Graphic Warning Labels Curb Purchasing of Sugar-Sweetened Beverages

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A field experiment in a hospital cafeteria tested the impact of calorie labels, text warning labels, and graphic warning labels on the share of drinks purchased that were sugar-sweetened beverages (SSBs). Graphic warning labels reduced the share of SSBs purchased by 14 percent (p < 0.01).

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Choosing How to Choose: New Perspectives on Information Avoidance and Disclosure for Consumer Decision Making

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Paper #1: Delegating Decisions: Recruiting Others to Make Choices We Might Regret
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Paper #2: Avoiding Information to Protect a Strong Intuitive Preference
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Paper #3: Disclosure and the Dog That Didn’t Bark: Consumers Are Too Forgiving of Missing Information
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Paper #4: Graphic Warning Labels Curb Purchasing of Sugar-Sweetened Beverages
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SESSION OVERVIEW

Consumers engage in various strategies when facing difficult decisions, many of which can operate against their goals or interests. At times, for example, consumers delay the decision or avoid making a decision at all (Luce 1998; Luce, Payne, and Bettman 1999). Other times, they make uninformed decisions even when receiving relevant information would be costless (Ehrich and Irwin 2005; Golman, Hagmann, and Loewenstein 2017; Thunström et al. 2016; Wansink and Chandon 2005). And even when information is automatically provided, people may not incorporate it into their decisions (Downs, Wisdom, Wansink, and Loewenstein 2013). This previous research raises important questions pertaining to consumer decision making and the role of information in consumer choice. This special session provides new perspectives on this topic, connecting four papers that explore novel strategies consumers use when making difficult decisions, and identifying how information—whether it is present or absent—impacts consumer choice.

The first two papers focus on strategies consumers use when faced with a hard choice. Steffel and Williams identify decision delegation as a novel way that people cope with anticipated regret when choices feel difficult. Nine experiments demonstrate that people prefer to delegate difficult decisions to others, regardless of the decision’s importance or the potential surrogate’s expertise. In the second paper, Woolley and Risen investigate information avoidance as an outcome of choice difficulty. Five experiments identify intuitive-deliberative conflict as a driver of information avoidance. Although consumers avoid information to protect an intuitive preference, they use the information when it is provided, suggesting consumers make a mistake either in avoiding information they use, or using information they would prefer to avoid.

The last two papers further explore how information influences consumers’ decisions, specifically in the health domain. Sah, Read, and Savani examine the fallout when doctors fail to disclose negative information about their trustworthiness and conflicts of interest. Rather than make negative inferences about these doctors, patients rate these doctors more positively than they would have otherwise, and are just as likely to select doctors with missing information to care for them as doctors with available, positive information. Finally, in a large-scale field experiment, Donnelly, Zatz, Svirsky, and John examine the influence of warning labels on the consumption of sugar-sweetened beverages (SSB). Whereas calorie and text-warning labels were ineffective at reducing the purchase of SSBs, graphic-warning labels successfully reduced SSB purchase from baseline by 14%.

Together these papers connect research on consumer’s preferences when making difficult decisions, and the role of information in consumer choice. Further, by identifying the factors that lead consumers to avoid choices or information, and how withholding or providing this information influences decisions, these findings highlight important implications for encouraging consumers to make better decisions. This session should have broad appeal to scholars interested in decision making, choice deferral, disclosure, and information avoidance, as well as the connections between them.

Delegating Decisions: Recruiting Others to Make Choices We Might Regret

EXTENDED ABSTRACT

People generally cherish the freedom to make their own decisions. Even when choosing is costly, people prefer to choose themselves rather than let another person choose for them (Botti and Iyengar 2004; Botti and McGill 2006, 2011; Botti, Orfali, and Iyengar 2009). If the desire to make one’s own choices is often so pervasive, when might people prefer to delegate? We suggest that delegation may often be an appealing alternative to choosing oneself because it enables people to avoid responsibility and regret for potentially choosing suboptimally while still enabling them to get something rather than nothing out of a decision. We predict that people are especially likely to delegate when choices feel difficult and the chance of choosing badly is high.

We first examine whether, despite their general preference for making their own choices, people prefer to have others choose on their behalf when choices feel difficult. In Experiment 1, an incentive-compatible design, participants were more likely to delegate a choice of headphones to take home after the experiment when given a difficult choice between two similar sets of earphones than an easy choice between two dissimilar sets of earphones (28% vs. 11%; \( \chi^2(1, N = 366) = 16.72, p < .001, \phi = .21 \)). Experiment 2 found that people delegate difficult decisions regardless of the importance of the decision: participants were more likely to delegate a difficult than an easy decision, both for an important choice that was binding and for which switching was costly (41% vs. 29%; \( \chi^2 = (1, N = 406) = 5.55, p = .02, \phi = .12 \)) and for a less important choice that was nonbinding and where switching was costless (48% vs. 28%; \( \chi^2 = (1, N = 409) = 17.62, p < .001, \phi = .21 \)). And, Experiment 3 found that, although expertise made delegation overall more appealing, people delegated difficult decisions regardless of the expertise of the potential surrogate: participants were more likely to delegate a difficult than an easy decision, both when the surrogate had relevant expertise (79% vs. during the first experiment to get a second checkup or one less checkup after the experiment when given a difficult choice between two similar sets of eyeglasses than an easy choice between two dissimilar sets of eyeglasses (48% vs. 29%; \( \chi^2 = (1, N = 289) = 22.11, p < .001, \phi = .30 \)).
Experiment 4 tests whether people delegate to avoid the regret associated with being responsible for bringing about that bad outcome or to avoid the disappointment associated with a bad outcome, independent of whether they choose it or not. We manipulated choice difficulty by making the available options in the set either close or distant in appeal, and we manipulated the overall appeal of the choice options by making them all either attractive or unattractive. Participants were more likely to delegate when the difference in relative attractiveness was small and the choice was difficult than when it was large and the choice was easy \((F(1, 819) = 7.00, p = .008, \eta^2 = .008)\), but equally likely when both options were attractive and when both options were unattractive \((F(1, 819) = .86, p = .36, \eta^2 = .001)\). A serial mediation model (PROCESS Model 6) indicated that our relative attractiveness manipulation increased difficulty \((\beta = .71, SE = .12, t = 6.15, p < .001)\), difficulty increased anticipated regret \((\beta = .29, SE = .03, t = 10.54, p < .001)\), and anticipated regret increased delegation \((\beta = .14, SE = .06, t = 2.34, p = .02)\).

Experiment 5 explored whether delegation may be preferred to defer when choices feel difficult, so long as the options are somewhat appealing, because it enables people to avoid responsibility and regret for potentially choosing suboptimally while still enabling them to get something rather than nothing out of the decision. Indeed, when given the option to choose, delegate, or defer, participants were more likely to delegate than choose themselves when given a difficult choice between options that were close in relative attractiveness than when given an easy choice between options that were far in attractiveness \((42\% vs. 32\%; Wald's \chi^2 = 8.88, p = .003, Odds Ratio = .48)\). This was especially true when the options were appealing \((44\% vs. 27\%; Wald's \chi^2 = 8.88, p = .003, Odds Ratio = .48)\) than when they were unappealing \((41\% vs. 36\%; Wald's \chi^2 = .50, p = .48, Odds Ratio = .83)\), but not when the options were both attractive versus when they were both unattractive \((38\% vs. 36\%; Wald's \chi^2 < .001, p = .99, Odds Ratio = 1.00)\). Unsurprisingly, participants were more likely to defer their choice when the options were both unattractive than when they were both attractive \((9\% vs. 1%; Wald's \chi^2 = 18.97, p < .001, Odds Ratio = .11)\), but was equally common regardless of the relative attractiveness of the options \((4\% vs. 5%; Wald's \chi^2 = .49, p = .48, Odds Ratio = .74)\).

Finally, Experiment 6 tested whether giving people the option to delegate reduces choice deferral in situations in which people are otherwise prone to leaving empty-handed. We varied set size and salesperson presence and found a significant interaction between set size and salesperson presence on purchases \((Wald's \chi^2 = 8.90, p < .005)\). When a salesperson was not present, fewer participants chose to make a purchase when there were many options than when there were few \((37\% vs. 64\%; \chi^2(1, 63) = 4.22, p < .05)\). However, when a salesperson was present, more participants made a purchase when there were many options than when there were few \((86\% vs. 61\%; \chi^2(1, 69) = 5.13, p < .05)\).

The present research provides new insight into the preference for choice determination by showing that the anticipated regret associated with being responsible for a bad choice can overwhelm people’s general preference for making their own choices. Moreover, our work shows that the social context and the presence of a potential surrogate have a meaningful effect on consumers’ choices, including whether or not to choose in the first place.

Avoiding Information to Protect a Strong Intuitive Preference

EXTENDED ABSTRACT

Rationally, more (relevant) information is better. But consumers sometimes choose to remain ignorant. Consumer behavior research largely conceptualizes information avoidance as a means of protecting emotions (Ehrlich and Irwin 2005; Zane, Irwin, and Reczek 2015). The current research broadens this view to include the goal of protecting a preference, developing a theory of information avoidance within the context of intuitive-deliberative conflict.

We predict that when consumers have a strong intuitive desire that conflicts with their deliberative reasoning, they will avoid information in order to protect their intuitive preference. That is, if the information could encourage them to make a “rational” decision, they may avoid the information to make it easier and more likely that they will make the intuitive decision instead. Although people with an intuitive preference may also avoid information to minimize unpleasant emotions or challenges to their beliefs, we demonstrate that avoidance is driven in part by the motivation to protect the decision itself.

A pilot study established intuitive-deliberative conflict for the four situations used in the paper. We defined intuitive preferences for participants as “immediate, intuitive, emotionally-charged, gut reactions (e.g., follow your heart)” and contrasted this with deliberative preferences that result from “slow, deliberate, thoughtful, reasoned reflection (e.g., follow your head)” (Sloman 2014; see also System 1 vs. System 2: Kahneman and Frederick 2002; 2005; Milkman, Chugh, and Bazerman 2009; head vs. heart: Shiv and Fedorikhin 1999). Participants indicated their intuitive preference by answering, “Which option would you choose if you were following your heart?” and their deliberative preference by answering “Which option would you choose if you were following your head?” People’s intuitive and deliberative preferences diverged in each of the scenarios \((ps < .001)\).

Confirming that our scenarios reflect intuitive-deliberative conflicts, we test the prediction that people avoid information when they hold a strong intuitive preference, but use this information when it is provided. Participants in Study 1 imagined being tempted to order dessert even though they are concerned with healthy eating. Before deciding whether to order dessert, they indicated whether they want to know the dessert’s nutritional information. A majority of participants (62.7%) choose not to receive calorie information. However, when assigned to receive information \((385, 550, 700)\) calories, the information influenced their decision to order dessert \((\beta = -.64, SE = .24, p = .007)\), both for those who wanted to receive the information and those who wanted to avoid it.

Study 2A examined information avoidance for a decision with real financial consequences. Participants received a choice between working on a fun task that offered no bonus payment and working on a boring task that paid a real bonus. Before deciding which task to work on, participants indicated whether they wanted to know how much the boring task paid. Even though a majority (62.2%) choose to avoid learning the value of the bonus payment, when assigned to receive this information, it influenced their decision \((\beta = -.99, SE = .41, p = .017)\). In a follow-up (Study 2B), we find that avoidance is predicted by the strength of participants’ intuitive preference. The stronger participants’ intuitive preference for the fun task, the more likely they were to avoid the bonus information \((\beta = .23, SE = .07, p = .002)\). Again, as in Study 2A, participants were influenced by the information \((\beta = 1.49, SE = .43, p < .001)\), even for those who preferred to avoid it.
Across Studies 3–5, participants decide whether to learn how much money they could earn by accepting an intuitively-unappealing investment (earning money if a sympathetic student performs poorly in a class or if a hurricane hits a third-world country). Although intuitively-unappealing, the investments are financially rational because they only have financial upside. If people avoid information to protect their intuitive preference, then avoidance should be more likely when an intuitive preference is especially strong and when information could influence the decision. In Study 3, we find that the strength of the intuitive preference moderates information avoidance. People who could earn money if a student performed poorly in class were more likely to avoid learning how much they would win than those who could earn money if the student performed well (57.8% vs 42.9%; \( \chi^2(1, N = 200) = 4.49, p = .034 \)).

In Study 4A, we test whether information is avoided more when it can influence a decision (i.e., a decision has not yet been made) than when it cannot (i.e., a decision has already been made for participants). Participants imagined choosing a retirement plan. One plan included a “catastrophe bond” which would payout in the event of a hurricane striking a third world country. People were more likely to avoid learning how much this bond paid out when they had to make a decision about which plan to invest in than when they were automatically enrolled in the plan with this bond (58.4% vs. 41.4%; \( \chi^2(1, N = 200) = 5.78, p = .016 \)). In a follow-up (Study 4B), learning the payout of the cat-bond influenced participants to make the financially rational decision (enroll in the plan with the cat-bond).

Study 5 tested this prediction for a consequential decision. Conceptually replicating Study 4A, participants avoided information more when they had a decision to make (i.e., to accept or refuse a bet that a student performs poorly) than if they were automatically assigned to accept the bet (61.2% vs. 43.4%; \( \chi^2(1, N = 197) = 6.25, p = .012 \)).

Overall, we find that consumers avoid information to protect an intuitive preference, and that they are most likely to do so when the information is most valuable to have. When people have a strong intuitive preference that conflicts with a deliberative response, people avoid information that would make it harder for them to follow their intuition. Despite avoiding this information, people incorporate it into their decision when it is provided, suggesting that people may make a mistake, either in avoiding information they would otherwise use, or in using information they would prefer to avoid.

**Disclosure and the Dog That Didn’t Bark:**

**Consumers Are Too Forgiving of Missing Information**

**EXTENDED ABSTRACT**

According to rational disclosure theory, if there is an information asymmetry between two parties, and if the knowledgeable party can provide their private information credibly, then, unless the information is the worst possible from the perspective of the less knowledgeable party, they will disclose it. Similarly, the less knowledgeable party should interpret any failure to disclose as being due to the missing information being the worst possible. This is the central premise for “unraveling” theory (Brown, Camerer and Lovallo 2012; Grossman and Hart 1983). We test unraveling theory in five experiments in which (mock) doctors decide how much of their record to disclose, and (mock) patients evaluate those doctors. The information of interest concerns the doctor’s trustworthiness and any conflicts of interest he or she has. We find, contrary to standard theory, that (a) doctors almost always withhold even mildly negative information, and (b) patients are relatively unresponsive to that missing information, so that they judge doctors with missing information as being fairly average on the missing dimension rather than, as unraveling theory would predict, very poor, and are just as likely to select doctors with missing information to care for them as doctors with good levels of present information. When asked, the doctors largely assume patients will not infer much from missing information, and believe that expressing it will be bad for business. We test whether the responses of patients are due to not noticing the missing information (salience hypothesis) or due to interpreting the missing information in an unduly positive light, even when its absence is noticed (charitability hypothesis). We find evidence for both salience and charitability effects. As the absence of information is made increasingly salient, first by adding empty boxes onscreen where missing information should be, then by indicating the doctor “declined” to provide the information in the box (and so on), patients judge the doctor as increasingly worse, supporting the salience hypothesis. But patient judgments never get close to the “worst possible” suggested by theory, and even when they directly reflect on the missing information and estimate the absent value they rate the doctor as much better than the worst possible on those dimensions. To encourage patients to make more rational inferences from withheld information, we created an intervention in which some patients were asked how likely doctors with high, medium, or low ratings would be to release their information, thus making salient the relationship between the service providers’ quality and their likelihood to release versus withhold information. This manipulation brought patients’ judgments closer to that predicted by the rational model: Compared to patients in the control condition, those in the intervention condition estimated that a doctor with a missing “patient satisfaction rating” received a lower rating and were less likely to choose that doctor. These findings reveal a different equilibrium for voluntary disclosure than unraveling theory would predict, and show that mandatory disclosure rules are likely to be essential if we wish to ensure consumers make informed decisions. In the absence of mandatory disclosure rules, an intervention that help consumers think more deeply about the lack of missing information can help them make the inferences in line with unraveling theory.

**Graphic Warning Labels Curb Purchasing of Sugar-Sweetened Beverages**

**EXTENDED ABSTRACT**

Consumption of sugar-sweetened beverages (SSBs) contributes to obesity (Ludwig, Peterson, and Gortmaker 2001) and has been linked to other health problems including diabetes (Schulze et al. 2004), heart disease (Fung et al. 2009), and dental caries (Heller, Burt, and Eklund 2001). To reduce purchasing and consumption of SSBs, several municipalities and states have proposed warning labels. San Francisco recently passed a policy, although not yet implemented, requiring text-warning labels on SSB advertisements (Winer, Mar, Cohen and Avalos 2015).

How might warning labels impact SSB purchasing? They aim to educate consumers about the health risks associated with SSBs and increase their salience at the point of beverage selection. Indeed, research shows that text warning labels on tobacco products are associated with increased perception of health risks, motivation to quit, and sustained abstinence (Hammond 2011). However, informing people that their behavior is self-harmful does not always lead to positive change. In order to be effective, health information must be noticed, understood, and incorporated into the decision process while overcoming any cognitive biases or preferences toward unhealthy choices (Downs, Loewenstein, and Wisdom 2009). It is not
clear whether SSB text warning labels meet these criteria in the real world.

Prior research underscores the limits of information provision in inducing healthy behavior change (e.g., past research finds mixed evidence on whether calorie labels reduce purchasing of calories; Downs et al. 2013). Unlike calorie labels, however, text-warning labels also convey direct information about potential harm to health—which might increase their potency.

Health information can induce behavior change when communicated in a salient and intuitively comprehensible way (Korfage et al. 2013). The potency of nutritional information is enhanced when conveyed in a simple red-yellow-green scale (Thorndike et al. 2012), and when calories are expressed in physical activity equivalents (Bleich, Barry, Gary-Webb, and Herring 2014). Such translation is even more compelling when it triggers a visceral response (Loewenstein 1996). Visually evocative cigarette warnings are more likely to be noticed and elicit negative visceral responses, perhaps helping to increase their effectiveness (Terry-McElrath et al. 2005). This suggests an opportunity to improve SSB warning labels.

Given the lack of field studies testing text or graphic SSB warning labels, we conducted a field experiment on the impact of calorie, text warning, and graphic warning labels on SSB purchasing.

The field experiment occurred in a hospital cafeteria in Massachusetts beginning with a two-week baseline to collect beverage sales data. Next, each SSB labeling intervention ran for two weeks, each followed by a two-week washout period when no labels were displayed. The hospital defined SSBS as any beverage with more than 12 grams of sugar per container (excluding milk and 100% juice). Drinks not meeting these criteria were not labeled.

The calorie label followed an FDA regulation and read: “120–290 calories per container. 2,000 calories a day is used for general nutrition advice, but calorie needs vary.” The text warning label used the language that will be implemented in San Francisco: “WARNING: Drinking beverages with added sugar(s) contributes to obesity, diabetes, and tooth decay.” The graphic warning label included the same text but also included images portraying obesity, diabetes, and tooth decay.

Our primary outcome measure was the daily proportion of bottles purchased that were SSBS. For secondary outcomes, we assessed changes in absolute beverage sales, beverage calories sold, and share of drink types.

During the study period an average of 2,617 (SD = 323.2) bottled drinks were purchased weekly (NS between weeks), approximately 21% of which were SSBS. During baseline, 21% of purchased drinks were SSBS, statistically indistinguishable from the share during both calorie (21%, p = 0.99) and text warning label (21%, p = 0.94) treatments. However, during the graphic warning labels treatment, the share of SSBS purchased decreased to 18%—a 14 percent reduction relative to baseline (p < .01). It was also significantly lower relative to both the calorie (p < 0.01) and text warning labels (p < .01). With the graphic warning label, the average calories per drink purchased dropped from 87 in baseline to 74 (p < 0.001). The substitution analysis indicated that during the graphic warning treatment, the proportion of water drinks purchased rose from 24% to 28% (p < .01), while the tendency to buy other drink types went unchanged. Therefore, it seems that graphic warning labels caused some consumers to buy water drinks in lieu of SSBS.

Our findings suggest that graphic warning labels reduce SSB purchasing, whereas calorie and text warning labels do not, and we find that this reduction is accompanied by a shift towards water drinks. We also find that SSB purchasing rebounded to baseline after the graphic warnings were removed, which suggests the need for continued and salient exposure.

These findings suggest that evocative and visceral health warnings are much more effective at encouraging behavior change than messaging that appeals to intellect by providing information.

REFERENCES


