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Closing Your Eyes to Follow Your Heart: Avoiding Information to Protect a Strong Intuitive Preference

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Rationally, people should want to receive information that is costless and relevant for a decision. But people sometimes choose to remain ignorant. The current paper identifies intuitive-deliberative conflict as a driver of information avoidance. Moreover, we examine whether people avoid information not only to protect their feelings or experiences, but also to protect the decision itself. We predict that people avoid information that could encourage a more thoughtful, deliberative decision to make it easier to enact their intuitive preference. In Studies 1 and 2, people avoid learning the calories in a tempting dessert and compensation for a boring task to protect their preferences to eat the dessert and work on a more enjoyable task. The same people who want to avoid the information, however, use it when it is provided. In Studies 3–5, people decide whether to learn how much money they could earn by accepting an intuitively unappealing bet (that a sympathetic student performs poorly or that a hurricane hits a third-world country). Although intuitively unappealing, the bets are financially rational because they only have financial upside. If people avoid information in part to protect their intuitive preference, then avoidance should be greater when an intuitive preference is especially strong and when information could influence the decision. As predicted, avoidance is driven by the strength of the intuitive preference (Study 3) and, ironically, information avoidance is greater before a decision is made, when the information is decision relevant, than after, when the information is irrelevant for the decision (Studies 4 and 5).

Keywords: decision making, information avoidance, intuitive versus deliberative conflict

Imagine you are out to dinner with your closest friends and family to celebrate your birthday. You have had a great time so far eating and drinking, and now the waiter has stopped by to offer a dessert menu. Although you normally try to eat a healthy diet and limit sweets, you cannot help but be tempted to order the molten chocolate lava cake, especially because it is a special occasion. Before deciding whether or not to order the cake, would you want to know how many calories are in it? Alternatively, imagine that you are offered the chance to bet against your favorite team winning a critical playoff game, where you can win money at no cost to yourself, but only if your favorite team loses. From a financial perspective, it is smart to accept bets that only have financial upside, but emotionally you prefer not to bet against your favorite team. Before deciding whether to accept the bet, do you want to learn how much the bet pays out?

We examine information avoidance in situations like these when a strong intuitive desire comes into conflict with a more reasoned option. Metaphorically speaking, we examine situations when following one's "heart" is complicated by concerns of the "head." Learning the calories in a dessert or the potential payout of a bet is helpful when deciding whether to order dessert or accept the bet. Despite this, we suggest that people may intentionally avoid learning relevant information at the time of a decision to make it easier to follow their intuitive preference. When tempted to order a delicious dessert, people may prefer not to know the calorie count to make it easier to order dessert, and when offered a bet against their favorite team, people may avoid learning their potential compensation to make it easier to refuse the bet. We suggest that information avoidance occurs in these situations at least in part because people recognize that receiving information could influence their decision away from their intuitive preference—and, at some level, they just want to follow their heart.

Avoiding Information

According to a neoclassical model of economics and decision theory, it is irrational to avoid information that is costless and relevant to a decision. However, there have been instances of people intentionally avoiding information documented in various fields, including psychology, economics, medicine, communications, marketing, and organizational behavior. In an effort to organize across the various literatures, Sweeny, Melnyk, Miller, and Shepperd (2010) catalogued three primary motivations underlying information avoidance, which can operate independently or in conjunction with one another.

First, and most related to the current investigation, people avoid information that could demand an undesired action (Howell &

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Shepperd, 2013a). For example, people avoid relationship information that could obligate them to break up with a close partner (Simpson, Ickes, & Blackstone, 1995), and they explain their decision to not have certain medical tests as a concern about having to change their behavior if the results were positive (Varga, 2001). Information avoidance in these cases is often confounded with decision avoidance; the alternative to learning information and acting on it is typically the status quo. When people avoid information about their medical or relationship status they are, in essence, avoiding the decision as well. Many of the motivations for decision avoidance (see Anderson, 2003) may be at play when information avoidance allows people to avoid making a decision. In contrast, the present studies require people to make a decision, regardless of whether they avoid information; people must choose to make either an informed or uninformed decision.

Second, people may avoid information that would challenge an important belief about themselves (or their worldview) because they are motivated to hold positive self-views (Dana, Weber, & Kuang, 2007; Hart et al., 2009; Oster, Shoulson, & Dorsey, 2013; Snyder, Stephan, & Rosenfield, 1976), and to maintain consistency in these self-views (Swann, De La Ronde, & Hixon, 1994). In particular, previous research has documented that people want to receive information that confirms their beliefs, and avoid disconfirming information (Hart et al., 2009; Mills, Aronson, & Robinson, 1959; Smith, Fabrigar, & Norris, 2008). We examine whether people will avoid information even when the content of the information is uncertain and they are unsure whether the information will support or undermine an existing preference.

Third, and most studied, people avoid information because they anticipate that it will cause unpleasant emotions or experiences, such as guilt, (Dana et al., 2007; Larson & Capra, 2009), regret (Thunström et al., 2016; Zeelenberg, 1999; Zeelenberg & Pieters, 2007), or disappointment (Golman, Hagmann, & Loewenstein, 2017; Karlsson, Loewenstein, & Seppi, 2009). For example, people avoid learning calorie information when deciding what to order for lunch, which the authors suggest occurs to avoid feeling guilty when eating a high calorie meal (Thunström et al., 2016). Avoidance in this context may also stem from recognizing that calorie information could distract from the experience of living in the moment. Additionally, research on moral wiggle room finds that many people avoid learning information about potential payouts to a partner to avoid feeling or appearing unfair when choosing a self-benefiting option at the expense of their partner (Dana et al., 2007). Furthermore, Ehrich and Irwin (2005) show that people fail to request information about ethical labor practices for a product they want to purchase to prevent feeling uncomfortable. These three papers are related to the current research question because people face an immediate decision and the information content is unknown, but relevant (i.e., it affects people's decisions). However, all three suggest that people avoid information to manage negative feelings, which could undermine their experience eating a meal, playing a game, or using a product.

Building on the aforementioned research, we focus on information avoidance that stems from the recognition, conscious or not, that learning certain information would make it harder to enact a preference. In other words, we suggest that avoidance occurs not only to protect an emotion or experience, but to protect a decision as well. Thus, while a person may avoid information about the calorie count of a dessert so that she does not feel guilty eating the dessert (Thunström et al., 2016; Wansink & Chandon, 2006), or is not distracted from living in the moment, we highlight that avoidance can also stem from the recognition that learning the information would make her less likely to order dessert in the first place. Although we do not attempt to rule alternative motives out, we employ decision paradigms to show that avoidance cannot be fully explained by alternative motives and that people avoid information, at least in part, to protect a decision. Further, we test whether the same people who avoid information are influenced by it, which suggests they may be making a mistake—either by avoiding information that they would use or by using information they would prefer to avoid. Finally, we sample from several domains to make a broader argument about information avoidance that occurs when following one's heart is complicated by concerns of the head.

Intuitive-Deliberative Conflict Prompts Information Avoidance

In studying situations involving intuitive-deliberative conflict, we distinguish between preferences emerging from intuitive versus deliberative processing (Darlow & Sloman, 2010; Sloman, 2014; see also System 1 vs. System 2: Kahneman & Frederick, 2002, 2005; Stanovich & West, 2000). Intuitive processing is automatic and relatively effortless, capturing a gut-feeling, often based on affective reactions. Deliberative processing is more effortful and controlled, operating according to formal rules of logic, and is responsible for overcoming impulsive responses. People often refer to these types of conflicts in terms of following "the heart" (emotion) versus "the head" (reason; Hsee, Yang, Zheng, & Wang, 2015; Shiv & Fedorikhin, 1999). We therefore use this metaphor to represent the conflict in preferences that we believe result from intuitive versus deliberative processing. When considering whether to order a delicious dessert or bet against a favorite team, for example, the intuitive responses are to do what feels better: eating the tempting dessert and refusing the emotionally unappealing investment (Morewedge, Tang, & Larrick, 2017). However, the more thoughtful, deliberative answers are to do what seems smart from a future-oriented or financial perspective: passing on dessert (in keeping with long-term health goals) and accepting the investment (because it is risk-free money).

By identifying intuitive responses as primarily emotion-based (what feels better) and deliberative responses as primarily reason-based (what seems smart), our distinction overlaps with the distinction between want versus should (Bazerman, Tenbrunsel, & Wade-Benzoni, 1998; Milkman, Rogers, & Bazerman, 2008). We adopt the terminology of intuitive versus deliberative for two reasons. First, as we elaborate in the General Discussion, we do not believe that deliberative reasoning is necessarily "right" and worry that by labeling a response in terms of how people "should" behave we would inadvertently suggest that it is always right. Second, the want-should distinction does not seamlessly line up with the previous literature for our studies that pit rational self-interest against the unpleasant feeling of benefiting from someone else's misfortune. Typically, scholars assume that people *want* to make selfish choices to benefit themselves, but think they *should* be nice to others (Bazerman et al., 1998; Dawes, McTavish, & Shaklee, 1977; Miller, 1999). We create situations, however,

where people *want* to avoid benefiting from someone else's misfortune, but think they *should* pursue rational self-interest. By triggering sympathetic concern in our studies, we lead people's immediate, affective response toward altruism and away from self-interest (Loewenstein, O'Donoghue, & Bhatia, 2015). Thus, rather than use the labels of want and should in the opposite way that they are often used for moral dilemmas, we use intuitive-deliberative for all of our studies to reflect the conflict between following one's heart (emotion) versus head (reason), respectively.[1]

We contend that people avoid information when two conditions are satisfied: (1) they want to protect their current preference and (2) they recognize that their preference may change with information. Situations that involve an intuitive-deliberative conflict are likely to lead to information avoidance because when people have conflicting preferences, they may not trust that their current preference will win out in the face of new information. Consider someone who has a strong deliberative goal to lose weight and is sophisticated enough to know that she is more likely to break her diet if she sees or smells wonderful treats at the bakery (O'Donoghue & Rabin, 1999). Knowing this, she may avoid the bakery to protect her health goal. Indeed, self-control scholars have shown that people employ strategies of avoidance to protect their long-term, deliberative preferences (Ainslie, 1992; Bénabou & Tirole, 2002; Carrillo & Mariotti, 2000; Hoch & Loewenstein, 1991; Loewenstein, 1996; Wertenbroch, 1998). In other words, the *planner* self constrains information to encourage the *doer* self to be more rational (Thaler & Shefrin, 1981). It is not surprising that people do not trust themselves to ignore temptation. Thus, it is not surprising that they avoid information about a temptation to protect their deliberative preferences.

We ask, however, whether the opposite is also true—will people avoid information to protect an intuitive preference from deliberative reasoning? On the one hand, a far-sighted planner self may seek information in these situations to encourage the myopic doer self to act more rationally and less impulsively (Thaler & Shefrin, 1981). But on the other hand, people may not trust themselves to act on their intuitive desires. As such, they may avoid information that could encourage a more reasoned decision to make it easier to follow their intuitive preference. For example, someone with a health goal who also has a desire to order a delicious dessert may avoid calorie information to make it easier to order dessert. Just as people anticipate that a temptation may be too powerful to resist, people may also recognize that it would be too hard to ignore deliberative information that challenges their intuitive preference.

Deliberative reasoning—following your head—is not always right, but can be hard to ignore. For this reason, and in support of our hypothesis, research on hyperopia has documented that people who suffer from excessive farsightedness will sometimes strategically promote indulgent behavior (Keinan & Kivetz, 2008; Kivetz & Keinan, 2006). For example, consumers who are especially likely to choose a deliberative option (e.g., a necessity) over an intuitive preference (e.g., a hedonic luxury), will precommit to indulgences to ensure that they follow through on their desire to have more fun (Kivetz & Simonson, 2002). Whereas hyperopia and corresponding precommitment strategies require conscious self-insight, we examine whether people avoid information to protect their intuitive preference without requiring that they consciously recognize avoidance as a strategy. Further, we examine the preference to avoid deliberative information not only among those who are predisposed to farsightedness, as is the case in hyperopia research, but more generally across the population.

Because our theory predicts that avoidance is prompted when people worry that their current intuitive preference will not win over a conflicting preference in the face of new information, we predict that people will actively avoid information when there is a conflict over what to do, which is precisely when relevant information would be most important to have. In other words, if there is no intuitive preference to protect, or nothing to protect it from, then people will not be motivated to intentionally avoid information (see Figure 1, top left column). Of course, when people face conflict, they should also be motivated to seek certain information, which we discuss in more detail in the General Discussion.

We test whether avoidance occurs, at least in part, to protect an intuitive preference in two ways. First, we examine whether more people avoid information when holding a strong intuitive preference versus a weak one. When holding a weak preference, people are less motivated to protect the preference, and should therefore avoid information less. Second, we test whether avoidance is greater when information can versus cannot affect the decision. When information cannot influence a decision, such as when a decision has already been made, then avoiding information cannot help protect a preference (though it may still protect emotions). This suggests, ironically, that more people may avoid decision-relevant information before making a decision than after a decision has been made, because avoidance cannot protect an intuitive preference in the latter case.

Overview of Research

Across hypothetical and consequential studies, we test the prediction that people avoid information when they hold a strong intuitive preference that conflicts with a deliberative response, but use this information when it is provided. We study active information avoidance, when an individual is aware that the information exists and has free access to the information (Golman et al., 2017; Sweeny et al., 2010). In Study 1, participants with a health goal who are tempted to order dessert indicate whether they want to know the dessert's nutritional information. In Study 2, participants deciding whether to work on a fun task with no bonus or a boring task with a real bonus indicate whether they want to know how much the boring task pays. In both Studies 1 and 2, we predict that people avoid the calorie and compensation information, but use it when provided to make the future-oriented and financially rational decision.

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).[2]

[1] To confirm that we created conflict for participants, we included a pretest where participants indicated what they would do if they were following their heart or their head. Whereas intuitive and deliberative processing can also be defined by speed and effort, we did not use time or cognitive load to operationalize preferences.

[2] To make the bets intuitively unappealing, we used targets that were especially likely to evoke sympathy. Indeed, our pretest confirmed that people were more likely to refuse the bet against the student and to reject the investment bond with the catastrophe bond when following their heart.

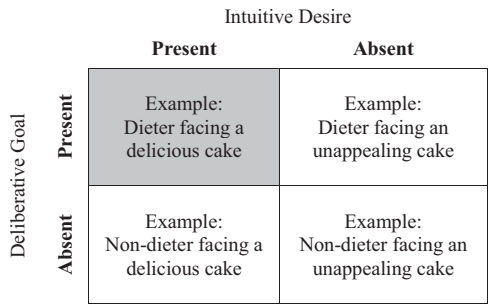

Figure 1. Our theory predicts that the motivation to avoid information is more likely to be activated when people have a strong intuitive desire that conflicts with a deliberative goal, such as when a dieter faces the decision to order a delicious cake and must first decide whether to find out the calorie count of the cake.

Although intuitively unappealing, the investments are financially rational because they only have financial upside. If people avoid information, at least in part, to protect their intuitive preference, then avoidance should be greater when an intuitive preference is especially strong and when information could influence the decision. In Study 3, we examine the strength of an intuitive preference as a moderator of the effect to test whether avoidance is greater for a stronger intuitive preference. In Study 4, we examine whether avoidance occurs to protect an intuitive preference, above other potential motives, by testing whether people avoid information more before making a decision, when information is influential, than after, when information cannot influence the decision. Study 5 tests this prediction for a consequential decision, examining whether information is avoided more when participants have to make a decision with real financial consequences than when the decision has already been made for them.

Pretest

Before testing our main hypothesis, we conducted a pretest to confirm that the scenarios used in our studies indeed capture intuitive-deliberative conflicts for people. We recruited 200 U.S.-based MTurk workers, and 201 participants (100 female; M_{age} = 34.75, SD = 10.02) responded to the 8-min survey for $0.70. We presented participants with our four decision scenarios: 1. Decision to order a tempting cake or not, 2. Decision to work on a fun task for no bonus or a boring task for a small bonus, 3. Decision to accept or refuse a bet that a sympathetic student will perform poorly in class, and 4. Decision to invest in a "catastrophe bond" that only pays out if a natural disaster strikes a third world country. 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)." Using a within-subjects design, 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?" We use their responses as evidence for what constitutes a deliberative and intuitive response to each scenario.

Using within-subjects omnibus McNemar-Bowker tests, we found that people's intuitive and deliberative preferences diverged in each of these scenarios, highlighting the head-heart decision conflict. For each scenario, more people chose the intuitive option when following their hearts than when following their heads (see Figure 2). Specifically, more people ordered a tempting cake when following their heart than their head (84.6% vs. 28.9%), $\chi^2(1, N = 201) = 99.36$, $p < .001$, Odds Ratio (OR) = 19.67, 95% $CI_{Exp(B)}$ = [8.77, 54.67]. More people worked on a fun task over a boring task with a small bonus when following their heart than their head (87.1% vs.

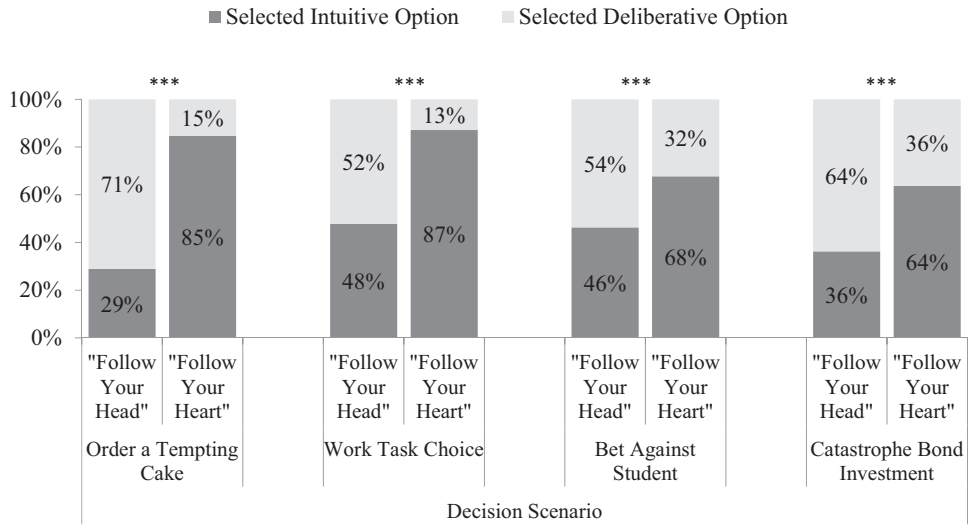

Figure 2. Across the four scenarios used in our studies, we find that intuitive and deliberative preferences diverge, highlighting the intuitive/deliberative decision conflict. When following their head, consumers prefer the financially rational or future oriented option more than when following their heart. *** $p < .001$.

47.8%), $\chi^2(1, N = 201) = 71.58$, $p < .001$, $OR = 27.33$, 95% $CI_{Exp(B)} = [9.03, 135.27]$. More people refused a bet that a sympathetic student would perform poorly in class when following their heart than their head (67.7% vs. 46.3%), $\chi^2(1, N = 201) = 19.82$, $p < .001$, $OR = 2.87$, 95% $CI_{Exp(B)} = [1.76, 4.83]$. Lastly, more people refused to invest in a catastrophe bond when following their heart than their head (63.7% vs. 36.3%), $\chi^2(1, N = 201) = 30.70$, $p < .001$, $OR = 3.75$, 95% $CI_{Exp(B)} = [2.27, 6.49]$. Thus, for all scenarios, people preferred the intuitive response when following their heart—perhaps even feeling that it would be taboo to do otherwise (Tetlock, Kristel, Elson, Green, & Lerner, 2000). But, they also recognized the benefits of the deliberative response because they preferred it when following their head. Confirming that our scenarios reflected intuitive-deliberative conflicts, we next tested our main prediction that people avoid information in these conflict situations at least in part to protect an intuitive preference.

Study 1: Avoiding Information That Influences a Decision

We examined whether people avoid information that could encourage a deliberative, future-oriented choice, using a scenario that created a strong intuitive desire to order dessert, which conflicted with a long-term goal of healthy eating. We tested two predictions, that people avoid calorie information more than chance, and that the same people who want to avoid calorie information would use it when provided. Although previous research has shown that people avoid calorie information that influences other people's decisions (Thunström et al., 2016), we tested whether the same people who wanted to avoid calorie information would use that information when it was provided.

Participants imagined they were out celebrating a friend's birthday and were tempted to order a chocolate cake. As confirmed by our pretest, people were more likely to order the cake when following their heart and less likely to do so when following their head. To test for information avoidance, before deciding to order cake, participants indicated whether they wanted to learn calorie information for the cake. Although the calorie count is relevant for someone with a goal to be healthy, we expected many people to avoid the information to make it easier to follow their intuitive preference to order the cake.

To test that calorie count was relevant to the decision, even for participants who wanted to avoid this information, we randomly assigned all participants to receive different information about the calorie count of the cake (low, medium, or high calories). We expected calorie information to influence participants' decision so that those who learned the cake contained more calories would be less likely to order it than those who saw the cake contained fewer calories. We expected this to be true even among participants who indicated that they would rather not know how many calories were in the cake. Thus we predicted a main effect of calorie information, and no interaction between calorie amount and preference for information.

Because we did not know the effect size associated with our hypothesis, we sought to maximize power across all studies by recruiting a minimum sample of 100 participants per condition, with the exception of Study 2A where we predetermined a sample size of 50 per condition due to logistical constraints, and Study 4B, where we predetermined an increased sample size of 200 per condition. A power analysis confirmed that our sample for all studies enabled us to detect a small-medium effect (i.e., $\phi = .2$) at 80% power. We report how we determined our sample size, all data exclusions (if any), all manipulations, and all measures for all studies. The raw data and materials for all studies have been posted in an online data repository (https://osf.io/w9fv3). Overall, the studies in this paper incorporated data from hypothetical and consequential scenarios across four decision domains using visitors at a science museum and an online sample of American participants. All studies reported received IRB review and approval.

Method

Participants. We recruited 300 U.S.-based MTurk workers, and 300 participants (112 female; $M_{age} = 31.74$, $SD = 10.01$) responded to the 2-min survey for $0.20.

Procedure. Study 1 employed a 3 (calorie information: low vs. medium vs. high) between-subjects design. All participants imagined being out at a nice restaurant celebrating a close friend's birthday. They read that they had a great time having appetizers, drinks, and dinner with a group of friends and now the waiter was asking whether they wanted to order dessert. To build a feeling of intuitive-deliberative conflict, participants read that although they normally try to eat a healthy diet and limit sweets, they were tempted to order dessert since it was a special occasion. In particular, participants read a description (and saw an appealing picture) of a molten chocolate cake that the restaurant offered. Before deciding whether or not to order the cake, we measured information avoidance by asking participants to select one of two options: "Check here if you want to find out exactly how many calories are in the cake" or "Check here if you do not want to find out exactly how many calories are in the cake." Participants then read, "Regardless of your preference, you have been randomly assigned to the information group. Before you make your decision to order the cake or not, you will find out the exact amount of calories there are in the Molten Chocolate Cake." Participants learned that the cake contained either 385, 550, or 700 calories.[3] We measured participants' decision to order the cake or not and asked "How tasty did this cake seem?" and "Indicate whether you are concerned about your diet, that is, do you try to pay attention to what you eat during the week?" on 7-point scales (0 = *not at all*, 6 = *very much*).

Results and Discussion

As predicted, a majority of participants (62.7%; $n = 188$) chose to avoid calorie information, $z = 4.33$, $p < .001$, 95% CI = [56.9%, 68.2%].

To test whether the information that people avoided was relevant to their decision to order cake, we conducted a logistic regression of participants' decision to order cake (1 = *order cake*, 0 = *do not order*

[3] A different sample of MTurk participants estimated how many calories were in the cake, and we used the 25th (385 calories), 50th (550 calories), and 75th (700 calories) percentiles in providing calorie information. Thus, participants received information that either matched general expectations or was lower or higher than expectations.

cake) on calorie amount (−1 = 385, 0 = 550, 1 = 700 calories), information choice (1 = *avoid calorie information*, −1 = *receive calorie information*) and their interaction. We found the predicted effect of calorie information on the decision to order cake, $\beta = -.65$, $SE = .17$, Wald = 13.85, $p < .001$, $OR = .52$, 95% $CI_{Exp(B)} = [.37, .74]$. Participants were less likely to order the cake when they learned there were more calories in it. There was also a significant effect of information choice; participants who wanted to avoid calorie information were more likely to order the cake, $\beta = .59$, $SE = .14$, Wald = 17.36, $p < .001$, $OR = 1.81$, 95% $CI_{Exp(B)} = [1.37, 2.39]$. There was no interaction between choice of information and calorie amount, $\beta = -.01$, $SE = .17$, Wald = 0, $p = .957$, $OR = .99$, 95% $CI_{Exp(B)} = [.70, 1.39]$. As predicted, receiving calorie information influenced participants who wanted to avoid information, $\beta = -.66$, $SE = .25$, Wald = 6.73, $p = .010$, $OR = .52$, 95% $CI_{Exp(B)} = [.32, .85]$, to the same degree as participants who wanted to receive information, $\beta = -.64$, $SE = .24$, Wald = 7.16, $p = .007$, $OR = .53$, 95% $CI_{Exp(B)} = [.33, .84]$ (see Table 1). There was no effect of calorie information on how tasty the cake appeared, $F(2, 297) = .72$, $p = .487$, $\eta_p^2 = 0.005$, 95% CI = [.00, .03], although there was an unpredicted difference for how concerned participants were about their diet, $F(2, 297) = 4.38$, $p = .013$, $\eta_p^2 = 0.03$, 95% CI = [.001, .07]. Participants in the 550-calorie condition were less concerned about their diet ($M = 3.17$, $SD = 1.92$) than those in the 385-calorie condition ($M = 3.80$, $SD = 1.77$), $t(297) = -2.47$, $p = .014$, $d = .35$, 95% CI = [.09, .62] and the 700-calorie condition ($M = 3.84$, $SD = 1.71$), $t(297) = -2.64$, $p = .009$, $d = .37$, 95% CI = [.12, .65].

Study 1 provides initial evidence that people avoid decision-relevant information when they have a strong intuitive preference that conflicts with a deliberative response. Even though the calorie information could have been lower than participants' expectations, supporting their preference to order the cake, participants avoided this information nonetheless. Moreover, people avoided information even though they ultimately used that information when it was provided. This study, however, was hypothetical, which we address in Study 2 by moving to a decision with real financial outcomes.

Study 2A: Avoiding Information That Influences a Consequential Decision

Study 2 builds on Study 1 in two ways. First, we moved beyond health and nutrition to examine information avoidance in another domain that pits an intuitively appealing option against a more deliberative option. Second, we examined information avoidance for a decision with real financial consequences.

In Study 2A, we created an intuitive-deliberative conflict by offering participants a choice to work on an intuitively appealing joke task or a boring computer manual task that paid a financial bonus. Our pretest confirmed that people were more likely to choose a fun task when following their heart and more likely to choose a boring task with a bonus when following their head. Before deciding which task to work on, we measured information avoidance: participants indicated whether or not they wanted to know their exact compensation if they chose to work on the boring manual task. We predicted that participants would avoid the bonus information to make it easier to follow their intuitive preference to select the joke task. To confirm that people avoided decision relevant information, we randomly assigned participants to receive information about the size of the bonus for the computer manual task (low, medium, or high). We predicted that the payment information would influence participants' decision such that those who learned the task paid a higher bonus would choose that task more than those who learned the bonus would be lower. We expected this to be true even among participants who preferred to avoid learning the size of the bonus, predicting no interaction between bonus size and preference for information.

Table 1
Percent of Participants Deciding to Order Cake as a Function of Calorie Amount and Whether They Wanted to Receive or Avoid the Calorie Information (Study 1)

Calorie amount	Wanted to receive information	Wanted to avoid information
385 calories	73.0%	88.7%
550 calories	61.3%	85.7%
700 calories	43.2%	69.6%

Method

Participants. We recruited 150 guests at a large science and industry museum (76 female; $M_{age} = 35.76$, $SD = 12.94$) in exchange for a small gift. The participants completed the study in an area dedicated to learning about and participating in behavioral research. Studies there rarely offer financial compensation and participants were not expecting to be paid.

Procedure. Study 2A employed a 3 (compensation information: low vs. medium vs. high) between-subjects design. All participants took part in a study where they had to choose between two tasks: a fun joke reading task or a boring computer manual task. The joke task involved reading different jokes and rating how funny each joke was. Participants saw an example of a funny joke to build the intuition that this was a fun task. For the computer manual task, participants learned that they would read sections of an outdated computer manual full of technical information and answer comprehension questions about the information they read. In particular, participants read "Because this task is really boring, especially in comparison to the joke task, we've been offering participants who take the study a small amount of money." Participants learned the joke task and the computer manual task took a similar amount of time to complete and that, because we wanted participants for both studies, they had the option to choose whether they would rather stick with the joke task or switch to the computer manual task. They received information about the bonus range for the computer manual task ($1.00-$5.00), but not the exact bonus amount.[4]

Before deciding between the joke task and the computer manual task, we measured information avoidance, asking participants to select one of two options: "Click here if you would prefer not to

[4] Although our pretest involved MTurk workers, we also expected museum guests to experience head-heart conflict in this situation. First, museum guests were recruited to participate without reference to financial compensation and were therefore likely to have an intuitive preference for completing a fun task. Second, we set the payment for the boring task high enough so that museum guests would identify it as the financially rational option once it was introduced. Thus participants had the option between completing a fun task for no payment versus a boring task for up to $5.

find out exactly how much the Computer Manual Task pays out" or "Click here if you would prefer to find out exactly how much the Computer Manual Task pays out." Because participants were told the range, they knew that the bonus information could provide a compelling reason (high bonus) or not very compelling reason (low bonus) to switch to the boring task. Participants then read "Regardless of your preference, you have been assigned to receive information about how much the boring Computer Manual Task will pay if you choose to work on it." We randomly assigned participants to learn that the computer manual task paid a $1.00 bonus, a $3.00 bonus, or a $5.00 bonus. Participants chose and completed a task (fun joke task or boring computer manual task). Afterward, participants who chose the computer manual task provided their email to receive an Amazon gift card. All participants answered "Overall, how fun did you think the joke task was (or expect it to be)?" and "Overall, how boring did you think the computer manual task was (or expect it to be)?" (0 = *not at all fun/boring*, 6 = *very fun/boring*).

Results and Discussion

As predicted, a majority of participants (62.7%; $n = 94$) chose to avoid information about the computer manual task bonus payment, $z = 3.02$, $p = .003$, 95% CI = [.54, .70]. Thus, most people wanted to make their choice without knowing the exact compensation for completing the computer manual task.

To test whether the information that people avoided was relevant to their decision, we conducted a logistic regression of participants' decision to pursue the joke task (1 = *joke task*, 0 = *computer manual task*) on the computer manual bonus payment amount (−1 = $1.00, 0 = $3.00, 1 = $5.00), information choice (1 = *avoid information*, −1 = *receive information*) and their interaction. We found the predicted effect of payment information, $\beta = -.63$, $SE = .27$, Wald = 5.45, $p = .020$, $OR = .53$, 95% $CI_{Exp(B)} = [.32, .90]$. Participants were less likely to choose the joke task the higher the bonus amount for working on the computer manual task was. There was a nonsignificant effect of information choice, $\beta = .34$, $SE = .21$, Wald = 2.52, $p = .112$, $OR = 1.40$, 95% $CI_{Exp(B)} = [.92, 2.13]$. As predicted, there was no interaction between choice of information and bonus amount, $\beta = .36$, $SE = .27$, Wald = 1.78, $p = .183$, $OR = 1.43$, 95% $CI_{Exp(B)} = [.85, 2.42]$, suggesting that receiving the bonus payment information influenced participants who wanted to avoid the information to a similar degree as those who wanted to receive the information. The effect of receiving bonus payment information was significant for participants who wanted to receive the information, $\beta = -.99$, $SE = .41$, Wald = 5.72, $p = .017$, $OR = .37$, 95% $CI_{Exp(B)} = [.17, .84]$, but not for those who wanted to avoid it, $\beta = -.27$, $SE = .35$, Wald = .61, $p = .435$, $OR = .76$, 95% $CI_{Exp(B)} = [.39, 1.50]$ (see Table 2).

We confirmed that, on average, participants rated the joke task as more enjoyable than the scale midpoint ($M = 3.78$, $SD = 1.25$), $t(149) = 7.63$, $p < .001$, $d = .62$, 95% CI = [.45, .80]. Because we asked about enjoyment at the end of the study, however, we could not test whether their preference for the intuitively appealing joke task (over the boring computer manual task) predicted their tendency to avoid the bonus information.

To test whether the strength of participants' intuitive preference predicted avoidance, we replicated the study, measuring expectations for the two tasks before participants completed either task. We hypothesized that the more participants expected to enjoy the intuitively appealing task compared with the boring task, the more they would avoid bonus information. In addition, we doubled our sample size so that we could better determine whether people who wanted to avoid the information were affected by it. With a predetermined sample of 300, we turned to Amazon Mechanical Turk. However, because most MTurk participants complete studies with the deliberative goal of earning as much money as possible (rather than the desire to have a fun and interesting experience), we expected the rate of avoidance to drop significantly, a point which we discuss further in the General Discussion. Nevertheless, we expected that some portion of participants would prefer to remain ignorant to protect their intuitive preference to work on a fun task, but would be affected by the payment information when it was provided.

Table 2
Percent of Participants Choosing the Fun Joke Task as a Function of Bonus Payment Information for the Boring Task and Whether They Wanted to Receive or Avoid the Bonus Information (Study 2A)

Payment amount	Wanted to receive information	Wanted to avoid information
$1.00	90.5%	86.2%
$3.00	65.0%	84.4%
$5.00	53.3%	78.8%

Study 2B

Method

Participants. We recruited 300 U.S.-based MTurk workers, and 302 participants (123 female; $M_{age} = 35.99$, $SD = 11.79$) responded to the 5-min survey for $0.51.

Procedure. Study 2B employed a 3 (compensation information: low vs. medium vs. high) between-subjects design. As in Study 2A, we created an intuitive-deliberative conflict by offering participants a choice between two tasks: a fun cartoon task or a boring camera manual task that paid a bonus, which we confirmed created conflict in our pretest.[5] The cartoon task involved viewing cartoons and rating how funny each cartoon was. Participants saw an example of a funny cartoon to help build the intuition that this was a fun task. For the camera manual task, participants learned that they would read sections of an outdated camera manual and answer comprehension questions about the information they read. As in Study 2A, participants learned that the two tasks took a similar amount of time to complete and that they had the option to choose whether they would rather stick with the cartoon task or switch to the camera manual task. They received information about the bonus range for the camera manual task ($0.05–$0.25), but not the exact compensation amount. Thus, as in Study 2A, participants

[5] The joke task and computer manual task from Study 2A had previously been used on MTurk for a different program of research (see Woolley & Fishbach, 2015), so we replaced each one with similar tasks. We also changed the bonus for the MTurk sample.

knew that the bonus information could provide a compelling (high bonus) or not very compelling (low bonus) reason to switch to the boring task.

Before deciding which task to complete, we measured information avoidance, asking participants to indicate whether they wanted to know the exact bonus for the camera manual task. We also measured "How much do you think you would enjoy completing the following tasks: (a) The Cartoon Task or (b) The Camera Manual Task," (1 = *not at all*, 7 = *very much*). Regardless of their choice of information, we randomly assigned participants to receive information about the bonus payment (either 5 cents, 15 cents, or 25 cents). Participants then chose and completed their task.

Results and Discussion

Confirming our manipulation, participants expected to enjoy working on the cartoon task more than the scale midpoint (M = 6.08, SD = 1.20), $t(301) = 30.11$, $p < .001$, $d = 1.73$, 95% CI = [1.55, 1.91], and to enjoy working on the camera manual task less than the scale midpoint (M = 2.53, SD = 1.56), $t(301) = 16.39$, $p < .001$, $d = .94$, 95% CI = [.81, 1.08]. As such, participants expected to enjoy working on the cartoon task more than the camera manual task, $t(301) = 31.34$, $p < .001$, $d = 1.80$, 95% CI = [1.62, 1.99].

Examining information avoidance, 27.5% (n = 83) of participants chose to avoid information about the camera manual task bonus payment. To determine whether avoidance was predicted by the strength of participants' intuitive preference for the cartoon task, we calculated an intuitive preference score for each participant by subtracting how much they expected to enjoy the camera manual task from how much they expected to enjoy the cartoon task. As predicted, the stronger participants' intuitive preference for the cartoon task, the more they avoided the bonus information, $\beta = .23$, $SE = .07$, Wald = 9.61, $p = .002$, $OR = 1.26$, 95% $CI_{Exp(B)}$ = [1.09, 1.45].

To test whether the information that people avoided was relevant to the decision, as in Study 1 and 2A, we conducted a logistic regression of participants' decision to pursue the cartoon task (1 = *cartoon task*, 0 = *camera manual task*) on the camera manual bonus payment amount (−1 = \$0.05, 0 = \$0.15, 1 = \$0.25), information choice (1 = *avoid information*, −1 = *receive information*) and their interaction. As predicted, there was a significant effect of payment information, $\beta = -1.12$, $SE = .25$, Wald = 20.78, $p < .001$, $OR = .33$, 95% $CI_{Exp(B)}$ = [.20, .53]. Participants were less likely to choose the cartoon task the higher the bonus amount for working on the camera manual task was. There was a significant effect of information choice; participants who wanted to avoid bonus payment information chose the cartoon task more often, $\beta = .75$, $SE = .21$, Wald = 12.08, $p < .001$, $OR = 2.11$, 95% $CI_{Exp(B)}$ = [1.38, 3.21]. As predicted, there was no interaction between choice of information and bonus amount, $\beta = -.17$, $SE = .25$, Wald = .50, $p = .481$, $OR = .84$, 95% $CI_{Exp(B)}$ = [.52, 1.36]. Thus, receiving the bonus payment information influenced those who wanted to avoid the information, $\beta = -1.30$, $SE = .45$, Wald = 8.15, $p = .004$, $OR = .27$, 95% $CI_{Exp(B)}$ = [.11, .67], to the same degree as those who wanted to receive the information, $\beta = -.95$, $SE = .19$, Wald = 24.81, $p < .001$, $OR = .39$, 95% $CI_{Exp(B)}$ = [.27, .56] (see Table 3).

Table 3
Percent of Participants Choosing the Fun Cartoon Task as a Function of Bonus Payment Information for the Boring Task and Whether They Wanted to Receive or Avoid the Bonus Information (Study 2B)

Payment amount	Wanted to receive information	Wanted to avoid information
\$0.05	78.7%	96.4%
\$0.15	61.0%	85.7%
\$0.25	35.8%	64.7%

Study 2 provides evidence that people avoid decision-relevant information to protect an intuitive preference when their choices are consequential. Participants chose to avoid learning the bonus amount for a boring task, however, when assigned to receive this information, it influenced their decision. Again, as in Study 1, people avoided information that, ex-ante, could have supported either the intuitive response or the deliberative response.

Although there may be multiple motives for avoidance, we suggest that people avoid information in Studies 1 and 2 at least in part to protect their intuitive preference. Supporting this, participants who wanted to avoid information were significantly more likely to make the intuitive choice (ordering dessert in Study 1 and selecting the fun task in Study 2B) compared with those who wanted to receive information. We did not have sufficient power to detect this effect in Study 2A, but there was directional evidence. Moreover, in Study 2B, we found that the more participants expected to enjoy the fun task (compared with the boring task), the more they avoided the bonus information. Study 3 builds on this correlational result to provide an experimental test: Does the strength of the intuitive preference moderate the rate of avoidance?

Study 3: Avoiding Information More for a Stronger Intuitive Preference

Our theory predicts that people avoid deliberative information when they have a strong intuitive preference to make it easier to enact this preference. We therefore predicted that people holding a stronger intuitive preference would avoid information more than those holding a weaker one. To test this hypothesis, we offered participants the opportunity to take a real bet at no financial cost to themselves. In one condition, participants received the chance to bet that a sympathetic college student would perform poorly in a class (a highly unappealing bet because they would benefit from the misfortune of another person; Inbar, Pizarro, & Cushman, 2012). In the other condition, they received the chance to bet that the student would perform well (a more neutral bet). We predicted that the strength of the intuitive preference would moderate information avoidance, such that participants would avoid information about the payout for an unappealing bet more than for a neutral bet.

Method

Participants. We recruited 200 guests at the same science and industry museum (119 female; M_{age} = 36.69, SD = 15.80) in exchange for candy.

Procedure. Study 3 employed a 2 (intuitive preference to refuse bet: stronger—bet against student vs. weaker—bet in favor of student) between-subjects design. We offered all participants the opportunity to bet on a college student. They read that we selected an actual student for the bet and saw some basic information about the student. They learned that the student had a B+ average and that there was roughly a 20% chance that he would receive an A or higher, a 20% chance that he would receive a B− or lower, and a 60% chance that he would receive a grade in between (e.g., B, B+, or A−). We provided information to make the student seem likable and sympathetic (e.g., participants learned that he is the first member of his family to go to a 4-year college).

Participants assigned to the *bet against* condition (stronger intuitive preference) read, "We are giving you the opportunity to bet that John will receive a final grade of B− or lower in this randomly selected class. If you take the bet, you can win anywhere between $0 and $25 if John receives a B- or lower in the randomly selected class. You would not win anything if he receives a B or higher in the class." We confirmed in our pretest that more people refused this bet when following their heart and more people accepted this bet when following their head. Participants assigned to the *bet in favor* condition (weaker intuitive preference) read "We are giving you the opportunity to bet that John will receive a final grade of A or higher in this randomly selected class. If you take the bet, you can win anywhere between $0 and $25 if John receives an A or higher in the randomly selected class. You would not win anything if he receives an A− or lower in the class." Participants in both conditions read that there was no cost for entering the bet and there was no chance they could lose money if they accepted the bet.

Before deciding whether to take the bet, we measured whether participants wanted to learn exactly how much they stood to profit from accepting the bet if it paid out. Then, regardless of their choice, we assigned all participants to receive no information about the bet payout, other than knowing the bet could pay between $0 and $25. Participants decided to accept or refuse the bet and wrote their email address for us to send an Amazon gift card if they won the bet.

We measured feelings about the bet: "How does it make you feel to imagine betting on John receiving a bad grade?" and "How does it make you feel to imagine betting on John receiving a good grade?" (−3 = *very bad*, 3 = *very good*). We also measured "How likely do you think it is that John receives a B- or lower in the selected class?" and "How likely do you think it is that John receives an A or higher in the selected class?" (−3 = *not likely*, 3 = *very likely*). We included true/false attention checks "If I accepted the bet and John received a B- or lower (*an A or higher*) in the selected class, I would win between $0 and $25" (*true*) and "If I accepted the bet, I could lose money" (*false*), which a majority of participants passed (86.5% passed the first check; 94.0% passed the second check).

Results and Discussion

We first tested our main prediction that information avoidance is greater when there is a strong intuitive preference to refuse the bet. Indeed, using a chi-square analysis we found that people avoid information more when offered an opportunity to bet that a student would do poorly (57.8%) than when offered a chance to bet that a student would do well (42.9%), $\chi^2(1, N = 200) = 4.49$, $p = .034$, $\varphi = .15$, $OR = 1.83$, 95% $CI_{Exp(B)} = [1.04, 3.21]$.

As predicted, those in the bet against condition were less likely to take the bet (53.9%) than those in the bet for condition (72.4%), $\chi^2(1, N = 200) = 7.36$, $p = .007$, $\varphi = -.19$, $OR = .45$, 95% $CI_{Exp(B)} = [.25, .80]$.[6] Also as expected, pairwise comparisons revealed it felt better to imagine betting for John ($M = 1.45$, $SD = 1.39$) than against him ($M = -1.04$; $SD = 1.29$), $t(197) = 16.20$, $p < .001$, $d = 1.15$, 95% CI = [.97, 1.33] with no difference between conditions, bad grade: $t(196) = .82$, $p = .415$, $d = .12$, 95% CI = [−.16, .40], good grade: $t(196) = .62$, $p = .535$, $d = .09$, 95% CI = [−.19, .37]. There was no effect of condition on the expected likelihood of John receiving a bad grade, $t(197) = .69$, $p = .493$, $d = .10$, 95% CI = [−.18, .38], or good grade, $t(196) = 1.58$, $p = .117$, $d = .22$, 95% CI = [−.06, .50].

The results of Study 3 replicated the tendency for people to avoid information when they have an intuitive preference that conflicts with a financially rational decision. Although there was only financial upside for accepting either bet, participants avoided information about that financial upside more when it was a bet against John (stronger intuitive preference to refuse the bet) than when it was a bet for him. Thus, people avoided information and refused a financial opportunity to the extent that it was intuitively unappealing. This came at a real cost to participants who had the chance to earn money by accepting the bet.

Studies 1–3 provide evidence for information avoidance when there is a strong intuitive preference that conflicts with a reasoned response. We have suggested that people are avoiding information in these situations, at least in part, to protect their intuitive preference. Of course, people in these studies may also be avoiding information because they think that they will have a more enjoyable experience if they do not know the information. For example, to prevent feelings of guilt, they could avoid learning the calories in a tempting dessert or avoid learning how much they would benefit from someone else's misfortune. Similarly, they may avoid learning how much a boring task pays because they anticipate regretting the loss of income (Zeelenberg, 1999), or because the information may distract from the experience of living in the moment. Thus, people may avoid information for at least two reasons: first, to make it more likely they enact their intuitive preference (e.g., protecting the decision) and second, to improve the experience of following their intuitive preference if they choose it (e.g., protecting their emotions and experience).

Building on these studies, Study 4 examined whether people avoid information that can influence a decision more than information that cannot influence a decision to more directly test whether avoidance occurs to protect a decision, in addition to protecting emotions or experiences. Further, in our next study all participants imagined benefiting from a negative event with the opportunity to learn how much they stood to benefit if this event occurred. By having all participants consider whether they wanted to learn this information, we could be sure that any difference in

[6] Although we described the bet as being costless, some participants may not have encoded the bet as such (6% of participants failed the attention check, believing the bet carried a cost). Others may have felt that providing their email address was a cost, which is our best guess for why people refused the bet in favor of the student.

avoidance was not due to concerns about what receiving this information could signal to themselves or others.

Study 4A: Avoiding Information More When Making a Decision

In addition to managing negative emotions or protecting positive experiences, our theory predicts that people avoid information to protect their intuitive preference. In Study 4A we compared cases in which information avoidance could protect an intuitive preference (i.e., a decision had not yet been made) to cases in which it could not protect a preference (i.e., a decision had already been made for participants). If people avoid information to protect an intuitive preference, they should avoid it more when they have to make a choice than if there is no choice to make. Alternatively, if people avoid information only to protect against negative emotion, avoidance after a decision should be greater than or equal to avoidance before a decision, since the information could lead to negative affect in either case.

Participants in this study considered different retirement plans, with one plan offering the potential for a better financial outcome than the other plans. Specifically, Plan D included a catastrophe bond that would only pay out if a hurricane struck a third-world country.[7] Because people do not like to benefit from the misfortune of others (Inbar et al., 2012), we reasoned that it would feel intuitively wrong to choose this plan. However, because this plan could lead to the greatest financial gain at no added cost, it was also financially rational to choose this option and maximize potential earnings. Our pretest confirmed that this scenario created an intuitive-deliberative conflict: more people rejected the plan with the catastrophe bond when following their heart and more people chose the plan with the catastrophe bond when following their head. We predicted that more people would avoid learning how much the catastrophe bond pays out when faced with a choice of retirement plans than when not facing such a choice.

Method

Participants. We recruited 200 U.S.-based MTurk workers and 200 participants (60 female; M_{age} = 31.65, *SD* = 9.06) responded to the 2-min survey for $0.25.

Procedure. Study 4A employed a 2 (retirement plan: chosen vs. assigned) between-subjects design. In the plan-choice condition (where information *could* affect the decision), participants imagined starting a new job and selecting from a set of defined contribution plans for their retirement fund. They saw the following descriptions of four plans: (a) "Plan A includes a 50–50 mix of stock and bond investment," (b) "Plan B includes a 60–40 mix, with slightly more investment in stocks," (c) "Plan C includes a 40–60 mix, with slightly more investment in bonds," and (d) "Plan D includes a 50–50 mix, but in addition, it includes an investment in catastrophe bonds, or 'cat bonds.' These bonds are worth little unless a severe hurricane strikes a certain third world country in the next two years, in which case they gain value." Participants learned the cat bond would pay a guaranteed amount between $1,000 and $1 million if a hurricane were to strike, and that they would not earn or lose money if they chose this option and a hurricane did not strike. Before deciding which retirement plan they wanted to choose, we measured information avoidance, asking participants whether they wanted to learn how much money Plan D would earn if a disaster were to strike the third world country. Those who wanted information saw a randomly generated number between $1,000 and $1 million before selecting a plan. Those who avoided this information made their decision without learning the specific payout amount.

In the plan-assigned condition, participants imagined their employer pre-enrolled them in Plan D from among the four possible contribution plans for their retirement fund. They saw the same descriptions of the four plans as in the other condition, and were told that the payout for the cat bond was between $1,000 and $1 million if a hurricane were to hit a certain third world country. Importantly, participants in this condition did not have the option of choosing a plan for themselves, but could still find out how much Plan D would earn if a disaster were to occur. After making their decision, all participants reported their current mood (−3 = *very negative*, 3 = *very positive*) and attentiveness during the study (0 = *not attentive*, 6 = *very attentive*).

Results and Discussion

We conducted a chi-square analysis of condition (plan-choice vs. plan-assigned) on the decision to receive or avoid information about the cat bond payout. As predicted, there was greater information avoidance in the plan-choice condition when the information was relevant to the decision (58.4%)[8] than in the plan-assigned condition (41.4%), $\chi^2(1, N = 200) = 5.78$, $p = .016$, $\varphi = .17$, $OR = 1.99$, 95% $CI_{Exp(B)} = [1.13, 3.49]$. That is, participants avoided information more when the information could influence their decision than when the information had no ability to influence their choice of retirement plan.

We found that participants in the plan-choice condition were in a more positive mood ($M = 1.11$, $SD = 1.18$) than those in the plan-assigned condition ($M = .57$, $SD = 1.51$), $t(198) = 2.83$, $p = .005$, $d = .40$, 95% CI = [.12, .68]. However, controlling for mood, there was still a main effect of condition (1 = *plan-choice*; −1 = *plan-assigned*) on choice (1 = *avoid information*, 0 = *receive information*), $\beta = .39$, $SE = .18$, Wald = 4.81, $p = .028$, $OR = 1.48$, 95% $CI_{Exp(B)} = [1.04, 2.10]$, with no effect of mood, $\beta = -.11$, $SE = .11$, Wald = 1.06, $p = .303$, $OR = .89$, 95% $CI_{Exp(B)} = [.72, 1.11]$, or interaction, $\beta = -.02$, $SE = .11$, Wald = .03, $p = .870$, $OR = .98$, 95% $CI_{Exp(B)} = [.79, 1.22]$. This suggests that above any experience of negative affect, participants avoided information more when they had a decision to make than when the decision had already been made for them. We found no effect of condition on attentiveness ($M = 6.50$, $SD = .80$), $t(198) = 1.07$, $p = .287$, $d = .15$, 95% CI = [−.13, .43].

This study suggests that more people avoid information when they face an intuitive-deliberative conflict and need to make a

[7] Note that traditional catastrophe bonds pay out when disasters do not occur. Our usage of the term comes from a manipulation used in Inbar, Pizarro, and Cushman (p. 53, 2012) where the cat bond gained in value "if an earthquake struck a certain developing country."

[8] Of those who avoided information, 16.9% (n = 10/59) chose Plan D. Of those who chose to receive information, 88.1% (n = 37/42) chose Plan D, $\chi^2(1, N = 101) = 49.92$, $p < .001$, $\varphi = -.70$, $OR = .03$, 95% $CI_{Exp(B)} = [.01, .09]$. In the plan-choice condition, selection of plans was as follows: Plan A = 22.8%, Plan B = 15.8%, Plan C = 14.9%, and Plan D = 46.5%.

decision than when the decision has already been made. Specifically, when participants had the opportunity to follow their intuitive preference, they avoided payout information more than if they had been assigned to the financially rational option, and this was true even when controlling for negative affect. This suggests that people are avoiding information to protect the decision they want to make, above and beyond any avoidance that may stem from the desire to manage negative emotions or protect a positive experience. Ironically, this means that people avoided information to a greater extent when it was decision-relevant than when it was not. In our next study, we assigned participants to receive information about the cat bond payout or not to test whether the same information that people avoid influences their decision away from the intuitive option when it is provided.

Study 4B: Choosing Differently When Information Is Present Versus Absent

We next tested whether automatically providing information about the cat bond payout would influence participants' retirement plan choice. We predicted that more participants would select the retirement plan that offered the cat bond when assigned to receive payout information than when assigned to receive no information about the payout. Whereas Studies 1 and 2 demonstrated that people's decisions were influenced by the type of information (e.g., high, medium, or low), Study 4B tested whether receiving any information from the range (vs. not receiving any information) would also encourage people to make a more financially rational decision. We predicted it would be harder to reject a bond if you knew the exact amount it could pay out (say, $500,000 or $75,000) than if you did not know exactly how much it could pay.

Method

Participants. To ensure we had a large enough sample of participants who wanted to receive and avoid payout information, we increased our sample size to 200 per condition, recruiting 400 U.S.-based MTurk workers. A total of 401 participants (130 female; $M_{age} = 29.61$, $SD = 8.95$) responded to the 3-min survey for $0.35.

Procedure. Study 4B employed a 2 (payout information: automatically provided vs. not provided) between-subjects design. In both conditions, participants read the retirement fund scenario from Study 4A and learned they would be making a choice between a set of four retirement plans. Participants read that the cat bond in Plan D was guaranteed to pay out between $1,000 and $1 million if a hurricane were to strike a third world country. We measured information avoidance, asking participants whether or not they wanted to find out the specific amount. Regardless of their preference, we randomly assigned participants to receive information about the payout or not. In the information condition, participants learned the specific amount the cat bond would pay (randomly generated between $1,000 and $1 million) before choosing an investment plan. In the no information condition, participants did not learn how much the cat bond would pay before choosing a plan.[9]

Results and Discussion

A chi-square analysis of condition (assigned to information or not) on choice (Plans A-C vs. Plan D) revealed the predicted effect. More participants selected Plan D, the financially rational option, when assigned to receive information (59.6%, $n = 121$), than when assigned no information (48.0%, $n = 95$), $\chi^2(1, N = 401) = 5.45$, $p = .020$, $\varphi = .12$, $OR = 1.60$, 95% $CI_{Exp(B)} = [1.08, 2.38]$.

We conducted a logistic regression of plan decision (0 = Plan A–C[10], 1 = Plan D) on condition (−1 = *assigned to information*, 1 = *assigned to no information*), choice of information (−1 = *yes*, 1 = *no*), and their interaction. As predicted, there was a significant effect of condition, $\beta = -.33$, $SE = .12$, Wald = 7.94, $p = .005$, $OR = .72$, 95% $CI_{Exp(B)} = [.57, .90]$, with those assigned information choosing Plan D more often, and a significant effect of preference for information, $\beta = -1.02$, $SE = .12$, Wald = 75.22, $p < .001$, $OR = .36$, 95% $CI_{Exp(B)} = [.29, .45]$, with those who wanted to avoid information choosing Plan D less often. More importantly, there was no interaction, $\beta = .14$, $SE = .12$, Wald = 1.44, $p = .230$, $OR = 1.15$, 95% $CI_{Exp(B)} = [.91, 1.45]$, which suggests learning the specific payout information increased the choice of Plan D for all participants compared with when they only knew the range.[11] Furthermore, for those assigned to receive information about the specific payout for the cat bond, there was a significant, positive relationship between the size of the payout and their decision (0 = Plan A–C, 1 = Plan D), $r = .19$, $p = .007$, 95% CI = [.05, .32] ($n = 203$). More participants chose Plan D when assigned to higher cat bond payouts than lower payouts.

Combined with Study 4A, we find evidence that people avoid information that they use if it is provided. Participants assigned to receive information were more likely to make a financially rational choice, opting for the plan with the cat bond, than participants who did not receive the specific payout for this bond. Thus, replicating Studies 1 and 2, we find that people choose to avoid information that—when they have it—leads to a more deliberative decision.

[9] We also measured the following, with no differences between conditions: "When you imagine being invested in a cat bond that pays only if a disaster hits a third world country, how do you feel?" (1) −3 = *guilty*, 3 = *proud*, $t(399) = .16$, $p = .872$, $d = .02$, 95% CI = [−.18, .21]; (2) −3 = *uncomfortable*, 3 = *comfortable*, $t(399) = .33$, $p = .744$, $d = .03$, 95% CI = [−.16, .23]; (3) −3 = *unintelligent*, 3 = *intelligent*, $t(399) = 1.56$, $p = .120$, $d = .16$, 95% CI = [−.04, .35]; (4) −3 = *irrational*, 3 = *rational*, $t(399) = .93$, $p = .354$, $d = .09$, 95% CI = [−.10, .29]; (5) −3 = *immoral*, 3 = *moral*, $t(399) = .16$, $p = .870$, $d = .02$, 95% CI = [−.18, .21]; (6) −3 = *ignorant*, 3 = *savvy*, $t(399) = .53$, $p = .594$, $d = .05$, 95% CI = [−.14, .25]; current mood (−3 = *very negative*, 3 = *very positive*), $t(399) = .67$, $p = .504$, $d = .07$, 95% CI = [−.13, .26]; attentiveness (−3 = *not attentive*, 3 = *very attentive*), $t(399) = 1.27$, $p = .206$, $d = .13$, 95% CI = [−.07, .32].

[10] We designed the study planning to collapse Plans A–C, and indeed these plans amassed a similar choice share: Plan A = 15.5%, Plan B = 17.7%, Plan C = 13.0%, versus Plan D = 53.9%.

[11] We assumed that Plan D was financially superior to the other three plans because of the inclusion of the cat bond, but only Plan A is strictly dominated by Plan D. If we conduct the analysis predicting plan decision as 0 = *Plan A* and 1 = *Plan D*, the results still hold: condition, $\beta = -.34$, $SE = .17$, Wald = 3.93, $p = .047$, $OR = .72$, 95% $CI_{Exp(B)} = [.51, 1.00]$, information choice, $\beta = -.92$, $SE = .17$, Wald = 29.74, $p < .001$, $OR = .40$, 95% $CI_{Exp(B)} = [.29, .55]$, and no interaction, $\beta = .21$, $SE = .17$, Wald = 1.54, $p = .215$, $OR = 1.23$, 95% $CI_{Exp(B)} = [.89, 1.72]$.

Because people avoid information more when they are facing a decision than when it has already been made, it seems that people avoid payout information in part so that they can follow their intuitive preference to reject Plan D. Our final study examined this question for a decision involving real financial consequences.

Study 5: Avoiding Information More When Making a Consequential Decision

Study 5 examined whether information avoidance is greater before a decision has been made than after a decision has been made, this time when the decision had a real financial outcome. Even with real outcomes at stake, we predicted that more people would avoid information that could influence a decision than information that could not influence a decision. We used a design similar to Study 4A and the intuitive-deliberative conflict from Study 3. Participants either had a *choice* to bet that a sympathetic college student would perform poorly in a class or were *assigned* to bet that the student would perform poorly. We predicted that more participants would avoid information about the bet payout when they had a choice to accept or refuse the bet, and avoidance could help protect their preference to refuse the bet, than when we assigned them to accept the bet and there was no decision to protect.

Method

Participants. We recruited 200 guests at a science and industry museum in exchange for a small gift. Two participants did not complete the survey and one participant failed to follow instructions about answering questions in order, leaving a total of 197 participants (115 female; M_{age} = 37.27, *SD* = 15.70). Including these participants in our analysis does not meaningfully change the results.

Procedure. Study 5 employed a 2 (bet against a student: chosen vs. assigned) between-subjects design. Similar to Study 3, participants read about a bet where they could earn money ($0–$25) if a college student performed poorly in a class (received a final grade of a C or lower).[12] In the *choice to accept bet* condition, we gave participants the opportunity to accept or refuse the bet. Before deciding whether or not to accept the bet, participants could learn how much the bet would pay out. In the *assigned to accept bet* condition, we assigned participants to bet on the college student. This group did not have the choice to accept or refuse the bet, but could learn how much the bet would pay out.

After measuring whether participants wanted to receive or avoid information about the bet payment amount, we assigned all participants to receive no information about the bet payout, other than knowing the range ($0–$25). Participants in the *choice to accept bet* condition indicated whether they wanted to accept or refuse the bet. All participants wrote their e-mail address for us to send an Amazon gift card if they won the bet.

We measured: "How does this bet (imagining betting on John receiving a bad grade / being assigned to bet on John receiving a bad grade) make you feel?" (−3 = *very bad*, 3 = *very good*) and "How likely do you think it is that John receives a C or lower in the selected class?" (−3 = *not likely*, 3 = *very likely*). We included true/false attention checks: "As part of this bet if John received a C or lower in the selected class, I would win between $0 and $25" (*true*) and "As part of this bet, I could lose money" (*false*), which a majority of participants passed (92.9% passed the first check; 95.4% passed the second check).

Results and Discussion

We first tested our main prediction that information avoidance is greater when it can influence the decision. As predicted, more people chose to avoid information when offered an opportunity to accept or refuse a bet that a student would do poorly (61.2%) than when assigned to bet that a student would do poorly (43.4%), $\chi^2(1, N = 197) = 6.25$, $p = .012$, $\varphi = .18$, $OR = 2.06$, 95% $CI_{Exp(B)}$ = [1.17, 3.63].

Of those facing the choice to accept or reject the bet, 54.1% decided to take the bet. Participants felt similarly bad imagining betting on John receiving a bad grade ($M = -1.15$, $SD = 1.28$), with no difference between conditions, $t(195) = 1.23$, $p = .219$, $d = .18$, 95% CI = [−.10, .45]. There was also no effect of condition on the expected likelihood of John receiving a bad grade ($M = -1.54$, $SD = 1.27$), $t(194) = .56$, $p = .575$, $d = .08$, 95% CI = [−.20, .36].

Replicating Study 4, more participants avoided information when faced with a decision than when the deliberative decision had already been made for them. Even with real financial consequences, people avoided information and refused an investment because it was intuitively unappealing. As in Studies 2 and 3, this came at a cost to participants who missed an opportunity to earn a real payout.

General Discussion

Across five studies, we find that people avoid information to protect an intuitive preference, even though the information is relevant and they use it when it is provided. In Study 1, when deciding whether to order cake, people chose to avoid calorie information. However, automatically providing this information influenced their decision to order cake, even for those who preferred not to receive it. Extending to a new domain with real financial consequences, in Study 2 participants avoided information about a bonus payment for working on a boring task when choosing whether to work on the boring task or a more enjoyable task. However, providing information about the bonus influenced participants' task choice—again, even for those who did not want this information. Moreover, the strength of participants' intuitive preference for the enjoyable task predicted their tendency to avoid information about the bonus. Study 3 demonstrated experimentally that the strength of the intuitive preference was a moderator of the effect. More participants avoided information about a bet payout when they held a strong intuitive preference to refuse the bet than when they held a weak one. Study 4 demonstrated greater avoidance when information could influence a decision than when a decision had already been made. Finally, in Study 5 we replicated

[12] Because this study did not compare betting for a student versus against a student, we did not need to create a bet such that the likelihood of the student performing well was equated with the likelihood of him performing poorly. Thus, to strengthen the intuition that this was an unappealing bet, we made the bet payout contingent on the student receiving a C or lower.

this effect for a decision with real financial consequences. More people avoided learning the payout amount when *offered* a bet that a sympathetic student would do poorly in school than when *assigned* to bet that he would do poorly.

Together, we provide evidence supporting our hypothesis that people avoid information that could encourage a rational response when they have a strong intuitive preference to protect and when they have a deliberative alternative from which they need to protect their intuitive preference. Although there are multiple motives that may lead to information avoidance, including a desire to manage negative emotions or to live in the moment, these alternative motives cannot be clearly applied across our four different decision paradigms, suggesting that the desire to protect an intuitive preference is a unique and important determinant of information avoidance. Accordingly, people avoid information at precisely those times at which it seems that information would be the most useful to have: (1) when two options are in conflict and it is not clear which is the better choice and (2) when a decision has yet to be made. This avoidance is "strategic" in that it is especially likely to be deployed when it can protect intuitive preferences, however future work is needed to examine whether information avoidance is knowingly deployed as a strategy for protecting preferences, or whether it is an unconscious process. Preliminary results suggest that greater information avoidance occurs when people can pursue the strategy without awareness (Woolley & Risen, 2017).

In our research, the motivation to avoid information is created when an intuitive, emotion-based desire comes into conflict with a deliberative, reasoned-based goal, but this is also the set of circumstances that should create a motivation to seek out information. We suggest that people will be open to information that could encourage a deliberative response when the strength of a deliberative goal matches (or outmatches) the strength of an intuitive desire. For example, participants in Study 1 avoided calorie information when they considered ordering dessert during a special occasion and had a health goal. Avoidance should decrease when the importance of the health goal outweighs the intuitive desire to order dessert, such as when someone with a medical condition recognizes that it is more important to receive nutritional information than to enjoy dessert. Similarly, in Study 2A, a majority of participants at a museum avoided learning how much money they would be paid to complete a boring task. But, when we replicated the study with MTurk workers who presumably have a deliberative goal to make money that is stronger than an intuitive goal to enjoy a HIT, the rates of avoidance dropped dramatically. Thus, if a deliberative goal is strong enough, then the motivation to receive information could outweigh the motivation to avoid it (see Figure 3).

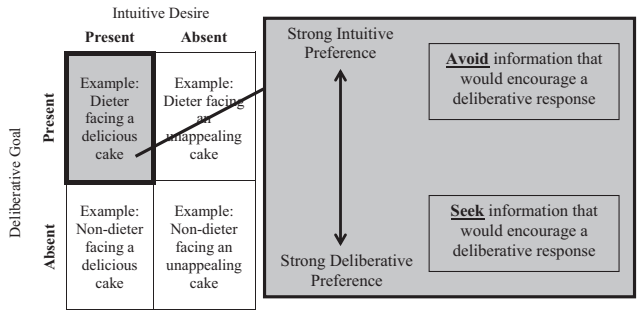

Figure 3. Consider the case when both an intuitive desire and a deliberative goal are present. When there is a strong intuitive preference, people are likely to avoid information that could encourage a deliberative response (as we show in the paper). However, when the deliberative goal is stronger such that it outweighs the intuitive desire, people may seek information in support of their deliberative preference. Thus, an intuitive-deliberative conflict can trigger both the motivations to avoid and seek information.

Theoretical Implications

Our research makes important theoretical contributions to the literature on information avoidance as well as to related literatures. We demonstrate that people avoid information when they face an immediate decision and that the same people who avoid information use it when provided. More importantly, we show that avoidance occurs not only to protect an emotion or experience (Ehrich & Irwin, 2005; Thunström et al., 2016), but to protect a decision. Most research has tested (or simply suggested) that information avoidance is a strategy for managing emotions or beliefs. Here, we demonstrate more people avoid information before a decision is made, which suggests that avoidance works at least in part as a strategy for protecting the decision itself. Finally, we examine several different decision domains to make the case that information avoidance is especially likely to occur when people face intuitive-deliberative conflicts because people do not trust that their current preference will win out in the face of new information.

Ironically, our finding that people avoid information to protect an intuitive preference is relevant for research that shows the opposite, when people avoid intuitive information to protect a deliberative preference. Self-control researchers have documented how people who prefer to resist acting on an impulse choose to avoid learning tempting information (Hoch & Loewenstein, 1991; Loewenstein, 1996; Wertenbroch, 1998). For example, a donut lover with a health goal can choose a longer route to work to avoid passing the local bakery, rather than a shorter route that would take him right by the display of delicious donuts. In this way, he can protect his deliberative goal to be healthy by avoiding tempting information. We find that the opposite is also true, that at times people do not trust themselves to enact a temptation and therefore avoid deliberative information that may otherwise prevent them from following an intuitive preference. Both results fit the general theory that people avoid information when they worry that their current preference may not win out in the face of new information. But, whereas past research has shown that the *planner* self may constrain information to encourage the *doer* self to be more deliberative (Thaler & Shefrin, 1981), our results suggest that the planner may also encourage the doer to be less deliberative.

Although we focus on information avoidance stemming from intuitive-deliberative conflicts, theoretically, of course, information avoidance could occur to protect preferences for other conflicts as well (i.e., intuitive-intuitive or deliberative-deliberative), whenever new information is thought to threaten a current preference. For example, someone who is tired and has a preference to stay in for the night watching TV may avoid information about a party her friend is hosting because she realizes that she may be tempted to go to the party if she finds out more details. Avoiding

information about the party, such as where it will be and who is going, protects her current preference to stay in and watch TV. This scenario demonstrates how two conflicting intuitive desires can lead to information avoidance in support of the stronger preference. Thus, although our results are unique in showing that people avoid information that encourages a deliberative decision, the theory is not limited to such cases.

Our work is further related to theories of selective exposure, emerging preferences, and information distortion. Whereas selective exposure research has found that people seek out information that supports their preferences (Hart et al., 2009), we find that people choose to avoid information when they are uncertain of the content. In our studies, people do not know in advance whether the information will confirm or disconfirm their preferences. For example, the amount participants stood to gain from accepting an unappealing bet could be high, supporting the decision to accept the bet, or low, supporting the decision to refuse it. Despite this, participants preferred to avoid the payout information altogether.

On the other hand, research on leader-focused search has found that people prefer to learn information about a leading preference, regardless of whether that information is positive or negative (Carlson & Guha, 2011). Some of our findings are consistent with this prediction, but it cannot explain all of our results. In Study 1 for example, leader-focused search predicts that people will seek information about calories in a cake they plan to order, as calorie information pertains to their leading preference to order cake. However, we find that people prefer to avoid learning this information.

Relating to research on information distortion, one might predict that people with an intuitive preference would distort deliberative information to support their preference for the intuitive option (Russo, Medvec, & Meloy, 1996; Russo, Meloy, & Medvec, 1998). For example, someone with a strong desire to order cake, upon learning calorie information, could distort this information to support her initial preference to indulge, or even distort past memories to license indulgence (May & Irmak, 2014). Indeed, even numerical values, which may seem especially difficult to adjust, can be distorted to support a leading alternative (Bond, Carlson, Meloy, Russo, & Tanner, 2007; DeKay, Patino-Echeverri, & Fischbeck, 2009). For example, one study found that people distorted price information, evaluating it as more or less negative, to support their preference toward a purchase (Bond et al., 2007). Although we did not measure distortion of information, to the extent that distortion may have occurred in our studies, the information people received still influenced them away from their intuitive preference.

Is Information Avoidance a Mistake?

Although it seems that people are making some mistake (either because they are avoiding information they would use, or because they are using information they would avoid), we cannot say which of these is the mistake. In some cases—including the ones in this paper—it is unclear whether avoiding information and following one's heart is necessarily worse than getting information and using it to follow one's head. Avoiding calorie information may not be a mistake when contemplating ordering dessert, if we assume that enjoying dessert once in a while is not a mistake and that learning the calorie information would prevent this.

Similarly, a wine connoisseur who has stored a bottle of wine for several years to drink at the point of maturity may avoid learning the wine's current value when deciding to drink it (Thaler, 2015, p. 73). If the individual would feel forced to sell the wine rather than consume it if he knew the selling price, avoidance may not be a mistake. Deliberative reasoning is not always right, but it can be hard to ignore. Avoiding information that encourages deliberative reasoning can ensure that you do not erroneously follow a deliberative preference. Our work therefore yields different advice for people depending on whether they consider their avoidance to be a mistake or not. If people would defend their choice to avoid deliberative information, then their goal should be to follow their heart even if the information is revealed. In contrast, if people would defend using the deliberative information when making their choice, then their goal should be to recognize the value of the information in advance rather than avoid it.

In some contexts, it is clearly a mistake to avoid information when that information is costless and when remaining ignorant can be harmful to the individual or to society, such as in the case of a person with HIV avoiding information about her status and behaving as if she does not have the disease (Centers for Disease Control and Prevention, 1997; Hightow et al., 2003; Molitor, Bell, Truax, Ruiz, & Sun, 1999; Valdiserri et al., 1993). When it is a clear mistake to avoid information, our results suggest that automatically providing it may have beneficial outcomes for people's behavior, leading them to follow their deliberative reasoning and choose future-oriented or financially rational options.

Beyond automatically providing information, there may be other methods to increase people's openness to receiving information. For example, self-affirmation (see Sherman & Cohen, 2006) reduces information avoidance (Howell & Shepperd, 2012), as does a more deliberative consideration of the motivations for receiving and avoiding information (Howell & Shepperd, 2013b). Indeed, using a scenario similar to Study 1, we found that having participants first answer the simple question "Are you thoughtful about the food you eat?" made them less likely to avoid the calorie count of a cake than if they were not first asked this question (38.6% vs. 58.0% information avoidance), $\chi^2(1, N = 201) = 7.56$, $p = .006$, $\varphi = -.19$, $OR = .46$, 95% $CI_{Exp(B)} = [.26, .80]$. And, in other work, paying people to look at information not only decreased information avoidance, but also made people more likely to take this information into account when making their decision than had they looked without payment (Cain & Dana, 2012).

Limitations and Directions for Further Research

Although we provide initial insight into how the desire to protect an intuitive preference can prompt information avoidance, the present findings raise several questions for future research. First, we operationalized intuitive and deliberative conflict using emotion ("following your heart") versus reason ("following your head"). Future research is needed to examine whether other means of operationalizing intuitive-deliberative conflict (e.g., speed) also prompt avoidance. Second, we acknowledge some limitations of the pretest as they relate to the actual conditions of the studies. To

make the pretest clear for participants, we presented simplified versions of the scenarios, removing some features of the original studies, and we generalized pretest responses from MTurk workers to studies not conducted on MTurk. In addition, we relied on the pretest to establish that participants in our studies were experiencing conflict rather than measuring conflict within the studies themselves. Lastly, our findings are constrained to the specific methodology we used, which prioritized avoiding self-selection issues by randomly assigning participants to information (or not) regardless of their preference for information. Future research will benefit from using other methods that can offer additional advantages above those utilized here.

Conclusion

We find that people avoid information to protect an intuitive preference, and 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, such as wanting to order dessert when they have a health goal or wanting to refuse an upsetting investment that only has financial upside, people prefer to avoid information that would make it harder for them to follow their heart. 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.

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