Obesity and Sensitivity of Food Perceptions and Preferences to Marketing Actions

Yann Cornil, University of British Columbia, Canada
Pierre Chandon, INSEAD, France
Hilke Plassmann, INSEAD, France
Liane Schmidt, INSEAD, France
Judith Aron-Wisnewsky, IHU-ICAN - Hopital Pitié-Salpétrie, France
Karine Clément, IHU-ICAN - Hopital Pitié-Salpétrie, France

A longitudinal study over several years shows that obese people are more sensitive to food marketing actions than lean people, but they become less sensitive after weight-loss surgery. Our findings point at the role that biological factors play for sensitivity to marketing actions.

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EXTENDED ABSTRACT

The environment—and particularly the actions of food marketers—strongly influences 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”) and 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 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 (Bartoșhuk et al. 2006; Yeomans, Blundell, and Leshem 2004) and to reward signals in the brain (Volkow, Wang, and Baler 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 and Miras 2015; Scruggs, Buhllington, 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 main study was conducted with the collaboration of the University Hospital of Pitié-Salpêtrière in Paris. During five years we collected data on a sample of 73 obese French female patients scheduled for gastric bypass surgery or surgical banding, and 40 lean French females (for the control group). The obese participants belonged to a clinical study conducted by the Institute of Cardiometabolism And Nutrition (ICAN). The obese patients were tested three times: one month before, 3 months after, and 12 months after the surgery. The control group was tested twice, separated by a period of 3 to 6 months in order to verify that the responses were stable over time. The control group was matched with the obese group on socio-demographic variables (age and employment). However, the obese sample had lower levels of education and income. Our analyses focused on the 46 obese patients and 32 control subjects who participated in at least two experimental sessions. The responses of the subjects who dropped the study after the first session were never significantly different from the responses the subjects who continued the study.

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 tended to underestimate calories in “good” foods and overestimate calories in “bad” foods. At t1 (before surgery), obese patients stereotyped foods significantly more than control participants, although their stereotyping tended to decrease 3 months after surgery, and significantly 1 year after.

We also measured size labeling effects. While food vendors are free to label the size of their portions however they want (e.g. “small”, “medium”, “large”), past research has shown that size labeling can exert a normative influence on consumers’ portion choice and consumption (Aydınoğlu and Krishna 2011). We tested labeling effects within-subject with a scenario that asked participants to choose portions of fries that vary only in “size labels”, but not in actual size. At t1 (before surgery), obese patients were significantly more influenced by size labeling than control participants, but again, they became significantly less influenced 3 months after and 1 year after surgery.

We finally measured assortment effects. Past research has shown that the range of portion sizes available at a food vendor exerts a normative influence on portion choice (Sharpe, Staelin, and Huber 2008); for instance adding a small size or a large size will shift which size will be considered normal, influencing food intake. In a scenario-based task, we found that before surgery, obese patients were directionally more influenced by assortment effects compared with control participants, but that this influence tended decrease 3 months after surgery, and significantly 1 year after.

Obviously, the most interesting comparisons is between the responses of the obese participants before and after weight-loss surgery. If we had found no effect of bariatric surgery, this would have suggested that the higher sensitivity to marketing actions of obese participants is likely 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.

However, we found that weight-loss surgery made obese people less responsive to marketing actions. This provides the first demonstration that weight-loss interventions, such as bariatric surgery, can influence food perceptions, preferences, and choice. It also suggests that differences in response to marketing actions might be one of the reasons for the higher BMI of the obese group.
REFERENCES


