

## Research Article

# The Symptoms of Resource Scarcity

## Judgments of Food and Finances Influence Preferences for Potential Partners

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**ABSTRACT**—*Male preferences for female body weight follow a consistent cross-cultural pattern such that in cultures with scarce resources, heavier women are preferred, whereas in cultures with abundant resources, thinner women are preferred. We offer a social-cognitive account for these findings based on the individual experience of resource scarcity. In four studies (N = 1,176), we explored the possibility that this cross-cultural relationship emerges at the individual level; that is, we investigated whether situational feelings of resource scarcity predict personal preferences within a single culture. We operationalized intraindividual resource scarcity through feelings of financial and caloric dissatisfaction. Accordingly, we hypothesized—and found—that men who feel either poor or hungry prefer heavier women than men who feel rich or full. We discuss these findings in terms of how patterns of cross-cultural norms may be evinced at the individual level through an implicit psychological mechanism.*

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In their classic study of human sexual behavior, Ford and Beach (1951) stated that “the cross-cultural evidence makes it clear that there are few, if any, universal standards of sexual attractiveness” (p. 86). Subsequent research, however, has documented several apparent universals in preferences for romantic partners. Across all cultures, men care more than women about physical features in potential mates (Buss, 1994); men seek youth (Buss, 1989), facial averageness (Rhodes et al., 2001), and low waist-to-hip ratio (Singh, 1993; Singh & Young, 1995),

among other features. Women are less focused on physical attractiveness, but show tremendous cross-cultural consistency in preferring men who are wealthy (Hudson & Henze, 1969), socially dominant (Sadalla, Kenrick, & Vershure, 1987), and of high status (Townsend & Levy, 1990).

Ford and Beach (1951), however, based their claim of non-universality on a dimension for which a cross-cultural consensus was clearly lacking: female body weight. Though ideals of female body weight vary considerably across cultures, this variation follows a distinct pattern. Men in cultures with scarce resources tend to prefer heavier women, whereas men in cultures with abundant resources prefer thinner women (Anderson, Crawford, Nadeau, & Lindberg, 1992; Furnham & Baguma, 1994; Symons, 1979). This relationship between female body weight and resource availability also emerges within cultures. In developing (i.e., resource-poor) societies, socioeconomic status (SES) and female obesity rates are directly related, whereas in developed (i.e., resource-rich) societies, SES and female obesity are inversely related (Sobal & Stunkard, 1989). Assuming that high-SES women’s body types tend to reflect the cultural ideal, these data further support a general pattern of men’s mate preferences being driven by resource availability.

Most explanations for this pattern focus on the optimization of overall health in a particular cultural context: When resources are scarce, people risk malnutrition, but when resources are abundant, people risk, if anything, overconsumption. From a health-maximizing perspective, then, men in developing societies should value heavier partners than men in developed societies. Although the health consequences of resource availability affect both men and women, interestingly, it seems that the associated changes in body weight (ideal and actual) occur only in women. For example, in developed societies, men—unlike women—show no relationship between SES and obesity (Sobal & Stunkard, 1989).

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## FROM COLLECTIVE NORMS TO INDIVIDUAL PREFERENCES: THE ROLE OF AFFECTIVE STATES

This pattern linking resource availability and female body weight, emerging both across and within cultures, is intriguing but lacks an obvious psychological mechanism. It seems unlikely, for instance, that this pattern of cultural norms derives from individuals' direct assessments of collective resources. That is, it seems unlikely that people in developing societies consciously reason that because of the relative scarcity of resources, heavier women should be preferred.

One reason this is unlikely is that people are mediocre judges of collective resources. As Mutz (1998) has shown, people's perceptions of the economy are only modestly accurate and are more likely to reflect personal political beliefs than the actual status of the economy. Moreover, evaluations of collective experience tend to anchor on personal experience (Ross, Greene, & House, 1977), which leads to wide variability in the former. A second strike against the direct-assessment account is that people often do not construct their preferences at a conscious level, even when they are reported as conscious decisions (Nisbett & Wilson, 1977; Wiederman & Dubois, 1998).

How, then, do we explain the relation between resource availability and partner preferences? We propose an implicit psychological mechanism based on the situational influence of environmental conditions. We begin with the notion that collective resource scarcity has consequences for individual resources: Individual members of a society in which resources are scarce are likely to lack resources themselves. We posit that the affective and physiological states associated with individual-level resource availability provide implicit information about collective resource availability, and that this information then plays a role in the construction of preferences. This hypothesis has firm grounding in the literature: Feelings not only often serve as "information" about the environment (Schwarz, 1990), but also can influence behavior without the engagement of complex cognitive processes (Cacioppo, Berntson, & Crites, 1996). The novel aspect of our hypothesis is that we are proposing that temporary affective states can produce a pattern of individual preferences that mirrors an otherwise unexplained pattern of cultural norms.

In our first two studies, we tested this hypothesis in two basic steps: We (a) manipulated people's financial satisfaction (financial resources being the most obvious proxy for personal resources in Western culture) and then (b) measured their preferences for potential romantic partners. Prior research has shown that subtle manipulations can influence people's perception of norms and, by extension, how they personally feel (see Schwarz, 1990, for a review). For instance, when people are asked to recall examples of their own assertive behavior, they rate themselves as less assertive the more examples they are asked to recall, because their task feels harder to accomplish (Schwarz et al., 1991).

Although finances are an obvious proxy for personal resources, there is another, more physiological manifestation: hunger. An increasingly diverse array of research has documented the influence of physiology on judgment and evaluation in domains as varied as feelings of pride (Stepper & Strack, 1993) and creative thinking (Friedman & Förster, 2000). These researchers have emphasized the primacy of physiology and proprioceptive cues in immediate and unconscious evaluation (Neumann, Förster, & Strack, 2003). We suggest that these cues may also influence partner preferences. Thus, in Studies 3 and 4, we used a naturalistic manipulation of hunger to show that hungry men prefer heavier women than do satiated men.

## STUDY 1

### Method

Undergraduates ( $N = 554$ , 310 female) were paid \$8 to complete a questionnaire packet containing the relevant materials on two consecutive pages. On one page, participants answered a series of questions, including one that inquired whether they were carrying any money. We predicted that participants who were not carrying money would feel less financially satisfied than those who were. We manipulated the order of questions so that some participants answered this question prior to the dependent measure (money salient) and others answered it after the dependent measure (money not salient).

The dependent variable, included on the other page, asked participants to indicate what they "personally consider ideal in a member of the opposite sex." Participants responded on a 15-point scale indicating "how much he/she would weigh, relative to the average member of that sex."

### Results and Discussion

Four participants were excluded from the final analysis because they did not read the instructions. We made two predictions: First, men made to feel financially unsatisfied (i.e., who discover that they are carrying no money) should prefer heavier women than men who feel financially satisfied (and women's preferences should be unaffected by this manipulation). Second, men should prefer relatively lighter-than-average mates than women do.

We tested our predictions using two orthogonal sets of contrast weights, one comparing men and women (all four conditions with men coded as  $-1$ ; all four conditions with women coded as  $1$ ), and one comparing men with and without money when money was salient (men with money when money was salient,  $-1$ ; men without money when money was salient,  $1$ ; all six remaining conditions,  $0$ ).

Our results confirmed that men preferred relatively lighter-than-average mates than did women,  $t(543) = 8.79$ ,  $p < .001$ ,

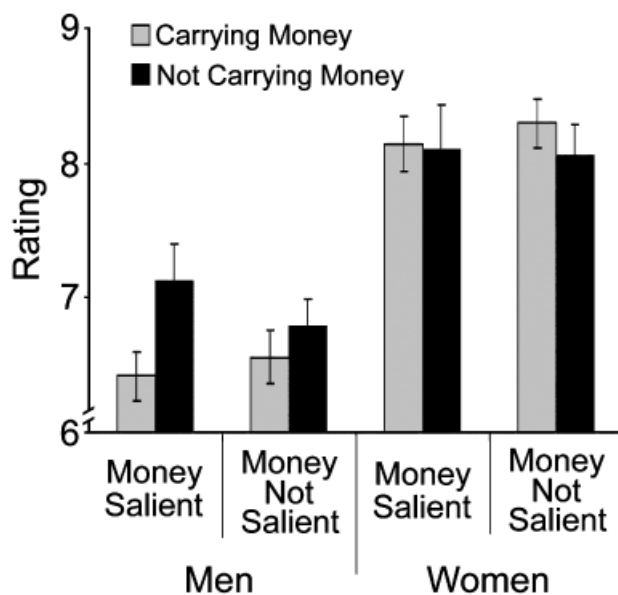


Fig. 1. Results from Study 1: mean ratings (with standard errors) for body weight in an ideal mate as a function of participant's sex, money salience, and whether the participant was carrying money. The rating scale ranged from 1 (*much less than average*) to 15 (*much more than average*).

$\eta^2 = .13$ .<sup>1</sup> Moreover, when money possession was made salient, men without money preferred heavier women than did men with money,  $t(543) = 2.15$ ,  $p = .03$ ,  $\eta^2 = .008$ .<sup>2</sup> The residual was not significant, indicating that money possession did not affect women's preferences, nor did it affect men's preferences when money was not salient,  $F(5, 543) = 0.26$ ,  $p < .30$  (see Fig. 1). An additional planned contrast confirmed that within just the male sample, money possession affected preferences only when money was made salient,  $t(239) = 2.05$ ,  $p = .041$ ,  $\eta^2 = .017$ . Roughly speaking, when money was made salient, men with money preferred a woman who weighed 124.9 lb, whereas men without money preferred a woman who weighed 127.2 lb (see footnote 1 for the conversion equation). This study is the first evidence that fluctuating cues of financial status affect partner preferences.

Study 1 introduced a situational cue suggestive of financial woe and showed a predicted change in men's preferences. In Study 2, we used a more controlled manipulation of financial satisfaction: We randomly assigned participants to "poor" and

"rich" conditions. We predicted that men assigned to the poor condition would prefer a heavier woman than men assigned to the rich condition.

## STUDY 2

### Method

Undergraduates ( $N = 257$ , 120 female) were paid \$8 to complete a questionnaire packet that contained the relevant materials on two consecutive pages. Participants learned that "the researchers were studying the personal finances of students" and were asked to indicate the combined amount of money in their checking and savings accounts. The response scale constituted the primary independent variable. Some participants were given an 11-point scale divided in \$50 increments, from 1 (\$0–\$50) to 11 (over \$500), whereas other participants were given a similar 11-point scale divided in much larger increments, from 1 (\$0–\$500) to 11 (over \$400,000). Pretesting indicated that most students responding to the former scale would answer with the highest possible response, whereas participants responding to the latter scale would typically use the bottom of the scale. When participants respond toward the top or bottom of a scale, they tend to make corresponding inferences about their personal circumstances—that is, people at the top tend to feel more satisfied than people at the bottom (Schwarz, 1999). We predicted that the students in this study would feel relatively rich or relatively poor, depending on which scale they received.

After responding to this scale, participants reported how satisfied they were with their personal finances (on a scale from 1, *not at all satisfied*, to 9, *very satisfied*). Following the logic of Schwarz (1999), we predicted that participants responding to the \$500 scale would feel more satisfied than participants completing the \$400,000 scale—though random assignment dictated that actual financial resources would not differ across conditions. On the following page, participants indicated the ideal body weight of a potential partner.

### Results and Discussion

Four participants were excluded from the final analysis because they did not complete the primary dependent variable.

Participants who reported their personal savings on the \$500 scale were more financially satisfied than were participants who reported their savings on the \$400,000 scale ( $M_s = 5.58$  vs. 4.49),  $t(249) = 3.36$ ,  $p = .001$ , indicating a successful manipulation of financial satisfaction.

Next we investigated whether financial satisfaction influenced men's preferences for ideal female body weight. We predicted that men who reported their savings on the \$400,000 scale would prefer a heavier partner than men who reported their savings on the \$500 scale. As in Study 1, our analysis used two orthogonal planned contrasts, the first comparing male and female ratings (deprived males,  $-1$ ; satisfied males,  $-1$ ; deprived females,  $1$ ; satisfied females,  $1$ ), and the second

<sup>1</sup>A separate set of participants ( $N = 291$ , 155 female) completed a questionnaire in the absence of any direct manipulation. They reported their ideal mate's body weight on the 15-point scale used in all four studies and answered the same questions in terms of pounds. The resulting equations relating the scale responses ( $x$ ) to the responses in pounds ( $y$ ) were  $y = 3.23x + 104.22$  for men rating women and  $y = 6.392x + 126.05$  for women rating men.

<sup>2</sup>The second planned contrast, the central test of our main hypothesis, could be similarly analyzed with a  $t$  test comparing the two male samples. In this analysis, and in all similar ones in the remaining studies, the  $t$  test yielded a significant result. For presentational clarity, we report only the planned contrast here and throughout the article.

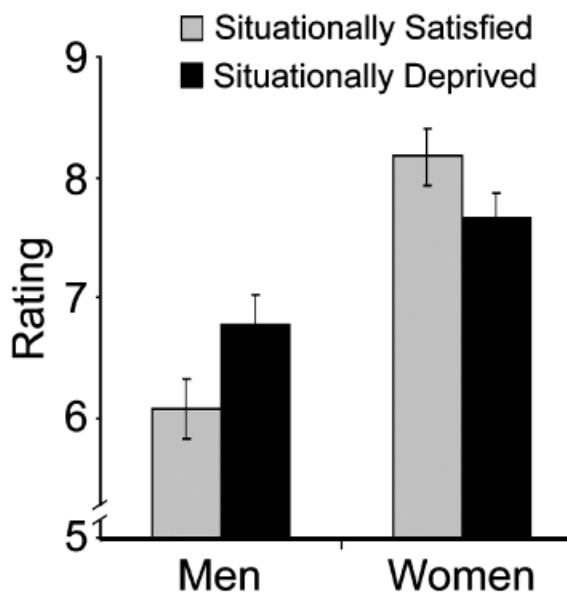


Fig. 2. Results from Study 2: mean ratings (with standard errors) for body weight in an ideal mate as a function of participant's sex and situationally induced sense of financial deprivation. The rating scale ranged from 1 (*much less than average*) to 15 (*much more than average*).

comparing deprived and satisfied males (deprived males, 1; satisfied males, -1; deprived females, 0; satisfied females, 0). Both contrasts proved significant, as men preferred relatively lighter mates than did women,  $t(249) = 6.13, p < .001, \eta^2 = .13$ , and deprived men preferred heavier women than did satisfied men,  $t(249) = 2.11, p = .036, \eta^2 = .018$ . The residual was not significant,  $t(249) = 1.43, p = .15$ , indicating that resource satisfaction did not affect women's preferences for male weight. Roughly speaking, satisfied men desired a woman who weighed 123.8 lb, whereas deprived men desired a woman who weighed 126.1 lb (see footnote 1). See Figure 2 for a summary of the means.

We further predicted that depending on condition, participants would feel either satisfied or unsatisfied with their personal finances, and that satisfaction would mediate the relationship between the manipulation and ideal partner's body weight in men. We tested this mediational prediction using the process outlined by Kenny, Kashy, and Bolger (1998). This analysis, like the planned contrast already discussed, showed that our manipulation affected male preferences for ideal female body weight,  $t(132) = 2.01, \beta = .172, p = .046, \eta^2 = .030$ . Our manipulation also predicted the mediator, self-reported financial satisfaction,  $t(132) = -2.96, \beta = -.254, p = .003, \eta^2 = .062$ . When the mediator and the independent variable were simultaneously entered into the regression, only financial satisfaction significantly predicted the body-weight preferences,  $t(132) = -3.54, \beta = -.305, p = .001, \eta^2 = .087$ , whereas the primary manipulation had no effect,  $t(132) = .804, \beta = .069, n.s.$  Finally, a modified version of the Sobel test confirmed that the drop in beta was significant,  $Z = 2.41, p = .016$ .

According to the logic of Kenny et al., these findings suggest that the experience of financial deprivation fully mediated the effect of our manipulation on men's judgments of ideal body weight in a mate.

In sum, these first two studies offer compelling evidence that male preferences for female body weight are partially determined by the internal assessment of personal resources. The subjective experience of financial dissatisfaction led men to prefer heavier women.

One could argue, however, that our findings do not speak to the emergence of the cross-cultural pattern in ideals of female body weight, because financial satisfaction as a construct is both culturally and temporally specific. Although money is fundamental to modern Western society, this is not the case for most other societies at most other times in history. In fact, for most of world history, "resources" have connoted not money but food (see Diamond, 1997). Resource scarcity has meant not financial dissatisfaction but food scarcity. Thus, we sought to buttress our initial findings with a more cross-culturally meaningful manipulation. We posit that one physiological state that people across time and culture recognize as symptomatic of resource scarcity is hunger. Thus, in Studies 3 and 4, we attempted to show that fluctuations in hunger lead to fluctuations in preferences that parallel those in Studies 1 and 2. To this end, we measured the preferences of men and women who were either hungry or satiated, and compared their stated ideals of body weight in potential partners. Simply put, we predicted that hungry men, relative to satiated men, would prefer heavier women.

### STUDY 3

#### Method

Undergraduates ( $N = 181, 83$  female) completed a brief questionnaire as they entered or exited a campus dining hall during dinner (approximately 6:00 to 7:30 p.m.).

The experimenter stationed himself near the entrance (which also served as the exit) to an undergraduate dining hall. To control for possible differences between early and late eaters, we collected data during the middle 90 min of the dining hall's dinner period. As people entered and exited the dining hall, the experimenter asked them to complete a brief questionnaire. Taking care not to allow participants to respond twice, the experimenter noted whether each subject was entering or exiting the dining hall when he or she responded.

As in the previous studies, participants rated ideal weight on a 15-point scale; in addition, on a separate and seemingly unrelated scale, participants reported their hunger. Upon completion of the questionnaire, the experimenter thanked and debriefed each participant.

#### Results and Discussion

Our central prediction was that men (but not women) would prefer a heavier opposite-sex mate when they were hungry than

when they were satiated. As in the previous studies, we also predicted that men would prefer a relatively lighter-than-average partner than women. We tested our predictions using two orthogonal planned contrasts, one comparing males against females (satiated males,  $-1$ ; hungry males,  $-1$ ; satiated females,  $1$ ; hungry females,  $1$ ), and the other comparing hungry and satiated males (satiated males,  $-1$ ; hungry males,  $1$ ; satiated females,  $0$ ; hungry females,  $0$ ).

Analyses confirmed our predictions: Men preferred a lighter ideal than did women,  $t(177) = 5.54, p < .001, \eta^2 = .15$ , and hungry men preferred a heavier woman than did satiated men,  $t(177) = 2.22, p = .028, \eta^2 = .027$ . Roughly speaking, hungry men preferred someone who weighed approximately 125.5 lb, whereas satiated men preferred someone who was 122.8 lb (see footnote 1). The residual was nonsignificant ( $t < 1$ ), suggesting that hunger did not influence female preferences (see Fig. 3). To test the role of experienced hunger in the men's evaluation of an ideal woman, we entered participants' self-reported hunger as a covariate.<sup>3</sup> The results were consistent with our predictions: When hunger was included as a covariate, hungry and satiated men did not differ in their estimates of ideal weight,  $F < 1, n.s.$  These data support our primary prediction that when men experience physiological cues of scarce resources, they prefer a heavier female.

In the final study, we hoped to accomplish two goals. First, we wanted to replicate the effect—an important concern given the unusual finding. Second, we wanted to use another measure of weight preference in addition to the scale used in the first three studies. Thus, in our fourth study, participants responded to the scale questions, but also provided explicit measures in pounds to describe what they envisioned as the average and the ideal members of the opposite sex.

#### STUDY 4

##### Method

Undergraduates ( $N = 184, 91$  female) were recruited to complete a brief questionnaire as they entered or exited a campus dining hall during dinnertime (approximately 6:00 to 7:30 p.m.).

The procedure in Study 4 was identical to that of Study 3, with the addition of two new dependent measures. In addition to describing the weight of their ideal member of the opposite sex on a scale, participants explicitly described this ideal in pounds and also provided a similar estimate about the average member of the opposite sex.

##### Results and Discussion

Our results replicated the findings from Study 3. To analyze responses on the ideal-weight scale, we used the same two sets

<sup>3</sup>Because we included this measure after the dependent variable, testing for mediation (i.e., Kenny et al., 1998) would not be appropriate. The analysis of covariance is consistent with a mediational prediction, however.

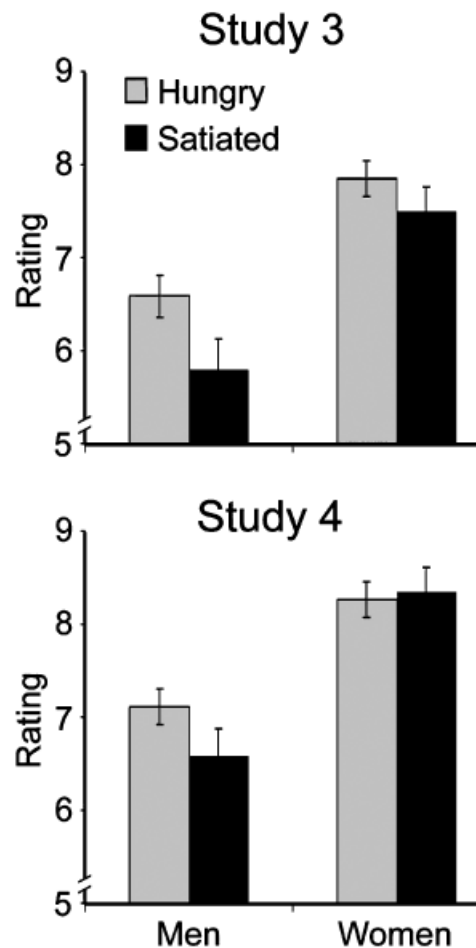


Fig. 3. Mean ratings (with standard errors) for body weight in an ideal mate as a function of participant's sex and hunger level, in Study 3 (top panel) and Study 4 (bottom panel). The rating scale ranged from 1 (*much less than average*) to 15 (*much more than average*).

of orthogonal contrast weights as in Study 3. Consistent with our predictions, the first set of contrasts confirmed a difference between male and female responses,  $t(180) = 7.05, p < .001, \eta^2 = .22$ , and the second set confirmed the hypothesized difference between hungry and satiated men,  $t(180) = 2.54, p = .012, \eta^2 = .035$ . The residual was not significant, indicating that satiety did not affect female judgments,  $t < 1, n.s.$  (see Fig. 3).

Participants also described their ideal mate using an exact measure of weight. Because there was tremendous variability in what participants perceived to be average, we analyzed the ideal-weight estimates with perceived average weight entered as a covariate.<sup>4</sup> For this measure, as for the scale metric, our theory suggests that hungry men will prefer a heavier woman than will satiated men, and that women overall will prefer a heavier partner than will men. An analysis of covariance re-

<sup>4</sup>Though there was variability in the perceived average, hunger showed no main effect on this measure, and also did not interact with participant's sex,  $F_s < 1, n.s.$

vealed that hungry men preferred heavier women than did satiated men ( $M_s = 127.0$  lb vs. 122.4 lb),  $F(1, 89) = 4.17$ ,  $p = .044$ ,  $\eta^2 = .045$ . The second prediction was also confirmed, as women preferred heavier partners than did men,  $F(1, 177) = 34.14$ ,  $p < .001$ ,  $\eta^2 = .16$ . These findings, along with those of Study 3, support our hypothesis that people use hunger cues when stating preferences for potential partners.

## GENERAL DISCUSSION

These four studies show that implicit cues to resource availability influence preferences for potential mates. In our first two studies, financially dissatisfied men preferred a heavier mate than did financially satisfied men, and as predicted, no such difference emerged among women. Study 1 manipulated financial satisfaction by making salient to participants whether or not they were carrying any money; Study 2 manipulated financial satisfaction by having participants report their savings on scales designed to impart a sense of either wealth or poverty. In Studies 3 and 4, hungry men preferred heavier women than did satiated men.

These findings provide evidence that temporary affective states can produce individual variation in mate preferences that mirrors an otherwise unexplained pattern of cultural norms. In wealthier cultures, thinner women are preferred, whereas in poorer cultures, heavier women are preferred. In our studies, similarly, men who were temporarily experiencing resource scarcity (in the form of financial dissatisfaction or hunger) preferred heavier women than did men who were temporarily experiencing resource abundance (financial satisfaction or satiety). We reasoned that this subjective experience of resource deprivation provides implicit cues about collective resources (see Neumann et al., 2003; Schwarz, 1990), and that people use these cues to construct their preferences. Our data are the first to identify a proximate mechanism for the manifestation of cultural norms at the individual level.

### Alternative Interpretations and Extensions

As with any complex phenomenon, alternative interpretations are certainly possible. Explanations that focus on cognitive load and mood, for example, provide reasonable accounts for some of the data, but seem inadequate to account for the results of all the studies. If our dependent variables are interpreted slightly differently, however, self-esteem seems to offer a reasonable alternative interpretation. Although we explicitly asked people to report their ideal, if they actually reported their minimum standard, a new possible mechanism emerges. Perhaps men infer personal status from their subjective feelings of resource security, and therefore seek a more attractive woman if they feel financially satisfied than if they feel financially dissatisfied. In a culture that values thinness, men who feel deficient in personal resources would prefer heavier women than men who feel sat-

isfied (Cunningham, Druen, & Barbee, 1997). Indeed, that is exactly what we found. This explanation fits the results for women less well, but it may be the case that in the same weight-conscious culture, the negative impact of feeling hungry is countered by positive feelings associated with feeling thin, resulting in the overall null effects we observed. One way to directly investigate this hypothesis would be to conduct the study in a cultural context where the norms are reversed and heaviness is seen as a virtue. If our original hypothesis is correct, the current findings should be replicated, but if the primary mechanism is actually self-esteem, a precise reversal would be expected.<sup>5</sup>

In sum, though a self-esteem account demands future investigation, we believe the theory advanced here has the advantage of parsimony, as well as consistency with existing psychological and anthropological observations. In addition, the data support our hypothesized mechanisms: In Studies 2 and 3, mediational and covariation analyses indicated that feelings of financial and caloric dissatisfaction contributed significantly to the effects.

### Coda: The Mutual Constitution of Mind and Culture

Our findings highlight a mechanism by which cultural context shapes individual psychological experience, and through which cultural norms express individual experience. This interplay of mind and culture is fundamental to cultural psychology—specifically, the theory of mutual constitution, which posits that psychological and sociocultural structures constitute each other in a feedback loop between the individual and the collective (Fiske, Kitayama, Markus, & Nisbett, 1998; Kim & Markus, 1999).

Our model also relies on the interplay between the individual and the collective. We have shown that individual preferences depend on situational feelings of resource scarcity. The mutual-constitution framework further suggests that in cultures where such scarcity is endemic, these malleable preferences should crystallize into cultural norms. This prediction is borne out by our findings: Although preferences within a culture fall into a range prescribed by cultural norms (e.g., Americans favor relatively thin women), these preferences vary within that range according to situational feelings of scarcity.

Cultural psychology can be roughly understood as the combination of two theoretical perspectives—first, that people are very different in different cultures, and second, that some attributes are culturally universal (Fiske et al., 1998). Our findings attest to the validity of both perspectives. Although our research was inspired by a cross-cultural difference, we identify an underlying mechanism that is presumed to operate universally. Thus, in the broader quest to determine which aspects of culture are universal and which are relative, one must look

<sup>5</sup>We want to acknowledge an anonymous reviewer for suggesting this design.

beyond specific norms and practices to the underlying processes that produced them.

**Acknowledgments**—We would like to thank Norbert Schwarz and Dale Miller for comments on an earlier version of this manuscript. Portions of this research were presented at the annual meeting of the Society of Personality and Social Psychology, San Antonio, Texas, February 2001, and at the annual meeting of the Society for Judgment and Decision Making, Vancouver, British Columbia, Canada, November 2003.

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(RECEIVED 1/6/04; REVISION ACCEPTED 3/1/04)