EFFECTS OF OBESITY AND SOCIAL INFLUENCE ON THE FOOD CHOICES OF OTHERS

by

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ABSTRACT

This research examines how the body type of consumers affects the food consumption of patrons around them. We present a parsimonious model based on anchoring and adjustment, where consumers anchor on the quantities others around them select, but these portions are adjusted according to the body type of the referent other. Study 1 documents the effect, showing that people choose a larger portion following another consumer who first selects a large quantity, but that this portion is significantly smaller if the other is obese than if she is thin. Study 2 replicates and extends the effect, identifying a backfire effect: when a confederate selects a small portion, participants choose and consume more when the other is obese versus thin. Study 3 shows further evidence of the process: namely that the adjustment process is more pronounced for consumers low versus high in appearance self esteem and is attenuated when cognitive processing resources are constrained. Implications for theory, policy and public health are also discussed.

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"…Of making many books there is no end, and much study wearies the body"
- Ecclesiastes 12:12 (NIV)

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INTRODUCTION

Obesity and unhealthy food consumption are major public health issues, especially in industrialized countries. In searching to identify a cause for the epidemic, while some authors point to a more sedentary lifestyle (Blair and Brodney 1999) or genetics (Comuzzi and Allison 1998), most research tends to point to a marked increase in consumption (of food and drink) as the main driver of obesity (Chandon and Wansink 2007; Dehghan, Akhtar-Danesh, and Merchant 2005; Hill and Peters 1998; Lediwke, Ello-Martin, and Rolls 2005; Young and Nestle 2002). However, given that people eat many meals in the company of others, it is surprising that little research has examined how our food choices are shaped by those around us. This research examines how viewing other consumers' choices affects the sizes of the portions we select.

While prior research has begun to show that people's food consumption choices are shaped by social and interpersonal influences (e.g. Herman, Roth, and Polivy 2003), what has been lacking in the literature to date is an examination of how the food choices consumers make are influenced by the body types of others present. As many of our neighbors, friends and colleagues are likely to be obese, does eating with them result in you ordering less or more food? Does seeing an obese person order a steak for lunch influence you to order more or less food yourself? What if you see a thin girl order a large chocolate parfait? What if instead of a large portion she has a very small salad for lunch?

We approach these questions by first reviewing the literature on social influence. Much like many of the other behaviors in marketing, we propose that food choice is strongly subject to interpersonal influences, with consumers choosing larger (or smaller) portions after viewing another patron do likewise. Drawing on recent research on reference groups, to the extent that

consumers do not wish to emulate members of a given group, their consumption choices reflect a heightened desire to adjust away from the choices made by that undesirable group member. Using a model of anchoring and adjustment, we propose that consumers anchor on the consumption quantity decisions made by other consumers around them. However, we argue that the body type (thin versus obese) of this referent other interacts with this quantity choice in influencing the size of the portion we choose and consume ourselves.

Results from three experiments are consistent with this framework and provide new insights into the literatures on social influence and food choice. In Study 1, we propose and test a model based on anchoring and adjustment. We show that consumers anchor on the quantity choices made by other patrons, but also that they adjust their own choice and consumption based on whether the other person is a member of an (un)desireable reference group. We find that the extent to which consumers adjust their portion downward following seeing another patron select a large portion is moderated by the body type of this referent other. Specifically, we show that while consumers eat more following the selection of a large portion by another, they eat less when this other is obese than when she is thin. We also show that this effect occurs for both foods perceived to be healthy as well as unhealthy.

Study 2 considers the case where the other consumer sets up a low, rather than high, consumption anchor. We provide further evidence of our model, showing that consumers choose a smaller (larger) portion after first seeing another consumer select a small (large) portion. Study 2 also contributes by showing that consumers' desire to diverge away from the choice made by other consumer, while resulting in a smaller portion choice when she chooses something large, results in the opposite effect when she chooses a smaller portion. This ironic backfire effect shows an unintended consequence of the divergence effects identified recently (Berger and

Heath 2007; 2008; Berger and Rand 2008; White and Dahl 2008, namely that exposure to an outgroup engaging in behavior may result in an increase (rather than decrease) in that behavior, if the group member purportedly does it in moderation.

Study 3 provides further evidence into the process underlying these effects. We identify two moderators, one social (appearance self esteem) and the other cognitive (cognitive business) that impact our food selections. While those dissatisfied with their physical appearance are more likely to make social comparisons and look to others to inform their own behaviors, we show that this only occurs when cognitive processing resources are not constrained. This study contributes to the work done recently by identifying that divergence away from dissociative groups primarily occurs when cognitive resources are available. Together, these findings present a comprehensive examination of consumer food choice, which contributes by showing when (and how) people are likely to use the behavior of others in shaping their own consumption decisions. Further, we present a model, based on anchoring and adjustment, which parsimoniously explains our effects.

CONCEPTUAL BACKGROUND

Anchoring and Adjustment Processes

Models based on anchoring and adjustment have been shown to be robust in many contexts, even when people are highly motivated for accuracy (Epley and Gilovich 2006; Jackowitz and Kahneman 1995; Plous 1993; Tversky and Kahneman 1974). Anchors serve as reference points that are difficult for even experts to ignore, and represent a relatively simple way to model consumers' choice of how much to purchase or consume, decisions we know are based on myriad situational factors in the retail environment. Wansink, Kent, and Hoch (1998) present a model of purchase quantity based on anchoring and adjustment. In their model, anchors set up by the retailer regarding multiple unit prices, purchase quantity limits, and suggestive selling can increase purchase quantities. In their research, the retailer sets up an anchor (e.g. "limit 12 per person") that consumers use as diagnostic in informing their own purchase quantity decision. Consumers adjusted upward from a small default anchor if a price justified stockpiling, and downward if a large anchor was set up (e.g. "buy 18 for your freezer"). Consistent with research on anchoring and adjustment, consumers tended to make an insufficient adjustment from the anchor, and ended up purchasing quantities that reflected the efficacy of the anchor.

While the anchoring and adjustment model proposed by Wansink et al. (1998) focused on anchors that *retailers* could set up to influence purchase quantity decisions, we know that anchors can come from a variety of sources in a consumption environment. We propose that *other consumers* can also set up norms of purchase that serve as anchors that consumers use in deciding how much to consume.

Social Influences and Food Choice

Past research has shown that consumption decisions are influenced by those who are physically present. People are sensitive to the behavior of others in a retail context (Argo and Main 2008; Bearden and Etzel 1982; Dahl, Manchanda, and Argo 2001), even if such a person is only physically present but does not engage the consumer in any way (Zhou and Soman 2003; Argo, Dahl, and Manchanda 2005).

In the domain of food consumption, studies have found that social influence can have either a facilitating or attenuating effect on eating behavior, depending on the context (see Herman, Roth, and Polivy 2003 for an excellent review). Herman et al. (2003) argue that food choice is influenced by a desire to convey a certain impression or adhere to social norms (Leary and Kowalski 1990; Roth et al. 2001). They review experiments that show that when a confederate sets up a norm, other participants tend to eat more (or less) as the confederate does. These norm effects are particularly poignant: those who are naturally inclined to eat large potions eat less in the presence of others, and those who would normally eat very little end up eating more. In other words, as the group size increases, no one wants to stand out, and people increasingly conform to the group average (Bell and Pliner 2003). This research demonstrates how an anchor set up by fellow consumers influences others' consumption quantity decisions. Since social norms are powerful, we expect to find that people anchor on the consumption quantities of others, eating more if the other sets up a high anchor than a low anchor.

However, while this line of research demonstrates an effect on eating behavior as a function of social influence, it is agnostic with respect to who the "other" people are that one

might be ordering or eating alongside. According to this research, it should make no difference if the people one might be sharing a meal with are thin or obese, so long as they choose the same amount. However, research suggests that we do not perceive obese people the same way as we do normal weight individuals, and thus may not react in the same manner to their food choices.

Obesity and Consumption

Some recent research has begun to examine the impact of obese others on consumption. For example, priming people with overweight images has been shown to lead to an increase in quantity consumed (Campbell and Mohr 2008). Using assimilation/contrast as a theoretical framework, these authors reported that consumers eat more when primed with overweight, but not obese consumers. In an interesting study, Christakis and Fowler (2007) found that a person's chance of becoming obese significantly increased when a close other (e.g., friend, sibling, spouse) became obese (although see Cohen-Cole and Fletcher 2008 for a rebuttal), and other research on "imitative" obesity has begun to emerge using econometric techniques (Burke and Heiland 2007; Blanchflower, Oswald, and Van Landegham 2008). These studies ignore what choices the other person has made, focusing only on their body type, and conclude that eating with those who are overweight will lead to an increase in one's food consumption, and thus people emulate others they are close to. However, obesity is something most people wish to avoid, so it seems counterintuitive that consumers would consciously choose to mimic portion choices of those who are overweight when they themselves (presumably) do not desire to be overweight. While the research outlined above has focused either on consumers' reactions to

how much others eat or how the body type of others impacts consumption, little research has examined the influence of the two jointly. We examine both of these factors simultaneously and predict that observing others choosing a large (or small) portion will result in you doing likewise, but that this effect is moderated by the body type (thin versus heavy) of the other consumer[1].

Most cultures currently place a high value on thinness, and those who are overweight or obese are often victims of stereotyping or stigmatization (Shapiro, King, and Quinones 2007). However, unlike some stigmas, blame for being obese is attributed directly to the individual, the assumption being he or she is in full control of his or her weight (e.g., Crandall 1994; DeJong 1993; Rothblum 1992; Weiner, Perry, and Magnusson 1988). Consumer research has begun to show that the effects of social "others" is moderated by whether the person is a member of an aspirational or dissociative group (Berger and Heath 2007; 2008; Escalas and Bettman 2003; 2005; White and Dahl 2006; 2008). Aspirational groups are circles that one wishes to be a part of; dissociative groups have the opposite effect – people wish to avoid them. White and Dahl (2006) showed that men were less likely to order a steak when it was labeled "ladies cut" than when it was named the "chef's cut". Other research has shown that people are likely to seek out products that are in-group favored but avoid products that are associated with outgroups (Berger and Heath 2007, 2008). Since the obese represent a dissociative reference group and research shows that we avoid the choices of those we do not wish to emulate, we expect the adjustment to the anchor set up by another consumer to be moderated by the body type of this other individual. If the other consumer sets up a norm of a large quantity, we predict that consumers will adjust their choice to a greater degree when the other person is obese, resulting in people eating more when the other person is thin than obese. However, body types of others may activate stereotypes

[1] A pretest was conducted to examine whether people indeed recall changing their order as a function of the weight and/ or choice of a patron in front of them in a retail environment. Details regarding the methods and results of this study are available in Appendix 1.

about what foods (s)he is likely to consume, as the obese are seen as over-indulgent and eating poorly (Bacon, Scheltema, and Robinson 2001), so it may be the case that this effect only exists for food categories that are congruent with these stereotypes (i.e. unhealthy, fattening foods).

Perceived Healthiness of Food Choices

While there have been several studies examining eating behavior, such studies have tended to focus on unhealthy items such as cookies (Roth, Herman, Polivy, and Pliner 2001), ice cream (Johnston 2002), and candy (Scott, Nowlis, Mandel, and Morales 2008). Consumers associate losing weight with eating the "right" food rather than an appropriate portion size (Antonuk and Block 2006; Allred 1995), but ample evidence suggests that it is the latter that matters at least as much as the former in achieving a healthy body weight (Wansink 2006).

There are also theoretical reasons to examine perceived healthiness of the food. On one hand, obese people are perceived as eating "inappropriate" foods, such as those high in fat and sugar (Weiner, Perry, and Magnusson 1988). People stereotype the obese as supersizing their burgers and fries, not their salad. The association with obesity is not as strong, therefore, with healthy foods. For those observing the confederate's food choice, the link between food quantity choice and his or her weight should not be as salient when the domain of choice is healthy food as compared to when it is unhealthy food. Johnston (2002) found that a large birthmark, while creating a stigma, did not result in participants changing their ice cream intake versus when the other was not a dissociative group member. If this is the case, participants' food selections should be impacted less by what the confederate chooses, showing that the pairing of the

stimulus (unhealthy food) with the target (an obese person) is necessary to influence behavior. This would also suggest that with healthy food choices, the social influence effects of obesity on behavior might be attenuated. However, if the domain of choice is unhealthy food, we would expect to see an adjustment based on the body type of the other, with participants taking less when the confederate is obese than when she is thin. Given this, it seems reasonable to predict an interaction between food type and confederate weight. When the food is unhealthy, participants will take more when the confederate is thin than when she is obese; however, when the food is healthy, consumption will not be affected by the body type of the confederate.

On the other hand, the obese are a group of people that people generally do not wish to emulate. Work on dissociative reference groups would predict that the domain of consumption should not have as large of an impact as the reference group itself. For example, Berger and Rand (2008) found that video gamers linked to high junk food consumption led to a decrease in participants' junk food choice. There is nothing about video games *necessarily* that causes one to become obese. Based on this logic, regardless of the type of food offered, when the confederate sets up a high quantity anchor, people will adjust downward to a greater degree if she is obese than if she is thin. According to this view, we would predict only a main effect of confederate size, namely that participants will take less when she is heavy than thin. Study 1 was designed both to test the propositions of our anchoring and adjustment based on body type, and to examine whether the model might be bounded within unhealthy food.

STUDY 1

Participants and Procedure

The hypotheses were tested using a 2 (confederate body type: thin vs. obese) x 2 (food healthy vs. unhealthy) + 2(Controls: no confederate, M&Ms vs. granola) between-subjects experimental design. Participants included ninety-five undergraduate females from a large North American university who completed the study in exchange for $10 remuneration. Females are more sensitive to social comparisons regarding body type (Trampe, Stapel, and Siero 2007), and given that our confederate was female and following other research in this area (e.g. Herman, Koenig-Nobert, Peterson, and Polivy 2005; Smeesters and Mandel 2006), we restrict our inquiry to females in this study. Participants who either indicated they did not notice what the confederate took (n=4), or both took and ate more than 3 standard deviations over the mean (n=2) were deleted from the analyses. One person was allergic and elected not to eat anything.

Participants were invited individually into the lab between the hours of 12:00 noon and 6:00 pm to participate in a study examining people's experiences viewing movies. In all of the conditions (except the controls) purportedly "in order to save time," participants were told they would be run in pairs (the other participant was always a trained confederate), and "to make the experience more realistic" they were offered a snack before viewing the film clip. In all conditions, the confederate was instructed to take 5 heaping tablespoons of the food in view of the participant, an amount that was pre-tested to be perceived as a large quantity for one to take. The participant was then invited to take snacks that she wanted before watching the film. Neither the confederate nor the research assistant watched what candies the participant selected. Both the

participant and the confederate were then led into separate rooms where a TV was located. Participants were told to watch the film, a benign 5 minutes clip from the film *I, Robot*, and then fill out the questionnaire about their experience. They then completed a questionnaire, which contained a number of dummy questions about the film (including product placement), the room (including the suitability of the lighting and chairs), a dieting scale, their height and weight, manipulation checks, and a suspicion probe.

Manipulations. The same confederate was used in both the thin and overweight conditions, and was the same ethnicity as the vast majority of the participants. To manipulate confederate body type, a professionally-constructed obesity prosthesis was worn by the confederate in the overweight condition (see Figure 1). This suit was custom designed for the confederate's body by an Academy Award-winning costume studio. Her natural height was five feet, two inches (157.5 cm), weighing 105 pounds (47.6 Kg), with a BMI of 19.2 (on the low end of normal, but not underweight), and she wore a size 00. With the suit on, she appeared approximately 180 pounds (81.8 Kg, BMI approximately 33), and wore a size 16, making her appear obese. Identical clothes were tailored in both small (to fit her natural body type) and large (over the prosthesis) sizes. Multiple sets of clothes were employed, and were chosen randomly.

The food choice offered to participants was manipulated to be perceived to be either healthy or unhealthy. In a manipulation borrowed from Wansink and Chandon (2006), granola and M&Ms were used as the healthy and unhealthy foods, as they are similar in caloric density but differ strongly in health perception. To ensure the internal validity of this manipulation in the

study population, a pretest was conducted, which validated that granola was indeed perceived to me more healthy, less hedonic, and less likely to contribute to obesity than were M&Ms[2].

Measures

Dependent variables. The main variables of interest were the weight of the snacks that the participant took and ate as a function of the confederate's body type. To assess how much participants took and ate, the bowl containing either M&Ms or granola was weighed both before and after the session, accounting for how much was first taken by the confederate. Because the movie clip was short in duration, not all participants ate all of what they took. However, they were not permitted to leave the room with their bowls, and thus we were able to observe the uneaten quantity to calculate a measure of actual consumption by each participant. Our measures advance prior research, as we are able to decouple the choice and consumption decisions. In our paradigm, while the participant sees how much food the confederate takes, she does not observe the confederate's actual consumption (unlike Johnston 2002; Polivy, Herman, Younger, and Erskine 1979; Conger et al. 1980). As well, in our research the choice decision of how much to put on the plate is a one-shot decision. Unlike past research, the participant is unable to "go for seconds" or consume more food than she put on her plate at the initial decision phase. As such, this represents a more conservative test, as the participant cannot update her choice as a result of viewing another person continuing to consume.

Other Measures. Participants' propensity for dieting or restrained eating was measured with a 10 item scale from Garner, Olmstead, and Polivy (1983), including items such as "How

[2] Further details are available in Appendix 2.

often are you dieting?," "Do you eat sensibly in front of others and splurge alone?," and "Do you have feelings of guilt after overeating?" The reliability of this scale was α=.83. Many studies have shown that restrained eaters behave differently than those who are not (e.g. Antonuk and Block 2006; Scott, Nowlis, Mandel, and Morales 2008), and thus we include this variable as a covariate in our analysis. This measure was assessed at least one week in advance using an online survey.

Following the film clip, the questionnaire contained a manipulation check assessing the body type of the confederate, measured on three seven-point scales (-3 to +3): "The other subject in this experiment is" (very overweight/very underweight; very obese/very thin) and "Compared to me, the other student in this experiment is" (much heavier/much thinner); reliability was α=.76

In this and subsequent studies the vast majority of our participants reported normal BMIs, and **c**ontrolling for BMI does not impact our results and is thus not discussed further. Results of the suspicion probe showed that no participants were suspicious that the confederate's obesity was not genuine, nor were any aware that she was not a fellow participant. In this study, we also record the time of day the session was run, and controlled for it in the model.

Results

Manipulation check. The manipulation check was successful. An analysis of covariance (ANCOVA) using the perceived weight index as the dependent variable, amount taken and confederate body type as independent variables, and participants' dieting orientation and time of day as covariates revealed only a significant main effect for participant size $F(1,59)=52.95$,

p<.001. The mean pattern again showed that participants perceived the confederate to be heavier when she was wearing the suit (M=0.46) than when she was not (M=1.93).

Dependent measures. The quantities of food taken and eaten were standardized within food (granola or M&Ms) prior to analysis. To facilitate interpretation, however, unstandardized means are reported below.

An ANCOVA was performed with quantity of food taken from the bowl as the dependent measure revealed only a main effect for confederate body type ($F(1,60)=3.96$, $p=.05$). Participants took more food when the confederate was thin (granola mean 41.33 grams; M&M mean 74.27 grams) than when she was obese (granola mean 33.47 grams; M&M mean 58.20 grams). The interaction between food type and confederate body size was non-significant ($F<1$), indicating that regardless of whether the food was perceived to be healthy or unhealthy, participants showed restraint after observing an obese person taking a lot of food compared to a thin person taking the same amount.

Compared to the control group, participants took more on average from the food bowl if there was a confederate present (mean for granola 38.06, M&M 66.23) than when there was not (mean for granola 22.33, M&M 22.71) ($F(1,85)=19.53$, $p<.001$). Control group participants took significantly less than those alongside an obese confederate ($F(1,85)=9.21$, $p<.01$), and a much smaller quantity than if the confederate was thin ($F(1,72)=20.09$, $p<.001$). Full results can be seen in Figure 2.

ANCOVA on participants' actual consumption also revealed the same pattern as their choice behavior $F(1,60)=5.67$, $p=.02$. Participants ate almost twice as much of both the granola and M&M s when the confederate was thin (granola mean 21.47; M&M mean 33.00) than when

she was obese (granola mean 13.13; M&M mean 20.47), regardless of whether the food was perceived to be healthy or unhealthy (interaction ($F<1$).

Compared to the control group, participants ate more if there was a confederate present (mean for granola 18.00, M&M 26.73) than when there was not (mean for granola 12.44, M&M 11.86) ($F(1,85)=4.40$, $p<.04$). Control group participants ate less than those alongside a thin confederate ($F(1,72)=8.39$, $p<.01$), and directionally less than if the confederate was obese (see Figure 3).

Discussion

We find evidence that people anchor on the food choices of others in their environment. Participants took significantly more when they first observed an anchor set up by a fellow consumer. Importantly, we show that the extent of adjustment is moderated by the other's body type. Participants adjusted downward to a greater degree when the referent other was obese than when she was thin. Interestingly, we observe nearly identical effects whether the food was perceived to be healthy or unhealthy. It seems that social influence effects involving obesity are generalized to both healthy and unhealthy foods. Our results suggest that it is portion size choice alone that drives the effect, rather than pairing obesity with stereotype-consistent food choices.

We also find that food choice decisions carry-over to actual eating behavior, even when participants were isolated watching a movie by themselves. Our results are inconsistent, therefore, with an impression management account. The participant was escorted into a separate room where she watched the video unaccompanied by anyone. First, while it seems possible that

participants may have chosen a portion to convey a desired impression to the confederate, it would not explain why she should also eat more while isolated. Secondly, social influence effects in eating behavior have been shown to persist even when the confederate is fictional or not physically present (Roth et al. 2001).

In this respect, our work differs from the model of identity signaling proposed by Berger (Berger and Heath 2007; 2008; Berger and Rand 2008). In our research, food choice was affected even when no one was watching the participant's consumption, and thus the ability and need to signal was muted. This research also differs from the work of Gibbons and Gerrard (1995) who focused on how the favorability of the outgroup changed as one began to engage in the behavior. We show that similarity to the other (defined by BMI) did not predict behavior. In other words, people who were heavier themselves were still just as likely to adjust their choice away from the obese confederate's choice, even when there was no other to signal an identity to. Indeed, people who are overweight generally do not wish to be so, and may hold less favorable attitudes towards other obese people than, say, smokers hold towards each other.

On the other hand, our findings are theoretically consistent with what has been shown recently by Berger and Rand (2008), who showed that consumers ate less junk food after being told that an outgroup (vs. ingroup) were the largest consumers of junk food on campus. However, while the link between outgroups and adjustment processes has been documented, their study leaves open the possibility that the effect they identify might be moderated by not only group status, but also by the quantity the outgroup was purported to consume. In their studies, the outgroup was always linked to a high anchor of unhealthy consumption. In our research, we also set up a modest anchor to examine the case where outgroups are linked to behaviors with a smaller health risk. For instance, while Berger and Rand (2008) found that

people diverged away and drank less when told that graduate students (an outgroup) drank lots, what if they had been told that graduate students were light drinkers? Would people drink even less than they would if they were told that outgroup members were heavy drinkers, or would this backfire, resulting in people drinking more? According to research on reference groups, consumers should adjust to a greater degree away from the anchor point of dissociative groups than aspirational ones (Berger and Heath 2007; White and Dahl 2008). Based on this theorizing, we predict that consumers will adjust upward following a small anchor (Wansink et al. 1998), but the size of this adjustment will be moderated by the group status of the other consumer. As a result, consumers will consume more following seeing an obese (vs. a thin) consumer choose a small portion. Study 2 will test this prediction, and also rule out the alternative possibilities that consumers simply eat more food in the presence of others (de Castro 1990; 1994), irrespective of the anchor they set up, or that people simply eat less when there are obese others in the retail environment.

STUDY 2

Method

Study 2 employed a 2 (confederate body type: thin vs. heavy) x 2 (confederate quantity taken: little vs. lots) +1 (no confederate control) between-subjects design. Participants included one hundred and fifteen undergraduate females from a large North American university who completed the study in exchange for $10 remuneration. Two participants indicated they did not notice what the confederate took, three ate greater than 3 standard deviations above the mean, and two participants experienced a failed manipulation as a result of experimenter error, so data from these participants were excluded from the analyses.

Procedure

Study 2 procedures were similar to those of Study 1 with the following exceptions. In Study 2, the dieting scale was now administered at the end of the survey. Second, instead of one food choice, participants were offered their choice of snacks from seven bowls of candy. Finally, rather than always indulging with a large quantity choice, we also manipulated the quantity that the confederate chooses so that she takes a small portion half of the time[3].

The confederate was handed a bowl first and chose her snacks in view of the participant. In the little food condition, the confederate randomly selected two candies from the seven bowls.

[3] Study 2 was conducted before Study 1 chronologically. In Study 2, only one confederate was used, for Study 1, the same confederate, plus one with a near identical body type, were both employed. There were no differences as a function of which individual played the part of the confederate.

In the lots of food condition, she takes approximately 30 candies total from all seven bowls (range 27-35, heavy M=31.42, SD=1.71, skinny M=30.90, SD=2.10, difference F<1).

Measures

Dependent Measures: The variables of interest were how many candies the participant took and ate as a function of the confederate's food choice and body type. To measure how many candies the participant took, the number of candies remaining after the session in each of the bowls was subtracted from the number the bowl started with and what the confederate took. Recall that for the purposes of testing our hypotheses, we are interested in how the effect of the social other's choice is moderated by her body type. As such, our key contrasts examine whether there is a difference across body type, within a given size chosen by the other.

The reliability of the dieting scale in this sample was .77. The reliability of the perceived body size of the confederate index (same items as Study 1) was .84. A second manipulation check assessing the quantity taken by the confederate was assessed with the single seven-point item: "The other student took how much from the snack bar?" (no food at all/a lot of food).

Results

Manipulation Checks. The manipulation checks were successful. A two factor analysis of covariance (ANCOVA) using the perceived weight index as the dependent variable, amount taken and confederate body type as independent variables, and participants' dieting orientation as a covariate revealed only a significant main effect for participant size ($F(1,81)=115.36$, $p<.001$).

The mean pattern showed that participants perceived the confederate to be heavier when she was wearing the suit (M=0.10) than when she was not (M=1.93).

An ANCOVA on the perceived amount taken by the confederate also revealed only a main effect $F(1,84)=221.71$, $p<.001$ such that participants believed the confederate took more candy when she took 30 candies (M=5.74) than when she took only two (M=2.40).

Dependent Measures. An ANCOVA with quantity of candies taken from the food bowls as the dependent measure revealed a main effect of quantity taken ($F(1,84)=71.90$, $p<.001$), such that participants took more when the confederate took 30 candies (M=12.62) than when she took only two (M=4.72). More importantly, the main effect was qualified by the predicted body type x quantity taken interaction ($F(1,84)=8.87$, $p<.01$). Planned contrasts[4] indicated that when the confederate took a large quantity of candy, participants took fewer when she was obese (M= 10.60) than when she was thin (M=14.45) ($F(1,39)=5.07$, $p=.03$). However, when she took very few candies, the opposite pattern emerged: participants took a greater quantity when the confederate was obese (M=5.43) than when she was thin (M=4.04) ($F(1,44)=4.22$, $p<.05$). The control group (mean= 8.50), differed from both the skinny/little $F(1,40)=19.14$, $p<001$), obese/little ($F1,39)=6.78$, $p<.01$), and skinny/lots $F(1,38) =10.40$, $p<.01$ conditions (see Figure 4).

An ANCOVA on participants' actual consumption revealed an identical pattern as their choice behavior. The main effect for amount taken by the confederate was again significant ($F(1,84)=22.18$, $p<.001$), such that participants ate more candies when the confederate took a lot (M=8.12) than when she took only a few (M=3.72). There was also a main effect on the dieting

[4] The variances differed substantially between the little and lots conditions due to the largely different baselines (2 versus 30 candies taken by the confederate), so contrasts were calculated using only the variances within these conditions, rather than pooling from the entire design.

scale F(1,84)=7.71, p<.01. However, these lower order effects were again qualified by the predicted body type x quantity taken interaction (F(1,84)=7.90, p<.01). Planned contrasts indicated that when the confederate took a large quantity of candy, participants ate fewer when she was obese (M=6.25) than when she was thin (M=9.82) ((F(1,39)=5.11, p=.03). In contrast, when she took very few candies, participants ate a greater quantity when the confederate was obese (M=4.26) than when she was thin (M=3.20) ((F(1,44)=2.76, p=.05, one-tailed). The control group (mean 7.88) differed significantly from the skinny/little (F1,40)=19.72, p<.001 and obese/little conditions F(1,39)=9.94, p<.01) only (see Figure 5).

Discussion

We replicate past findings (see Herman et al. 2003) that show that presence of others causes you to eat more (or less) dependent on the pattern the others have set. We show that consumers anchor on the norms set by fellow consumers' consumption choices. These norms are powerful, occurring after observing only one person make a food selection. More importantly, the results of Study 2 support our hypothesized interaction. When the confederate was observed taking a large quantity of food (setting a high anchor), participants again chose and ate less when she was heavy than when she was thin. However, when she was seen taking a small quantity (setting a low anchor), the opposite pattern was observed; participants chose and ate more when she was heavy than when she was thin. Importantly, this work contributes by showing that divergence away from the behaviors of others does not always mean doing them less. Rather than eating less after seeing a heavy person eat a modest amount, participants consumed more –

diverging by *increasing* an unhealthy behavior to dissociate, albeit still less than if the other had taken a large portion.

This study contributes to the literature on identity and health (e.g. Gibbons and Gerrard 1995; Gibbons, Gerrard, Blanton, and Russell 1998; Gerrard, Gibbons, Lane, and Stock 2005), by pointing to the fact that the images of those *not* engaging in a behavior (i.e. non-smokers, non-drinkers) may also affect the likelihood of adopting those behaviors. While they examined how the image of smokers, teen parents, and reckless drivers affects people's likelihood of adopting their risky lifestyles, the image of those who abstain should also be examined. According to our research, the image of an "uncool" *non*-drinker may actually lead to increased binge drinking as people strive to avoid an identity associated with that group. Similarly, while Oyserman, Fryberg, and Yoder (2007) examined how minority groups' health knowledge and perceived fatalism can shift as a function of identity perceptions ("how Black is it to eat fried food?"), they did not examine how food choices change as a function of seeing ingroup and outgroup members engaging in eating (un)healthy food, nor do they examine actual behavior.

The design of Study 2 also allowed us to examine the alternative prediction that consumers are simply mimicking the other consumer when she is thin. Mimicry is a robust phenomenon that leads to individuals taking on the mannerisms of those they interact with as a way of building affiliation between those engaged in the social interaction (Chartrand and Bargh 1999). In a consumption domain, Tanner, Ferraro, Chartrand, Bettman and van Baaren (2008) have recently shown that consumers do indeed mimic the consumption choices of other consumers. For example, they found that participants that observed a confederate choosing one snack food out of a set of choices chose a much higher percentage of that snack themselves, relative to a control group that was not mimicked. A follow-up analysis was performed to

provide support that the type of consumption reaction to the body types of others is driven largely by an anchoring and adjustment mechanism, and not a nonconscious mimicry mechanism. Our study incorporated multiple choices of food, so participants were free to select food that the confederate does not take, as in Tanner et al. (2008). If mimicry were operating, we should have seen convergence on both variety and quantity dimensions between target and confederate, which we did not observe. Participants' choices were not influenced by which choices were made by the confederate, and were not different when she was thin or heavy[5].

While the results of Studies 1 and 2 show support for the effects of social influences on food choice and how these effects are moderated by the body type of the other consumer, they are silent on when these effects are more or less likely to occur. Is eating less in the presence of a heavy person a thoughtful, deliberative effect, or one that occurs less consciously? Are there certain individual or situational factors that enhance susceptibility to reference group effects? Research in social comparison theory (Festinger 1954; Kruglanski and Mayseless 1990; Wood 1989) argues that one's evaluation of the self is relative, meaning that people compare themselves to the behavior and relevant cues of others in forming their self-perceptions. While a basic tenet of social comparison theory is that consumers make comparisons with those who are similar to themselves, other research has found little support for this proposition (see Wood 1989). If it is similarity to the outgroup driving the effects of adjustment, we would expect that those who are heavy themselves (high BMI) *not* to adjust to the same degree with the dissociative outgroup, however we have found no evidence for BMI affecting our results. On the other hand, people also differ in their satisfaction with their own appearance, and this may not correlate with their own BMI. For instance, persons suffering from anorexia nervosa are often

[5] Additional details regarding this analysis and a discussion of the results can be found in Appendix 3.

objectively very thin, but also have a very high degree of body dissatisfaction; similarly, there are consumers with a high BMI who are quite satisfied and confident in their appearance.

There is reason to expect that the mechanism may be psychological rather than physiological. C.T. Miller (1984) argued 25 years ago that people are more likely to use dimensions important to their self-definition when engaging in social comparison. Miller found that women who were self-schematic on gender used it as a comparison point even when it wasn't relevant. For those dissatisfied with their body's appearance (low in appearance self esteem (ASE)), this dimension should be especially relevant and should thus be a determinant of social comparison. This tenet is supported in a recent paper, where Trampe, Stapel, and Siero (2007) found that those high in body dissatisfaction have been shown to be more sensitive to social comparison following exposure to the body types of others. Given that dissatisfaction with one's body increases proneness to social comparison, we hypothesize that those dissatisfied with their appearance will engage in adjustment to a greater degree. However, among those confident in their appearance, less social comparison should occur, resulting in no change in behavior as a function of the body type of the other consumer. Support for this hypothesis would provide evidence that our adjustment process does indeed stem from social comparison, and also contribute to the reference group literature by identifying a moderator for divergence.

We also anticipate a boundary condition to the effects we have identified. While recent work has shown that consumption decisions can be driven by a divergence or adjustment away from dissociative outgroups (Berger and Heath 2007; 2008; Escalas and Bettman 2005; White and Dahl 2008) evidence of the nature of the process is still largely untested. Does divergence happen automatically, or is it an effortful process? What would have happened if participants in Studies 1 and 2 lacked the cognitive ability to adjust their anchor? Would less restraint have been

shown after seeing an obese person order a large quantity of food? In other words, while there is some evidence that the divergence shown in past studies is a social process, is it also cognitive? While others have examined how cognitive load may impact the adjustment from numerical anchors (e.g., Epley and Gilovich 2006), it remains untested whether cognitive processes are necessary to drive an adjustment based solely on the desirability of group membership. If we were to show that consumers failed to adjust for the other consumers' body type under cognitive load, this would be strong evidence in support of our anchoring and adjustment model. Research on anchoring and adjustment models has shown that the adjustment process can be attenuated by a lack of cognitive resources (Gilbert 2002; Gilbert and Gill 2000; Kruger 1999; Wegener and Petty 1995). Accordingly, we hypothesize that the decision to diverge away from outgroup associations is a cognitive one, and that in the absence of cognitive resources, the adjustment we documented in Studies 1 and 2 should be attenuated. Thus, we predict that only when ample processing resources are available should we see an adjustment effect based on body type. We focus again on the overconsumption anchor, as this poses the greater public health risk. As such, we predict a 3-way interaction between the referent other's weight and the consumer's appearance self esteem (ASE) and cognitive load. When processing resources are not constrained, we expect those low in ASE will choose a smaller portion when the other person takes a large quantity. However, among those high in ASE, this effect should be attenuated. Without available processing resources, we expect that neither the weight of the other person nor ASE will have an effect on participants' food choice. Support for this hypothesis would identify a boundary condition to the effects of identity signaling and social comparison, namely that the adjustment process requires conscious resources. Study 3 tests these hypotheses.

STUDY 3

Method

The predictions were tested using a 2 (body type of person in front of you: thin vs. obese) x 2 (cognitive load: low vs. high) between-subjects experimental design, plus a measured body satisfaction variable. Participants included one hundred and forty-four undergraduate students (97 males, 47 females) from a large North American university who completed the study in exchange for partial course credit.

Procedure. Participants were invited into the lab in order to participate in a study purportedly to test the effects of memory on decision making. First, cognitive load was manipulated by having participants memorize a 10 (high load) or 2 (low load) digit number that they would be asked to recall later in the experiment (Shiv and Fedorikhin 1999). Following the manipulation, participants were told the researchers would be examining consumers' decision making processes when they make selections among menu items, and that "In order to make the study more realistic, the menu items presented to you are dishes actually offered by a retailer" (White and Dahl 2006). The menu contained four flavors of ice cream (French Vanilla, Dutch Chocolate, Cookies 'N Cream, and Strawberry), all of which were available in 5 sizes (x-small, 6oz.; small, 9oz.; medium, 12 oz.; large, 15 oz.; and x-large, 18oz). Participants were then asked to imagine the following scenario containing the manipulation of the other's body type:

"You are in a long line at an ice cream store. It has been a long day and you are feeling like you'd like to order a cold treat, but you are not sure exactly what you would like to order.

As you wait in line, you glance over at the menu. As you get closer to the front of the line, you glance at the person in front of you. Although they are the same gender as you, you cannot help but notice them because of their weight: they are very overweight (thin). "Wow! That is one of the heaviest (thinnest) people I've ever seen," you think to yourself. You still have not made up your mind when the person in front of you is about to order. You overhear the person in front of you orders their snack: an X-Large Ice Cream Cone. As the person receives their order, the clerk asks you what you would like to have…"

Participants were then asked to choose a size and flavor (the latter was included to make the scenario more realistic and disguise the study purposes) of ice cream that they would choose. Following this was the number recall, dummy questions about the menu and flavors offered, scales measuring dieting and appearance self esteem, and basic demographic information.

Measures

Body dissatisfaction was measured with the six-item appearance self esteem (ASE) scale developed by Heatherton and Polivy (1991), and contains items such as "I feel satisfied with the way my body looks right now," "I am dissatisfied with my weight," and "I feel unattractive." The reliability of the index in this sample was α=.88. The reliability of the dieting scale (same as Studies 1 and 2) in this sample was α=.79[6]. Because numerous studies have shown differences between men and women in eating habits and preferences, as well as sensitivity to body image, we treat gender as a covariate in our analysis.

[6] The correlation between the dieting scale and the ASE scale was -.47, $p<.001$ and excluding dieting from the analysis does not impact the results. The correlation between ASE and BMI was -.14, and was non-significant in this sample, $p>.10$.

To assess the validity of our manipulations, we measured perceived confederate weight using a single item "The person in line in front of me in the scenario was: (-3) very overweight/ (3) very underweight. Cognitive load was assessed with two seven-point scales ("I found it challenging to read the scenario while trying to remember the number" and "Remembering the number was easy," anchored by (-3) completely agree/(3) completely disagree, with the second item reverse-scored. The reliability of the cognitive load measure was $r=.63$, $p<.001$.

Dependent Measure. Choice was assessed by having participants select a size of ice cream that they would order. Given that the sizes were labeled as ranging from 6 to 18 oz. in three-ounce increments, size choice was treated as a continuous variable ranging from 1 (x-small) to 5 (x-large).

Results

To test moderation where one of the variables is continuous, analyses were conducted using hierarchical regression (Aiken and West 1991; Dawson and Richter 2006)[7]. In the first step, main effects for cognitive load, ASE, and other's body type, along with participant gender and the dieting scale were included. In the second step, the three two-way interactions between the factors were entered. Finally, in step three, the three-way ASE x Cognitive Load x Other's Weight was entered. All variables were mean-centered to reduce multicollinearity and facilitate interpretation of lower order effects (Aiken and West 1991; Irwin and McClelland 2001).

[7] Conducting the analyses entering all of the variables in a single step yields identical results (see Stone and Hollenbeck 1984).

Manipulation checks. Manipulation checks showed that our manipulations were successful. Participants deemed the participant heavier when (s)he was specified as heavy in the scenario than when (s)he was purportedly thin (B=.81, t=15.62, p<.001). Importantly, no other main or higher order interactions were present.

Our manipulation check for cognitive load showed that those under load deemed the situation more difficult to process than those not under load (B=.59, t=8.32, p<.001). No other main or higher order effects were present.

Dependent Measure. Results on the size choice variable showed a simple main effect of gender (B=.39, t=4.79, p<.001) and a marginally significant simple main effect for dieting (B=-.15, t=1.67 p<.10) both in the expected directions. However, these effects were qualified by the predicted 3-way ASE x load x other's weight interaction B=.18, t=2.33, p=.02 (see Table 1). To facilitate interpretation and exposition of the interaction, simple slopes analyses were conducted.

Regression lines were plotted for one standard deviation above and below the mean for ASE (Aiken and West 1991; Preacher, Curran, and Bauer 2006). Examining the conditions where participants were under low cognitive load (see Figure 6), low ASE participants chose significantly less when the confederate was heavy than when (s)he was thin (b=.74, SE=.24, t=2.16, p=.03), but no differences emerged among those high in ASE (b=-.06, SE=.34, t=-.18, p>.85). Examining across condition, low ASE participants took marginally less than those high in ASE when the other person was heavy (b=.43, SE=.26, t=1.66, p<.10), but not when (s)he was thin (b=-.06, SE=.18, t=.33, p>.74). These results support our hypothesis.

Interestingly, under high load (see Figure 7), those high in ASE took marginally more when the confederate was thin than when she was obese (b=.52, SE=.28, t=1.88, p=.06), but no

differences were observed among those low in ASE (b=-.16, SE=.27, t=-.60, p>.55). However, examining across conditions we find no differences among those high or low in ASE, regardless of whether the other was heavy (b=-.19, SE=.18, t=-1.07, p>.28) or thin (b=.22, SE=.17, t=1.33, p>.18).

Discussion

Our 3-way interaction shows that conscious effort is required for participants to adjust their consumption downward following an obese person setting a high anchor. Consistent with our theorizing, under low load, participants low in ASE generally ordered a smaller choice when the other person was obese than thin, but those high in ASE were less impacted by the social presence. We predicted no differences under high cognitive load, and indeed this was consistent with our results in general. Without the cognitive resources available to engage in an adjustment, low ASE participants did not differ as a function of the other's body type. However, there was a subtle suggestion that those high in ASE may have adjusted towards the thin "other" without deliberate thought, ordering a larger size as a result. While this finding was unexpected, this may have occurred because those high in ASE are least motivated to engage in correction. In this sense, our results could be conceptually similar to work on nonconscious stereotyping. While participants noticed that the body type of the other regardless of cognitive load (the results of the manipulation check confirm this), the adjustment was only seen with cognitive resources. While identifying the stigma and activating associated prejudices can be occur automatically, a conscious component may be needed to direct action associated with the stereotype (Brewer 1988; Devine 1989; Fiske and Neuberg 1990). As well, research in assimilation and contrast has

shown that people can assimilate both to those possessing desireable traits (Stapel and Winkielman 1998), as well as those who resemble the self (Smeesters and Mandel 2005). Since the high ASE confederate shares more in common with the thin other, these participants may have unconsciously assimilated to his or her choice. The fact that those low in body image satisfaction (generally correlated with obesity, see Mirza, Davis and Yanovski 2005; Yates, Edman, and Aruguete 2004), showed more, rather than less divergence away from the obese confederate, is evidence that our effects are not explained by models that use similarity to the other (Festinger 1954; Gibbons and Gerrard 1995) to predict behavior. Given that our results held in situations where no explicit social evaluation by the other was possible, and were not influenced by participants' BMI, food consumption effects may extend beyond what might be predicted by existing health identity signaling models.

GENERAL DISCUSSION

The studies reported above highlight an important person by situation interaction in the social influence of food consumption. We show that it is not as simple as eating with heavy people makes you eat more (or less); it depends on what this other chooses. Across three studies, we show support for an anchoring and adjustment process where people use a quantity anchor set up by others in determining how much they select themselves, but also adjust from this depending on who the other is. Study 1 shows evidence of both an anchoring process based on what other consumers select and an adjustment that occurs based on the other's body type. Study 2 replicates and extends these results, identifying a backfire effect: when a confederate selects a small portion, participants choose and consume more when the other is obese versus thin. Study 3 demonstrates that cognitive resources and appearance self esteem moderate the adjustment effect. Taken together, these results represent a comprehensive package of how social influence effects in food consumption are moderated by the body type of other consumers.

While we find that anchoring and adjustment explains our findings, others have shown consumers can mimic those around them in a consumption setting, without deliberate thought (Chartrand and Bargh 1999; Tanner et al. 2008). In our research, a downward adjustment based on the body type of the obese other occurred only when cognitive resources were available. Future research should test when each of the paths (anchoring and adjustment and nonconscious mimicry) is likely to guide behavior. As well, in our experiments, the obese other served as a strong differential cue. It could be that if consumers have a strong motive for affiliation, non-conscious mimicry may be more likely to occur. Future research should test this possibility.

Our results replicate research that shows that people are more likely to eat greater portions when in the presence of others who do likewise; we also extend these results to show that this effect is even greater when the other person is thin rather than heavy. Thus, our findings strongly suggest, counter to other research done in the social influence literature on food consumption, that in many cases the most dangerous people to eat with are not those who are overweight, but rather those who are thin but are heavy eaters. It is important to note that these results do not contradict the recommendations of those who suggest that small-portion eaters should eat by themselves, but large-portion eaters should seek out a group (e.g. Wansink 2006). Our results indeed do find that compared to no one else present, large portions chosen by others lead to greater consumption, and smaller portion choices by others are associated with eating less. However, we show this is qualified by the weight of the other person. If a heavy-set colleague eats a lot, he or she is a better lunch partner than a thin colleague who orders the same dish. On the other hand, a thin colleague who eats lightly is more likely to cause others around them to order less. From the perspective of self-regulation, recognizing situations where you are likely to be vulnerable to over consumption are important to identify. As a matter of maintaining a healthy body weight, such small food intake decisions have a larger impact than people realize on their body weight (Wansink 2006). However, while this research examines how eating with others whose food consumption is known impacts our choices, in many situations, consumers interact with people whose food choices are unseen. Their presence alone may impact food consumption (as suggested by Campbell and Mohr 2007), or may cause others around them to make inaccurate inferences about their food choices. As well, while the quantity one eats is important in maintaining a healthy body weight, so too is the nature of the food choice. This research examines only cases where food choices are relatively constrained, whereas in many

situations, food choices can vary both on size and nutritional content. Effects of body type on the healthiness of others' specific selections (either in a grocery store or a restaurant) would be worth examining.

Another limitation of our studies is that almost all of our participants were normal weight. According to social comparison theory, heavy participants *may* not view the obese confederate as a dissociative outgroup, and perhaps even an ingroup member, resulting in the opposite pattern of effects we observed in Study 2. Social comparisons may result in people using the behavior of those like themselves as a guide (de Luca and Spiegelman 1979; Smeesters and Mandel 2005). On the other hand, such comparisons may also be driven by the perceiver's professed similarities or psychological closeness to the target (Brown et al. 1992; Lockwood and Kunda 1997; Mussweiler 2001). The fact that those who psychologically feel unsatisfied with their body (rather than objectively being obese) chose a smaller size in Study 3 would suggest that the mechanism may be psychological rather than physiological. Future research should examine this distinction further, as well as other potential moderators such as age and relational distance, factors that might moderate the psychological closeness or perceived similarity participants would feel with the confederate.

While our results provide insight into how obesity moderates social influence effects in the domain of dining companions, it seems likely that such effects could have an impact in other domains as well. Might obese servers moderate food intake as a function of whether they are serving (un)healthy foods? While this research focused on an unhealthy behavior associated with one's body type (overconsumption), future research should examine if healthy behaviors linked to body type (e.g. physical exercise) would lead to the same effects. Does observing obese people exercise make one more or less likely to engage in physical activity? Getting a clearer

picture of how such cues operate would be important to understanding and moving towards the goal of an overall healthier lifestyle.

TABLE 1 – REGRESSION RESULTS (STUDY 3)

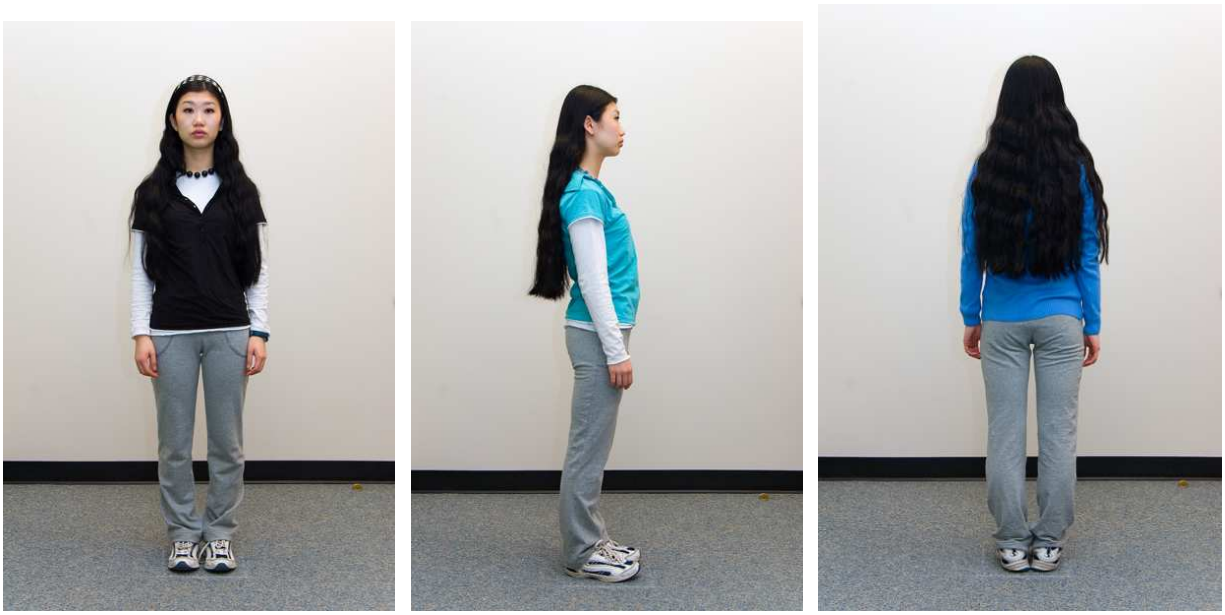
	Step 1	Step 2	Step 3
Gender	.40*	.41*	.39*
Dieting	-.14	-.14	-.15#
Other's Body	.12	.13	.13
Cognitive Load	-.11	-.11	-.11
ASE	.04	.04	.07
Other x Load		-.04	-.04
Other x ASE		.03	.01
Load x ASE		-.02	-.07
Other x Load x ASE			.18+
R^2	.25	.25	.28
ΔR^2	.25*	.00	.03+
F	8.64*	5.38*	5.54*
df	5,133	8,130	9,129

Standardized regression weights are presented

# p<.10
+ p<.05
* p<.01

FIGURE 1 – THE CONFEDERATE

WITHOUT THE PROSTHESIS



WITH THE PROSTHESIS

FIGURE 2 – WEIGHT OF FOOD TAKEN BY CONDITION (STUDY 1)

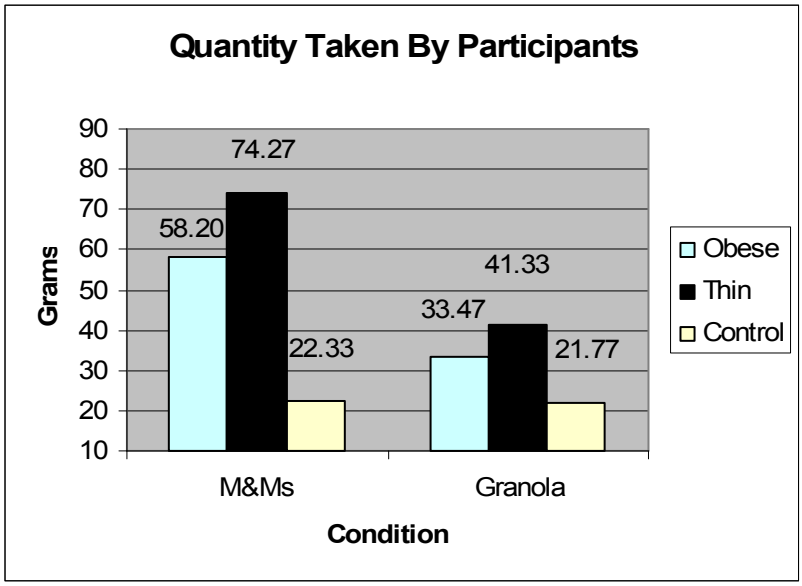


FIGURE 3 – WEIGHT OF FOOD CONSUMED BY CONDITION (STUDY 1)

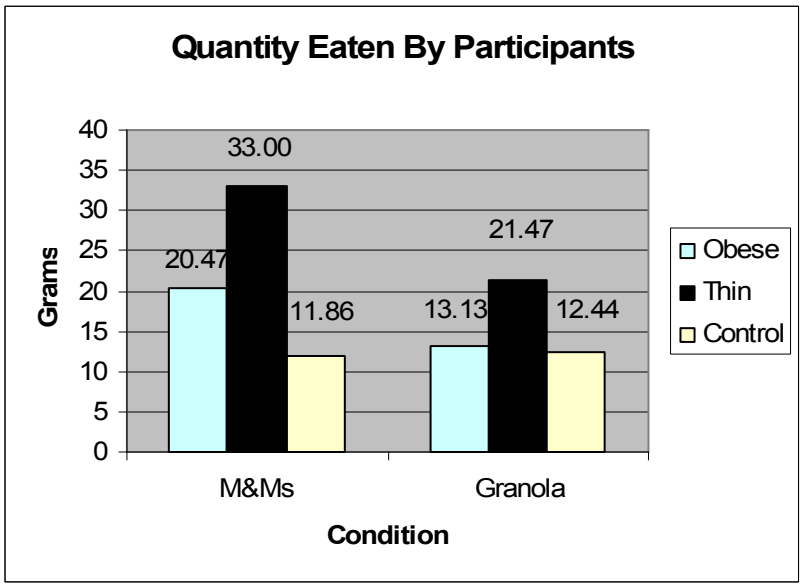


FIGURE 4 – NUMBER OF CANDIES TAKEN BY CONDITION (STUDY 2)

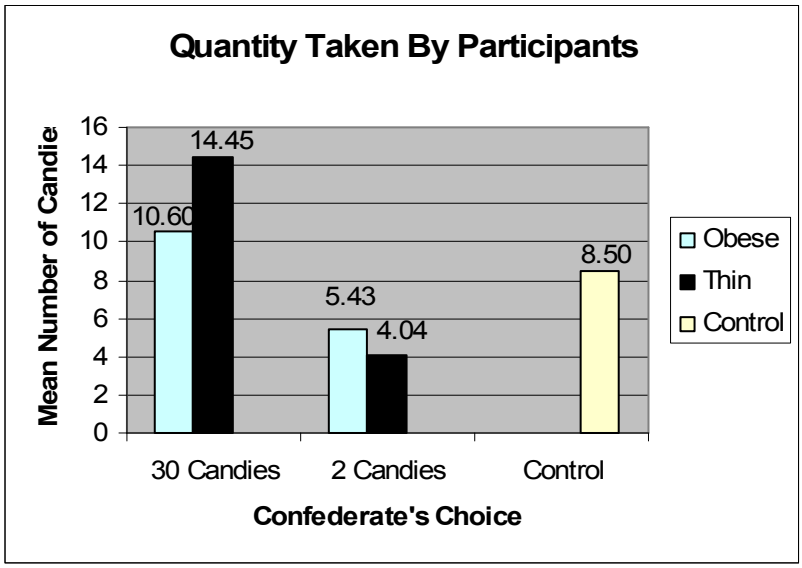


FIGURE 5 – NUMBER OF CANDIES CONSUMED BY CONDITION (STUDY 2)

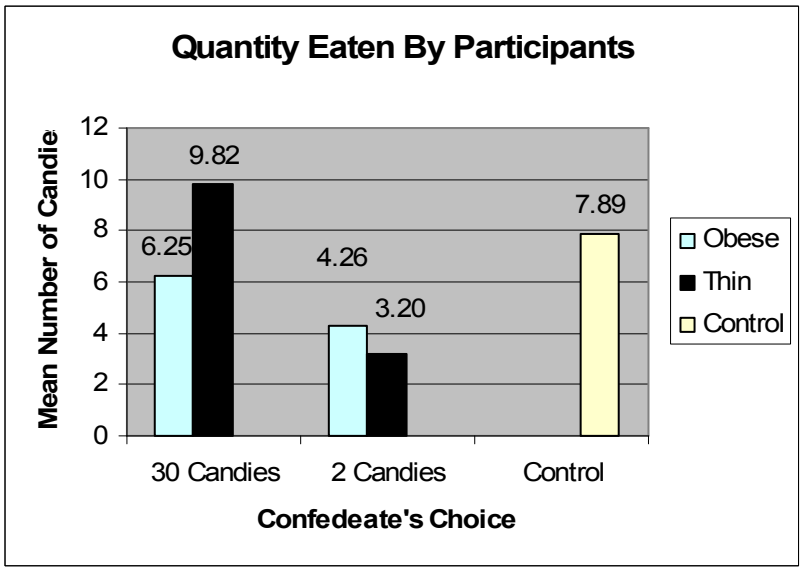


FIGURE 6 – SIZE CHOICE LOW COGNITIVE LOAD CONDITION (STUDY 3)

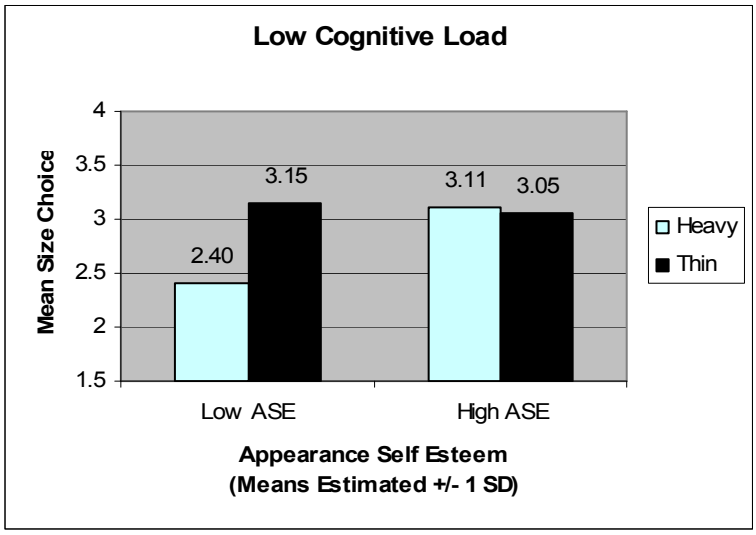
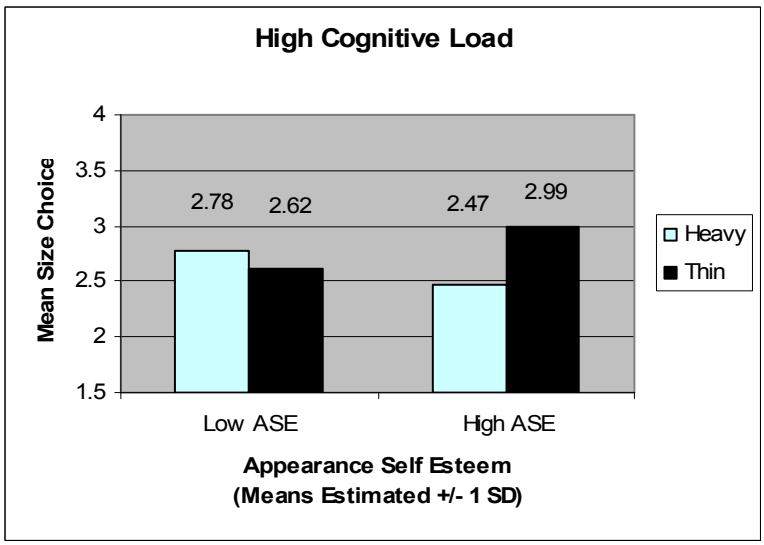


FIGURE 7 – SIZE CHOICE HIGH COGNITIVE LOAD CONDITION (STUDY 3)



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APPENDIX 1: PILOT STUDY METHODS AND RESULTS

An initial study was conducted to test whether people report ordering different portions as a function of the body type and/or orders of others in their presence. Through this pretest we sought to probe whether people recalled ordering more or less as a function of seeing a thin or heavy consumer order first.

Method, Stimuli and Procedures

To examine this question, critical incident analysis was used. Critical incident analysis has been used in emotion research (e.g. Keltner and Buswell 1996) as well as in marketing (Dahl, Honea, and Manchanda 2003), and generally asks participants to write about a single incident that deals with a particular research question. For our study, 318 respondents from a large western university participated in the study, which was administered as a short survey instrument for partial course credit.

The instrument first asked participants the following: "When at a restaurant or food establishment (an ice cream shop, pretzel stand, etc.) of any kind, have your choices of food items ever been influenced by what the person in front of you ordered, the size or weight of the person in front of you, or a combination of the two?" Participants indicated yes or no if they had experienced such a scenario, followed by some basic demographic information (age, gender, major, country of birth, height, weight). One hundred and fifty-seven participants (49%) indicated that they had experienced such a situation, and only data from their responses were analyzed. Sixty-six of these (42% percent) were female, and the average age of respondents was

21.53. Two trained research assistants, blind to the purposes of the study, coded the open-ended responses. Initial inter-rater agreement was 93.2% and disagreements were resolved by one of the authors.

Results and Discussion

While people claimed their choices were influenced by both heavy (n=37) and thin (n=23) others, the common response to seeing this person order was to change one's order to something smaller (n=21) or more healthy (n=37). It seems from the critical incidents participants recalled, generally the presence of others led to a more modest portion choice, albeit for different reasons. In the case of a thin other, people reported ordering less (n=6) or a healthier menu option (n=13) as a result. Common reasons cited were that they envied his/her figure and this reminded them that in order to lose weight, smaller or healthier choices need to be made, not because she ordered something unhealthy or large (e.g. "I saw a skinny person ordering [a] lunch size salad that really [motivated] me to order the salad instead of pasta;" "I was going to order a regular soda drink even though I am [used] to ordering diet but a little skinny person in front of me ordered diet so I did too;" "If someone very thin orders something really healthy, I feel guilty for ordering something less healthy;" "I really wanted a blizzard, but a very tiny person in front of me ordered just a small ice cream cone, and when it came my time to order, I ordered the same.")

The most frequent situation participants recalled was when seeing an obese other person order either a large quantity (n=11) or an unhealthy menu option (n=20). This resulted in participants reporting a worry about becoming obese (e.g. "…at McDonald's a heavier person

ordered an enormous amount of food and I have ordered less because I didn't want to end up that size;" "When I see an overweight person order something unhealthy it reminds me to stay healthy.") Consistent with research on dissociative groups, the choices of the obese were deliberately avoided (e.g. "if the person in front of me is overweight I will not get what they get;" "I might think I would then look like them if I ate that too;" "I think, 'don't order that or you'll end up like them.'") This commonly resulted in participants recalling choosing a smaller (n=14) or less indulgent (n=26) menu choice (e.g. "One time, at the movie theatre, the most gigantically obese woman I had ever seen ordered the XXL popcorn with extra butter, two large Coca Cola classics (not diet), a box of cookie dough bite sized candies, and a cinnamon sugar pretzel. When she finished paying and it was my turn to order, I asked for a water cup instead of getting concessions;" "I was at a restaurant last night and the table next to me had an overweight lady and man who ordered a whole bunch of food and I decided not to get dessert because of them;" "I went to McDonald's once and I noticed a man close to 300 lbs ordering a lot of food. He supersized his meal and I was unsure if all the food was for him or for others as well. Nevertheless, I did not order nearly as much as I would have. I was afraid that if I supersized my meal, I might end up eating too much and increase my weight size;" "if an overweight person orders something really fattening that may steer me to order something healthy;" "there was a rather large person in front of me who basically ordered the whole menu. I did not want to end up looking like them so I ordered less.")

Interestingly, consumers' perceptions of how healthy a specific food choice is were influenced by the person choosing the item (e.g. "if it was a large person, I would order something different because I would perceive what they ordered as having the possibility of making me fat;" "If a skinny person ordered something, I kind of wanted to order it too because I

associate that menu choice with being skinny;" "If I see an overweight person eating a sundae at McDonald's it is a turn off to those establishments. I don't want to be fat…")

While the most common scenario participants recalled was paring back potentially indulgent choices, a few participants (n=6) mentioned ordering more or something less healthy as a result of the thin other person (a licensing effect "If the person is skinny and they order something fattening there is a good chance I will also. However if they are heavy then I probably will not;" "I wouldn't normally eat a lot of fatty foods (ice cream, muffins, etc.) but if a slender person orders it I usually follow suit. I never buy snacks at a gas station but during my spring break I broke my rule because my friend who was itzy bitzy bought a ton of candy;" "Also I can be influenced the opposite way [if a thin person orders something less healthy] to a less healthy choice because I feel like it is more justified.")

Only one participant reported intentionally eating something more indulgent as a result of the obese person ("I saw a small but heavy-set guy in front of me order 4 footlong subs. I was [deciding] between ordering one sandwich or two. After looking at this man I concluded that since he ordered 4, it wouldn't hurt for me to order half of what he did. So I did!"),and only one person claimed that thin people cause her to order more rather than less regardless of what the other person ordered: "I become jealous of good metabolism. If the person is skinny yet ordered a lot … I generally order a heavier meal because I want to show how I don't care about my weight … I can do it too..."

The pilot study provides initial evidence that people were able to recall a situation in which they changed their food order as a function of the body type of others. The events participants recalled provide evidence for social comparison processes. The most frequent response centered on participants choosing to order a smaller or healthier food after overhearing

a heavy person order an indulgent portion of food, or a thin person ordering something modest. People recalled consciously deciding to pare back, stating that they wanted to avoid having a figure like the other person. The heavy person's choice was associated with the outcome of becoming overweight, and the thin person's choice reminded participants that healthy choices need to be made if one is to achieve their desired figure.

APPENDIX 2: PRETEST OF STUDY 1 MANIPULATIONS

To ensure that participants did in fact perceive granola to be healthier, less hedonic, and less likely to contribute to obesity than M&Ms, a pretest was conducted. Thirty participants from the same population as Studies 1 and 2 were asked (between-subjects) to assess the foods. Perceived healthiness of each food was assessed on three seven-point scales (healthy, nutritious, good for you) anchored by completely agree/completely disagree (α=.95). As expected, granola (M=5.46) was perceived as more healthy than M&Ms (M=3.00), $t(28)=5.05$, $p<.001$. Further, granola was significantly above ($t(15)=5.58$, $p<.001$) and M&Ms significantly below ($t(13)=2.34$, $p<.05$) the midpoint of the scale index for perceived healthiness.

How hedonic each food was perceived to be was assessed on three seven-point scales (rewarding, indulgent, comfort food) anchored by completely agree/completely disagree (α=.84). Granola (M=3.91) was perceived as less hedonic than M&Ms (M=5.38), $t(28)=2.99$, $p<.01$.

Finally, the association between each food and obesity was assessed on two seven-point scales: “Eating this food would contribute to obesity” and “People who eat this food are likely to be overweight,” each anchored by completely agree/completely disagree (α=.70). As predicted, granola (M=2.81) had a weaker association with obesity than M&Ms (M=4.03), $t(28)=2.96$, $p<.01$. Thus, the two foods were considered valid and suitable for use.

APPENDIX 3: DISCUSSION AND TESTS OF MIMICRY

In order to test whether participants were mimicking the behavior of the confederate, a follow-up analysis was performed. Whereas mimicry would predict convergence on both quantity and specific types of candy chosen, our account argues that it is solely the quantity and body type of the confederate that predict participant behavior. Recall that in the little food taken conditions, the confederate randomly chose two of the seven candies. If mimicry is operating, participants should mimic the confederate's specific candy choices rather than just the quantity she chooses (Tanner et al. 2008). In other words, participants should choose the specific candies more often when the confederate also took them than when she did not. To test this, we computed two indices that captured the relative proportion of participants' choices that either corresponded or did not correspond with what the confederate took. The number of candies the participant selected of the two candies also taken by the confederate was weighted (divided by two), and compared to her choices from the five items that the confederate did not select (divided by five). These weighted proportions provide a relative index of how often each candy was selected, controlling for the fact that a different two candies (from the seven available) were selected by the confederate on each trial.

Support for our hypotheses would be found if the variables are not different from each other. Repeated measures t-tests confirmed this hypothesis: the difference between the two indices was virtually zero, ($M=.075$, $t(43)=.65$, $p<.51$. Should our indices data fail to satisfy the distributional requirements of the t-test, a non-parametric Wilcoxon signed-rank test confirms this result as well $Z=.80$, $p>.41$. In fact, the ratio of those taken by the confederate divided by those that the confederate did not take was slightly below one (.90), indicating that if anything,

participants actually slightly leaned towards the candies that the confederate did *not* select. Further, there was no evidence that participants mimicked the thin confederate more than the heavy confederate. As a result, we do not find evidence of mimicry in our data. Participants chose equally from among the candies that the confederate selected and those she did not select for herself.

Two prior studies have shown evidence of mimicry in food consumption. Johnston (2002) used a single dimension of food choice as the dependent variable of interest. Thus, participants all mimicked the confederate's choice of food (as there was only one option), and the researchers only measured quantity taken. Tanner et al. (2008) showed more compelling evidence of mimicry in consumption by providing multiple options and finding participants mimicked the specific choices made by a confederate. Our study incorporated multiple choices of food, so participants were free to select food that the confederate does not take, as in Tanner et al. (2008). If mimicry were operating, we should have seen convergence on both variety and quantity dimensions between target and confederate, which we did not observe.

APPENDIX 4: EXPERIMENTAL MATERIALS - PILOT STUDY

ID #_____

Food Study

Recent research suggests that if a really skinny person vs. a really heavy person orders an extra small size, fat-free yogurt at an ice cream shop, it might have an impact on what type of ice cream and/or size you order. When at a restaurant or food establishment (an ice cream shop, pretzel stand, etc.) of any kind, have your choices of food items ever been influenced by what the person in front of you ordered, the size or weight of the person in front of you, or a combination of the two?

Yes _____ No _____

If you stated YES to the above question, please explain - in as much detail as possible - the experience and how what the person in front of you ordered, the size or weight of the person in front of you, or a combination of the two influenced your choices.

_____

_____

_____

_____

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_____

_____

_____

_____

Demographics

1. Gender (please circle): Female Male

2. Age: _____

3. Language most commonly spoken at home with your family: _____

4. Are you an exchange student (please circle): Yes No

5. What country were you born in? _____

6. What is your faculty of study? _____

7. What is your height? _____

8. What is your weight? _____

9. How serious were you in completing this survey?
   Not at all serious 1 2 3 4 5 6 7 Very serious

10. What do you think was the purpose of this study?

_____

_____

_____

THANK YOU FOR YOUR PARTICIPATION!

A REQUEST: SINCE WE WILL BE RUNNING THIS STUDY WITH OTHER STUDENTS AS WELL, WE WOULD GREATLY APPRECIATE IT IF YOU DID NOT DISCUSS THE STUDY WITH ANY OF YOUR FRIENDS. THANKS AGAIN!!

APPENDIX 5 – EXPERIMENTAL MATERIALS – STUDY 1 PRETEST

Food Perceptions Study

The following questions are about the characteristics of certain foods. There are no right or wrong answers, just answer what you believe to be the case for the following food: **Granola.**

Please indicate the extent to which you believe Granola to have each of the characteristics below, using the following scale:

1	2	3	4	5	6	7
Completely Disagree	Mostly Disagree	Slightly Disagree	Neutral	Slightly Agree	Mostly Agree	Completely Agree

Healthy	1	2	3	4	5	6	7
Nutritious	1	2	3	4	5	6	7
Rewarding	1	2	3	4	5	6	7
Good for you	1	2	3	4	5	6	7
Indulgent	1	2	3	4	5	6	7
Comfort Food	1	2	3	4	5	6	7

Eating this food would contribute to obesity

Not at all 1 2 3 4 5 6 7 Very much

People who eat this food are likely to be overweight

Not at all 1 2 3 4 5 6 7 Very much

Eating this food would contribute to obesity

Not at all 1 2 3 4 5 6 7 Very much

People who eat this food are likely to be overweight

Not at all 1 2 3 4 5 6 7 Very much

Food Perceptions Study

The following questions are about the characteristics of certain foods. There are no right or wrong answers, just answer what you believe to be the case for the following food: **M&Ms.**

Please indicate the extent to which you believe M&Ms to have each of the characteristics below, using the following scale:

1	2	3	4	5	6	7
Completely Disagree	Mostly Disagree	Slightly Disagree	Neutral	Slightly Agree	Mostly Agree	Completely Agree

Healthy	1	2	3	4	5	6	7
Nutritious	1	2	3	4	5	6	7
Rewarding	1	2	3	4	5	6	7
Good for you	1	2	3	4	5	6	7
Indulgent	1	2	3	4	5	6	7
Comfort Food	1	2	3	4	5	6	7

Eating this food would contribute to obesity

Not at all 1 2 3 4 5 6 7 Very much

People who eat this food are likely to be overweight

Not at all 1 2 3 4 5 6 7 Very much

Eating this food would contribute to obesity

Not at all 1 2 3 4 5 6 7 Very much

People who eat this food are likely to be overweight

Not at all 1 2 3 4 5 6 7 Very much

APPENDIX 6- EXPERIMENTAL MATERIALS - STUDY 1

Viewing Experience Study

Fat (0) / Skinny (1)

M&Ms (0) / Granola (1)

Control (0=no; 1=yes)

Date: _____

Time slot: _____

Experimenter: _____

Confederate: _____

Confederate's clothing:_____

Bowl Starting Weight:	_____ g	(a)
Bowl Ending Weight:	_____ g	(b)
Confederate bowl weight:	_____ g	(c) * 0 if no confederate
Less 45g (c – 45)	_____ g	(d) * 0 if no confederate

What subject took (a – b - d): _____ g (e)

Weight of uneaten (incl. bowl):	_____ g	(f)
Less 45g (f - 45)	_____ g	(g)

Net eaten by subject (e - g): _____ g (h)

Staple this and consent form to subject's survey

Viewing Experience Study

What is your overall impression of the clip?

Bad	1	2	3	4	5	6	7	Good
Negative	1	2	3	4	5	6	7	Positive

Please list all of the brands that you saw during the clip:

_____

_____

_____

_____

_____

Do you think product placements are appropriate for movie producers to use:

Not at all	1	2	3	4	5	6	7	Very much

Product placement makes movies more realistic

Not at all	1	2	3	4	5	6	7	Very much

We may ask you more questions about products in the clip later on in the survey.

The Viewing Experience

The lighting in the room was adequate

Not at all	1	2	3	4	5	6	7	Very much

The chairs provided an adequate viewing experience

Not at all	1	2	3	4	5	6	7	Very much

The snack tasted good

Not at all	1	2	3	4	5	6	7	Very much

I enjoyed the snacks

Not at all	1	2	3	4	5	6	7	Very much

What impacted your choice of how much snack food to take? Please describe all thoughts and feelings that went through your mind.

Do you have any allergies that impacted how much you took?

On the rating scales below, please indicate how you felt while watching the clip.

1. Not at all guilty	1	2	3	4	5	6	7	Very guilty
2. Not at all self-conscious	1	2	3	4	5	6	7	Very self-conscious
3. Not at all embarrassed	1	2	3	4	5	6	7	Very embarrassed
4. Not at all sexy	1	2	3	4	5	6	7	Very sexy
5. Not at all attractive	1	2	3	4	5	6	7	Very attractive
6. Not at all stylish	1	2	3	4	5	6	7	Very stylish
7. Not at all cool	1	2	3	4	5	6	7	Very cool
8. Not at all content	1	2	3	4	5	6	7	Very content
9. Not at all happy	1	2	3	4	5	6	7	Very happy
10. Not at all annoyed	1	2	3	4	5	6	7	Very annoyed
11. Not at all uncomfortable	1	2	3	4	5	6	7	Very uncomfortable
12. Not at all sad	1	2	3	4	5	6	7	Very sad
13. Not at all full	1	2	3	4	5	6	7	Very full
14. Not at all satisfied	1	2	3	4	5	6	7	Very satisfied
15. Not at all hungry	1	2	3	4	5	6	7	Very hungry

How often are you dieting?

___Never ___Rarely ___Sometimes ___Often ___ Always

What is the maximum amount of weight (in lbs) that you have ever <u>lost within one month</u>?

___0 – 4 ___5 – 9 ___10 – 14 ___ 15 – 19 ___ 20+

What is the maximum amount of weight (in lbs) that you have ever <u>gained within a week</u>?

___0 – 1 ___1.1 – 2 ___2.1 – 3 ___ 3.1 – 5 ___ 5+

In a typical week how much does your weight fluctuate?

___0 – 1 ___1.1 – 2 ___2.1 – 3 ___ 3.1 – 5 ___ 5+

Would a weight fluctuation of 5 lbs. affect the way you live your life?

___Not at all ___Slightly ___ Moderately ___ Extremely

Do you eat sensibly in front of others and splurge alone?

___Never ___Rarely ___Often ___ Always

Do you give too much time and thought to food?

___Never ___Rarely ___Often ___ Always

Do you have feelings of guilt after overeating?

___Never ___Rarely ___Often ___ Always

How conscious are you of what you are eating?

___Not at all ___Slightly ___ Moderately ___ Extremely

How many pounds over your desired weight were you at your maximum weight?

___0 ___1 – 5 ___6 – 10 ___ 11 – 20 ___ 21+

Demographics

1. Gender (please circle): Female Male
2. Age: _____
3. Language most commonly spoken at home with your family: _____
4. Are you an exchange student (please circle): Yes No
5. What country were you born in? _____
6. What is your faculty of study? _____
7. What is your height? _____
8. What is your weight? _____

The other subject in this experiment is?

Very overweight -3 -2 -1 0 1 2 3 Very underweight

Very obese -3 -2 -1 0 1 2 3 Very thin

Compared to me, the other student in this experiment is

Much thinner -3 -2 -1 0 1 2 3 Much heavier

Did you see how much the other student took from the bowl (circle one)?
Yes No

What kind of snack were you offered to watch during the movie clip?

_____

How much do you <u>like</u> this type of snack?

Not at all -3 -2 -1 0 1 2 3 Very much

Dislike it -3 -2 -1 0 1 2 3 Like it very much

How <u>often</u> do you like eat type of snack?

Very infrequently -3 -2 -1 0 1 2 3 Very frequently

How many times in the past month have you eaten this type of food?

_____ times

What is your favourite genre of movie (circle one)?

(a) Drama
(b) Comedy
(c) Horror
(d) Action
(e) Documentary
(f) Other: _____

What is the last film you saw in the theatre? _____

How serious were you in completing this survey?

Not at all serious 1 2 3 4 5 6 7 Very serious

How much have you heard about this study before?

_____

_____

What do you think was the purpose of this study?

_____

_____

_____

THANK YOU FOR YOUR PARTICIPATION!

A REQUEST: SINCE WE WILL BE RUNNING THIS STUDY WITH OTHER STUDENTS AS WELL, WE WOULD GREATLY APPRECIATE IT IF YOU DID NOT DISCUSS THE STUDY WITH ANY OF YOUR FRIENDS. THANKS AGAIN!!

APPENDIX 7: EXPERIMENTAL MATERIALS - STUDY 2

Viewing Experience Data Sheet

Taken by:

	Confederate	**Participant**
Sour		
Kisses		
Campino		
Werthers		
Reese		
Jumbo		
Caramel		
TOTAL		

Viewing Experience Study

1. What is your overall impression of the clip?

Bad	1	2	3	4	5	6	7	Good
Negative	1	2	3	4	5	6	7	Positive

2. Please list all of the brands that you saw during the clip:

_____

_____

_____

_____

3. Do you think product placements are appropriate for movie producers to use:

Not at all	1	2	3	4	5	6	7	Very much

4. Product placement makes movies more realistic

Not at all	1	2	3	4	5	6	7	Very much

We may ask you more questions about products in the clip later on in the survey.

The Viewing Experience

The lighting in the room was adequate

Not at all	1	2	3	4	5	6	7	Very much

The chairs provided an adequate viewing experience

Not at all	1	2	3	4	5	6	7	Very much

The snacks tasted good

Not at all	1	2	3	4	5	6	7	Very much

I enjoyed the snacks

Not at all	1	2	3	4	5	6	7	Very much

What impacted your choice of how much snack food to take? Please describe all thoughts and feelings that went through your mind.

On the rating scales below, please indicate how you felt while watching the clip.

1. Not at all good	1	2	3	4	5	6	7	Very good
2. Not at all self-conscious conscious	1	2	3	4	5	6	7	Very self-
3. Not at all satisfied	1	2	3	4	5	6	7	Very satisfied
4. Not at all embarrassed	1	2	3	4	5	6	7	Very embarrassed
5. Not at all happy	1	2	3	4	5	6	7	Very happy
6. Not at all upset	1	2	3	4	5	6	7	Very upset
7. Not at all annoyed	1	2	3	4	5	6	7	Very annoyed
8. Not at all sexy	1	2	3	4	5	6	7	Very sexy
9. Not at all confused	1	2	3	4	5	6	7	Very confused
10. Not at all attractive	1	2	3	4	5	6	7	Very attractive
11. Not at all bad	1	2	3	4	5	6	7	Very bad
12. Not at all stylish	1	2	3	4	5	6	7	Very stylish
13. Not at all uncomfortable	1	2	3	4	5	6	7	Very uncomfortable
14. Not at all sad	1	2	3	4	5	6	7	Very sad
15. Not at all pleased	1	2	3	4	5	6	7	Very pleased
16. Not at all guilty	1	2	3	4	5	6	7	Very guilty
17. Not at all full	1	2	3	4	5	6	7	Very full
18. Not at all pleased	1	2	3	4	5	6	7	Very pleased

How often are you dieting?

___Never ___Rarely ___Sometimes ___Often ___ Always

What is the maximum amount of weight (in lbs) that you have ever <u>lost within one month</u>?

___0 – 4 ___5 – 9 ___10 – 14 ___ 15 – 19 ___ 20+

What is the maximum amount of weight (in lbs) that you have ever <u>gained within a week</u>?

___0 – 1 ___1.1 – 2 ___2.1 – 3 ___ 3.1 – 5 ___ 5+

In a typical week how much does your weight fluctuate?

___0 – 1 ___1.1 – 2 ___2.1 – 3 ___ 3.1 – 5 ___ 5+

Would a weight fluctuation of 5 lbs. affect the way you live your life?

___Not at all ___Slightly ___ Moderately ___ Extremely

Do you eat sensibly in front of others and splurge alone?

___Never ___Rarely ___Often ___ Always

Do you give too much time and thought to food?

___Never ___Rarely ___Often ___ Always

Do you have feelings of guilt after overeating?

___Never ___Rarely ___Often ___ Always

How conscious are you of what you are eating?

___Not at all ___Slightly ___ Moderately ___ Extremely

How many pounds over your desired weight were you at your maximum weight?

___0 ___1 – 5 ___6 – 10 ___ 11 – 20 ___ 21+

Demographics

1. Gender (please circle): Female Male
2. Age: _____
3. Language most commonly spoken at home with your family: _____
4. Are you an exchange student (please circle): Yes No
5. What country were you born in? _____
6. What is your faculty of study? _____
7. What is your height? _____
8. What is your weight? _____
9. The other subject in this experiment is?

Very overweight -3 -2 -1 0 1 2 3 Very underweight

Very obese -3 -2 -1 0 1 2 3 Very thin

10. Compared to me, the other student in this experiment is

Much thinner -3 -2 -1 0 1 2 3 Much heavier

11. I noticed how much the other student took from the snack bar

Not at all -3 -2 -1 0 1 2 3 Very much

12. The other student took how much from the snack bar?

No food at all 1 2 3 4 5 6 7 A lot of food

13. How serious were you in completing this survey?

Not at all serious 1 2 3 4 5 6 7 Very serious

14. How much have you heard about this study before?

_____

15. What do you think was the purpose of this study?

_____

_____

_____

THANK YOU FOR YOUR PARTICIPATION!

A REQUEST: SINCE WE WILL BE RUNNING THIS STUDY WITH OTHER STUDENTS AS WELL, WE WOULD GREATLY APPRECIATE IT IF YOU DID NOT DISCUSS THE STUDY WITH ANY OF YOUR FRIENDS. THANKS AGAIN!!

APPENDIX 8 – EXPERIMENTAL MATERIALS – STUDY 3

Decision Making Study

In this study, experimenters are examining how memory impacts decision making.

This survey asks you read a scenario and respond to several questions about yourself – your personal perceptions, opinions, and behaviours. Please do your best to answer them as **honestly** as you can. There are no right or wrong answers, and all responses are strictly confidential.

Thank you in advance for your assistance with this study!

In a moment, you will be shown a number that you will be asked recall later in the experiment. You will be given 20 seconds to memorize the number. Please do not write it down anywhere. Just try your best to commit it to memory.

Remember, it is VERY IMPORTANT that you remember this number for later in the experiment.

You have 20 seconds to memorize the following number:

Number to be memorized

9053402961

Remember, you will be asked to recall this number later in the experiment, so try your best to remember it throughout the experiment.

You have 20 seconds to memorize the following number:

Number to be memorized

90

Remember, you will be asked to recall this number later in the experiment, so try your best to remember it throughout the experiment.

Decision Making Study

In this study we are interested in consumers' decision making processes when they make selections among menu items. On the following pages you will be asked to make selections from a menu and answer some questions about your selections. In order to make the study more realistic, the menu items presented to you are dishes actually offered by a retailer.

One technique that is helpful to marketers is to have potential customers imagine a scenario.
On the next page is a scenario for you to imagine. Please try to put yourself in the scenario and imagine what it would be like if it happened to you.

Please carefully picture the following scenario:

You are in a long line up at an ice cream store. It has been a long day and you are feeling like you'd like to order a cold treat, but you are not sure exactly what you would like to order. As you wait in line, you glance over at the menu.

The menu is an actual menu from an ice cream outlet:

MENU

Ice Cream Cone Flavors:

French Vanilla

Dutch Chocolate

Cookies 'N Cream

Strawberry

****All items are available in the following sizes:**

X-Small (6oz) **Small** (9oz) **Medium** (12oz) **Large** (15oz) **X-Large** (18oz)

As you get closer to the front of the line, you glance at the person in front of you. Although they are the same gender as you, you cannot help but notice them because of their weight: they are very overweight. *"Wow! That is one of the heaviest people I've ever seen"*, you think to yourself.

You still have not made up your mind when the person in front of you is about to order. You overhear the person in front of you orders their snack: an **X-Large Ice Cream Cone**. As the person receives their order, the clerk asks you what you would like to have…

When you are finished imagining, please turn the page.

Remember you will be asked for the number you were to memorize later on in the experiment.

Please carefully picture the following scenario:

You are in a long line up at an ice cream store. It has been a long day and you are feeling like you'd like to order a cold treat, but you are not sure exactly what you would like to order. As you wait in line, you glance over at the menu.

The menu is an actual menu from an ice cream outlet:

MENU

Ice Cream Flavors:

French Vanilla

Dutch Chocolate

Cookies 'N Cream

Strawberry

****All items are available in the following sizes:**

X-Small (6oz) **Small** (9oz) **Medium** (12oz) **Large** (15oz) **X-Large** (18oz)

As you get closer to the front of the line, you glance at the person in front of you. Although they are the same gender as you, you cannot help but notice them because of their weight: they are very thin. *"Wow! That is one of the thinnest people I've ever seen"*, you think to yourself.

You still have not made up your mind when the person in front of you is about to order. You overhear the person in front of you orders their snack: an **X-Large Ice Cream Cone**. As the person receives their order, the clerk asks you what you would like to have…

When you are finished imagining, please turn the page.

Remember you will be asked for the number you were to memorize later on in the experiment.

The clerk asks you what you'd like to order. Please indicate your selection below by placing an "x" in the box representing the menu item you have selected:

Item	**Size**				
	X-Small	**Small**	**Medium**	**Large**	**X-Large**
French Vanilla					
Dutch Chocolate					
Cookies 'N Cream					
Strawberry					

Number Recall:

Please try to recall the number you were asked to memorize. What number was it?

_____

You will not be asked for this number again (you can stop trying to keep it in memory now).

How did you go about deciding which menu item to select? Please be detailed. For example, if there were any difficult decisions to be made between options, how did you decide which option to select?

Are there any other situational factors (e.g., being on a diet, food allergies) that influenced your choice of menu items?

On the rating scales below, please indicate how you felt after making your choice.

1. Not at all guilty	1	2	3	4	5	6	7	Very guilty
2. Not at all self-conscious	1	2	3	4	5	6	7	Very self-conscious
3. Not at all embarrassed	1	2	3	4	5	6	7	Very embarrassed
4. Not at all sexy	1	2	3	4	5	6	7	Very sexy
5. Not at all attractive	1	2	3	4	5	6	7	Very attractive
6. Not at all stylish	1	2	3	4	5	6	7	Very stylish
7. Not at all cool	1	2	3	4	5	6	7	Very cool
8. Not at all content	1	2	3	4	5	6	7	Very content
9. Not at all happy	1	2	3	4	5	6	7	Very happy
10. Not at all annoyed	1	2	3	4	5	6	7	Very annoyed
11. Not at all uncomfortable	1	2	3	4	5	6	7	Very uncomfortable
12. Not at all sad	1	2	3	4	5	6	7	Very sad

Please indicate how **<u>much you desire to eat</u>** the following, later today:

Cookies								
Very undesirable	1	2	3	4	5	6	7	Very desirable
Hamburger								
Very undesirable	1	2	3	4	5	6	7	Very desirable
Low-fat Turkey Sandwich								
Very undesirable	1	2	3	4	5	6	7	Very desirable
Fruit Salad								
Very undesirable	1	2	3	4	5	6	7	Very desirable
Chocolate cake								
Very undesirable	1	2	3	4	5	6	7	Very desirable
Potato Chips								
Very undesirable	1	2	3	4	5	6	7	Very desirable

Remembering what the person in front of you ordered, please indicate your feelings towards them:

Jealousy								
Not at all	-3	-2	-1	0	1	2	3	Very much
Disgust								
Not at all	-3	-2	-1	0	1	2	3	Very much
Revulsion								
Not at all	-3	-2	-1	0	1	2	3	Very much
Envy								
Not at all	-3	-2	-1	0	1	2	3	Very much

I would like to exercise later today:								
Not at all	-3	-2	-1	0	1	2	3	Very much
I feel like working out:								
Not at all	-3	-2	-1	0	1	2	3	Very much

Please rate your attitude towards each of the menu items by circling the number that best applies:

French Vanilla

bad	1	2	3	4	5	6	7	good
dislike	1	2	3	4	5	6	7	like

Dutch Chocolate

bad	1	2	3	4	5	6	7	good
dislike	1	2	3	4	5	6	7	like

Cookies 'N Cream

bad	1	2	3	4	5	6	7	good
dislike	1	2	3	4	5	6	7	like

Strawberry

bad	1	2	3	4	5	6	7	good
dislike	1	2	3	4	5	6	7	like

Overall, the menu choices sounded good

Not at all	-3	-2	-1	0	1	2	3	Very much

The ice cream store offered enough flavors

Not at all	-3	-2	-1	0	1	2	3	Very much

Please read each of the statements below, and **CIRCLE** the number (from 1=not at all to 5=extremely) that best describes you, using the scale below.

not at all	**a little bit**	**somewhat**	**very much**	**extremely**
1	**2**	**3**	**4**	**5**

1. I feel satisfied with the way my body looks right now.
   1 2 3 4 5

2. I feel that others respect and admire me.
   1 2 3 4 5

3. I am dissatisfied with my weight.
   1 2 3 4 5

4. I feel good about myself.
   1 2 3 4 5

5. I am pleased with my appearance right now.
   1 2 3 4 5

6. I feel unattractive.
   1 2 3 4 5

How often are you dieting?

___Never ___Rarely ___Sometimes ___Often ___ Always

What is the maximum amount of weight (in lbs) that you have ever <u>lost within one month</u>?

___0 – 4 ___5 – 9 ___10 – 14 ___ 15 – 19 ___ 20+

What is the maximum amount of weight (in lbs) that you have ever <u>gained within a week</u>?

___0 – 1 ___1.1 – 2 ___2.1 – 3 ___ 3.1 – 5 ___ 5+

In a typical week how much does your weight fluctuate?

___0 – 1 ___1.1 – 2 ___2.1 – 3 ___ 3.1 – 5 ___ 5+

Would a weight fluctuation of 5 lbs. affect the way you live your life?

___Not at all ___Slightly ___ Moderately ___ Extremely

Do you eat sensibly in front of others and splurge alone?

___Never ___Rarely ___Often ___ Always

Do you give too much time and thought to food?

___Never ___Rarely ___Often ___ Always

Do you have feelings of guilt after overeating?

___Never ___Rarely ___Often ___ Always

How conscious are you of what you are eating?

___Not at all ___Slightly ___ Moderately ___ Extremely

How many pounds over your desired weight were you at your maximum weight?

___0 ___1 – 5 ___6 – 10 ___ 11 – 20 ___ 21+

I found it challenging to read the scenario while trying to remember the number

Not at all	-3	-2	-1	0	1	2	3	Very much

Remembering the number was easy

Not at all	-3	-2	-1	0	1	2	3	Very much

The other person in line in front of me in the scenario was?

Very overweight	-3	-2	-1	0	1	2	3	Very underweight

How much do you like ice cream?

Not at all	-3	-2	-1	0	1	2	3	Very much
Dislike it	-3	-2	-1	0	1	2	3	Like it very much

How often do you eat ice cream?

Very infrequently	-3	-2	-1	0	1	2	3	Very frequently

How many times in the past month have you eaten ice cream?

_____ times

How serious were you in completing this survey?

Not at all serious	1	2	3	4	5	6	7	Very serious

Did you imagine the scenario when you were instructed to?

Did not imagine at all	1	2	3	4	5	6	7	Imagined very much

I sometimes answered questions in this experiment without much thought

Not at all	-3	-2	-1	0	1	2	3	Very much

Demographics

1. Gender (please circle): Female Male
2. Age: _____
3. Language most commonly spoken at home with your family: _____
4. Are you an exchange student (please circle): Yes No
5. What country were you born in? _____
6. What is your faculty of study? _____
7. What is your height? _____
8. What is your weight? _____
9. How many years have you been in the United States? _____ years

What do you think was the purpose of this study?

_____

_____

_____

_____

A REQUEST: SINCE WE WILL BE RUNNING THIS STUDY WITH OTHER STUDENTS AS WELL, WE WOULD GREATLY APPRECIATE IT IF YOU DID NOT DISCUSS THE STUDY WITH ANY OF YOUR FRIENDS. THANKS AGAIN!!

APPENDIX 9 – UBC BEHAVIOURAL RESEARCH ETHICS BOARD APPROVAL CERTIFICATE

The University of British Columbia
Office of Research Services
Behavioural Research Ethics Board
Suite 102, 6190 Agronomy Road, Vancouver, B.C. V6T 1Z3

CERTIFICATE OF APPROVAL - FULL BOARD

PRINCIPAL INVESTIGATOR:	INSTITUTION / DEPARTMENT:	UBC BREB NUMBER:
Darren Dahl	UBC/Sauder School of Business	H07-00075

INSTITUTION(S) WHERE RESEARCH WILL BE CARRIED OUT:

Institution	Site
UBC	Point Grey Site

Other locations where the research will be conducted:
N/A

CO-INVESTIGATOR(S):
Brent Mcferran

SPONSORING AGENCIES:
N/A

PROJECT TITLE:
Commercial evaluation study

REB MEETING DATE:	CERTIFICATE EXPIRY DATE:
January 25, 2007	**January 25, 2008**

DOCUMENTS INCLUDED IN THIS APPROVAL: **DATE APPROVED: February 16, 2007**

Document Name	Version	Date
Consent Forms:		
Revised consent form	N/A	February 1, 2007
Consent form	N/A	January 10, 2007
Advertisements:		
Recruitment document	N/A	January 10, 2007
Questionnaire, Questionnaire Cover Letter, Tests:		
Obesity survey	N/A	January 10, 2007
Other Documents:		
Deception form	N/A	January 10, 2007

The application for ethical review and the document(s) listed above have been reviewed and the procedures were found to be acceptable on ethical grounds for research involving human subjects.

Approval is issued on behalf of the Behavioural Research Ethics Board and signed electronically by one of the following: