Is obesity un-American? Disease concerns bias implicit perceptions of national identity

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1. Introduction

Approximately two-thirds of the United States population is overweight or obese (Flegal, Carroll, Ogden, & Curtin, 2010), and this fact appears not to have escaped the public’s attention, as indicated by the increasing popularity of reality television shows such as The Biggest Loser, More to Love, and Fat Actress. Such trends thus provoke the question—is it that to be American is to be obese?

The current research proposes that, despite the increasing prevalence of obesity in American society, Americans nonetheless exclude obese individuals from their implicit national identity. Social cognition is guided in part by fundamental motives designed to help people overcome challenges recurrently faced throughout evolutionary history (Kenrick, Neuberg, Griskevicius, Becker, & Schaller, 2010), including the recurrent adaptive challenge of avoiding contagious diseases. A fundamental motivation for disease avoidance may promote the implicit exclusion of obese individuals from one’s national identity.

1.1. An evolutionary perspective on the ascription of group identity

People tend to include and exclude specific subgroups from their mental representation of the superordinate group (Devos & Banaji, 2005; Devos, Gavin, & Quintana, 2010; Devos & Ma, 2008). An evolutionary perspective provides a useful framework for understanding why certain subgroups of individuals may be included or excluded from a superordinate group identity. Throughout history, other people have afforded both opportunities and threats relevant to fundamental survival and reproduction-relevant social goals (Neuberg & Cottrell, 2008). For example, contact with other people can provide opportunities for building prosocial alliances. However, it can also threaten fundamental goals related to survival (e.g., people are a common source of physical violence and communicable diseases). Consequently, many psychological processes are sensitive to characteristics of others that imply potential opportunities or threats (Maner, Miller, Moss, Leo, & Plant, 2012). The ascription of group identity may be one such psychological process. When forming mental representations of their group, people may include others who offer beneficial opportunities (thereby increasing the probability of interacting with those others) and exclude others who represent costly threats (thus promoting avoidance of those threats). Contagious disease may be one threat that shapes the ascription of group identity in this way.

1.2. Psychological responses to disease

The contraction of a communicable disease often requires close contact with pathogen carriers. Evolutionary perspectives suggest that, as a consequence, people are equipped with a psychological system designed to promote the avoidance of potential pathogen carriers—a sort of behavioral immune system (Neuberg, Kenrick, & Schaller, 2011; Schaller & Park, 2011). Indeed, when pathogen concerns are made salient, people respond to the presence of heuristic disease cues with a range of affective, cognitive, and behavioral reactions that promote a distancing of oneself from potential sources.
of disease (Ackerman et al., 2009; Curtis, Aunger, & Rabie, 2004; Miller & Maner, 2011, 2012; Schaller & Duncan, 2007).

People may attempt to avoid pathogen carriers via social exclusion and avoidance of groups heuristically associated with disease (Navarrete & Fessler, 2006; Navarrete, Fessler, & Eng, 2007).

Of particular relevance to this study, implicit exclusion of a subgroup from the mental representation of a superordinate group has downstream effects on actual discriminatory and avoidant attitudes toward members of that subgroup (Yogeeswaran & Dasgupta, 2010). Thus, implicitly categorizing a subgroup of people heuristically perceived as a pathogen threat as an unfamiliar outgroup may promote behavioral avoidance, exclusion, or stigmatization. This behavioral avoidance, could, in turn lead to less risk of fitness-reducing disease contraction. Thus, people’s mental representations of shared group membership can have actual consequences for behavior and fitness.

1.3. Obesity as heuristic disease cue

Pathogens themselves are invisible to the naked eye, yet they often produce visible morphological irregularities. Thus, many morphological irregularities can serve as heuristic cues of underlying pathogenic infection. Because obese individuals display morphological abnormalities (e.g., a highly exaggerated midsection), they may be (mis) perceived as pathogen carriers (Crandall, Nierman, & Hebl, 2009; Harvey, Troop, Treasure, & Murphy, 2002; Lieberman, Tybur, & Latner, 2012; Miller & Maner, 2012; Neel, Neufeld, & Neuberg, 2013; Park, Schaller, & Crandall, 2007; Park, Van Leeuwen, & Chochorelou, 2013). Consistent with this perspective, adults (Lieberman et al., 2012; Oaten, Stevenson, & Case, 2009), and young children (Klaczyński, 2008) display disgust reactions toward the obese. When primed with disease concerns, people also display a range of processes that facilitate the avoidance of, or prejudice toward, obese others (e.g., Miller & Maner, 2012; Park & Isherwood, 2011; Park et al., 2007). Moreover, although anti-fat prejudice is observed among both thin and obese observers, thin individuals—individuals that likely view obesity as a more substantially atypical morphology—exhibit a greater degree of prejudice (Schwartz, Vartanian, Nosek, & Brownell, 2006).

1.4. Overview of the current studies

We tested three primary hypotheses:

1. Because obesity is a heuristic cue to disease, we predicted that obese individuals would be excluded from people’s implicit representations of superordinate group identity.

2. This effect would be apparent primarily among thin participants, for whom obesity is especially morphologically atypical.

3. The effect among thin participants would be exacerbated when disease concerns are especially salient.

In two studies, we tested these three hypotheses by examining whether Americans implicitly exclude obese individuals from their national identity. In Study 1, we manipulated disease concerns via experimental priming methodology. In Study 2, we capitalized on natural variation in the salience of disease caused by recent illness.

2. Study 1: Situational concerns about disease, obesity, and implicit national identity

In Study 1, we experimentally primed American participants with either disease-attenuating images or control images before they completed an implicit measure of the degree to which they associated obesity with the American identity. Participants also indicated their perceived relative weight (compared to the average person) and actual weight. We hypothesized that American participants, particularly thin Americans, would be more likely to implicitly exclude obesity from their national identity after a disease prime, compared to a control prime.

2.1. Method

Three-hundred eleven residents of the United States (140 men, 170 women, 1 did not report gender; ages 18–70, 71% white, 7% Asian, 5% Hispanic, 3% “more than once race,” 7% other races) completed an online survey for 50 cents through Amazon’s Mechanical Turk (MTurk; www.mturk.com).

2.2. Materials and procedure

Participants were randomly assigned to either a disease prime condition or a control condition. Following prior research (Miller & Maner, 2012; Park et al., 2007), participants in the disease prime condition (N = 160) watched a slideshow consisting of ten images that portrayed information about germs, infections, and other diseases. Participants in the control condition (N = 127) watched a slideshow of 10 images portraying information about common accidents and hazards that were non-disease-related threats. Each image was shown for 10 seconds.

Participants subsequently completed an American/Non-American-Thin/Fat IAT, modified from previous studies examining the implicit ascription of the American identity (Devos & Banaji, 2005; Devos & Ma, 2008; Rydell, Hamilton, & Devos, 2010). The IAT included four types of stimuli: pictures of obese individuals, thin individuals, American symbols, and non-American symbols. The 12 target individuals (6 obese; 6 thin) were pictures of dieters’ before and after photos taken from a weight-loss Web site and used in previous research (Miller & Maner, 2012; Park et al., 2007). As in previous studies (Devos & Banaji, 2005; Devos & Ma, 2008; Rydell et al., 2010), national identity stimuli consisted of a variety of familiar American and foreign symbols. All other aspects of the IAT were identical to those described in previous publications (Greenwald, Nosek, & Banaji, 2003).

After completing the IAT, we attempted to assess participant weight in two different ways. Participants provided a measure of perceived relative weight by indicating how thin/fat they were compared to the average person using a 1 to 7 scale (1 = Much thinner, 4 = Average, 7 = Much fatter), as well as a measure of absolute weight (i.e., how much they weighed in pounds). Last, they completed demographic information and were debriefed.

2.3. Results

Because both online research and reaction time data are highly susceptible to participant attentiveness, we screened for outliers on both reaction time and response errors during the IAT. Statistics such as means and standard deviations are themselves highly influenced by the existence of outliers; thus, using the median to determine outliers has been proposed to be a superior method for outlier detection (Leys, Ley, Klein, Bernard, & Licata, 2013). Twenty-four apparently inattentive participants had error rates and/or average latencies during the IAT that were greater than two interquartile ranges above the median (error rate median: 4.7% of trials; error rate interquartile range: 5.5%; average latency median: 821.5 ms; average latency interquartile range: 224.7 ms), and their data were therefore excluded from analyses. For the remaining 287 participants, implicit associations were calculated using the D measure with built in error penalty, as recommended by Greenwald et al. (2003). D scores below zero reflect an implicit exclusion of obesity from the American identity (i.e., associating obesity with un-American); scores above zero

1 A secondary check performed in both studies yielded identical inferences when using a perhaps more traditional 3 SD above the mean cutoff).
reflect an implicit inclusion of obesity in the American identity (i.e., associating obesity with American). A one-sample t-test revealed that D scores (mean ± SD = −0.23 ± 0.44) were significantly below zero, $t_{286} = −8.95, P < 0.001$. Thus, on average, obesity was implicitly excluded from the American identity.

Using multiple regression, we tested the interactive effect of our disease prime condition and our first measure of weight (relative weight, mean ± SD = 4.20 ± 1.41). D scores were predicted from priming condition (disease versus control) participants’ perceived relative weight (centered), and their interaction. Our overall model was significant, $R^2 = 0.03$, $F_{3,286} = 2.92, P = 0.03$. There was a significant main effect of participant weight, $b = 0.04, se = 0.02$, $P = 0.05$, partial $r = 0.12$ ( $b$ values reported throughout are unstandardized coefficients), consistent with the hypothesis that thin individuals are more likely to exclude obesity from the American identity than overweight individuals. However, this was qualified by the predicted (marginal) interaction between condition and participant relative weight, $b = 0.07, se = 0.04, P = 0.07$, partial $r = 0.11$. The simple effect of priming condition was assessed subsequently at low and high levels of participant weight (1 SD below and above the mean, respectively: Aiken & West, 1991). Consistent with predictions, among comparatively thin participants, the disease prime (relative weight, rather than actual weight, moderated the effect of disease salience on implicit exclusion of obese individuals, an issue discussed in greater detail in the General Discussion. Study 2 extended Study 1, exploring the broader ecological context by examining natural fluctuations in disease salience outside the lab.

### 3. Study 2: Ecological disease concerns, obesity, and implicit national identity

Being recently ill can lead to activation of the behavioral immune system (Miller & Maner, 2011). Therefore, in Study 2 we examined whether recent illness promotes the implicit exclusion of obesity from the American identity. Akin to Study 1, we hypothesized that thin participants (but not heavier participants) who had been recently ill would implicitly exclude obesity from the American identity to a greater degree than participants who had not recently been ill.

#### 3.1 Method

Two-hundred seven residents of the United States (88 men, 118 women, 1 transgender; ages 18–68, 79% white, 9% black, 4% Hispanic, 3% Asian, 5% other races) completed the study after being recruited through MTurk for 50 cents each.

#### 3.2 Materials and procedure

After completing the Thin/Fat–American/Non-American IAT procedure used in Study 1, participants indicated the most recent time they had felt sick using the following response options: today, a couple days ago, a week ago, a month ago, a few months ago, a year or more ago. Consistent with previous research (Miller & Maner, 2011), participants were categorized into two groups: a recently ill group (those who responded in the first three categories) and a not recently ill group (those who responded in one of the other categories). This categorization reflects the typical window of the physiological immune system’s heightened susceptibility to new diseases after infection (Jakab, 1985). Consequently, individuals who have been sick within the previous week tend to differ in the degree to which they display disease-avoidance biases, relative to those who have been healthy during that time (Miller & Maner, 2011). As in Study 1, participants then provided perceived relative and absolute measures of weight. Last, they completed demographic information and were debriefed.

#### 3.3 Results

We used identical attentiveness screening as in Study 1. Nineteen participants had IAT error rates and/or average latencies greater than two interquartile ranges above the median (error rate median: 3.9% of trials; error rate interquartile range: 5.7%; average latency median: 841.5 ms; average latency interquartile range: 263.5 ms) and were therefore excluded from analyses. Of the remaining 188 participants, 45 had been recently ill and 143 had not been recently ill.

Conceptually replicating Study 1, D scores (mean ± SD = −0.32 ± 0.47) were significantly below zero, $t_{188} = −8.82, P < 0.001$. As in Study 1, on average, obesity was implicitly excluded from the American identity.

Using multiple regression, we tested the interactive effect of illness recency and our first measure of weight (relative weight, mean ± SD = 4.30 ± 1.48). D scores were predicted from illness recency (recently ill versus not recently ill), participants’ perceived relative weight (centered), and their interaction. Our overall model was significant, $R^2 = 0.07$, $F_{3,185} = 4.71, P = 0.003$. Analyses revealed a significant main effect of participant subjective weight, $b = 0.13, se = 0.04, P = 0.003$, partial $r = 0.23$ replicating Study 1. However, this was qualified by an interaction between illness recency and participant weight, $b = 0.17, se = 0.05, P = 0.002$, partial $r = 0.23$. As predicted, among participants low in perceived


relative weight (1 SD below the mean), being recently ill predicted greater implicit exclusion of obesity from the American identity, \( b = -0.29, \text{se} = 0.12, P = 0.02, \text{partial} r = .17 \). Among participants high in perceived relative weight (1 SD above the mean), recent illness (marginally) predicted reduced implicit exclusion of obesity from the American identity, \( b = 0.20, \text{se} = 0.10, P = 0.06, \text{partial} r = 0.14 \) (see Fig. 2).

We also assessed the interactive effect of illness recency and our second measure of weight (absolute weight, mean ± SD = 173.84 ± 48.56). Using regression, \( D \) scores were predicted from illness recency (sick versus not sick), participants’ absolute weight (centered), and their interaction. Our overall model was significant, \( R^2 = 0.05, F_{3,185} = 3.53, P = 0.02 \). There was a significant main effect of participant weight, \( b = 0.002, \text{se} = 0.0007, P = 0.003, \text{partial} r = 0.22 \). This was qualified by the predicted interaction between illness recency and participant absolute weight, \( b = -0.003, \text{se} = 0.002, P = 0.05, \text{partial} r = 0.14 \). However, follow-up analyses revealed no significant effects of illness recency among participants low in absolute weight (1 SD below the mean), \( b = .14, \text{se} = 0.11, P = 0.21 \), or participants high in absolute weight (1 SD above the mean), \( b = -0.14, \text{se} = 0.10, P = 0.18 \). Absolute weight and relative weight were again correlated \( r_{188} = .61, P < 0.001 \).

3.4. Discussion

Study 2 replicated the effects of Study 1 using recent illness as an ecologically valid cue to disease. American participants, overall, implicitly excluded obesity from the American identity. However, consistent with our hypothesis, this effect was exacerbated among individuals who both perceived themselves as thin and also had been recently ill. Thus, for thin individuals, disease concerns heightened the implicit exclusion of obesity from their national identity.

We also observed that, among individuals who perceived themselves to be heavier than average, recent illness was associated with reduced implicit exclusion of obese individuals from the American identity. This may suggest that because obesity fits the normative weight class of heavier individuals, they are not excluded from heavier individuals’ superordinate American identity and, instead, included when one requires help from others (such as during illness). However, this finding should be interpreted with caution, as it was not replicated in Study 1.

4. General discussion

An emerging literature indicates that people choose to include and exclude certain groups from their superordinate group identity. While prior research has typically focused on the exclusion of ethnic minorities (Devis & Banaji, 2005; Devis & Ma, 2008), the current research demonstrates that obese people are also implicitly excluded from the American identity. Moreover, the current research provides insight into the factors shaping this biased ascription of group identity. Across two studies, we found that 1) the implicit exclusion of obesity from the American identity was primarily apparent among thin participants and 2) especially when disease concerns were salient.

People are stigmatized or excluded as interaction partners based on specific fitness-relevant characteristics, which in turn should promote fitness-relevant behavioral tendencies (Kurzban & Leary, 2001). Disease cues can motivate avoidance of physical contact with others heuristically viewed as potential pathogen carriers (Park, Faulkner, & Schaller, 2003; Park, et al., 2013), and we suggest that excluding obese individuals from a mental representation of the ingroup may be one factor promoting actual behavioral avoidance. This behavioral avoidance of obese people, could, in turn have led to less risk of fitness-reducing disease contraction in ancestral environments (see Park, 2007 for a discussion of the distinction between “adaptive” and “non-adaptive” effects).

4.1. Limitations and future directions

In both studies, we observed that participants’ perceived relative, but not absolute, weight interacted with disease concerns in the hypothesized manner. It is possible that this reflects the greater importance of perception than reality in shaping psychological biases, as the two do not always converge, particularly with respect to self-perception (Pronin, Gilovich, & Ross, 2004). Alternatively, this may simply reflect a methodological limitation of using absolute weight as an operationalization of obesity, as obesity depends on other factors (e.g., height, gender, ratio of muscle to fat). Additionally, it has been found that while error in self-reported absolute weight is reasonably small, overweight individuals (especially overweight women) tend to underreport their weight (Rowland, 1990). Finally, there is consistent regional variability in weight within the USA. To the extent that people calibrate their expectations of normal weight locally, subjective weight relative to others may provide a more psychologically meaningful test of our hypotheses.

Some prior research indicates that the inclusion/exclusion of subgroups from the superordinate group identity is shaped by the perceived valence of the subgroup’s characteristics (e.g., Rydell et al., 2010). Thus, the current findings may be proximally explained by the fact that thin people often perceive obese people in a negative light (Allon, 1982), and that negative perceptions of the obese are enhanced by disease concerns (Lieberman et al., 2012; Park et al., 2007). Rather than being an alternative explanation to our findings, this may reflect a more proximate and mediational explanation for the current findings. Examining the processes that mediate the relationship between disease concerns and the exclusion of obesity from a superordinate identity was beyond the scope of these studies, but future research might profitably test these relationships.

In addition, future research should investigate whether the present effects generalize across different measures of exclusion. Although the IAT is widely used, it is not uncontroversial (Oswald, Mitchell, Blanton, Jaccard, & Tetlock, 2013) and raises two different sorts of conceptual complications in the present studies. First, the IAT only allowed us to evaluate how disease concerns affected implicit group identity and attitudes toward obesity. While we used an implicit measure to be consistent with other studies investigating national identity (e.g., Devos & Ma, 2008; Rydell et al., 2010), there is no reason to suspect that disease concerns would not affect explicit attitudes toward obesity. Indeed, recent research has found that pathogen concerns led to increased self-reported explicit anti-fat prejudice (Park & Isherwood, 2011; Park et al., 2007).
Second, the IAT provides only a relative estimate of whether obese people are excluded from the American identity. Therefore, an alternative explanation of our findings is that after disease threat, thin people are more included in the American identity. While possible, recent research accords with our interpretation, as pathogen threat readily leads to identification of individuals bearing heuristic disease cues as belonging to the outgroup (Faulkner, Schaller, Park, & Duncan, 2004; Navarrete & Fessler, 2006; Navarrete et al., 2007).

4.2 Conclusion

Despite the fact that obesity is prevalent in the United States (Flegal et al., 2010), the current findings indicate that Americans do not incorporate obesity into their national identity. With the American Medical Association recently officially recognizing obesity as a disease (Pollack, 2013), highlighting the role pathogen concerns play in perceptions of the obese may prevent future stigma and exclusion.

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Supplementary Materials

Supplementary data to this article can be found online at http://beliefandmoralitylab.com/supplementary-data/.

References


