Attention, Attitudes, and Action: When and Why Incidental Fear Increases Consumer Choice

NICOLE VERROCHI COLEMAN
PATTI WILLIAMS
ANDREA C. MORALES
ANDREW EDWARD WHITE

Past research finds that general negativity inherent to a choice set increases deferral. In contrast, we adopt a functional perspective—linking fear to narrowed attention, negative expectations of the future, and an increased readiness for action—and propose that incidental fear increases the likelihood of consumer choice and reduces deferral. Six studies find consistent support for this view, using both hypothetical and consequential choices. We demonstrate that relative to other emotions (disgust, sadness, hope, pride, anger) and general feelings of uncertainty, those experiencing incidental fear choose significantly more and defer less. This increased choice, however, is realized only for decisions made in the present (vs. future), when information about the deferred options is not available. Importantly, increased choice from incidental fear is mediated by increased attention and liking. Moreover, we also demonstrate that individuals with high levels of trait fear (vs. trait anger) are more likely to choose and less likely to defer.

Keywords: fear, emotion, choice, deferral

Closing the sale is the final and one of the most critical components of any consumer transaction. Thus, marketers have long been interested in finding better and more effective ways to encourage a purchase on any given shopping occasion. Although prior research has considered a number of actions that firms and sales teams can employ to close the sale (Boles et al. 2001; Hawes, Strong, and Winick 1996; Moe and Fader 2004; Oakes 1990), little work has examined situational factors that reduce choice deferral. In the current investigation, we propose that one such situational factor may be the incidental emotion of fear.

Researchers have demonstrated that fear influences a range of consumer behaviors: processing of advertising messages, the effectiveness of persuasion tactics, preferences for diversity and variety, the role of self-control in choice, and the usefulness of specific health communications (Block 2005; Block and Williams 2002; Griskevicius et al. 2009; Keller and Block 1996; Keller and Lehmann 2008; Morales, Wu, and Fitzsimons 2012; White, Kenrick, and Newberg 2013a; Winterich and Hawes 2011). In the present research, we examine how incidental fear might influence a person’s desire to choose now or defer until later.
To do so, we adopt a functional framework that links discrete emotions, such as fear, to mechanisms adapted to help people overcome recurring threats or opportunities (Griskevicius et al. 2009; Kenrick, Saad, and Griskevicius 2013; Lazarus 1991). Increasingly, researchers have used this functional approach to generate and test unique predictions about consumer behavior; these investigations have produced a series of novel findings (Durante et al. 2011, 2013b; Sundie et al. 2011; Townsend and Shu 2010; Townsend and Sood 2012; White et al. 2013).

According to previous research, general feelings of negativity increase the likelihood that consumers will defer the decision (Luce 1998). Taking a functional approach, however, we suggest that under some circumstances, the negative emotion of fear may actually reduce deferral because of its specific set of associated psychological and behavioral responses. Fear is part of the threat management system (Bracha 2004). It produces a narrowing “tunnel vision” on the present environment to help identify and assess threats (Tooby and Cosmides 2008), makes objects outside of the current context seem more risky and uncertain (Lerner and Keltner 2000), and compels people to take immediate action to overcome threats (Blanchard et al. 2011).

Importantly, we propose that this coordinated set of reactions triggered by fear can carry over to influence unrelated consumer-choice decisions by propelling consumers to act, while increasing attention and liking. Though prior research has shown incidental fear can influence financial decisions, such as when to sell a stock, by making choices unrelated to the fear-causing event seem riskier (Lee and Andrade 2011), no research to date has examined the consumer implications of the coordinated set of responses to fear on choice. Previous work has tended to consider how one isolated response associated with a given emotion might carry over and impact a subsequent decision. Building on this research, in six studies we examine the effect of the responses associated with incidental fear, demonstrating how they collectively impact consumers’ willingness to choose now or defer until later by increasing attention to and liking of the current choice set, while concurrently compelling consumers to take action.

FEAR, DECISION MAKING, AND DEFERRAL

Previous research has shown that incidental fear can impact decision making, resulting in more negative evaluations of targets, promoting more complex thinking, and reducing reliance on mental shortcuts (Gorn, Goldberg, and Basu 1993; Murry and Dacin 1996; Pham 1998). Fear has also been linked, through appraisals of uncertainty, to increased risk aversion and systematic information processing (Lerner and Keltner 2000; Tiedens and Linton 2001). Additionally, incidental fear can increase the effectiveness of social proof heuristics, reduce the effectiveness of scarcity heuristics, and alter preferences for diversification and variety (Griskevicius et al. 2009; White et al. 2013a). In the current investigation, we propose another way in which incidental fear influences consumer decision making—the likelihood of choosing versus deferring.

The consumer behavior literature has examined a range of factors that can affect choice among alternatives. The majority of this research, however, forces participants to choose among the alternatives—without an option to defer or delay their choice. Because real-world decisions often involve a tension between making a choice in the present or deferring until some point in the future, we contend that it is important for both scholars and practitioners to better understand the specific factors that shape choice and deferral processes.

Extant research suggests that deferral is a means of coping with and alleviating the negativity generated by choice uncertainty and decision difficulty (Luce 1998). Indeed, deferral is more common when no single option dominates a choice set and when consumers are faced with difficult tradeoffs (Dhar 1997; Dhar and Simonson 2003; Tversky and Shafir 1992). More generally, any factor that affects decision difficulty also impacts the likelihood of deferral. For example, adding a new product to a choice set can either increase or decrease deferral, depending on whether it enhances or reduces decision difficulty (Dhar 1997). When a new option is similar to existing options, lessening distinctions between products, deferral tends to increase. However, when a new option is inferior to existing options, and easily eliminated from consideration, deferral tends to decrease. Likewise, presentation styles that have little to do with the actual products in the choice set but nevertheless affect decision difficulty can also impact deferral: using more abstract attribute ranges, using a harder-to-read font, or presenting options with incomplete information increases decision difficulty, and as a consequence, also increases deferral (Dhar and Simonson 2003; Gunasti and Ross Jr. 2008; Novemsky et al. 2007).

As a whole, research has examined how several factors, from product features to presentation style, can influence deferral. Much of this work is grounded in the notion that deferral is a means of coping with the general negativity created by decision difficulty (Luce 1998). We seek to advance this work in three important ways. First, previous research on the impact of emotion on choice has focused only on general negativity, showing that decision difficulty created by the choice set itself reduces choice. We build on this research by considering when a negative emotion may actually increase the likelihood of making a choice. Second, instead of examining the relationship between general negative affect and consumer choice, we posit that it may be useful to explore how discrete emotions influence choice. Specifically, we contend that there is an
important relationship between incidental fear and choice. Third, while prior deferral research has focused predominantly on integral negativity (i.e., affect arising from the decision itself; Luce 1998), we consider how an incidental negative emotion—which is not at all related to the current choice—can actually decrease the likelihood of choice deferral.

Fear and Choice Deferral

Prior work makes it clear that emotions lead people not only to perceive the world in a particular manner (Lerner and Keltner 2000), but also to respond with coordinated behavioral actions (Ekman 1992; Griskevicius et al. 2009). Thus, to understand the downstream consequences of discrete emotions, it is important to recognize the specific ways in which each emotion impacts both psychological and behavioral responses. Because each specific emotion is linked with a coordinated set of appraisals, perceptions, cognitions, and behaviors that helps people respond quickly to specific problems or opportunities (Griskevicius, Shiota, and Nowlis 2010; Lerner and Keltner 2000), these emotion-related responses may be so strong that they carry over from the emotion-eliciting context to other, unrelated events, leading to incidental effects of the activated emotion (Quigley and Tedeschi 1996). We thus predict that the suite of responses engendered by fear (attention, attitude, action) will increase choice and reduce deferral by increasing attention to and liking of the current set of options, alongside an overarching compulsion to act. In the sections that follow, we describe each of these pieces in turn, and provide specific hypotheses about incidental fear and deferral.

Fear is an integral component of the threat management system that helps humans survive life-and-death circumstances (Bracha 2004; Öhman and Mineka 2001). This primary function has led to a diverse set of responses to experiencing fear. Most notably, fear influences attention and memory in the present. Temporally, a person experiencing fear becomes focused on the present threat, and concerns about the past or future temporarily vanish (Langer, Wapner, and Werner 1961; Tooby and Cosmides 2008). This shift toward the present is also associated with tunnel vision and situational vigilance (Blanchard and Blanchard 1989; Blanchard et al. 2011; Izard and Youngstrom 1996). Enhanced situational vigilance helps threatened individuals take into account important characteristics of the situation, and to use these inputs to determine which response will be best (Blanchard et al. 2011; Phelps and LeDoux 2005). Owing to the increased importance of attending to and tracking potential threats, people concerned with fear, relative to other emotions, show enhanced memory for people or objects in their immediate environment (Becker 2009; Phelps, Ling, and Carrasco 2006). Importantly, experiencing fear potentiates visual attention, leading researchers to conclude that “people actually see better in the presence of [fear]” (Phelps et al. 2006, 298). For instance, Becker (2009) demonstrated that visual search was more efficient for fearful participants; individuals were able to find the focal search object (a house) in a jumbled array of images more quickly and accurately after experiencing fear. This literature suggests that individuals experiencing incidental fear should have increased attention to subsequent focal tasks. Thus, if the task is making a choice from a given set of options, individuals should more efficiently focus on choice-relevant information, but show reduced attention toward (and memory for) items outside the current choice set. Heightened attention to objects can also increase their evaluations (Fazio et al. 1986; Pieters and Wedel 2004; Zajonc 1968). Indeed, one purpose of attention is to allow the cognitive system to manage information processing in a complex environment—that is, to prioritize a subset of information for processing. Functionally, the system directs attention toward stimuli that have hedonic consequences (Kahneman and Triesman 1984; Phelps et al. 2006). As visual attention is oriented toward a specific stimulus, its evaluation becomes available, and as attention focuses on that object, the connection between the object and its evaluation is strengthened (Janiszewski 1990, 1993; Roskos-Ewoldsen and Fazio 1992; Shapiro, MacInnis, and Heckler 1997). Thus, as fear increases attention, it should also strengthen the attitudes toward the objects that are within the selected attentional area. In the current research, we suggest that fear will enhance attitudes toward positively framed alternatives in a choice set.

In addition to narrowing attention on the present, fear also generates negatively biased evaluations for objects or events outside of the immediate context. In particular, people concerned with fear are more likely to overestimate the likelihood of aversive future events and to perceive future events as risky (Amin and Lovibond 1997; Hermann, Ofer, and Flor 2004; Lerner and Keltner 2000; Tomarken, Mineka, and Cook 1989). This overestimation of aversive future events has been documented for a wide range of outcomes, from anticipating how frequently threatening stimuli will appear on a computer screen (Tomarken et al. 1989) to estimating the likelihood of negative events occurring over the course of one’s lifetime (Lerner and Keltner 2000). Consequently, we expect that experiencing incidental fear will heighten attitudes toward items in the present choice set, relative to items outside the current context.

Through fear, the threat management system also has a number of behavioral consequences. Complementing enhanced situational vigilance, fear activates a “readiness for reaction” that can be translated into a number of functional actions, such as fight, flight, freeze, or safety seeking, depending on the unique circumstances associated with the current threat (Blanchard et al. 2011; Griskevicius
et al. 2009; Öhman and Mineka 2001; Phelps and LeDoux 2005; White et al. 2012). For instance, threats tend to elicit flight if an escape route is available, freezing if a threat is ambiguous, or defensive attack as the threat gets closer (Blanchard et al. 2011). In the current context, we suggest the desire to act triggered by fear will prompt consumers to actively make a choice, rather than delay through deferral.

Considering this coordinated suite of appraisals, perceptions, cognitions, evaluations, and behaviors together, we propose that incidental fear will lead to increased consumer choice and reduced deferral. As discussed above, fear collectively activates tunnel vision that increases focus and attention on objects in the immediate environment, creates negatively biased evaluations of the future, and compels a readiness for action in the present. In the context of consumer choice, this suggests that individuals feeling incidental fear will focus their attention on options in the immediate choice set that are focal to the decision-making task. The increased attention then leads to higher liking. In addition, relative to deferred options (i.e., options outside of the current choice set), these presently available products should consequently be evaluated more favorably, as fear also leads to greater uncertainty and more negativity directed toward future events. Finally, in addition to evaluating present options more positively, the increased need to take action associated with fear promotes a heightened desire to act in the current consumer context. Thus, the increased readiness to take action, along with increased attention and liking, will lead consumers to make a choice rather than postpone the decision.

More specifically, we suggest that the relationship between incidental fear and a readiness to choose in the present will be mediated sequentially by attentional (and related memory) processes and liking for the present options. These mediational mechanisms follow directly from the psychological and behavioral responses triggered by fear, and are acted upon because of the concurrently activated desire to take action. In particular, we predict that incidental fear will narrow attention to the current choice set. This increased attentional focus will result in higher memory for focal product information and lower memory for (peripheral) information unrelated to the presently available products. In combination with heightened attention to items in the current choice set, this increased attention will also result in more favorable evaluations of the current options. When experienced concurrently with a heightened desire to act, the increased attention and liking will prompt consumers to make a choice, rather than defer. Consequently, we propose a serial mediation such that incidental fear will increase choice in the present because of narrowed attention and more favorable attitudes toward the current choice set.

This prediction is expected to hold when consumers are choosing between a known product in an immediate choice set and a deferred product outside of the choice set. However, it may be important to consider how fear would affect choice if none of the products were in the immediate context. For instance, when consumers are making decisions for the future, all choice options lie outside of the immediate environment. As noted above, previous research demonstrates that people experiencing fear see future events as riskier and more aversive (Lerner and Keltner 2000). Likewise, though selecting a product in the current choice set may satisfy a need to take action, selecting a product from a future choice set may not placate the same need. When considering future choice sets, people concerned with fear may evaluate all options more negatively. If so, fear should not increase consumer choice for future decisions. Thus, because fear focuses attention and increases readiness for action specifically in the current environment, and negatively biases evaluations of options outside of the present context, an important boundary condition on the relationship between incidental fear and deferral is whether the choice involves products in the immediate environment or decisions about products in the future. We explore this possibility in study 2.

Just as our predictions should not hold for decisions about products in the future, they may also not apply to cases where the deferred option is actually part of the current choice set. The literature has typically described deferral options as vague alternatives presented outside of the current set of options (Gunasti and Ross 2008): deferral is a decision to not choose any of the current options, a general decision to wait, or even a decision to see additional options outside of the current choice set. However, in some cases, it may be that one of the options in a choice set is out of stock and not readily available. All of the information about the out-of-stock option could be provided in the current choice set (alongside the other available options), but as it is out of stock, the option is unavailable and cannot be selected at that time. Choosing to wait for that described but out-of-stock option, therefore, would be a choice to defer. As fear triggers narrowed attention and biased attitudes toward objects in the present environment, all options that are in the choice set (whether in stock or not) should receive preferential attention and attitude. This suggests that if the deferral option is included in the choice set but out of stock, the effect of fear to reduce deferral may be attenuated. We examine this possibility in study 5.

Summary and Experimental Overview

Building on prior work that shows fear is associated with specific psychological and behavioral responses—narrowed attention to the present environment, negative evaluations of things outside the current context, and a compulsion to act—we predict that incidental fear will increase consumer choice and reduce deferral when decisions involve present choice sets. By increasing attention to and attitudes toward present options at the same time it
compels action, fear increases the likelihood that consumers will choose. Importantly, we contend that it is the heightened desire to act that propels consumers to respond to increased attention and liking by making a choice, as opposed to merely resulting in more favorable product attitudes. In contrast to previous work that has considered the impact of one specific appraisal on subsequent decisions (Lerner and Keltner 2000) we propose that it is the entire set of responses associated with fear working in combination, rather than one appraisal dimension, that leads to increased choice and lower deferral. We test this perspective in a series of six studies—using four types of emotion manipulations, presenting both hypothetical and consequential choices, and comparing fear to five different emotion states as well as general uncertainty—and consistently find support for our predictions. While previous research on deferral has largely suggested that anything that increases negative affect is likely to increase deferral, the current studies suggest that incidental fear can instead reduce deferral and increase choice.

STUDY 1: INCIDENTAL FEAR IMPACTS CONSUMER CHOICE

Study 1 investigates the impact of incidental fear, compared to other positive and negative emotions, on choice deferral. As outlined above, we expect that the coordinated set of responses prompted by incidental fear (increased attention to the present, negative evaluations of the future, and a readiness to act) will carry over to the unrelated decision, encouraging choice and reducing deferral by increasing attention and liking, along with a compulsion to act. In contrast to previous work that has examined a single specific appraisal on subsequent decisions (Lerner and Keltner 2000), we propose that the entire suite of fear-related responses works together to reduce deferral. We thus examine the impact of multiple other emotions that differ in valence, but which each share certain appraisals with fear, to demonstrate that any one specific appraisal dimension is not enough to drive the predicted effects. Specifically, in study 1 we compare incidental fear to other positive and negative incidental emotions sharing similar appraisals of uncertainty (hope, sadness), situational control (sadness), and attention (pride, disgust) with fear. In doing so, we not only demonstrate the unique relationship between incidental fear and choice, but also provide initial support for the proposed process by showing that it is the full set of functional responses that makes consumers less likely to defer.

Method

Participants. Two hundred sixty-three participants (63.4% female; $M_{age} = 34.98$) were recruited from Amazon Mechanical Turk and paid a nominal amount to complete the study.

Design and Procedure. Study 1 had a one-factor between-subjects design (emotion: fear, hope, sadness, pride, disgust, neutral control). Participants were told they would participate in two separate studies. The first involved a photo-rating task of images used in advertising (which served as our experimental manipulation). The second involved decision making.

Emotion Manipulation. Participants viewed a series of three images and were asked to evaluate them along several broad dimensions (e.g., good-bad, favorable-unfavorable, positive-negative). Participants were randomly assigned to one of the six emotion conditions (fear, disgust, sadness, pride, hope, and a neutral control). Using the same procedure as above, participants saw three images and evaluated them along several dimensions (e.g., good-bad, like-dislike). After evaluating the photos individually, participants were asked to think back to the entire set of photographs and rate the extent to which the photos made them feel various emotions on a scale from 1 (“not at all”) to 9 (“more strongly than ever”). Results confirmed that each photo activated the intended emotion: the fear photos ($M_{fear} = 4.73$) elicited more fear than any other photos ($M_{others}$ range from 1.17 to 2.93; all $p < .005$), the disgust photos ($M_{disgust} = 6.97$) elicited more disgust than other photos ($M_{others}$ range from 1.11 to 3.73; all $p < .001$), the sadness photos ($M_{sadness} = 5.08$) elicited more sadness than any other photos ($M_{others}$ range from 1.30 to 3.10; all $p < .001$), the pride photos ($M_{pride} = 5.35$) elicited more pride than any other photos ($M_{others}$ range from 1.87 to 3.62; all $p < .005$), and the hope photos ($M_{hope} = 6.13$) elicited more hope than any other photos ($M_{others}$ range from 1.50 to 4.17; all $p < .005$). Further, each set of photos elicited the strongest emotions on the target emotion; for instance, the fear photos elicited more fear ($M_{fear} = 4.73$) than other emotions ($M_{others}$ range from 2.16 to 3.73; all $p < .005$), see table 1 for further details.

Dependent Measure. Following the emotion manipulation, participants were told that they would complete several decision-making tasks for a separate study. The dependent measure was a modified version of the choice deferral task created by Gunasti and Ross (2008). Specifically, participants were presented with a series of eight choice sets, each displaying five products that varied along three dimensions, all of which were equally desirable.
TABLE 1

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**Main effect of emotion**

- Fear: $F(5, 102) = 15.494, p < .0001$
- Disgust: $F(5, 102) = 15.391, p < .0001$
- Sadness: $F(5, 102) = 9.519, p < .0001$
- Hope: $F(5, 102) = 2.89, p = .008$
- Pride: $F(5, 102) = 2.39, p = .043$
- Neutral: $F(5, 102) = 1.35, p = .260$

**Items afraid, anxious, fear, scared disgusting, repulsed sad, pessimistic, powerless hope, hopeful proud, powerful, impressive, confident**

Reliability

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NOTE—The means in bold are significantly different from all other means in both the row and column, at the $p < .05$ level or better. For example, the mean on the sadness scale for the sad photos ($M_{sadness} = 2.44$) was significantly higher than any other emotion (across the Sadness row); versus $M_{disgust} = 2.33, t(16) = 4.826, p < .001$; versus $M_{hope} = 1.62, t(16) = 5.423, p < .001$. For brevity, these contrasts are not fully described but details are available from the authors upon request.

Results and Discussion

A one-way ANOVA predicting number of choices revealed a significant main effect of emotion condition ($F(5, 257) = 2.613, p = .025$; see figure 1). A planned contrast comparing fear to all other emotion conditions revealed a significant main effect of fear on choice ($F(1, 257) = 7.195, p = .008$). Further analyses showed that participants in the fear condition ($M_{fear} = 5.78$) chose significantly more and deferred less than those in all other conditions ($M_{disgust} = 4.40, F(1, 257) = 2.39, p = .018$; $M_{sadness} = 4.34, F(1, 257) = 2.89, p = .009$; $M_{pride} = 4.22, F(1, 257) = 2.70, p = .003$; $M_{hope} = 4.41, F(1, 257) = 2.48, p = .011$; $M_{neutral} = 4.11, F(1, 257) = 2.81, p = .002$). There were no significant differences between any of the other conditions (all $p > .60$).

Study 1 provides initial support for our view, demonstrating that incidental fear uniquely affects choice deferral, inclining participants to choose products available in the current choice set, rather than deferring choice. Emotions known to activate similar appraisals of uncertainty (hope, sadness), situational control (sadness), attention (pride), and negative valence (disgust, sadness) did not reduce deferral in the same way, suggesting that the observed effects are instead the result of the specific set of psychological and behavioral responses uniquely associated with fear. We examine a potential boundary condition in the next study.

**STUDY 2: CHOICES IN THE PRESENT OR THE FUTURE**

Study 1 suggests that it is the unique set of coordinated responses triggered by incidental fear that makes
consumers choose more (defer less), as emotions with similar, single, appraisal tendencies did not also increase choice. In study 2, we build on these initial results by explicitly comparing the effects of incidental fear with a generalized sense of uncertainty. We focus specifically on the uncertainty appraisal because it is linked with negative evaluations of the future, which is one of the three key responses associated with fear in our theoretical model. Research on the Appraisal Tendency Framework (ATF) suggests that individuals are motivated to minimize uncertainty, and that this desire to reduce uncertainty can lead to carry-over effects from fear in subsequent decisions (Lee and Andrade 2011; Tiedens and Linton 2001). By explicitly comparing the effects of incidental fear with uncertainty, we show that uncertainty, without the other functional responses associated with incidental fear, does not reduce deferral; rather, the increased attention and readiness to act associated with fear are also needed.

In addition, study 2 also considers a potential boundary condition on the relationship between fear and consumer choice. Our theory suggests that incidental fear increases consumer choice because it leads to increased attention on the present, negatively biased expectations about options outside of the choice set, and a heightened desire to take action. Because fear shifts focus to the present environment and increases the uncertainty associated with unknown events, the increased choice observed in study 1 should not hold if all choices are outside of the present time frame. Specifically, we predict that if the decision occurs in the future, fear should no longer increase the likelihood of making a choice. To test this possibility, in study 2 we manipulated both emotion and the decision time frame, so that participants make a choice in either the present or the future, and we expect incidental fear, but not general uncertainty, will increase choice and reduce deferral for present but not future decisions.

Method

Participants. Two hundred sixty-eight participants (55.9% female; $M_{\text{age}} = 34.11$) were recruited from Amazon Mechanical Turk and paid a nominal amount to complete the study.

Design and Procedure. Study 2 was a 3 (emotion: fear, uncertainty, neutral control) \times 2 (time frame: present vs. future) between-subjects ANOVA. Participants were randomly assigned to read one of three guided visualization stories—fear, general uncertainty, or neutral. The uncertainty story described a person searching his/her house for a lost set of keys, and has been shown to arouse feelings of uncertainty and unpredictability (Griskevicius et al. 2011). The fear story described a person, home alone during a stormy night, who realizes there is an intruder in his/her house. The neutral story described a person organizing his/
her office. These stories have been used in past research on emotion and decision making and have been shown to uniquely activate their intended emotional states (Griskevicius et al. 2009; White et al. 2013a).

Before answering the choice questions, participants in the future time frame conditions were instructed, “We are also interested in how people make decisions in preparing for the future. As you are responding to these questions, please imagine yourself facing this decision in 3 months time.” Each choice question was also framed in terms of the future, “If you were faced with this choice set in 3 months time, which option would you choose?” Participants in the present time frame condition were not given instructions about preparing for the future and were simply asked, “If you were faced with this choice set now, which option would you choose?”

Participants completed a modified version of our deferment dependent variable used in study 1. In it, participants were presented with a series of three choice sets, each displaying three attractive alternatives that varied along three evaluation dimensions (see appendix B). Each choice set presented a different type of product (health clubs, wireless services, and laptop computers) and varied the evaluation dimensions that were displayed. For instance, participants viewed three health clubs that were evaluated on membership fee, variety of exercise machines, and commute time to health club. To increase the likelihood that participants would defer choice, some information was missing for each product, so that no product received ratings on all three dimensions (Gunasti and Ross 2008). Participants were asked which product they would select and could select “none of these” (by selecting “none of these”). Responses were coded such that participants received a score of 1 for each choice and a score of 0 each time they deferred choice. Responses were aggregated across the three choice sets and could range from 0 (always deferred) to 3 (always chose).

Results and Discussion

A two-way ANOVA found a significant emotion by time frame interaction ($F(2, 262) = 4.471, p = .012$; see figure 2). Follow-up analyses showed a significant main effect of emotion in the present time frame condition ($F(2, 262) = 3.512, p = .031$). As in study 1, those in the fear condition ($M = 1.79$) chose more and deferred less than those in the general uncertainty ($M = 1.21; F(1, 262) = 2.50, p = .020$) and neutral conditions ($M = 1.22; F(1, 262) = 2.27, p = .029$). The uncertainty and neutral conditions were not significantly different from each other ($p > .95$).

In the future time frame condition, there was no effect of emotion condition ($M_{\text{fear}} = 1.06, M_{\text{uncertainty}} = 1.48, M_{\text{neutral}} = 1.22; F(2, 262) = 1.418, p = .24$). In fact, for the future time frame condition, those concerned with fear seemed more likely to defer—though this effect was only marginally different from the general uncertainty condition ($F(1, 262) = 1.72, p = .093$), and not significantly different from neutral ($F(1, 262) = .86, p = .40$). Importantly, the impact of time frame was significant within the fear condition, such that participants in the present chose more ($M = 1.79$) than those in the future ($M = 1.06; F(1, 262) = 8.731, p = .003$). There was no effect of time frame in either the uncertainty or neutral conditions (both $p > .25$).

The results of study 2 offer two important implications. First, by showing that generalized uncertainty does not also lead to increased choice, it again suggests that it is the full set of responses associated with fear that compels people to choose. Uncertainty alone is not enough to reduce deferral; consumers also need to focus on the present options and feel compelled to act. Second, it highlights an important boundary condition on the relationship between incidental fear and choice. Notably, the results demonstrate that incidental fear increases choice only when consumers are considering products in the present, but not when the decision is in the future. These findings fit with the notion that in addition to prompting consumers to act, fear narrows attention to the current environment and negatively biases expectations about the future.

STUDY 3: INCIDENTAL FEAR IMPACTS ATTENTION, ATTITUDE, AND CHOICE

In study 3, we extend our examination of the effects of incidental fear on choice and deferral in several ways. First, though, we compared incidental fear with a variety of other positive and negative incidental emotions that differed on various appraisal dimensions in studies 1 and 2, where we did not include a similarly high-arousal, action-oriented negative emotion. This is particularly important in order to show that it is not the readiness for action alone that leads to increased choice, just as study 2 demonstrated that negative evaluations of the future (i.e., generalized uncertainty) alone do not result in increased choice. Thus, in the present study, we focus on other negative emotions and compare incidental fear with incidental anger—a high-arousal, action-oriented negative emotion that is also characterized by approach behavior—along with other emotions that each share some components of the fear profile: sadness (uncertainty), disgust (narrowing of attention), and a generalized sense of uncertainty, as in study 2.

Second, while the previous two studies relied upon choice sets used in past research on deferral to increase internal validity, they lacked external validity. In the current study, we present different choice sets that resemble realistic purchasing contexts frequently encountered on Amazon.com (see appendix C). These are vivid, visual choice sets presented in a format similar to the “comparison table” available on Amazon.com. Importantly, by
using these visual choice sets, we are able to test our two proposed mediators: attention and attitude.

Our theory predicts that incidental fear will increase choice (decrease deferral) relative to other incidental emotions, as fear prompts participants to focus on their current situation—resulting in better attention to the present context and more favorable evaluations of options in the present choice set—and become predisposed to act within that current situation. Consistent with the increased focus on the present environment, we therefore expect the impact of incidental fear to create tunnel vision such that participants in the fear condition attend more to the choice task at hand, focusing narrowly on information relevant to the decision, and ignoring other, peripheral information that has no bearing on the choice. Following prior work that has frequently used recall for peripheral objects as a measure of attention for focal objects (Erdelyi and Applebaum 1973; Erdelyi and Blumenthal 1973; Paulhus and Levitt 1987; Srull and Wyer 1986), we predict that participants in the incidental fear condition will exhibit lower recall for peripheral information, and greater recall for focal information related to the choice set. In study 3, we test the first part of our proposed sequential mediation process by showing that memory for such peripheral information mediates the effect of incidental fear on choice.

Our theory predicts that fear leads to heightened attention to the present, which, along with the negative evaluations of the future, strengthens attitudes toward options in the present choice set. This implies that attitudes toward desirable products in the present choice set should be more favorable and lead to a higher likelihood of choice by consumers experiencing incidental fear. In contrast, attitudes for products outside the present choice set (options D and E) should be more negative and thus less likely to be chosen.

Finally, study 3 also uses a different emotion prime to increase the generalizability of the empirical work. Whereas study 1 relied upon photos to manipulate emotions and study 2 used guided visualization of stories, in study 3, we instead manipulate emotions by asking participants to recall their own past emotional experiences via a writing task used in many previous publications (Strack, Schwarz, and Gschneidinger 1985).

Method

Participants. Two hundred fifty-one individuals (46.6% female, average age = 21.7; range = 18–44) from Arizona State University participated in this study for course credit.

Design and Procedure. The study was a six-emotion (fear, anger, disgust, sadness, uncertainty, neutral) between-subjects design. Participants were told they would participate in two separate studies. First, they were told that researchers were interested in the way that individuals recall life events and that they would be asked to recall and describe a personal event, which served as our emotion manipulation. In the second task, participants were told that researchers were interested in how people make choices online. Participants were presented with a series of product choice scenarios, presented as they might be on Amazon.com, and asked to indicate their preferences in each choice scenario.

FIGURE 2
STUDY 2: THE EFFECT OF EMOTION AND TIME ON CONSUMER CHOICES

![Figure 2](image)

NOTE.—Cell sizes ranged from 37 to 47 in each condition.)
Emotion Manipulation. In the first part of the study, participants were randomly assigned to either the fear, anger, disgust, sadness, uncertainty, or neutral emotion conditions. Following a writing procedure used in many previous studies (Strack et al. 1985), participants were first instructed to write about “the 3–5 things that make you the most afraid (angry, disgusted, sad, uncertain)” or about “the 3–5 activities you did today (neutral condition).” After listing these items, participants were asked to think about each of the situations they had described and determine the one that had been the scariest (angriest, most disgusting, saddest, most uncertain) day of their lives. In the neutral condition, participants were asked to “think about the activities that typically occur in your evening.” They then continued to a second writing task in which they were asked to “write down what they remember” from that one day in their lives, remembering it as vividly as they can, and write a detailed description such that someone reading their description “might feel scared (angry, disgusted, sad, uncertain) on your behalf just from learning about the situation.” Neutral-condition participants were asked to “write down a description of your activities” so that “someone reading your description “might feel scared (angry, disgusted, sad, uncertain)” or about “the 3–5 things that make you the most afraid (angry, disgusted, sad, uncertain)” on your behalf just from learning about the situation.” Neutral-condition participants were asked to “write down a description of your activities” so that “someone reading this might be able to reconstruct the way in which you, specifically, spend your evenings.”

Consistent with previous research that has used this writing task, a pretest with 179 participants confirmed that writing about fearful experiences caused people to feel more afraid (M = 5.42) than writing about angry experiences (M = 2.55; F(1, 178) = 6.44, p < .01), disgusting experiences (M = 2.54; F(1, 178) = 7.41, p < .01), sad memories (M = 2.40; F(1, 178) = 8.79, p < .001), uncertain situations (M = 2.73; F(1, 178) = 5.43, p < .01), or the neutral writing task (M = 1.99; F(1, 178) = 9.61, p < .001). Similarly, all other emotion manipulations mapped onto the corresponding current feelings; see Table 2 for full pretest results. Importantly, there were no differences in the difficulty of recalling any of these types of emotional experiences (all p > .20).

Choice Sets. Immediately following the emotion manipulation, participants were asked to complete several decision-making tasks for a separate study. The dependent measure was a modified version of the choice deferral task created by Gunasti and Ross (2008). Participants were presented with a series of five different product category choice sets (headphones, sunglasses, water bottles, padfolios, and pedometers), with each featuring three products that varied along five dimensions, including price (see appendix C). For example, in one choice set, participants were shown a set of three different headphone alternatives. They saw a photo of each option and descriptions of those options based upon (fictional) brand name (Bentley, Geega, Ausdom), price ($49.99, $59.99, $59.99), Bluetooth capability (Yes/No), foldability (Yes/No), noise cancelling features (Yes/No), and phone control (Yes/No).

### Table 2: Autobiographical Writing Manipulation Pretest Results

<table>
<thead>
<tr>
<th>Emotion</th>
<th>Fear</th>
<th>Anger</th>
<th>Disgust</th>
<th>Sadness</th>
<th>Uncertainty</th>
<th>Difficulty</th>
</tr>
</thead>
<tbody>
<tr>
<td>M</td>
<td>5.42</td>
<td>2.55</td>
<td>2.54</td>
<td>2.40</td>
<td>2.73</td>
<td>1.99</td>
</tr>
<tr>
<td>SD</td>
<td>1.55</td>
<td>1.62</td>
<td>1.78</td>
<td>1.73</td>
<td>1.49</td>
<td>0.95</td>
</tr>
</tbody>
</table>

NOTE.—The means in bold are significantly different from all other means in both the row and column, at the p < .01 level or better. For example, the mean of the anger scale column is significantly different from all other means in the row (M = 3.21; t(28) = 6.241, p < .001; versus M = 5.22; t(28) = 8.905, p < .001; versus M = 5.45; t(28) = 7.41, p < .001; versus M = 5.45; t(28) = 6.241, p < .001). None of the emotion conditions differed on difficulty. For brevity, these contrasts are not fully described, but details are available from the authors upon request.
In the pedometer choice set, the three products were described by (fictional) brand name (Alvita, X2Innovations, Track4Life), price ($27.85, $34.95, $25.90), distance measuring capability (Yes/No), measurement of calories burned (Yes/No), length of memory (7 or 15 days), and wearing method (belt clip, hook-style clip, shoelace). In each choice set, all three options were described fully and were available for choice.

Participants were asked to indicate which item they preferred in each choice set (option A, B, or C) or to indicate that they preferred to search for other options on Amazon.com or to go to a different website to search for options. Responses were coded such that participants received a score of 1 each time they chose option A, B, or C, and a score of 0 (deferral) each time they elected to search more on Amazon.com or another website. Responses were aggregated across the five choices and could range from 0 (always deferred) to 5 (always chose).

Mediating Variables: Peripheral Information. On each product choice page, participants saw the options, product descriptions, a banner across the top that resembled the top of an Amazon.com product page, and a series of banner ads, some to the right and one below the choice set. The banner ads (for Quaker Oats Cereal, a Capital One credit card, Dish Network, and Jack Links Beef Jerky) were identical across each choice set and always appeared in the same position. Immediately after completing the five choice sets, participants were asked a series of five questions to test their memory for those banner ads (“On the product evaluation pages, you saw an ad for Quaker Oats cereal. How many grams of protein are in the Quaker Oats cereal?” “How much of a bonus is Capital One offering in that ad?” “Which cable network is being advertised?” “How much is the monthly bill for the cable network, according to that ad?” “What brand of beef jerky was advertised?”). Responses were coded as 1 when they gave the correct answer and 0 when they did not. Responses were aggregated across the five memory questions and could range from 0 (always incorrect) to 5 (always correct).

Mediating Variables: Focal Information. Along with memory for the information peripheral to the choice task, participants were also asked five questions about attributes of the products they viewed in the choice sets. These questions were meant to test participants’ memory for the choice sets, and thus are an indirect measure of attention to the focal task. Three of the questions were multiple-choice-style questions (e.g., “Which of the following sunglasses are the brand zeroUV? (A) photo 1, (B) photo 2, (C) photo 3”), while the other two were fill-in-the-blank (e.g., “These are the Geeqa headphones from the choices you saw earlier. How much did they cost?”). Responses were coded as 1 when participants gave the correct answer and 0 when they did not. Responses were aggregated across the five memory questions and could range from 0 (always incorrect) to 5 (always correct).

Mediating Variables: Attitude. To capture attitude toward the choice set, we asked participants to indicate their overall evaluation of the choice sets (three items; \( \alpha = .87 \)): “The products I saw were better than I expected,” “The product selection was better than expected,” and “I was happy with the products presented.”

Alternative Mechanism: Timing. A potential alternative process could be that participants experiencing incidental fear are just focused on action (i.e., no effects on attention and attitude), and thus are simply making a choice to get through the task as quickly as possible. This could be due to participants wanting to accomplish the task in order to allocate resources toward emotion regulation, or due to the fear fight-or-flight response. In order to rule out this account, we collected timing on each choice—the duration from when the participant landed on the page to selecting an option—and averaged these values across the choice sets (\( \alpha = .69 \)). While this may be a rough measure of action, it should capture any “speeding through” that fear may be triggering, and help to address this as an alternative process.

Results and Discussion

A one-way ANOVA found a significant effect of emotion condition on the total number of choices made (\( F(5, 245) = 4.566, p < .001 \)), as predicted. Follow-up analyses show that individuals in the fear condition (\( M = 4.16 \)) made more choices (deferred less) than participants in the anger (\( M = 3.24; F(1, 245) = 9.758, p = .002 \)), disgust (\( M = 3.10; F(1, 245) = 11.093, p < .001 \)), sad (\( M = 3.21; F(1, 245) = 9.830, p = .002 \)), uncertainty (\( M = 2.85; F(1, 245) = 11.220, p < .001 \)), and neutral (\( M = 3.34; F(1, 245) = 7.683, p = .006 \)) conditions. No other differences between conditions were significant (\( p > .11 \); see Figure 3).

To assess attention, a one-way ANOVA found a significant effect of emotion condition on total memory for peripheral information (\( F(5, 245) = 6.887, p < .001 \); see Table 3). Follow-up analyses show that individuals in the fear condition (\( M = .35 \)) recalled significantly less information from the banner ads than did participants in the anger (\( M = 1.10; F(1, 245) = 11.093, p < .001 \)), disgust (\( M = 1.10; F(1, 245) = 11.094, p < .001 \)), sad (\( M = 1.19; F(1, 245) = 11.220, p < .001 \)), uncertainty (\( M = 1.12; F(1, 245) = 11.114, p < .001 \)), and neutral (\( M = 1.24; F(1, 245) = 12.034, p < .001 \)) conditions. No other pairwise contrasts were significant (\( p > .41 \)).

To further examine attention, a one-way ANOVA found a significant effect of emotion condition on total memory for focal choice set information (\( F(5, 245) = 5.297, p < .001 \)). Follow-up analyses show that individuals in the fear condition (\( M = 3.19 \)) recalled significantly more
information from the choice sets than did participants in the anger (M = 2.19; F(1, 245) = 11.747, p < .001), disgust (M = 1.93; F(1, 245) = 12.283, p < .001), sad (M = 2.43; F(1, 245) = 11.262, p = .005), uncertainty (M = 2.17; F(1, 245) = 11.996, p < .001), and neutral (M = 2.44; F(1, 245) = 11.375, p = .006) conditions. There was a marginally significant difference between the disgust and sadness conditions (F(1, 245) = 3.488, p = .063), and between disgust and control (F(1, 245) = 3.570, p = .060); no other pairwise comparisons were significant (p > .32).

To assess the second mediator, a one-way ANOVA found a significant effect of emotion condition on attitude toward the choice sets (F(5, 245) = 5.018, p < .001). Follow-up analyses show that individuals in the fear condition (M = 3.70) had significantly stronger attitudes toward the choice sets than did participants in the anger (M = 2.94; F(1, 245) = 11.487, p < .001), disgust (M = 2.90; F(1, 245) = 11.794, p < .001), sad (M = 3.16; F(1, 245) = 8.109, p = .005), uncertainty (M = 2.96; F(1, 245) = 11.298, p < .001), and neutral (M = 3.20; F(1, 245) = 6.794, p = .010) conditions. No other comparisons were significant (p > .18).

Finally, to investigate the alternative process account, a one-way ANOVA was run on the average time participants took to make a decision. There was no significant effect of emotion condition on time taken (F(5, 245) = 1.382, p = .232). While no pairwise contrasts were significant at the .05 level, participants in the fear condition were marginally slower than the anger (F(5, 245) = 3.153, p = .077) and disgust conditions (F(5, 245) = 3.050, p = .082). Further, there is no significant effect of emotion condition on the time taken for chosen options only (i.e., if a participant made three choices out of five, the average time on those three choices), (F(5, 245) = .559, p = .731), nor for only the deferred options (F(5, 245) = .990, p = .426).

**Serial Mediation.** We propose that experiencing fear leads to a tunnel vision effect, such that attention is narrowed to the choice set in front of the individual. This narrowing should result in decreased recall of peripheral information (and greater recall of focal information) among participants feeling fear as they focus more on the choice set and pay less attention to other information in FIGURE 3

STUDY 3: THE EFFECT OF EMOTION ON CHOICE AND ATTENTION

![Graph showing the effect of emotion on choice and attention](image)

**TABLE 3**

<table>
<thead>
<tr>
<th>Condition</th>
<th>Choice (0–5)</th>
<th>Peripheral recall (0–5)</th>
<th>Focal recall (0–5)</th>
<th>Decision time (s)</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fear</td>
<td>4.16 a</td>
<td>0.35 a</td>
<td>3.19 a</td>
<td>20.57</td>
<td>43</td>
</tr>
<tr>
<td>Anger</td>
<td>3.24 b</td>
<td>1.10 b</td>
<td>2.19 b</td>
<td>17.55</td>
<td>42</td>
</tr>
<tr>
<td>Disgust</td>
<td>3.10 b</td>
<td>1.10 b</td>
<td>1.93 b</td>
<td>17.59</td>
<td>42</td>
</tr>
<tr>
<td>Sadness</td>
<td>3.21 b</td>
<td>1.19 b</td>
<td>2.43 b</td>
<td>18.23</td>
<td>42</td>
</tr>
<tr>
<td>Uncertainty</td>
<td>2.85 b</td>
<td>1.12 b</td>
<td>2.17 b</td>
<td>18.18</td>
<td>41</td>
</tr>
<tr>
<td>Neutral</td>
<td>3.34 b</td>
<td>1.24 b</td>
<td>2.44 b</td>
<td>20.61</td>
<td>41</td>
</tr>
</tbody>
</table>

**NOTE.**—Means (within each column) with differing subscripts are significantly different at the p < .01 level.
front of them that is not choice related. This narrowing of attention, in combination with the negatively biased evaluations of the future, then leads to stronger attitudes toward the products, which should therefore increase choice (reduce deferral).

To test this serial mediation pattern, we used PROCESS 2.13 (Hayes 2013), model 6, with 10,000 bootstrapped samples and a 95% confidence interval. First, to account for both types of measured recall (peripheral and focal), we created an overall attention measure by subtracting attention to peripheral information from attention to focal information; larger numbers indicate a greater focus on task-relevant information. This attention measure is the proximal mediator, while attitude for the overall choice set is the distal mediator. The indirect effect of fear on choice, through the two mediators of attention and overall attitude, was significant (.0370, 95% CI .0012, .1148) as the confidence interval does not contain zero. Further, the total indirect effect (the sum of all separate indirect effects) is .3891, and is significant, as the bootstrap confidence interval does not contain zero (.1814, .5522). As PROCESS cannot compute a multicategorical X variable, this mediation is comparing the fear condition (coded as 1) to all others (coded as 0), and all other emotion conditions are included as statistical controls (Hayes and Preacher 2014); these results hold for all pairwise comparisons (e.g., fear = 1, anger = 0), and no other emotion condition has a significant mediation through attention and attitude on choice. Our proposed mediational process is thus supported (see table 4 for full mediation output).

**Discussion**. Consistent with the previous studies, study 3 demonstrates that incidental fear increases choice compared to other negative emotions—including the action-oriented emotion of anger. Importantly, we find these results in more realistic choice scenarios, as well as when using a different emotion manipulation, increasing the generalizability of the first two experiments. Even more critically, study 3 provides initial support for the process through which we propose the effects of incidental fear on choice occur. In particular, we demonstrate a pattern of results that is consistent with our theory wherein fear narrows attention to the task at hand, which then increases attitude for the choice set, and ultimately leads to choice. Compared to participants in the other conditions, participants experiencing incidental fear displayed significantly worse recall for information that was peripheral to the choice task along with higher recall for focal task information, and this recall then increased attitude for the choice set, ultimately mediating the effect of incidental fear on choice.

### STUDY 4: FEAR IMPACTS REAL CHOICE

While the previous three experiments have provided consistent support for our theory about the impact of incidental fear on choice and deferral, all of the choices were hypothetical. Study 4 tests the strength of the effect by using a real choice. Contrasting fear with sadness and a neutral control condition, we examined the effect of incidental fear on real snack choices. We compared fear to sadness in particular in order to provide a stronger test of our theory, as sadness shares an uncertain appraisal tendency and has also been linked with increased hedonic consumption; therefore, it might be expected to increase choice for snacks (Garg, Wansink, and Inman 2007). As in study 3, we also collected measures of attention—memory for peripheral and focal information—as well as measures of attitude toward the choice alternatives in order to provide additional support for our proposed process.

**Method**

**Participants**. One hundred eleven individuals (42.3% female; $M_{age} = 28.95$) from Arizona State University participated in this study during class.

**Design and Procedure**. This study was a three-emotion (fear, sadness, neutral control) between-subjects design.

---

**TABLE 4**

<table>
<thead>
<tr>
<th>Antecedent</th>
<th>Y (Choice)</th>
<th>M2 (Attitude)</th>
<th>M1 (Attention)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Coeff.</td>
<td>SE</td>
<td>$t$</td>
</tr>
<tr>
<td>X (Fear)</td>
<td>0.747</td>
<td>0.2682</td>
<td>2.875</td>
</tr>
<tr>
<td>M1 (Attention)</td>
<td>— — — — — — — —</td>
<td>0.5591</td>
<td>0.1917</td>
</tr>
<tr>
<td>M2 (Attitude)</td>
<td>— — — — — — — —</td>
<td>0.0865</td>
<td>0.0450</td>
</tr>
<tr>
<td>Constant</td>
<td>2.439</td>
<td>0.1919</td>
<td>12.709 &lt; .0001</td>
</tr>
<tr>
<td>Model summary</td>
<td>— — — — — — — —</td>
<td>3.4143</td>
<td>0.1740</td>
</tr>
<tr>
<td></td>
<td>$R^2 = 0.0975$</td>
<td>— — — — — — — —</td>
<td>$R^2 = 0.1065$</td>
</tr>
<tr>
<td></td>
<td>$F(5, 245) = 5.2966, p = .0001$</td>
<td>— — — — — — — —</td>
<td>$F(6, 244) = 4.8454, p &lt; .0001$</td>
</tr>
</tbody>
</table>

**NOTE**.—This mediation is for fear versus all other emotion conditions. The other emotion conditions were included as statistical controls, which explain the degrees of freedom across the three regressions.
Participants were told that they were participating in a study, and that they could choose a snack as a thank you for their participation. In the “study,” participants were told that researchers were interested in the way individuals recall life events, and that they would be asked to recall and describe a personal event—the same emotion manipulation as in study 3. In the “reward” portion, participants were able to select a snack as a thank you—but only three snacks were currently available, while another two would be brought at the end of the class session (approximately 90 minutes later). This served as our measure of choice (vs. deferral). Finally, at the end of class, participants completed a follow-up questionnaire, which collected measures of attention and attitude.

Emotion Manipulation. In the first part of the study, participants were randomly assigned to the fear, sadness, or neutral condition. This was the same writing task used in study 3.

Choice. After completing the emotion manipulation, participants saw a table describing five attractive snack options (A, B, C, D, and E). This was a modified version of the choice deferral task created by Gunasti and Ross (2008). Specifically, the snacks were rated on three dimensions—salty, sweet, and overall rating—where three of the snacks (labeled A, B, and C) displayed full evaluation information, but the final products (D and E) had no information. Participants were told “As a thank you for completing this study, we have a snack for you. There are 3 snacks available now (A, B, and C), and 2 other snacks that will be available at the end of class (D and E). Please indicate which snack you want by circling the option below.”

Participants could select a product from the choice set by indicating whether they wanted snack A, B, or C, or select one of two deferred options outside of the set by indicating either “I want to wait to get more information about options D and E at the end of class,” or “I don’t want any snacks right now.” Responses were coded such that participants received a score of 1 for choosing snacks A, B, or C, and a score of 0 if they selected one of the deferral options.

Mediating Variables: Peripheral Information. Around the snack choice table were six symbols (Wingdings). Recognition of the symbols served as our measure of peripheral attention. At the end of the class period, when the two other snack options were brought in, all participants filled out a follow-up survey where they were asked about the symbols that appeared on the original survey from a matrix of 20 symbols. Specifically, participants read: “Think back to the survey at the start of today’s class. There were six symbols around the snack choices matrix. Please select the symbols that you remember seeing. (If you cannot remember seeing any symbols, don’t choose anything.)” This served as our measure of memory for peripheral information, and was coded as 1 for a correct identification; the measure could range from 0 to 6.

Mediating Variables: Focal Information. Along with identifying the peripheral symbols, participants were also asked to recall information about the snacks themselves. Specifically, participants were presented with the same snack matrix as at the start of class, but with all rating information missing. Participants were then asked to fill in the matrix by answering multiple-choice questions about the ratings for snacks A, B, and C (e.g., “What was the salty rating for Snack A?” (a) 2, (b) 3, (c) 4, (d) 5). (e) 6, (f) 7). This served as our measure of memory for focal information, and was coded as 1 for a correct identification; the measure could range from 0 to 9.

Mediating Variables: Attitude. To assess attitude toward the options in the choice set, we measured participants’ willingness to buy each snack on a seven-point scale (1 = “not at all likely” to 7 = “extremely likely”). Specifically, we asked participants to rate all three snacks that were available at the start of class, and we averaged ratings across these three options to create a composite likelihood-to-buy score (α = .83).

Alternative Mechanism: Timing. Finally, because participants completed this study on computers, we were able to collect the same type of timing data as in study 3. Specifically, we measured the amount of time each participant took to make a snack selection.

Covariates. On the first page of the survey, participants indicated their current hunger level on a scale from 1 (“Not at all Hungry”) to 7 (“Extremely Hungry”). Participants also indicated their class section (as the study was run across two sections), age, and gender.

Results and Discussion

We expected that participants in the incidental fear condition would be more likely to make a choice than participants in the neutral or sadness conditions. A logistic regression was run on choice, with the fear and sadness conditions as predictors. Consistent with our theory, there was a significant effect of the fear condition on choice (b = 1.38, Wald χ²(1) = 7.602, p = .006). Specifically, participants in the fear condition were nearly four times more likely to make a choice (exp(b) = 3.96; see figure 4). There was no significant effect of the sadness condition on choice (b = −.11, Wald χ²(1) = .057, p > .8). Importantly, this result holds even when we include current hunger as a covariate (b = .23, Wald χ²(1) = 3.591, p = .058); fear still significantly increased choice (b = 1.57, Wald χ²(1) = 8.979, p = .003), while sadness did not (p > .85).

To assess attention to peripheral information, a one-way ANOVA was run on the number of symbols participants correctly remembered, revealing a significant main effect...
of emotion ($F(2, 108) = 14.093, p < .001$) on memory, as predicted. Participants in the fear condition ($M = .73$) remembered significantly fewer symbols than individuals in the sad ($M = 2.22$; $F(1, 108) = 13.921, p < .001$) or neutral conditions ($M = 1.73$; $F(1, 108) = 11.486, p = .001$). The difference in memory for peripheral information between the sad and neutral conditions was marginal ($F(1, 108) = 2.908, p = .091$).

To assess attention to focal information, a one-way ANOVA was run on the snack attribute recall, revealing a significant main effect of emotion ($F(2, 108) = 4.087, p = .019$) on memory, as predicted. Participants in the fear condition ($M = 5.41$) remembered significantly more information about the snacks than individuals in the sad ($M = 4.35$; $F(1, 108) = 4.777, p = .031$) or neutral conditions ($M = 4.11$; $F(1, 108) = 7.302, p = .008$). There was no difference between the sad and neutral conditions ($p > .6$).

To examine the distal mediator of attitude, a one-way ANOVA was run on the average willingness to purchase, revealing a significant main effect of emotion ($F(2, 108) = 6.933, p = .001$) on attitudes, as predicted. Participants in the fear condition ($M = 4.58$) had a significantly stronger attitude toward the snack options than individuals in the sad ($M = 3.61$; $F(1, 108) = 11.513, p = .001$) or neutral conditions ($M = 3.70$; $F(1, 108) = 9.221, p = .003$). There was no difference between the sad and neutral conditions ($p > .75$). Importantly, this effect is not driven only by the chosen alternative; if we include only the attitudes toward the unchosen options, the main effect of emotion remains significant ($F(2, 108) = 4.996, p < .01$), whereby individuals in the fear condition had significantly stronger attitudes toward even the unchosen options ($M = 4.01$) than those in the sad ($M = 3.00$; $F(1, 108) = 6.876, p < .01$) or neutral conditions ($M = 2.88$; $F(1, 108) = 7.302, p < .01$).

Finally, to investigate the alternative process account, a one-way ANOVA was run on the time participants took to make a snack choice. There was no significant effect of emotion condition on time taken ($F(2, 108) = .155, p = .857$).

**Serial Mediation.** We propose that experiencing fear leads to a tunnel vision effect, such that attention is narrowed to the choice set in front of the individual. This narrowing should result in decreased recall of peripheral information (and greater recall of focal information) among participants feeling fear as they focus more on the choice set and pay less attention to other information in front of them that is not choice related. This narrowing of attention, in combination with the negatively biased evaluations of the future, then leads to stronger attitudes toward the products, which should therefore increase choice (reduce deferral).
To test this serial mediation pattern, we used PROCESS 2.13 (Hayes 2013), model 6, with 10,000 bootstrapped samples and a 95% confidence interval. As in study 3, we created an overall attention measure by subtracting attention to peripheral information from attention to focal information; larger numbers indicate a greater focus on task-relevant information. This attention measure is the proximal mediator, while the average willingness to purchase the snacks is the distal mediator. As PROCESS cannot be used with a multicategorical predictor, we ran two separate mediation models—one with fear as the predictor and one with sadness as the predictor. We included the other emotion condition, as well as participants’ current hunger level, as statistical controls; results are qualitatively the same if these are excluded.

The indirect effect of fear on choice, through the two mediators of attention and overall attitude, was significant (.0906, 95% CI .0078, .2707), as the confidence interval does not contain zero. Further, the total indirect effect is .1354 and is significant, as the bootstrap confidence interval does not contain zero (.0912, 0.1005). Thus, our proposed mediation is supported (see table 5). The mediation model for sadness was not significant (−.0134; 95% CI −.1054, .0533).

**Discussion.** Study 4 finds the proposed effect of incidental fear increasing consequential choices, and replicates evidence of mediation through attention and attitude. Specifically, we found that individuals in the fear condition recalled fewer choice-irrelevant pieces of peripheral information, but more pieces of task-relevant (focal) information, suggesting that they were more focused on the snack information. This reduced attention to peripheral information then increased attitude toward the snacks, which ultimately mediated the effect of fear on choice, consistent with our proposed mediational process. This study replicates our earlier results, but extends them to a consequential choice (a snack that most students promptly ate) and examines memory after a delay of about 90 minutes.

### STUDY 5: OUT OF STOCK BUT STILL IN CHOICE SET

In study 5 we examine the effect of incidental fear on choice, but when information about the deferred option is available in the current choice set. In all of the previous experiments, no information was included about the deferral options. Participants delayed their choice by waiting “to get more information about options D and E” or “to search for other options.” In other words, the choice implied that other options existed, but no information about these unknown options was provided in the current choice set. Thus, in study 5, we consider how the impact of incidental fear on choice might change if the deferred option in the choice set is temporarilly unavailable (out of stock, or OOS), but product information about the option is nevertheless included in the present choice set.

Applying this reasoning to out-of-stock options, if a desirable product is included (i.e., all of the attribute information is provided) in the present choice set but is temporarily out of stock, attitudes toward the OOS option should still become more favorable as a result of the increased attention triggered by fear. This means that consumers may be just as likely to choose the OOS option as the other (available) options, thereby increasing the likelihood of deferral by increasing the probability that the OOS option (a deferral option) will be chosen. However, in cases where no information is given about the OOS option (as in our previous studies), the increased attention to the present triggered by incidental fear should not increase attitudes for the OOS option, and deferral is less likely. Thus, by looking at how choice of the OOS option shifts depending on whether the OOS product information is presently available, we provide a strong test of the proposed underlying process of increased attention and enhanced attitudes. Specifically, we are able to show that the heightened attention to the present context prompted by incidental fear increases choice of OOS options for which information is

<table>
<thead>
<tr>
<th>Antecedent</th>
<th>M1 (Attention)</th>
<th>M2 (Attitude)</th>
<th>Y (Choice)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Coeff.</td>
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<td>t</td>
</tr>
<tr>
<td>X (Fear)</td>
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<td>0.5133</td>
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<tr>
<td>M2 (Attention)</td>
<td>—</td>
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<td>—</td>
</tr>
<tr>
<td>Control (Hunger)</td>
<td>−0.1176</td>
<td>0.1185</td>
<td>−0.9927</td>
</tr>
<tr>
<td>Control (Sad dummy)</td>
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<td>0.5095</td>
<td>−0.6747</td>
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<tr>
<td>Constant</td>
<td>2.8297</td>
<td>0.5785</td>
<td>4.8913</td>
</tr>
<tr>
<td>Model summary</td>
<td>R² = 0.2356</td>
<td>R² = 0.3394</td>
<td>Cox and Snell R² = 0.2042</td>
</tr>
<tr>
<td></td>
<td>F(3, 106) = 10.8907, p &lt; .0001</td>
<td>F(4, 105) = 13.4887, p &lt; .0001</td>
<td>−2 Log likelihood = 127.3658</td>
</tr>
</tbody>
</table>

*NOTE.—The sample size is 111, but six observations were dropped due to missing data.*
presently provided, but does not when such information is unavailable. Moreover, the shift in choice of the OOS option is specific to fear and does not occur for other emotions (e.g., anger). We also measure both of our proposed serial mediators: attention and attitude.

Method

Participants. Two hundred fifty-nine individuals (54.3% female; $M_{	ext{age}}=21.49$) from Arizona State University participated in this study for course credit.

Design and Procedure. This study was a two-emotion (fear, anger) by three-choice set (full information, full information OOS, partial information OOS) between-subjects design. Participants were told that they would participate in two separate studies. In the first study, participants were told that researchers were interested in the way individuals recall life events, and that they would recall and describe a personal event, as in studies 3 and 4: our emotion manipulation. In the second task, participants were told that researchers were interested in how people make choices online, and that they would be presented with a series of product choices, as in study 3. This included our manipulation of choice set.

Emotion Manipulation. In the first part of the study, participants were randomly assigned to either the fear or anger emotion condition, manipulated with the same writing task from studies 3 and 4 (Strack et al. 1985).

Choice Sets. Immediately following the emotion manipulation, participants were told that they would complete several decision-making tasks for a separate study. This was a version of the choice deferral task created by Gunasti and Ross (2008), similar to the one used in study 3. Specifically, participants were presented with a series of five choice sets, each displaying four products that varied along five evaluation dimensions (see appendix D). Each set presented a type of product evaluated along various dimensions, including price. In each choice set, three of the products (labeled A, B, and C) displayed evaluation information for all three dimensions as in study 3, but the final product (D) varied across the three conditions.

Specifically, in the full-information condition, participants were presented with information about all four equally desirable options (including D), across all five evaluation dimensions. Thus, in the full-information condition, choosing any one of the four products (options A, B, C, or D) would be considered a choice. In the full-information OOS condition, participants saw the same product table as in the full-information condition—complete information about all four products—but there was a label across option D that read “Sold Out.” Thus, in the full-information OOS condition, if participants chose option D, they would be deferring choice because it was currently unavailable (and the choice option read: “Wait for Option D to become available”). Finally, in the partial-information OOS condition, participants saw product information only about options A, B, and C; option D was indicated in the table, but its information was grayed out, and the “Sold Out” label was present. Thus, the partial-information OOS condition mirrors our previous choice sets, such that option D is unknown to the participants—the only difference here is that the “Sold Out” label is presented as well.

Participants could select a product from the choice set by indicating whether they preferred product A, B, or C, or select one of three deferred options outside of the choice set by indicating either “Wait for Option D to become available,” “Search for other options on Amazon,” or “Go to a different website to search for options.” Responses were coded such that participants received a score of 1 every time they made a choice, and a score of 0 when they selected a deferral option. Note that in the full-information condition, option D was presented as a regular choice alongside options A, B, and C (“Choose Option D”); thus, the deferral options were only to search for other options (either on Amazon or on another site). Responses were aggregated across the five choice sets and ranged from 0 (always deferred) to 5 (always chose).

Mediating Variables. After participants indicated their choices or deferrals, we also gathered information about our proposed mediating variables. Participants first indicated their self-reported attention to the product information (four items): “I paid close attention to the product information,” “I was very focused on the product information,” “I ignored everything unrelated to the products in the table,” and “I only looked at the product information.” As in the prior studies, we also collected recall of the banner ads, using five questions, coded as 1 for correct memory of the banner ad information and 0 otherwise. Finally, participants indicated their attitudes for the choice sets (three items; $\alpha = .79$): “The products I saw were better than I expected,” “The product selection was better than expected,” and “I was happy with the products presented.”

Results and Discussion

A two-way ANOVA with emotion and choice set as predictors of the total number of choices made demonstrated significant main effects of both emotion ($F(1, 253) = 19.775, p < .001$) and choice set ($F(2, 253) = 6.085, p < .005$). As predicted, these effects were subsumed within a significant interaction of emotion and choice set ($F(2, 253) = 10.181, p < .001$; see figure 5). Follow-up analyses showed that, in the partial-information OOS condition, those in the fear condition ($M = 3.84$) chose more and deferred less than those experiencing anger ($M = 2.60$; $F(1, 253) = 23.739, p < .001$), replicating our prior results. In the full-information condition, those experiencing fear ($M = 3.83$) also chose more and deferred less than those
experiencing anger \((M = 2.82; F(1, 253) = 15.350, p < .001)\). However, in the full-information OOS condition—where option D was presented within the table but was a “deferral” option due to its current unavailability—individuals experiencing fear \((M = 2.60)\) were equally likely to defer as those experiencing anger \((M = 2.87; F(1, 253) = 1.160, p > .25)\).

There was a significant main effect of emotion \((F(1, 253) = 11.853, p < .001)\) on recall of the information in the banner ads; no other effects were significant. Participants in the fear condition \((M = .76)\) recalled significantly fewer pieces of information from the peripheral ads than did individuals in the anger condition \((M = 1.11)\). Similarly, on the four-item self-reported attention questions \((\alpha = .74)\), there was a significant main effect of emotion condition \((F(1, 253) = 91.003, p < .001)\); no other effects were significant. Participants in the fear condition \((M = 3.73)\) reported paying significantly more attention to the products—to the exclusion of other information—than did individuals in the anger condition \((M = 2.64)\). Finally, there was a significant main effect of emotion on attitudes toward the choice sets \((F(1, 253) = 18.791, p < .001)\); no other effects were significant. Participants in the fear condition had higher attitudes for the product options \((M = 3.03)\) than did participants in the anger condition \((M = 2.54)\).

**Serial Mediation.** We propose that experiencing fear leads to a tunnel vision effect, such that attention is narrowed to the choice set in front of the individual. This narrowing of attention, in combination with the negatively biased evaluations of the future, then leads to higher attitudes toward the products, which should therefore increase choice (and reduce deferral). To test this serial mediation pattern, we used PROCESS 2.13 (Hayes 2013), model 6, with 10,000 bootstrapped samples and a 95% confidence interval. Specifically, we dummy-coded the interaction of emotion and choice set as our predictor variable, such that fear and partial information OOS was 1, and the others were coded as 0. We dummy-coded the interaction because tests of serial mediation within PROCESS cannot have moderation along the serial path (Hayes 2013), and thus coding the interaction incorporates the moderation. For the serial mediation, we included self-reported attention as the proximal mediator, overall attitude as the distal mediator, and choice as the outcome variable. The indirect effect of the interaction on choice, through the two mediators of attention and overall attitude, was significant \((.0971, 95\% \text{ CI} \,.0466, .1805)\), as the confidence interval does not contain zero. Further, the total indirect effect is .9339 and is significant, as the bootstrap confidence interval does not contain zero \((.5305, 1.3374)\). Note that if we use the recall of peripheral information as the proximal mediator, we obtain qualitatively similar results, with the serial mediation marginally significant at the 90% level. Thus, our proposed mediation path is supported (see table 6).

**Discussion.** The results of study 5 replicate and expand on the earlier results, showing that fear does not lead to...
increased choice when information about the deferred option is presently included in the choice set. When the choice set was similar to our previous studies and information about option D was not included, incidental fear increased choice relative to another incidental emotion (anger). Importantly, when information about option D was included—but the product was temporarily unavailable, and thus represented a deferral option—incidental fear did not reduce deferral. A post-hoc analysis of “choosing option D” helps elucidate why we observe this mitigated effect; fearful participants were significantly less likely to choose option D when information was not included in the present choice set ($M = .07$), but increased their choice of D when information was included, regardless of product availability ($M_{OOS} = 1.17$ vs. $M_{in-stock} = 1.14$; $F(1, 253) = .864, p > .8$). Thus, as our theory predicts, in addition to holding negative expectations for things outside of the current environment, individuals in the incidental fear condition were increasingly focused on the present choice set (and the included product information for all options), which made their attitudes toward all options in the present choice set more favorable, regardless of availability.

The proposed process is further supported through the serial mediation analysis. Specifically, we found that fearful participants paid significantly more attention to the product tables, which led to more positive evaluations of the products themselves, ultimately leading to higher overall choice, as long as information about the deferred option was not included in the choice set. As mentioned above, in cases where information about the deferred, out-of-stock option (option D) was included, fear did not have a significant impact on deferral rates.

### Study 6: Trait Fear Influences Choice

In study 6 we sought to expand our investigation from incidentally manipulated emotions to trait affect, thereby providing convergent evidence for our proposed theory. Trait emotions assess baseline differences in state affect that individuals experience; someone high in trait fear, for example, is more likely to be actually experiencing fear at any given moment (Lerner and Keltner 2000). Past research has found that trait and state fear can lead to similar downstream consequences. For instance, White et al. (2012) demonstrated that both trait and state fear produced similar changes in attitudes and cognition. Following this logic, if incidental fear—fear unrelated to the task at hand—is responsible for increased choice, then consumers who experience fear more generally should be more likely to make a choice and less likely to defer at any given moment for any given decision. Following the procedure from Lerner and Keltner (2000), we collected measures of trait fear and trait anger, and predict that individuals with higher levels of dispositional fear should make more choices (show less deferral) on average than individuals with higher levels of dispositional anger, even though dispositional anger may be associated with a generalized action orientation and approach tendencies. As in previous studies, we also collected measures of our two serial mediators: attention and attitudes.

#### Method

**Participants.** Two hundred forty-two individuals (52.9% female; $M_{age} = 21.55$) from Arizona State University participated in this study for course credit.

**Design and Procedure.** This study was a two-emotion (fear, anger) within-subjects design. Participants were told that they would participate in two separate studies. The first study was presented as a “Student Wellness Questionnaire” that would help researchers understand typical college students’ daily “concerns, emotions, and experiences.” This survey contained the measures of dispositional fear and anger. In the second task, participants were told that researchers were interested in how

<table>
<thead>
<tr>
<th>Antecedent</th>
<th>Coeff.</th>
<th>SE</th>
<th>t</th>
<th>p</th>
<th>Coeff.</th>
<th>SE</th>
<th>t</th>
<th>p</th>
<th>Coeff.</th>
<th>SE</th>
<th>t</th>
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</thead>
<tbody>
<tr>
<td>X (Fear*Partial Information OOS)</td>
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<td>—</td>
<td>—</td>
<td>—</td>
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<td>0.0549</td>
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<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>M2 (Attention)</td>
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<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>0.5693</td>
<td>0.0773</td>
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</tr>
<tr>
<td>Constant</td>
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<td>&lt; 0.0001</td>
<td>1.912</td>
<td>0.1791</td>
<td>10.678</td>
<td>&lt; 0.0001</td>
<td>1.3006</td>
<td>0.2664</td>
<td>4.8822</td>
<td>&lt; 0.0001</td>
</tr>
<tr>
<td>Model summary</td>
<td>$R^2 = 0.0544$</td>
<td>$R^2 = 0.1071$</td>
<td>$R^2 = 0.2519$</td>
<td>$F(1, 257) = 14.7903, p = .0002$</td>
<td></td>
<td>$F(2, 256) = 15.3481, p &lt; .0001$</td>
<td></td>
<td>$F(3, 255) = 28.6253, p &lt; .0001$</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
people make choices online, and that they would be presented with a series of product choices, as in study 3. This served as our measure of choice (deferral) as well as the context to measure the mediating variables of attention and attitude.

**Measures of Dispositional Fear and Anger.** Participants completed two measures that assess dispositional fear. First was the 21-item Fear Survey Schedule-II, which captures the degree of fear participants feel regarding 21 specific situations or objects (e.g., hypodermic needles, spiders; Bernstein and Allen 1969). This survey is assessed on a scale from 0 (none) to 4 (terror). Second, participants responded to Spielberger’s (1983) 20-item trait anxiety scale, which measures the frequency with which participants feel anxious on a scale from 1 (almost never) to 4 (almost always). The correlation between these two scales was high ($r = .29$, $t(242) = 4.705$, $p < .001$), so we created a composite score by combining the two scales.

Participants also completed a measure of trait anger, taken from the Aggression Questionnaire (Buss and Perry 1992). Specifically, participants filled out the seven-item Anger subscale by indicating how characteristic each statement was of themselves, on a scale from 1 (extremely uncharacteristic) to 5 (extremely characteristic).

**Choice.** Immediately following the trait measures, participants completed several decision-making tasks for a “separate” study. As in the previous studies, the dependent measure was a modified version of the choice deferral task created by Gunasti and Ross (2008). Participants were presented with the five Amazon choice sets, each displaying four products that varied along five evaluation dimensions. Specifically, participants were presented with the “partial information—out-of-stock” Amazon choice set from study 5, such that they had full information about options A, B, and C, but option D was unknown and currently “sold out.”

Participants could select a product from the choice set (A, B, or C) or select one of three deferred options outside of the choice set (“Wait for Option D to become available,” “Search for other options on Amazon,” or “Go to a different website to search for options”). Responses were coded such that participants received a score of 1 every time they made a choice, and a score of 0 each time they selected one of the deferral options. Responses were aggregated across the five choice sets and could range from 0 (always deferred) to 5 (always chose).

**Mediating Variables.** In study 6, after participants indicated their choices or deferrals, we also gathered information about our proposed mediating variables. Participants first indicated their self-reported attention to the product information on the same four items as in study 5 ($\alpha = .75$). As in the prior studies, we also collected recall of the banner ads, using five memory questions, coded as 1 for correct information and 0 otherwise. Finally, participants were asked their attitudes toward the choice sets on the same three items as in study 5 ($\alpha = .79$).

**Results and Discussion**

**Preliminary Analysis.** We analyzed the association between the two emotion dispositions. Consistent with the shared valence between anger and fear, a significant correlation emerged ($r = .40$, $t(242) = 6.764$, $p < .001$). To accommodate this, both dispositional fear and anger are simultaneously entered into the regression predicting choice (Lerner and Keltner 2000).

**Inferential Analyses.** To determine the effects of dispositional fear and dispositional anger on choice, we entered both trait emotions into a regression with choice as the outcome measure. Dispositional fear was positively related to choice ($b = .14$, $t(239) = 2.161$, $p < .05$), and dispositional anger was negatively, but not significantly ($b = -.07$, $t(239) = -.785$, $p > .4$), related to choice, as shown in figure 6. This result replicates our earlier results; the higher individuals were on trait fear, the more choices (fewer deferrals) they made.

There was no significant effect of trait fear ($t(242) = .836$, $p > .4$) or trait anger ($t(242) = 1.411$, $p > .15$) on memory for the information in the banner ads. However, on the four-item self-reported attention questions, there was a significant effect of dispositional fear ($b = .03$, $t(239) = 3.138$, $p < .005$). Finally, there was a significant effect of trait fear on attitudes for the overall choice sets ($b = .01$, $t(239) = 2.559$, $p < .01$); no other effects were significant.

**Serial Mediation.** As described above, we propose that experiencing fear leads to a tunnel vision effect, such that attention is narrowed to the choice set in front of the individual. This narrowing of attention then leads to higher attitudes toward the products, which should therefore increase choice (and reduce deferral). To test this serial mediation pattern, we used PROCESS 2.13 (Hayes 2013), model 6, with 10,000 bootstrapped samples and a 95% confidence interval. Specifically, we used the dispositional fear score as the predictor variable, but included dispositional anger as a covariate due to the correlation between dispositional fear and anger (note that excluding anger as a control variable does not qualitatively change the results). For the serial mediation, we included self-reported attention as the proximal mediator, overall attitude as the distal mediator, and choice as the outcome variable. The indirect effect of trait fear on choice, through the two mediators of attention and attitude, was significant (.0021, 95% CI .0007, .0055), as the confidence interval does not contain zero. Further, the total indirect effect is .1160 and is significant, as the bootstrap confidence interval does not contain zero (.0239, .3315). Thus, our proposed mediation path is supported (see table 7).
**Discussion.** Following Lerner and Keltner (2000) to assess the impact of trait-level emotions on decisions, study 6 replicated our earlier results using trait fear and trait anger. Consistent with our theory, dispositional fear predicted a greater number of choices, while dispositional anger was negatively (but not significantly) related to choice. This suggests that these stable (Helson and Klohnen 1998) and neurologically determined (Davidson, Jackson, and Kalin 2000) tendencies can influence even simple choice tasks. Further, study 6 replicated our proposed serial mediation, such that dispositional fear led to greater attention to the product information, which then led to more positive attitudes toward the attractive choice-set options, which ultimately led to greater choice.

Importantly, while trait anger is correlated with trait fear, the serial mediation holds when controlling for trait anger.

**GENERAL DISCUSSION**

The functional approach to emotion emphasizes a suite of responses that are triggered by particular emotion states and has found that fear heightens attention to the present, makes the future seem more negative, and prompts individuals to take action. Together, these coordinated responses suggest that incidental fear should increase choice and reduce deferral by increasing attention and liking in the present, while propelling consumers to take action. Across six studies, we found consistent support for this central
hypothesis and showed that the responses work together in combination to decrease deferral. Study 1 used traditional deferral choice sets and compared fear with four other incidental emotions (disgust, sadness, hope, pride), finding that participants in the incidental fear condition chose significantly more and deferred less than those in all other conditions. Notably, emotions similar to fear on individual appraisal dimensions, but lacking the full suite of fear responses, did not result in increased choice.

In study 2, we explored a boundary condition on the relationship between incidental fear and consumer choice and provided initial support for the proposed theory by examining choices framed in the present versus the future. Since fear increases attention to the present and negative expectations about the future, we expected and found that fear led to increased choice only for decisions made in the present. Study 2 shows that participants in the present fear condition chose more and deferred less than those in the general uncertainty and control conditions. The impact of incidental fear for future choices, however, was not significant.

Using a different manipulation of emotions and more realistic choice sets, in study 3, we showed that individuals in the fear condition made more choices (deferred less) than participants in the anger, disgust, sadness, and control conditions. The divergence between fear and anger was particularly important, as it suggests that a readiness for action alone—which anger shares—is not enough to increase choice. Instead, the full set of responses associated with fear is necessary. Study 3 also demonstrated the mediational roles of attention (captured as memory for peripheral and focal information) and attitude toward the choice options on choice and deferral. As fear leads to tunnel vision, attention is higher for choice-related (vs. peripheral) information, which leads to heightened attitudes toward those options, and ultimately more choice.

Study 4 showed the strength of these effects on a real, consequential choice, while study 5 examined how the impact of incidental fear is moderated when product information about a deferred (out-of-stock) option is included in the choice set. Study 6 provided convergent evidence for our theory by demonstrating that individuals with high levels of trait fear (vs. trait anger), who experience fear more frequently, are also less likely to defer.

**Theoretical Contributions**

The present research contributes to the extant literatures on choice deferral in several ways. First, it documents a novel factor influencing consumer choice and deferral. Previous research has examined how the general negativity generated by decision difficulty affects deferral (Dhar and Simonson 2003; Gunasti and Ross Jr. 2008; Luce 1998; Novemsky et al. 2007). By focusing on fear, our research documents the role of a discrete negative emotion in consumer choice and deferral. Further, in contrast to research showing that general negativity increases deferral, our findings demonstrate that a discrete negative emotion, incidental fear, actually reduces deferral and increases choice. Prior work on affect and deferral has looked only at emotions arising from the decision itself—either its difficulty or the choice attributes (i.e., safety)—and has posited that deferral is a coping mechanism for the integral affect arising through choice (Luce 1998). In the present article, we show that a completely unrelated, incidental emotion can increase choice and reduce deferral.

We also extend the literature on discrete emotions to a novel consumer process: choice deferral. Although much research has examined how discrete emotions affect consumer choice more generally, participants in the typical study are rarely given the opportunity to delay or defer choice. Our results show that when participants are explicitly given the opportunity to defer, incidental fear actually increases the likelihood of consumers making a choice.

Our work also offers more support for the usefulness of the functional perspective, which emphasizes the coordinated suite of responses that specific emotions engender. Specifically, we demonstrate that there are three key aspects of fear that, together, lead to less deferral and greater choice: a narrowing of attention to the present, more positive attitudes toward desirable options in the current environment, and a readiness for action. Importantly, we offer evidence for this serial mediational process in several studies. Across multiple studies we contrast fear with other emotions that have similar components, such as uncertainty and hope (riskiness of outside options) and anger (readiness for action, higher attention). Despite matching on a variety of individual dimensions, we consistently find that only fear increases choice. This, combined with the serial mediation analyses, suggests that it is indeed the full suite of responses necessary for the downstream effects. From the functional perspective, appraisals are just one component of a larger, coordinated response to fear involving appraisals, perceptions, cognitions, evaluations, and behaviors. This more holistic consideration of discrete emotions links fear to biased expectations about the future, enhanced attention, and increased readiness for action—the combination of which increases the likelihood of making a choice from the current set of options. For example, without the readiness for action that is triggered by fear, we believe that the increased attention to and liking for the options in the choice set might not increase choice because consumers are not compelled to act in response to their cognitions. A fruitful area for future research may be identifying other circumstances in which the combination of functional responses leads to different predictions than those of individual appraisals. Generally speaking, adopting a functional approach to emotions can provide researchers with a more diverse set of reactions than the one-appraisal-at-a-time approach typical in the Appraisal
Tendency Framework literature. Broadening the perspective to a coordinated suite of responses not only provides a richer understanding of process, it also offers abundant directions for future research, as each component of the suite can be examined, both in isolation and in concert with its associated reactions.

Future Directions and Managerial Implications

Our results demonstrated that incidental fear increased choice and reduced deferral across a diverse set of products and services, ranging from pens and snacks to gym memberships and water bottles. As described above, we believe that fear has this broad effect because it increases attention on the present, leading to more favorable evaluations of products in the current choice set and lower evaluations of options outside of the choice set (e.g., any option to defer). Combining the functional account of emotions—which emphasizes a coordinated suite of responses triggered by an emotion—with the carry-over of incidental emotions in the ATF, we show that the reduction in deferral is driven by the coordinated set of reactions that are activated by fear, even when the emotion is incidental. By comparing fear with other emotions that have similar, singular appraisals, we demonstrate that all three responses (attention, attitude, and action) are necessary for the reduction in deferral to occur. An interesting question for future research is whether these three responses will always be synchronized (reducing deferral).

First, there is evidence that the final step (action) may not always occur with a fear experience. Research on acute fear states such as pain and conditioned fear responses has documented freezing behavior in both humans (Fendt and Fanselow 1999; McNish, Gewirtz, and Davis 1997) and rats (Bouton and Bolles 1980; Wallace and Rosen 2000). These fear-freezing models emphasize that acute fear states lead to protective behaviors, one of which can be the cessation of all discernable movement in order to “hide” from predators (Fanselow 1980; Fendt and Fanselow 1999). While a rat might freeze upon encountering a cat in order to avoid triggering the cat’s pounce (Fanselow 1980), even humans experiencing acute fear can express fear-freezing, such as those experiencing PTSD (Debiec, Bush, and LeDoux 2011). Based on this work, we would expect that an acute fear experience would disrupt our proposed process and could actually increase deferral, as individuals would specifically be biased against taking action. Future research could explore how the fear-freezing response that arises from acute fear moderates the process and results shown here.

Another possibility for future research would be to further examine the link between attention and attitude. We argue that the increase in attention will lead to strengthened attitudes, because as attention increases so too does the strength of association between an evaluation and the focal object (Roskos-Ewoldsen and Fazio 1992; Shapiro et al. 1997). Thus, the more an individual focuses on an object, the more available (stronger) its evaluation becomes. In the current set of studies, we examine choice objects that are all positively valenced; each option is at least reasonably good. Future research could examine how deferral would be impacted if the choice sets were among negatively valenced options, such as different medical procedures or life insurance options. In these types of situations, where the focal objects are negatively valenced, greater attention should make their evaluations more negative, and thus decrease the overall attractiveness of the options in the choice set. So while our process from attention to attitude would hold, it should reduce attitudes. Future research could examine what action the consumer would then take; it’s possible that continuing search to try to improve the choice set would become the preferred option, thereby increasing deferral.

Along with probing the synchronicity of the attention–attitude–action process, future research could examine the choice strategies adopted by participants in the fear conditions. The choice sets in the present article were specifically designed such that there is no “best” option, as has been the norm in deferral and choice difficulty research (Brehm 1956; Dhar 1997; Festinger 1964). However, there often are good-better-best options in choice sets, and there can be substantial variability in consumers’ ability to discern and choose the better options. Would participants in the fear conditions be able to make better decisions than those experiencing other emotions? Our results suggest that they might be able to make more optimal decisions, as we have documented that fearful participants devote more attention to focal elements of the choice task, are less distracted by peripheral information, and are not more likely to rush through the decision. Future research could explore this by changing the design of the choice sets, in order to determine whether fearful participants do make more optimal choices, and through what type of decision strategy. For instance, researchers could ask if fearful participants are able to integrate product attributes in a compensatory manner, or if they rely on noncompensatory decision rules by focusing attention on only one attribute at a time.

Considering the diverse strategies through which consumers make decisions may also prove fruitful for future research: do participants experiencing incidental fear fall prey to various decision biases documented in prior research? One relevant example researchers could examine is the status quo bias, whereby consumers prefer the current state of affairs or the default choice option (Kahneman, Knetsch, and Thaler 1991; Samuelson and Zeckhauser 1988). The status quo bias may be particularly anathema to individuals experiencing fear, because a preference for the status quo is a preference for inaction—which runs counter to the impetus for action that comes with a fear response. Another bias that follows similar
logic could be anchoring and adjustment (Tversky and Kahneman 1974); as fearful individuals have a higher drive toward action, perhaps they would adjust further from the anchor than individuals in other emotional states. However, it is possible that fearful individuals might prove more susceptible to the anchor, as their tunnel vision might increase the prominence of the anchor, making its effect stronger. Future research could examine these decision heuristics, and others, to consider how the three components of a fear response might influence the tendency to rely on these biases or not.

Beyond the theoretical implications and opportunities for future research, this set of findings has important managerial implications. While it may be unlikely that retailers and brands would try to induce incidental fear in consumers before they make a purchase (although subtle photographs and website backgrounds can be used in this manner; Mandel and Johnson 2002), our results do suggest that retailers might be better able to take advantage of macro-level fear-inducing events in order to improve their bottom line. Although a retailer might not know that a consumer had a narrow miss on the highway while driving to the mall, and that this incidental fear will increase her likelihood of making a purchase, retailers could use promotions or send reminders (e.g., an item that was “saved for later”) to consumers following macro-level events such as terrorist attacks (Lerner et al. 2003), natural disasters (Galea, Nandi, and Vlahov 2005), controversial or fraudulent elections (Daxecker 2012), disease outbreaks (Kinsman 2012), and more. Indeed, fear within the population can be sensitive to political policy changes, such as the general increase in fear (of nuclear war) in the months leading up to the Persian Gulf War (Poikolainen, Kanerva, and Lönnqvist 1998). American culture is increasingly described as one of fear, wherein public media and political actors engage in fearmongering to stoke generalized levels of fear in the population (Glassner 2010; Strauss 2016). Recent research has suggested that more than 60% of Americans are afraid or very afraid of government corruption; over 40% are afraid of a terrorist attack or of not having enough money for the future (Chapman University 2016). Evidence that these macro-level changes in overall fear can manifest in consumer choices is seen in some macroeconomic trends; greater fear among the populace has been attributed as one cause of inflation, which tracks a tendency to make purchases in the present (Friedman 1988; Hibbs 1979).

While there certainly are costs to increased macro-level fears (beyond the human toll that some of these events—e.g., terrorist attacks and natural disasters—may take), such as lower well-being and higher stress, marketers could note these moments of fear and strategically target consumers with options and promotions to productively use the tendency to make choices in the present. Study 6, which examines trait-level differences in the tendency to experience fear, further supports this perspective, as individuals who are more fear-prone were also less likely to defer, despite having experienced no specific fear trigger. Thus, while we might bemoan general trends toward a more fearful population (Glassner 2010), it may provide fruitful opportunities to increase sales.

**CONCLUSION**

We began this investigation by questioning the role of emotion in consumer choice deferral. Specifically, we documented that: (1) incidental fear increases choice and reduces deferral; (2) this relationship holds for choices that are presently available, but not for choices in the future; (3) the link between fear and choice is mediated by increased attention and attitudes to the present choice set along with an overarching desire to take action; (4) other incidental discrete emotions and individual appraisals do not affect general tendencies to defer in the same way; and (5) the relationship between fear and choice deferral holds for both state and trait fear. Taken together, these results show how fear can help marketers increase the likelihood that consumers make a choice, and thereby “close the sale.”

**DATA COLLECTION INFORMATION**

Studies 1 and 2 were designed together by the last three authors and were conducted with paid participants from Amazon’s Mechanical Turk; the data was initially analyzed by the last author. The first author subsequently reanalyzed the data for the first two experiments. Studies 3–6 were designed together by the first three authors; studies 3 and 4 were run in November 2016, study 5 in February 2016, and study 6 in March 2016. Studies 3, 5, and 6 were conducted in the ASU Marketing Department Behavioral Lab with participants from the Marketing Subject Pool under the direction of the third author, and the data was analyzed by the first author. Study 4 was conducted by two research assistants at Arizona State University during two classes held by the third author, and the data was analyzed by the first author.
APPENDIX A
STUDY 1 CHOICE TASK

<table>
<thead>
<tr>
<th></th>
<th>Precision</th>
<th>Physical Appearance</th>
<th>Durability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Watch A</td>
<td>6</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Watch B</td>
<td>5</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>Watch C</td>
<td>4</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td>Watch D</td>
<td>?</td>
<td>?</td>
<td>?</td>
</tr>
<tr>
<td>Watch E</td>
<td>?</td>
<td>?</td>
<td>?</td>
</tr>
</tbody>
</table>

Which option would you choose?

- A
- B
- C
- I would wait to get more information about options D and E
- I would go to a different store—that might have a better selection

APPENDIX B
STUDY 2 CHOICE TASK

<table>
<thead>
<tr>
<th>Health clubs</th>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Membership fee ($20-$50)</td>
<td>23</td>
<td>42</td>
<td>--</td>
</tr>
<tr>
<td>Variety of exercise machines (poor-excellent)</td>
<td>--</td>
<td>--</td>
<td>very good</td>
</tr>
<tr>
<td>Commute time to health club (5-25 min)</td>
<td>--</td>
<td>6</td>
<td>18</td>
</tr>
</tbody>
</table>

Which health club would you choose?

- A
- B
- C
- None of them
APPENDIX C
STUDY 3 CHOICE SETS

COMPARE HEADPHONES

COMPARE SUNGLASSES

COMPARE WATER BOTTLES

COMPARE PADFOLIOS

COMPARE Pedometers
REFERENCES


