



The Impact of Beliefs About Cross-Species Disease Transmission on Perceived Safety of Wild Game Meat: Building a Psychological Approach to Meat Safety

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Objectives

Meat safety is a central concern for public health. However, there is limited research on the psychological factors that influence people's perception of meat safety. Such a psychological perspective may benefit meat science by adding understanding of how people interact with meats and how to tailor meat safety interventions to properly convey safety concerns. We will examine the psychology underlying perceptions of safety in wild game, a critical problem in global public health. Wild game provides a popular source of meat throughout the world. In equatorial regions, wild game meat is a key source of nutrients and may be the only meat sources for some rural populations. Consuming wild game is also associated with increased risk of zoonosis and has been implicated in a number of emerging diseases, including Ebola and HIV. Currently, there is limited research on how people judge the risks associated with consuming meat from wild game. According to cognitive psychology, knowing that many animals can catch a disease increases people's beliefs that other animals are susceptible to the disease. We hypothesize that individual beliefs about the safety of eating wild game meat will associate with beliefs about the likelihood of cross-species disease transmission.

Materials and Methods

Participants ($n = 210$) were recruited from U.S., Australia, Canada, Great Britain, and the Bahamas using Amazon's Mechanical Turk and completed an online survey asking them to rate the safety of wild game meat sources (mammals and birds), judge the likelihood of disease transmission between pairs of wild animals, and provide demographic information. We analyzed mean differences in perceived safety between animals

and how average mammal-mammal and mammal-bird disease transmission beliefs related to perceived safety.

Results

Perceived meat safety was highest for common game (deer, rabbits, boar, and bear), and lower for less common game (squirrels, cats, dogs, raccoons, monkeys, and bats). A linear mixed effects model indicated significant variability in perceived safety across animals, $F(91881) = 242.3$, $p < 0.001$. Post hoc tests revealed significant pairwise differences in perceived safety between common and uncommon game mammals. For uncommon game, neither mammal-mammal nor mammal-bird transmission were associated with individual differences in perceived meat safety (p 's > 0.25). For common game, mammal-bird disease transmission beliefs were negatively associated with perceived meat safety, $t(207) = 3.397$, $p < 0.001$, but mammal-mammal transmission beliefs were not.

Conclusion

To the extent that participants believed it was possible for common game mammals to become infected with bird diseases, they perceived mammal meat to be less safe. These results are consistent with a "premise diversity" effect from cognitive psychology and suggest that people believe diseases are more transmittable to humans via wild game meat if they are transmittable across a wide range of species. These results suggest that interventions highlighting species-to-species disease transmission risk may help to increase awareness of the dangers that wild game meat can pose to public health. Because the results were primarily limited to commonly eaten wild game, it is important for future studies to assess whether our findings generalize to safety perceptions for common livestock meat sources.