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Research report

Too close to home. Factors predicting meat avoidance

Matthew B. Ruby *, Steven J. Heine

Department of Psychology, University of British Columbia, 3126 West Mall, Vancouver, BC, Canada V6T 1Z4

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ABSTRACT

In most societies, meat is valued more highly, yet tabooed more frequently, than any other type of food. Past research suggests that people avoid eating animals they consider similar to themselves, but what specific factors influence which they eat, and which they avoid? Across an array of samples from the USA, Canada, Hong Kong, and India, perceived animal intelligence and appearance emerged as the chief predictors of disgust at the thought of eating them. Furthermore, reflecting on animals' psychological attributes increased reported disgust, especially among Euro-Canadians and Euro-Americans, suggesting that these factors are more influential in shaping disgust in individualistic cultural contexts. Concordant with past research, disgust was a major predictor of willingness to eat animals, but social influence (frequency of consumption by friends and family) also emerged as a strong predictor, especially among Hong Kong Chinese and Indians, providing evidence that one's friends and family have a stronger influence on one's food choices in collectivistic cultural contexts.

In stark contrast to most other animals, who instinctively know what foods to eat, humans must learn these distinctions. Like bears, chimpanzees, and raccoons, most humans follow an omnivorous diet, and benefit from remarkable nutritional flexibility. However, this flexibility is not without its downsides – by choosing from a wider range of foods, humans also have a higher risk of consuming harmful substances or missing essential nutrients, a phenomenon that Rozin (1976) refers to as "the omnivore's dilemma." The omnivore's dilemma is especially pronounced when dealing with meat, which is paradoxically one of the most valued, yet most frequently tabooed foods (Fessler & Navarrete, 2003). Animals often harbor a wide range of bacteria and protozoans (Schantz & McAuley, 1991), and after an animal dies, and its immune system ceases to function, these pathogens are able to proliferate more rapidly. Of course, animals are not the only potentially hazardous food sources – many species of plants and fungi are also highly toxic if ingested. Although detection of poisonous fungi can be difficult, most poisonous plants present clear signals of their toxicity (Hladik & Simmen, 1996), so as to discourage other organisms from eating them. Although bacteria often produce an unpleasant odor when proliferating on meat, natural selection has favored those microorganisms that can be consumed unknowingly, and detection of protozoa is especially difficult (Fessler & Navarrete, 2003). Thus, despite the fact that meat is a concentrated source of fat and protein, pathogens in meat are often harder to detect than those in plants, and humans are especially well-served to have feelings of uncertainty and ambivalence about eating unfamiliar animals.

How, then, do people decide which animals to eat, and which to avoid? People rarely consider scavengers, carnivores, and those animals associated with dirt and filth, such as mice and insects, as viable food options (Angyal, 1941). Animals closely associated with house and home, such as dogs and cats in most Western societies, are also frequently tabooed (Fessler & Navarrete, 2003). Theorists have proposed that the avoidance of meat may be related to an animal's perceived similarity to humans (Angyal, 1941; Rozin & Fallon, 1987), in part because humans are more vulnerable to parasites and pathogens from more closely related species (Fessler & Navarrete, 2003). Turning from the biological to the psychological, there is broad, cross-cultural evidence that the killing of animals for food elicits varying degrees of guilt and tension (e.g., Beardsworth, 1995; Plous, 1993; Simoons, 1961), and that people often mentally separate the meat they eat from its ultimate animal origins, such that they can eat steak and sausages without thinking of the cows and pigs from which they came (Hoogland, de Boer, & Boersma, 2005). Therefore, humans may be especially reticent to kill and eat animals that they perceive to have similar mental and emotional capacities as themselves. Indeed, people ascribe higher cognitive functions to animals that they perceive to be similar to themselves (Epley, Waytz, Akalis, & Cacioppo, 2008), and relative to vegetarians, omnivores attribute significantly less mental and emotional complexity to animals (Bilewicz, Imhoff, & Drogosz, 2011). How people classify animals (e.g., as pest, pet, or food) has a dramatic impact on how they interact with them (Joy, 2009). Experimental evidence reveals that simply categorizing animals as food sources significantly reduces participants' ratings of said

* Corresponding author.
E-mail addresses: matt@psych.ubc.ca, mbruby@gmail.com (M.B. Ruby).

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animals' capacity for suffering, and subsequent moral concern (Bratanova, Loughnan, & Bastian, 2011). Likewise, people were found to attribute diminished mental capacities (e.g., fear, self-control, memory) to commonly eaten animals, and direct reminders of the link between meat eating and animal suffering were not gladly received, leading people to further dementalize the animals that they eat (Bastian, Loughnan, Haslam, & Radka, 2012). Furthermore, participants who were randomly assigned to eat beef jerky later expressed less concern for cows, considered them less worthy of moral status, and rated them as less capable of suffering than those who had been randomly assigned to consume nuts (Loughnan, Haslam, & Bastian, 2010).

Often, when people are asked why they would not eat a particular animal, rather than directly invoking concerns about animal mental states, they respond with a simple "that's disgusting!" Acting as the stomach's gatekeeper, the emotion of disgust is proposed to have evolved to prevent humans from ingesting harmful substances, and is especially sensitive to indicators of blood, excrement, sex, death, and disease (Haidt, Rozin, McCauley, & Imada, 1997). Disgust is a critical factor in determining people's willingness to ingest a given food (Rozin & Fallon, 1987), but what particular animal characteristics predict disgust at eating animals? Bastian et al. (2012) demonstrated that perceived mental capacity (a composite of attributes ranging from capacity for pain and fear to emotion recognition) was negatively associated with animal edibility. Beyond characteristics of the animals themselves, Ruby (2008) found that whereas disgust was the strongest negative predictor of people's willingness to eat a range of animals, exposure to animals' meat in stores positively predicted their willingness to eat them, ostensibly because the presence of the meats in stores indicates that other people in one's community are eating them on a regular basis, and that the consumption of such meats is both safe and socially acceptable.

Although culture itself plays a dramatic role in shaping people's food preferences (Rozin, 1990), little is presently known about the factors that underlie people's willingness to eat, and feelings of disgust at the thought of eating, animals in non-Western, collectivistic cultures. Indeed, psychology in general has conducted distressingly little research in non-Western cultural contexts (Henrich, Heine, & Norenzayan, 2010). Regarding food in general, there is evidence within a number of individualistic Western cultures for a significant, yet small influence of one's family members on one's food choices (e.g., Hursti & Sjödén, 1997; Pliner & Pelchat, 1986; Rozin, Fallon, & Mandell, 1984; Rozin & Millman, 1987). Referring to close others' food choices when deciding what foods to eat should be useful in all cultural contexts, as it stands to reason that commonly eaten foods are likely to taste good, and be reasonably safe to consume. However, there is evidence to suggest that the food choices of close others might hold greater predictive power in other cultural contexts. Within collectivistic cultures, more value is placed on fitting in with close others, and people in these cultures exhibit higher levels of conformity than those from individualistic cultures (e.g., Bond & Smith, 1996; Cialdini & Goldstein, 2004). Past research has shown that relative to Euro-Americans, East Asians based their choices on what others liked (Iyengar & Lepper, 1999; Kim & Markus, 1999), and this trend was mirrored within advertising in popular magazines, such that advertisements in Korean magazines more frequently emphasized themes of conformity and group harmony, whereas American advertisements more commonly utilized themes of uniqueness and individuality (Kim & Markus, 1999). Similarly, recent research on how people from different cultures choose consumer products has indicated that those in Indian cultural contexts are less likely than those from North American cultural contexts to choose according to their personal preferences (Savani, Markus, & Conner, 2008). Thus, the food choices of close others may influence people's own choices to a greater degree in collectivistic cultural contexts.

An examination of the factors that influence people's decisions to eat some animals and avoid others led to the following five hypotheses. First, we predicted that perceived humanlike characteristics of animals (e.g., intelligence, capacity for emotion, capacity for suffering) would positively predict disgust at the thought of eating them. Second, to the extent that a key concern about eating meat is the perceived similarity between animals and humans (e.g., Angyal, 1941; Rozin & Fallon, 1987), we hypothesized that reflecting on animals' humanlike characteristics would lead to increased disgust at the thought of eating them. Third, we hypothesized that disgust would negatively predict people's willingness to eat animals. Fourth, we predicted that social influence (measured by frequency of consumption by friends and family) would positively predict willingness to eat animals. Finally, we predicted that the impact of social influence would be greater among participants from collectivistic cultural backgrounds. Study 1 tests these hypotheses among student samples in Canada and Hong Kong, whereas Study 2 tests them among non-student samples in the USA and India.

Study 1

Method

Six hundred and eight omnivores were recruited from the campuses of the University of British Columbia and the Chinese University of Hong Kong (76 Euro-Canadians, 54% women, $M_{age} = 25.3$, $SD_{age} = 8.89$; 532 Hong Kong Chinese, 65% women, $M_{age} = 20.4$, $SD_{age} = 1.31$). For their time, all participants were entered into a cash draw. Due to the nature of the analyses, an additional 56 non-omnivore participants were excluded from analysis (24 Euro-Canadians, 32 Hong Kong Chinese).

Participants completed a survey in which they rated their perceptions of 17 different animals (bear, chicken, cow, crow, dog, dolphin, duck, eel, horse, lamb, monkey, octopus, parrot, pig, rat, shark, and snake). There were two versions of the survey, which manipulated the order in which participants rated their perceptions of the animals to see whether this influences people's thoughts about the animals as potential food. In the *Attributes First* condition, participants first rated each animal's non-food attributes (intelligence, capacity for emotional bonding with humans, capacity for suffering, and appearance: ugly/neutral/cute). In the *Food First* condition, participants first rated each animal's food-related attributes (willingness to eat, disgust at the thought of eating, and frequency of consumption by friends and family). All ratings were done on a nine-point (−4 to 4) Likert scale.

Results and discussion

To investigate how animals' attributes impact people's feelings about eating them, we predicted disgust from the variables of perceived animal intelligence, capacity for suffering, appearance, squared appearance (i.e., deviation from neutral toward cute or ugly), and capacity for emotional bonding with humans. Standard errors for these, and all subsequent regression coefficients, were calculated via STATA's vca cluster operation. This regression procedure assumes independence of responses between participants, and not within-participant responses, and corrects for the fact that each participant has 17 data points per variable (e.g., disgust, appearance, intelligence). All together, these variables significantly predicted disgust for Euro-Canadian ($R^2 = .24$, $p < .001$) and Hong Kong Chinese ($R^2 = .15$, $p < .001$) participants. Within both samples,