The Effect of Chronic Dieting Goals on Auditory Perceptual Biases

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Prior research has shown that our underlying motivations affect our visual perceptual processes and in turn, threaten our food well-being. We extend prior work by exploring how auditory perceptual processes are affected by goals and investigate how sound can also act as a threat to food well-being.

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Threats to Food Well-being for At-Risk Consumers in the Marketplace

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Paper #1: Obesity and Sensitivity of Food Perceptions and Preferences to Marketing Actions
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Paper #2: The Effect of Chronic Dieting Goals on Auditory Perceptual Biases
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Paper #3: Can Money Tip the Scale? Social Judgment of Overweight Shoppers and the Role of Form of Payment
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SESSION OVERVIEW
Food is an integral part of a daily living full of nourishment and joy, comfort and pleasure, and kinship and social connections (Block et al. 2011). Yet, for some consumers, this taken-for-granted part of daily life is fraught with physical, psychological, social, and institutional dangers.

These four presentations are united in their focus on threats to food well-being for at-risk consumers. This session seeks to answer two questions: 1) What can we learn about threats to food well-being across diverse theoretical approaches, including the interplay between biological and psychological theory, perceptual theory, stigma theory, and institutional theory? 2) How can threats to food well-being for different at-risk groups be mitigated in the marketplace? This session explores novel at-risk groups—bariatric patients and consumers with celiac disease, unearth new phenomenon—wishful hearing and inter-individual effects of forms of payment, and employs novel methods—in the moment digital diaries using cell phones.

The first two presentations focus on environmental factors controlled by marketing. In the first paper, the research team compares emergent findings from a study of lean and obese women’s sensitivity to marketing actions. They study consumers before and after bariatric surgery hypothesizing the intriguing outcome that overweight consumers will become less sensitive to marketing actions following surgery. These consumer researchers are likely the first to join the recent flurry of research exploring provocative links between intestinal microbial activity and cognitive processing (see www.humanfoodproject.com). Mayor, Block and Ramanathan investigate how auditory processes—specifically the sounds associated with food products and marketing—can threaten food well-being. They draw on extensive data from a series of lab and field studies to show a novel phenomenon of “wishful hearing.” Specifically, ambient product sounds can lead to increased consumption of food products that contravene the goals of chronic dieters who are more vulnerable to these forms of auditory marketing.

The next two presentations focus more on interpersonal and institutional influences on well-being. Skinner, Mende, and Scott examine how the choice of payment method in a food retail setting—cash or credit—made by overweight consumers affects the preferences and eating behavior (Chandon and Wansink 2012). Marketing claims (e.g., “good for you” claims, brand positioning), the size and shape of food packages, their labeling (“medium” or “large”) and the range of sizes on the menu all influence food consumption and the perception of food quality (“tasty,” “healthy”), quantity.

Research on how food marketing influences food perception and preferences has important limitations. First, almost all existing studies have been conducted with lean, healthy, educated, and young people rather than with the obese people who are most at risk. This is an important concern because research suggests that obese people have become insensitive to internal satiation signals (Bartoshuk, Duffy, Hayes, Moskowitz, and Snyder 2006; Yeomans, Blundell, and Leshem 2004) and to reward signals in the brain (Volkow, Wang, and Levesque 2011). The second limitation is the lack of studies examining the effects of the most effective weight-loss remedy for obese people—bariatric surgery—and how it interacts with the effects of the marketing environment. About 200,000 Americans undergo weight-loss surgery (gastric bypass or banding) each year. Yet, only a handful of studies show that weight-loss surgery influences not only food intake, but also food preferences, hunger, and taste acuity (Behary

EXTENDED ABSTRACT
The environment—and particularly the actions of food marketers—strongly influence the perception of food, which then impacts preferences and eating behavior (Chandon and Wansink 2012). Marketing claims (e.g., “good for you” claims, brand positioning), the size and shape of food packages, their labeling (“medium” or “large”) and the range of sizes on the menu all influence food consumption and the perception of food quality (“tasty,” “healthy”), quantity.

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and Miras 2015; Scruggs, Buffington, and Cowan 1994). More generally, no research has, to date, examined how medical interventions like weight-loss surgery influence people’s sensitivity to marketing actions when it comes to food perception and preferences.

The goal of this project is to examine the interplay of biological and psychological factors driving eating behavior before and after weight-loss surgery. Our hypothesis is that the drastic psychological and biological changes (e.g., the composition of the gut microbiota and the levels of metabolic gut hormones) caused by bariatric surgery reduce the impact of marketing factors on food perceptions and preferences.

The study was conducted with the collaboration of the university hospital of Pitié Salpêtrière in Paris. A total of 100 female participants were included in the studies. They were divided in two groups (based on BMI): the obese group and the lean group. The obese participants belonged to a clinical study conducted by the Institute of Cardiometabolism And Nutrition (ICAN). Both groups were matched in terms of socio demographic factors (age and employment). However, the obese sample had lower levels of education and income. Because of the slow recruitment of obese patients, the post-surgery data will only be available by the time of the conference in Berlin.

We first measured the effects of food stereotypes. Existing research has shown that people tend to categorize food as “good” or “bad” based on stereotypes, regardless of the actual size of the portion, and that these stereotypes strongly influence food perceptions and preferences (Oakes 2005; Rozin, Ashmore, and Markwith 1996). We selected “surprising” pairs of foods where the stereotypically “good” food actually contains more calories than the stereotypically “bad” food (e.g., a can of Minute Maid pure orange juice, worth 152 calories, vs. a can of regular Coke, worth 140 calories). Overall, we replicated both the “health halo” and the “health horn” effects (Chandon 2013; Chandon and Wansink 2007): participants underestimated the calories in the “good” foods by 17% and overestimated the calories in the “bad” foods by 30% (p<0.0001). There was also a main effect of group: Lean participants generally underestimated calories by 8% whereas obese participants overestimated them by 21% (p<0.0001). More importantly, there was a significant interaction (p<0.028). Stereotypes effects were stronger in the obese group (where they led to a 60 percentage point difference in calorie estimations) than in the lean group (34 percentage points).

We also compared inter-temporal preferences for food and money between lean and obese participants. We asked the participants to imagine that they had four euros (or four candies worth one euro each), and asked them whether they would be willing to wait longer in exchange for more money (or more candies). 86% of the obese participants and 100% of the lean participants were willing to wait in exchange for more money. For the candies however, only 33% of the obese participants were willing to wait vs. 67% for the lean participants. This indicates that lean participants are approximately equally impatient when it comes to money or candies, whereas obese participants are more impatient for food than for money.

We also examined the effects of the branding of portion sizes (Aydınoglu and Krishna 2011) and of the range of portion sizes available (Sharpe, Staelin, and Huber 2008). Here again, obese participants were more influenced by marketing actions than lean participants.

Obviously, the most interesting comparisons will be to compare the responses of the obese participants before and after weight-loss surgery. Finding that weight-loss surgery makes obese people less responsive to marketing actions would provide the first demonstration that weight-loss interventions, such as bariatric surgery, can influence food perceptions and preferences. It would also suggest that differences in response to marketing actions might be one of the reasons for the higher BMI of the obese group. Alternatively, finding no effect of bariatric surgery would suggest that the higher sensitivity to marketing actions of obese participants is driven by personality or other stable individual differences, and thus that the drastic weight loss typically caused by bariatric surgery is not mediated by sensitivity to marketing actions.

## The Effect of Chronic Dieting Goals on Auditory Perceptual Biases

### EXTENDED ABSTRACT

The way in which we process sensory stimuli is guided by our underlying goals and motivations. For example, extant research exists exploring the existence of motivated visual perceptual biases, whereby people’s internal states shape visual perceptions (Dunning and Balcetis, 2013), and a delicious muffin appeared larger to dieters than non-dieters (van Koningsbruggen, Stroebe and Aarts 2011). In general, the motivated visual perception research finds that desirable objects are perceived as closer to us than non-desirable objects (Balcetis and Dunning, 2009).

The current research extends this prior work by exploring how people’s auditory perceptual processes are affected by their goals. We propose the existence of “wishful hearing,” which establishes that ambient product sounds can be perceived as more spatially proximal when more desirable and thus lead to increased purchase intentions and consumption. In two lab studies, we tested how the goal of chronic dieting, as measured by Herman and Polivy’s Restraint (1980) subscale Concern for Dieting, affected auditory perceptual processes, specifically, the spatial distance that exists between a person and a temptation after listening to the associated sound. In our third study, a field experiment, we explore how wishful hearing still exists even when the location of the product is known. To the best of our knowledge, this is the first exploration into how sound threatens food well-being.

In studies 1 and 2, participants were brought into a behavioral lab where they were seated at computer stations with a set of head-phones set at the ambiguous volume of “25.” Participants were instructed that they would be completing a series of studies. In study 1, seventy-seven participants (70% female, M<sub>age</sub>=23 years) rated their perceptions of distance from a tempting object (i.e., the ice cream truck) after listening to a 15 second clip of an ice cream truck jingle. To gauge distance perceptions, participants were presented with an image of a stick figure on the left and an image of an ice cream truck on the right with a continuous line with in between. Participants were asked to place an “X” on the line between the stick figure and the ice cream truck demonstrating how close or far they felt to the sound. Participants were then asked on a 7-point Likert scale to gauge how appealing the sound was and if they would like to hear the sound again. Participants were then given a filler task, and finally we measured Concern for Dieting.

A linear regression revealed that chronic dieters placed an “X” on the line that indicated that they felt closer to the sound of the ice cream truck (b=−.07, SE=.03, t(76)=−2.40, p<.02) than non-chronic dieters. In addition, we also found that spatial proximity mediates how appealing the sound is and the desire to hear the sound again. Specifically, when chronic dieters feel closer to the sound of the ice cream truck, they find the sound to be more appealing (10,000 Bootstraps, 90% CI’s: .0005, .0483) and they want to hear the sound again (10,000 Bootstraps, 95% CI’s: .0001, .0853).
In study 2, eighty-four participants (49% female, $M_{\text{age}}=22$ years) provided their perceptions of distance after listening to the ice cream truck jingle used in study 1. After providing their distance estimates and rating how appealing the sound was, participants were led into the lab “Ice Cream Shop,” where they were allowed to scoop as much ice cream as they wished before returning to a conference room to enjoy their dessert.

Analogous to Study 1, we found that chronic dieters felt closer to the sound of the ice cream truck ($b=.08$, $SE=.037$, $t(83)=2.02$, $p<.05$) than non-chronic dieters. In addition, we find serial mediation where chronic dieters feel closer to the sound, which then leads this group to rate the sound as more appealing and subsequently increases willingness to pay ($10,000$ Bootstraps, $95\%$ CI’s: .0002, .283, see Figure 1) as well as consumption ($10,000$ Bootstraps, $95\%$ CI’s: .0001, .0272, see Figure 2).

In order to identify how consumers would behave in a realistic setting outside of the lab, we designed a field study as our third experiment. Fifty participants ($M_{\text{age}}=41.3$ years, 57% male) were recruited for the experiment disguised as a marketing survey for the ice cream shop. In this study, consumers were intercepted after parking across the street from an ice cream shop. In return for their time, participants were awarded a coupon for $1.00. Participants first listened to the same sound used in studies 1 and 2 via headphones connected to a laptop. Following the sound, they responded to questions to gauge their proximal perceptions of the ice cream shop. For fear of disrupting business, we used one measured factor that acted as a proxy for chronic dieting. To gauge dieting, on a 7-point Likert scale, we asked: “How interested would you be in trying our Only 8 calorie ice cream?”

A linear regression revealed that customers interested in diet ice cream perceived themselves as closer to the ice cream shop ($b=.26$, $SE=.09$, $t(49)=2.02$, $p=.05$). In addition, spatial proximity mediated feelings of attraction towards the ice cream shop ($10,000$ bootstraps, $95\%$ CI’s: .0143, .2656). However, we did not find any significant differences in the amount of ice cream purchased or the amount of money spent, most likely because customers had already made the decision to go and have ice cream.

In conclusion, this research establishes the existence of a novel theoretical phenomenon we have termed “wishful hearing”, as well as an underexplored threat to food well-being. In studies 1 and 2 we find that when exposed to a desirable product sound, people wish to hear the sound again and find it more appealing when the sound is perceived as spatially close to them. Study 2 extends our findings to willingness to pay and consumption. In our third study, we provide field evidence that wishful hearing still exists even when you know the exact location of the product in question.

Can Money Tip the Scale? Social Judgment of Overweight Shoppers and the Role of Form of Payment

EXTENDED ABSTRACT

Overweight and obese consumers face the daily challenge of navigating an environment in which food is omnipresent, yet weight-based stigmatization is worsening (Andreyeva, Puhl and Brownell 2008). Many overweight consumers experience an emotionally-charged and difficult relationship with food (e.g., Kidwell, Hardesty, and Childers 2008; Mela 2001). Purchasing food can be a particular stressor to those individuals, and they may be stigmatized by other consumers. Paradoxically, overweight individuals tend to respond to stress with emotional eating, which causes weight gain and begets further stigmatization (Sinha 2015; Tomiyama 2014). In light of this negative cycle, better understanding weight-stigma in the shopping context is crucial in overcoming potentially harmful consequences.

Overweight/obese status is often attributed to lack of self-control (e.g., over-eating) (Brochu and Esses 2011). The present research investigates whether such consumers can overcome negative judgements by signaling self-control through their form of payment. We theorize that obese people who pay with cash (vs. credit card) when purchasing food may attenuate negative inferences made about them, because the use of cash may suggest greater self-control (e.g., Prelec and Loewenstein 1998; Prelec and Simester 2001). Thus, we examine whether a consumer’s form of payment and body weight interact in the formation of social inferences made about them, and how these inferences affect encounters with others. We propose a novel research perspective that focuses on the inter-personal effects of form of payment. Prior work has investigated intra-individual effects of form of payment (e.g., Bijleveld and Aarts 2014; Feinberg 1986; Vohs, Meade, and Goode 2006; Vohs 2015); for instance, studies have shown that consumers spend more when they themselves pay with a credit card or debit card (vs. cash) because cash is the most painful form of payment (e.g., Prelec and Loewenstein 1998; Prelec and Simester 2001).

In contrast, our inter-personal perspective focuses on the social judgments related to how consumers pay. This analytical lens provides new insights into the social perception of overweight consumers, as it reveals that how shoppers pay (i.e., cash vs. credit card) influences how they are perceived by others (consumers and employees) in retail settings. This is the first research to show such inter-individual effects of form of payment, a ubiquitous marketing phenomenon that hitherto has been studied with a strong intra-individual focus.

Our conceptual framework links three literature streams on: spontaneous trait inferences (e.g., McCarthy and Skowronski 2011; 2014), weight-stigma (e.g., Andreyeva, Puhl and Brownell 2008; Friedman and Brownell 1995; 2002), and psychological and behavioral effects of cash and credit cards (e.g., Feinberg 1986; Prelec and Simester 2001; Vohs, Meade, and Goode 2006; Vohs 2015). We theorize that credit card (vs. cash) payments for food trigger less favorable assessments when the target shopper is obese, because obese consumers are thought to lack self-control. The existing literature on form of payment suggests that cash is an indicator of self-control, because it is a relatively painful method of payment.

In a series of six experiments, we examine the effects of form of payment on obesity stigma. We find that obese consumers making a food purchase with a credit card (vs. cash) are assessed less favorably overall (Study 1a) and they are judged to be more gluttonous in consuming indulgent food (study 1b). The effects are robust across different food types (Study 2), and the effects are mediated by judgments about the target shopper’s level of self-control (studies 1a, 2, 3, and 4) and moderated by the observer’s self-control (study 3, study 4) and financial literacy (study 5). Notably, across all studies, judgments of the normal-BMI shopper were unaffected by form of payment.

Study 1a tested our main hypotheses that the overall assessment of an obese consumer would be less favorable when purchasing food with cash (vs. credit). Participants assessed the obese target more favorably when she paid with credit (vs. cash). Participants assessed the obese target more favorably when they paid with credit (vs. cash). There was no difference in the attitude toward the normal weight shopper paying in cash versus credit.

In study 1b, participants attributed less gluttonous consumption (eating less of the food purchased) to the obese consumer paying with cash than with credit; there was no difference in status level for the regular weight consumer.
In study 2, participants assessed their overall impression of the target shopper purchasing either virtue or vice food. A three-way interaction did not emerge. Thus, we collapsed across food conditions and found a consistent pattern: the assessment of the obese consumer was more favorable when paying with cash than with credit; there was no difference in attitude assessment for the regular weight consumer.

Studies 3, 4, and 5 investigate how an observer’s own level of self-control and financial literacy moderate the impression formation process. In study 3 and 4, the results show that those individuals with higher (vs. lower) self-control are more judgmental of obese consumers purchasing food. Similarly, in study 5, we find consumers with higher (vs. lower) levels of financial literacy judge obese consumers purchasing food with cash more harshly.

Our results have implications for understanding consumer food well-being. For overweight consumers, who may already experience a difficult relationship with food and for whom purchasing food may trigger emotional responses, feeling stigmatized in a retail setting when purchasing food may further threaten their well-being. Therefore, it is important to understand the mechanisms driving weight-stigmatization, which is often a perceived lack of will-power or self-control. We find that obese consumers making a food purchase may be able to offset these negative inferences by paying with cash because cash signals self-control. It is also important for observers to be aware of possible biases in their judgments of other consumers’ payment methods, particularly vulnerable consumers such as those who are overweight.

You’re Killing Me!
Exploring How Consumers with Food Intolerances Navigate Eating Out

EXTENDED ABSTRACT

Celiac disease (CD) is a genetic autoimmune disease affecting about 3 million Americans with diagnoses increasing globally. Within minutes of ingesting gluten, sufferers experience a range of reactions from no symptoms to abdominal cramping, spontaneous diarrhea, migraines, days of incapacity, and even hospitalization. Long-term consumption damages their small intestine, interferes with the absorption of nutrients, and can have serious complications including infertility, osteoporosis, and anemia (Ludvigsson et al. 2013). The only existing treatment for CD is a gluten-free diet. The 2013 FDA ruling, which set the meaning of “gluten-free” to be less than 20 parts per million of gluten, should have legitimized the needs of celiacs. Restaurants, however, remain a dangerous place. Gluten-free labeling is voluntary, no enforcement exists, opportunities for cross contamination abound, and gluten-free meals come with disclaimers. As Jenny, who has CD, says, “It’s so restrictive, you can’t go out and enjoy meals with people. You’ve always got to be thinking that someone’s going to get me.”

How do consumers with celiac disease engage in service encounters that not only fail to meet their needs but where eating may have severe health consequences? To explore this question, we focused on consumers with CD using four sets of data: in-depth semi-structured interviews, digital diary entries collected ‘in the moment’ using informants’ mobile phones, online postings from a CD support group, and field notes at a gluten-free festival.

Recent consumer research investigates how the micro-practices of consumers can significantly impact the macro-level market dynamics (Geisler 2012; Martin and Schouten 2014). However, few studies consider the struggles of marginalized consumers for market inclusion. Sandikeci and Ger (2010) show how Turkish women created a parallel fashion market through the destigmatization of veiling practices. In contrast, Scaraboto and Fischer (2013) view stigmatized plus-sized consumers as institutional entrepreneurs seeking greater inclusion within existing mainstream markets. They leverage adjacent institutional logics, such as the logic of human rights and fat acceptance, seeking to expand fashion offerings for large women.

Celiacs similarly struggle with stigmatization and seek greater marketplace inclusion. Yet given the severe health repercussions and limited restaurant offerings that are celiac safe, many withdraw from the marketplace. Celine captures a service failure where she “gets glutened” providing ample justification for why some sufferers prefer cooking basic food ingredients at home:

“I was up half the night with gut wrenching cramps, diarrhea, chills, nausea. The next day I was so tired. Now, I’m super depressed and really just do not want to go on living in a world where someone would take advantage of people like us just to make a buck, and not even get it right. I know I was glutened by this place… I feel sick in my body, my heart and my soul over this.” [Celine, Interview]

Still, complete exclusion is difficult, particularly from social dining out events, and our informants draw on a range of tactics and strategies, such as finding one or two safe items on the menu, packing their own contingency food, or patronizing a restaurant that is completely gluten-free. Our informants report that, upon interacting with service providers, sometimes restaurants just do not feel safe. Restaurants and employees have ‘tells,” including statements servants make (e.g., “we added gf because it is popular” or “we have low gluten pasta”), nonverbals (e.g., long pauses, eye rolling), questions (“how gluten-free are you?”), and disclaimers (“We cannot be held responsible for ‘normal’ cross contamination that occurs during the preparation of foods in the kitchen.”). A common strategy among informants was to go back stage and examine the food prep area and interrogate the chef. Stealth tactics were also employed, such as hiding a sugar packet at the bottom of a salad sent back to see if a new salad was brought or if the old salad was brought back sans croutons.

Communicating the dire importance of their gluten free needs was difficult because of a double invisibility; food service employees neither see the gluten nor its affects since our informants rush home to suffer in privacy if they get glutened. Our informants deftly employ different institutional logics within the service encounter. Drawing on the logic of food safety, they draw analogies to peanut allergies and food poisoning in their communication with restaurant staff: “Most people don’t understand autoimmune diseases but they do understand allergies. Whatever it takes to get them to take me seriously (online data).” But they also distance themselves from the logic of customer choice and people who live a gluten-free lifestyle popularized by celebrities like Gwyneth Paltrow: “I am GF not by choice” and “it’s a medical necessity.” Ironically, recent surveys (Wong 2013) finding that 28% of consumers say they are cutting out gluten seriously (online data). But they also distance themselves from the logic of customer choice and people who live a gluten-free lifestyle popularized by celebrities like Gwyneth Paltrow: “I am GF not by choice” and “it’s a medical necessity.”

In our analysis, we draw on elements of neoinstitutional theory as a useful analytical lens to theorize how marginalized consumers navigate the risk and stigma associated with mainstream markets in which harmful yet invisible food constituents are common and normalized (Dolbec and Fischer 2015). In doing so, we extend current conceptions of market dynamics (e.g., Scaraboto and Fischer 2013) to reveal multiple processes through which these at-risk consumers maintain, disrupt, or withdraw from the mainstream market.
REFERENCES


