beef relative to chicken (**relative comparison**)

**Belief Mediator** (2 items): Producing beef uses a lot of water(energy), 7-pt scale strongly disagree/agree

**Outcomes** (4 items): Intentions to eat less beef and other types of red meat and intentions to reduce water/energy use in general measured on 7 pt scale “do not intend to at all” to “completely intend to”



The no and relative comparison conditions increased beliefs about the energy/water demands of beef production, which in turn predicted decreased intentions to consume red meats. Both relative indirect paths were significant in a multi-categorical mediation model (Hayes & Preacher, 2014), Control vs. Beef  $b = .30$  [.01-.67] and Control vs. Beef+Chicken  $b = .31$  [.01-.71].

## Study 2

299 omnivorous mTurk workers read the control or relative comparison infographic

**Belief Mediator:** “Producing beef uses a lot of water(energy),” “Reducing beef consumption would help conserve water (energy),” 7-pt scale strongly disagree/agree (4 items)

**Attitude Mediator** (2 items): “For me to consume beef on a regular basis is” and “The impact of beef production on the environment is” (1-extremely bad to 7-extremely good)

**Outcomes:** 1) Intentions to “Consume foods that require less water(energy) to produce” and “Learn more about which foods demand the most water(energy) to produce” using a 100-point slider bar (4 items).  
2) Intentions to adopt in other PEB (18 items)  
3) Willingness to support policies aimed at reducing red meat consumption

Compared to controls, the relative comparison infographic increased beliefs, which then predicted more negative attitudes toward beef production/consumption, and ultimately predicted stronger intentions to engage in pro-environmental food behaviors,  $b = .92$  [.31, 2.03]. The indirect path including just beliefs was also significant  $b = 2.22$  [.72, 4.15].

The same pattern of results was obtained with the policy support questions as the outcome variable. Infographic condition did not impact intentions to adopt other pro-environmental behaviors, which is not uncommon in the spillover literature (Truelove, Carrico, Weber, Raimi, & Vandenberg, 2014).

