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NFS 4020 – Advanced Nutrition
News or Noise – Annotated Bibliography

Original Headline:
“Organic labels may trick dieters into overeating:
People assume organic foods are lower in calories, new study finds”

S Blondel, M Javaheri. Valueing Organic Farming: an Experimental Study of the Consumer. *Proceedings of the XVth International Symposium*. 15th Ed. Berlin, Germany: 2004:245-252.

Summary

A human experimental trial was organized for this study in March 2003, which utilized 66 students and staff from the ESA Group (*Ecole supérieure d'agriculture*, i.e. School of agricultural engineering) in Angers, France. The average age was 31, and all participants had some college education – 12% had a PhD, and 36% had a monthly income higher than 1800 € (≈\$30,000 per year US). To reveal accurate preferences, real monetary payments were involved as participants were asked to indicate willing to pay (WTP) between organically farmed (OF) apples and conventionally farmed (CF) apples as well as OF and CF wine. The participants were also asked to choose between OF and CF apples and wine in two scenarios: one in which the prices were equal, and another in which the price of OF was higher. A paired difference *t*-test demonstrated that WTP for OF apples was 25% higher than CF apples and 16.3% for bottles of wine, respectively. In both cases, when OF and CF products were equally priced, 80% chose OF for both apples and wine. When OF prices increased as CF prices decreased, choice of apples was more sensitive than for organic wine, which was twice the price of CF and still 40% of the participants chose OF.

Assessment

The researchers were very thorough in conducting this experiment. A multiple linear regression was used to analyze the variance of income, consumption frequency, and age variables. This showed that WTP increases with income and consumption frequency. Being a student showed increased WTP for organic wine. The WTP was also compared to consistency of decisions. The results showed that consumer WTP had no significant difference with consumer choices. Finally, the survey questions presented to the students were repeated, and consistency of answers was evaluated. The major downfall of this experiment was the limited population sample as well as the effect that packaging and other variables may have on WTP. These shortcomings were addressed in the article.

Reflection

This study was superior to others of the same subject matter in the fact that they used real monetary payments to evaluate real consumer preference, and this was contrasted with WTP, whereas other articles look solely at WTP. This study was also very thorough and did not make conclusions unless there was quantifiable data to support their conclusions.

Zero percent of the study group believed that pesticides were safe, and, via survey methods, it was determined that the main reason to purchase organic is to reduce food risk and preserve human health, and the main reason not to purchase was the higher price of OF to CF. Maintaining the belief that organically produced food items are safer for human consumption may contribute to the health halo effect, where consumers may interpret safety as healthfulness, which may loosely tie to the allowance of overeating. This does not however demonstrate a clear association.

Schuldt JP, Schwarz N. The “organic” path to obesity? Organic claims influence calorie judgments and exercise recommendations. *Judgment and Decision Making*. 2010;5(3):144-150.

Summary

Two studies were conducted in this article, which my chosen headline was based off of. Both were human experimental trials that included students from the University of Michigan Introductory Psychology subject pool. The first study included 114 students (80 females, 34 males) whom were asked to determine on a scale of 1-7, where 1 = fewer calories and 7 = more calories, how organic Oreo cookies and conventional Oreos cookies compared to other brands of cookies. The nutrition label for both cookie varieties was provided. Organic Oreo cookies received lower calorie judgments ($M = 3.9$) than conventional ones ($M = 5.17$); $F(1, 112) = 26.17, p < .001, d = .97$ and were deemed more appropriate to eat more often ($M = 3.68$) than conventional ones ($M = 2.76$); $F(1, 112) = 22.39, p < .01, d = .89$. This judgment was more pronounced in participants with higher levels of pro-environmentalism (NEP score) ($b = .06, t(110) = 1.95, p = .05$) consistent with the halo effect.

The second study included 214 students (117 females, 98 males [-1]), and they were presented with the scenario where Susie, a 20-year-old college student was trying to lose weight by eating well and running three miles per day. On one particular night, Susie had a lot of homework, and so she after eating a healthy dinner and dessert, she had to decide whether to go on her three-mile run. These were her dessert options:

1. a small bowl of organic ice cream or a chocolate chip cookie, and she chose the cookie
2. an organic chocolate chip cookie or small bowl of ice cream, and she chose the ice cream
3. a small bowl of ice cream or an organic chocolate chip cookie, and she chose the cookie
4. a chocolate chip cookie or a small bowl of organic icecream, and she chose the ice cream
5. a chocolate chip cookie or a small bowl of ice cream, but she chose neither

The participants' leniency of Susie forgoing exercise on a weight-loss plan was slightly greater when she chose organic dessert than when she chose to eat no dessert at all. The participants were significantly more lenient toward Susie forgoing exercise when she

chose an organic dessert ($M = 5.42$, $SD = 1.44$) versus a conventional dessert ($M = 4.99$; $SD = 1.52$) ($F(1, 211) = 3.80$, $p < .05$, $d = .27$). NEP score did not show significance ($ps > .40$).

Assessment

Although these studies had several strengths (e.g. using a computer algorithm to randomly assign participants to variables, adjusting for the NEP scale, and considering participant demographics and BMI in the results) there were also a few limitations. The group of participants was not randomized, but, was in fact, very narrow; the survey was too broad to draw direct conclusions about participants' responses; and there was an uneven distribution of N in both studies. Thus, conclusions should be interpreted and generalized with caution.

Reflection

In this study, I noticed several flaws and underhanded tactics in the researchers' methods. For instance, when participants were asked whether or not Susie should have to go on her usual run, they used the words "under the circumstances" instead of being more specific and linking it to the dessert she chose. "Under the circumstances" as a student, I too would have said it was OK for Susie to skip a night since she was eating healthfully and had a lot of homework. The researchers were also biased in the outcomes and set up situations that they felt might paint a picture in their favor. Finally, the scale that was used for the students (1-7) is awkward. In the end, this is an enticing experiment, and if conducted properly, these results would lend support to the hypothesis that consumers may interpret National Organic Program (NOP) labels on processed foods as being healthier. As an experimental study, that may be interpreted a causal relationship between organic processed food and overeating or compensating for exercise as suggested by the headline.

Temple JL, Johnson, K, Recupero K, Suders H. Nutrition Labels Decrease Energy Intake in Adults Consuming Lunch in the Laboratory. *J Am Diet Assoc.* 2010;110:1094-1097.

Summary

A lab-based human experimental trial was done on 47 male ($n=24$) and female ($n=23$) participants between 18 and 50 years, recruited via flyers posted around the University at Buffalo North and South campuses. Smokers, dieters, those with a dislike for >1/2 potential study foods, or those with an intake of medications that can affect appetite were excluded. The experiment was conducted to determine the influence of nutrition labels on energy intake during a buffet lunch in male and female adults. The average BMI was 25.9 ± 0.6 , 91% had completed some college, and 59.5% were part- or full-time students. Participants were randomly assigned to one of two video groups that either taught how to read nutrition labels or discussed the organic food movement. Participants were also randomly assigned to one of two nutrition-labeling groups, where half received a lunch with a nutrition label using the standard US Department of Agricultural format, and half received no label on their buffet lunch. The video-watching conditions had no influence on energy intake or food selection, yet there were significant effects on the total

energy consumed at lunch when participants were presented with a food label ($F_{1,36} = 4.51$; $P = 0.04$), even when calories from drink were eliminated ($F_{1,36} = 6.05$; $P < 0.05$).

Assessment

This study took care in the method that they used by instructing participants to refrain from food or drink except for water for three hours prior to the lab visit, an eighth-grade reading level consent form was distributed. The participants answered a four-question quiz following their video viewing to establish that they understood the content. The buffet at lunch had proportioned and pre-weighed foods that were reweighed after meal completion. Participant characteristics and energy intake were analyzed with SYSTAT Software using three-way analyses of covariance with sex, labeling group, and video group. Hunger and fullness were also analyzed with SYSTAT Software, using mixed analyses of covariance. There were several limitations of this study. Only 19% of participants were obese, thus determining a true interaction between weight status and label use was limited; the type of food provided may not have been varied enough in terms of energy content; and finally, the time allotted (20 minutes) to the participants may have impeded the amount they would have eaten otherwise.

Reflection

Research in the area of food labels and consumer preference is very new and difficult to come by as of yet, and this was among the first of studies to establish that the presence of labels decreases energy intake whether or not nutrition label education has taken place. This indicates that consumers may understand labels enough to alter their food intake. Although the organic movement was addressed in one of the educational videos, it was not stated whether or not NOP labels or organic options were available at the lunch buffet. Because of this, it cannot be determined whether or not participants would consume more organic food than they would conventional food, as suggested by the headline, but in concept, this study does not support the idea that consumers will overeat based solely on a NOP label being that they are able to decipher energy content on the packaging.