All Negative Moods Are Not Equal: Motivational Influences of Anxiety and Sadness on Decision Making

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Affective states of the same valence may have distinct, yet predictable, influences on decision processes. Results from three experiments show that, in gambling decisions, as well as in job-selection decisions, sad individuals are biased in favor of high-risk/high-reward options, whereas anxious individuals are biased in favor of low-risk/low-reward options. We argue that these biases occur because anxiety and sadness convey distinct types of information to the decision-maker and prime different goals. While anxiety primes an implicit goal of uncertainty reduction, sadness primes an implicit goal of reward replacement. We offer that these motivational influences operate through an active process of feeling monitoring, whereby anxious or sad individuals think about the options and ask themselves, "What would I feel better about . . .?"

Common wisdom holds that one should abstain from making substantial resolutions unless one is cool and collected. Consider, however, the career moves that a recently cut-off employee has to investigate or the relocation decisions

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that newly divorced people often face. It is undeniable that, in spite of the common wisdom, many important decisions are made under emotionally taxing conditions. It is therefore essential to understand how people's affective states influence the way they make decisions.

Previous studies on the influence of affective states on decision processes have generally contrasted affective states of different valence, that is "positive" versus "negative" versus "neutral" (e.g., Arkes, Herren, & Isen, 1988; Conway & Giannopoulos, 1993; Isen & Geva, 1987; Wright & Bower, 1992). Implicit in these comparisons is the assumption that all positive moods, or all negative moods, are essentially equivalent.

We argue, however, that even affective states of the same valence can have distinct influences on decision making. This is because different positive affective states (e.g., pride vs cheerfulness), or different negative affective states (e.g., anger vs sadness), may activate different implicit goals. We derive this hypothesis from recent developments on the informative value of affective states (e.g., Pham, 1998; Schwarz, 1990) combined with an analysis of the cognitive determinants of affect (e.g., Lazarus, 1991; Roseman, Spindel, & Jose, 1990).

We test this hypothesis by contrasting decision making under anxiety versus under sadness. Negative affective states provide a more powerful test of our theorizing because they are more differentiated than their positive counterparts (e.g., Averill, 1980; Ellsworth & Smith, 1988). We focus on anxiety and sadness because they are among the most widespread forms of emotional distress (Bryant & Zillman, 1984; Levi, 1967; Selye, 1956). We predicted that in decisions involving trade-offs between risk and reward, anxiety would bias preferences toward low-risk/low-reward options, whereas sadness would bias preferences toward high-risk/high-reward options. In the pages to follow, we first briefly review previous research on negative affect and decision making. We then present our theoretical framework and report three controlled experiments testing our predictions.

NEGATIVE AFFECT AS COLOR, PROCESS INTERFERENCE, AND MOOD TO BE REPAIRED

Previous research suggests that negative affective states may influence decision making in three major ways. First, negative affect may shape people's decisions by coloring the *content* of their thoughts. It is well established that under negative mood people's perceptions, thoughts, and judgments are often distorted toward greater negativity—an effect known as mood congruency (e.g., Carson & Adams, 1980; Cunningham, 1988; Gorn, Goldberg, & Basu, 1993; Johnson & Tversky, 1983; Mayer, Gaschke, Braverman, & Evans, 1992; Wright & Bower, 1992). The primary explanation offered for this effect is that negative affective states may cue similarly valenced materials in memory, thereby tainting people's judgments (Bower, 1981; Isen, Shalker, Clark, & Karp, 1978).

Second, negative affective states may alter the *process* through which people

make decisions. It is widely held that negative affective states such as anxiety and sadness interfere with people's ability to process information (e.g., Ellis & Ashbrook, 1988; Eysenck, 1982). As a result, anxious or sad individuals are posited to process information less systematically in judgment and decision making (e.g., Conway & Giannopoulos, 1993; Sanbonmatsu & Kardes, 1988; Schwarz, Bless, & Bohner, 1991). The thesis that anxiety and sadness necessarily lead to less systematic processing has, however, been questioned (e.g., Edwards & Weary, 1993; Pham, 1996).

Third, negative affective states may influence decisions by shaping decision-makers' *motives*. A pervasive motivational shift observed under negative affect is a heightened concern for elevating or "repairing" one's mood (e.g., Morris & Reilly, 1987; Zillmann, 1988). It was found, for instance, that sad participants having to select a partner for a problem-solving task tended to choose partners with good interpersonal skills (e.g., "friendly") over partners with task-relevant skills (e.g., "usually does well on his exams"). These sad participants apparently sought the emotional reward associated with partners with better interpersonal skills (Forgas, 1991). A motivation to repair one's mood through "feel-good" prosocial behavior may also explain the increased tendency to help that is often observed under negative affect (e.g., Schaller & Cialdini, 1990).[1]

These three major types of accounts of potential influences of negative affect on decision making share a common thread. All focus on the consequences of feeling "bad" as opposed to feeling "good" or feeling "neutral." Distinctions among negative states (e.g., anger, anxiety, sadness) are largely ignored. We discuss below a different view of negative affect—a view that recognizes potential distinctions among negative affective states.

NEGATIVE AFFECT AS INFORMATION

One primary function of affect is to provide information (e.g., Frijda, 1986; Lazarus, 1991; Schwarz, 1990). A major kind of information conveyed by affective states and feelings is one of liking versus disliking. Schwarz and Clore (1988) proposed that in order to evaluate objects, people often ask themselves, "How do I feel about it?" Negative feelings are generally interpreted as disliking or dissatisfaction, whereas positive feelings are interpreted as liking or satisfaction (e.g., Gorn et al., 1993; Martin, Ward, Achee, & Wyer, 1993; Pham, 1998; Schwarz & Clore, 1983).

It appears, however, that the information conveyed by affective states may go beyond sheer liking or disliking. In one study (Gallagher & Clore, 1985), angry and fearful participants were asked to make judgments about the blameworthiness of a person and about the likelihood of negative life events. While angry participants reported higher assessments of blame and lower assessment of risk, fearful participants reported the reverse. In a conceptually similar

[1] This statement does not mean that negative-mood individuals are more willing to help than positive-mood individuals. Both negative and positive moods have been found to increase helping compared to neutral moods (e.g., Manucia, Baumann, & Cialdini, 1984).

study, Keltner, Ellsworth, and Edwards (1993) observed that participants modeling behavioral expressions of anger (which is typically caused by another person) were more likely to believe that future negative events would be caused by human factors, whereas participants modeling sadness (which is generally caused by circumstances) tended to believe that these events would be caused by situational factors. Both studies uncovered distinct judgmental biases even though the targets were completely unrelated to the affect-inducing stimulus. These results strongly suggest that different negative affective states may convey different types of information.

The information conveyed by a particular affective state (e.g., anxiety or sadness) can be traced back to the meaning structure underlying the typical elicitation of that affect (Schwarz, 1990). According to cognitive theories of affect (e.g., Arnold, 1960; Lazarus, 1991; Roseman et al., 1990), affective or emotional responses are mediated by a cognitive appraisal of the affect-eliciting stimulus. That is, people do not emote in response to events per se, but to their appraisal-generated mental representation of the event.[2] The same event could therefore produce different emotions depending on how it is appraised. For example, failure on a test that is attributed to oneself (e.g., "I did not study hard enough") may induce feelings of guilt or shame, whereas failure on the same test that is attributed to another person (e.g., "my roommate prevented me from studying") may result in anger (e.g., Roseman, 1991; Scherer, 1984).

To understand the effects of different affective states on decision making, it is therefore important to examine their typical underlying (appraisal-generated) meaning structures. These meaning structures determine not only the type of affect a person will experience in response to an event, but also the type of information this person is likely to infer from experiencing a given affective state. Our main thesis is that affective states such as sadness and anxiety will have distinct influences on decision making because people experiencing them will draw different inferences from their affective experiences. As a result, they will bring different implicit goals to the decision-making task. These implicit goals will influence the decision-making process even if the decision is unrelated to the event that elicited the affective state.

According to appraisal theorists, the distinctive meaning structure underlying sadnesslike emotions is the loss or absence of a reward (Lazarus, 1991; Ortony, Clore, & Collins, 1988; Roseman, 1991). Sadness-related emotions (e.g., depression, despair) are primarily experienced in response to the loss or absence of a cherished object or person (e.g., death of a family member, loss of a favorite piece of jewelry, breakup of a relationship). As a result, whenever they experience feelings of sadness, individuals should be inclined to interpret these feelings as meaning that "something (rewarding) is missing." We therefore predict

[2] Note that affective states need not be based on controlled processes. Recent models of affective responses (e.g., Cohen & Areni, 1991; Leventhal, 1984) suggest that appraisal can be performed either in a controlled and elaborate mode or more automatically through the activation of affective schemata.

that sad individuals should be motivated by an implicit goal of reward acquisition or substitution. This prediction is consistent with Forgas's (1991) previously mentioned finding that sad participants were primarily selecting partners based on the rewarding potential of their interpersonal skills. It is also consistent with a common tendency among consumers to buy gifts for themselves when they are feeling depressed (Mick & Demoss, 1990).

In contrast, the meaning structure underlying fearlike emotions, including anxiety, is defined by high uncertainty over an outcome and low control over a situation (e.g., Frijda, Kuipers, & ter Shure, 1989; Izard, 1977; Roseman, 1984). Anxiety is generally experienced in response to situations where the person is uncertain about an impending outcome of a personally relevant event, especially when the outcome is potentially harmful (e.g., a professor awaiting for his or her tenure case decision), and feels unable to alter the course of events (e.g., investors observing the depreciation of their portfolios on the stock market). From an affect-as-information perspective (e.g., Schwarz, 1990), individuals who are experiencing anxiety are likely to interpret their feelings as signaling high uncertainty and lack of control. As a result, we predict that anxious individuals are likely to bring an implicit goal of uncertainty reduction and risk avoidance to the decision-making task. Again, we would expect this prediction to hold even if the decision target is completely unrelated to the anxiety-producing event.

In summary, building on recent work on the information value of affect (e.g., Pham, 1998; Schwarz, 1990; Schwarz & Clore, 1988) and on the cognitive structure of emotions (e.g., Lazarus, 1991; Roseman, 1991; Scherer, 1984), we argue that different negative states such as anxiety and sadness can have distinct influences on decision-making processes. This is because these affective states are likely to prompt distinct implicit goals during the decision-making process. We further propose that these distinct implicit goals may influence decision making even when the target of the decision is unrelated to the affect-eliciting event.

We tested these predictions by examining anxious and sad participants' decisions in choice situations involving a trade-off between risk and reward. In each experiment, one option was associated with a higher risk and a higher reward, whereas the other option was associated with a lower risk and a lower reward. In Experiments 1 and 3, the options consisted of risky gambles; in Experiment 2 the options consisted of job profiles. Such choice situations offer a unique test of our theorizing because the trade-off between risk and reward maps directly onto the two implicit goals of uncertainty reduction and reward acquisition. It was predicted that, compared to participants in a neutral mood, sad participants would have a preference for the higher risk/higher reward option, whereas anxious participants would have a preference for the lower risk/lower reward option.

PRETEST

Given our hypothesis that anxiety and sadness can have distinct effects on decision making, it is important that we be able to manipulate these two

affective states independently. Our manipulation was designed after that used by Keltner et al. (1993), which involved participants reading and projecting themselves into a hypothetical situation described in a written format. After a preliminary pretest ($n = 87$), we selected three scenarios expected to induce sadness, anxiety, or a neutral mood state.

Method

Fifty-three students at Columbia University (36 men and 17 women), who received $10 for their participation, were randomly assigned to one of three affect conditions: sad, anxious, or neutral. The study was conducted in small sessions of 7 participants per session on average. Participants were seated at least one seat apart in order to reduce distraction. The study was couched as an investigation of people's ability to empathize with hypothetical situations. Participants received a booklet, titled "Empathy Questionnaire," describing empathy as the "ability to respond with emotions similar to those of others." To increase involvement with the task, participants were told that people who score high on empathy are usually "better parents, lovers, spouses, and managers" and that they tend to be "more satisfied with their lives in general." Participants were then presented with one of three scenarios, each designed to induce a distinct affective state (anxiety, neutral, and sadness). Each scenario was one page long and structured in five paragraphs. The anxiety scenario called for participants to imagine that their doctor had called them to meet with him/her immediately because of some urgent news to divulge. The scenario hints that the person might have cancer, but does not reveal the outcome of the doctor's visit (thereby increasing the sense of uncertainty). The sadness scenario called for participants to imagine that they were returning home in response to a call regarding a serious ailment afflicting their mother. Their mother then unexpectedly died for inexplicable reasons. In the neutral-affect scenario, participants read a series of commonplace events in a day in the life of a person named Pat.[3]

Participants were asked to experience the events described in the scenario as vividly as possible and to imagine what they would feel like if they were in that situation. They were given 8–10 min to read the scenario, which was more time than they actually needed. After reading the one-page scenario, participants filled out several empathy-related items (e.g., "I could relate to the episode I just read," "I felt myself getting emotional as I read the passage"), which were intended to lend further credibility to the cover story.

In the next section of the questionnaire, participants were asked to "assess very carefully how you are feeling right at this time" and "be precise in expressing how you are feeling." Participants were presented with a scale consisting of 15 items each phrased in the form *I am feeling [affective term]*. Participants were asked to rate how well each item (e.g., "I am feeling angry") described their feelings on a 1 (*Describes my current feelings very well*) to 7 (*Does not*

[3] These affect-manipulation scenarios are available from the authors.

describe my current feelings at all) scale. The affective terms used across items covered a broad range of affective states (e.g., anger, arousal, joy) and were selected from established scales (e.g., Mehrabian & Russell, 1974; Watson, Clark, & Tellegen, 1988). To minimize demand characteristics, the items assessing sadness and anxiety were interspersed among items assessing other affective states. A score of felt anxiety was computed by averaging (after reverse scoring) three items: nervous, anxious, and tense ($\alpha = .80$), and a similar score of felt sadness was computed from three items: sad, depressed, and empty ($\alpha = .77$).

Results and Discussion

The felt anxiety and sadness scores (see Table 1) were submitted to a 2 (type of score) $\times$ 3 (affect manipulation) mixed ANOVA, treating the type of score (felt anxiety vs felt sadness) as a repeated factor and the affect manipulation (anxiety, sadness, or neutral mood) as a between-subjects factor. The analysis revealed a main effect of the affect manipulation ($F(2, 49) = 4.21$, $p < .05$, $\hat{\omega}^2 = .13$) showing that the perceived intensity of both types of affect (anxiety and sadness) was higher in the sadness and anxiety scenario conditions ($M_{\text{Sadness}} = 4.02$, $M_{\text{Anxiety}} = 4.07$) than in the neutral scenario condition ($M = 3.10$). More importantly, this effect was qualified by an interaction with the type of affect score ($F(2, 49) = 7.55$, $p < .01$). Follow-up contrasts show that felt anxiety was significantly higher in the anxiety scenario condition ($M = 4.67$) than in the other two conditions, which did not differ in terms of felt anxiety ($M_{\text{Sadness}} = 3.35$, $M_{\text{Neutral}} = 2.96$), $F(1, 49) = 13.91$, $p < .001$, $\hat{\omega}^2 = .86$. On the other hand, felt sadness was significantly higher in the sadness scenario condition ($M = 4.48$) than in the other two conditions, which did not differ in terms of felt sadness ($M_{\text{Anxiety}} = 3.32$, $M_{\text{Neutral}} = 3.14$), $F(1, 49) = 9.48$, $p < .01$, $\hat{\omega}^2 = .82$. The manipulation was thus successful in inducing distinct affective states of anxiety, sadness, or neutral mood across conditions. Additional analyses showed that the manipulation did not influence ratings of anger and revengefulness, confidence and calmness, and joyfulness and cheerfulness (all p's $> .15$). This suggests that the manipulation did not inadvertently induce other affective states. The only significant effect was a lower degree of alertness

TABLE 1

Pretest: Mean (and Standard Deviation) Felt Anxiety and Sadness

	Affect manipulation		
	Anxiety scenario ($n = 19$)	Neutral scenario ($n = 17$)	Sadness scenario ($n = 16$)
Felt anxiety	4.67^a ($SD = 1.37$)	2.96^b ($SD = 1.60$)	3.35^b ($SD = 1.24$)
Felt sadness	3.32^a ($SD = 1.36$)	3.14^a ($SD = 1.49$)	4.48^b ($SD = 1.21$)

Note. Numbers with different superscripts in a given row are significantly different at $p < .05$.

in the sadness condition than in the other two conditions ($F(1, 50) = 6.18$, $p < .01$). As we discuss later, this difference in alertness cannot account for our results.

EXPERIMENT 1

We first tested our hypotheses in the domain of risky gambles. Anxious, sad, and neutral mood participants were asked to assess two gambles of equal expected return: (a) a higher probability–lower payoff (low-risk/low-reward) gamble and (b) a low probability–higher payoff (high-risk/high-reward) gamble. It was predicted that, compared with those in neutral moods, anxious participants would prefer the gamble with the higher probability (and lower payoff), whereas those in sad moods would prefer the one with the greater payoff (and lower probability).

Method

Eighty-three undergraduates at New York University (40 men and 43 women) participated in the study to receive course credit. They were randomly assigned to one of three affective state conditions: anxiety, sadness, and neutral. The mood-induction procedure was identical to that followed in the pretest. Under the guise of an empathy study, participants were asked to read and relate to one of the three pretested scenarios (anxiety, sadness, or neutral affect). After reading the scenarios, participants completed a seven-item "empathy scale" (which allegedly assessed how much they were able to relate to the scenarios).

Unlike in the pretest, participants' moods were not measured, because previous studies have shown that such manipulation checks can reduce the impact of the manipulated affective states on judgments (e.g., Gorn et al., 1993; Keltner et al., 1993). Instead, participants completed a "Consumer Decision Making Questionnaire," in which they were presented with two gambles: Gamble A offered a 6/10 chance of winning $5, whereas Gamble B offered a 3/10 chance of winning $10. A preliminary between-subjects pretest had shown that there were significant subjective differences between these two levels of payoffs ($F(1, 50) = 5.39$, $p < .05$) and two levels of probabilities ($F(1, 50) = 11.65$, $p < .01$). Participants first indicated their relative preference for the gambles on a 7-point scale, anchored at *I find Gamble A more attractive* and *I find Gamble B more attractive*. They then indicated which of the two gambles they would choose if they had to play. Finally, participants provided some background information.

Results

The preference ratings were converted to a 1–7 scale where higher numbers indicated a preference for Gamble B, the lower probability–higher payoff (high-risk/high-reward) option. Across conditions, preferences were skewed toward Gamble A, the higher probability–lower payoff (low-risk/low-reward) option

(overall $M = 3.32$). However, as shown in Table 2, participants' relative preferences tended to differ across affect conditions. An omnibus ANOVA of these ratings yielded a marginally significant main effect of mood ($F(2, 80) = 2.56$, $p = 0.08$, $\hat{\omega}^2 = .04$). A linear trend analysis (Keppel, 1991) indicated that preference for the high-risk/high-reward option was highest in the sadness condition ($M = 3.94$) and lowest in the anxiety condition ($M = 2.84$), with the neutral affect condition in between ($M = 3.37$, $F(1, 80) = 5.08$, $p < .05$, $\hat{\omega}^2 = .05$). This pattern of results is consistent with the hypothesis that anxiety increases preferences for lower risk (lower reward) options, whereas sadness increases preferences for higher reward (higher risk) options.

As shown in Table 2, the affect manipulation had parallel effects on the choice probabilities. The proportion of participants who chose the high-risk/high-reward option was lowest in the anxiety condition (24%) and highest in the sadness condition (45%), with the neutral affect condition again falling in between (38%). This linear trend approached significance (Mantel–Haenszel $\chi^2(1) = 2.58$, $p = .11$, $\phi = .18$).

Discussion

These results clearly indicate that negative affective states are not all equal in decision making. While participants in anxious moods tended to prefer the lower risk–lower payoff gamble, participants in sad moods tended to prefer the higher risk–higher payoff gamble. Neutral-mood participants' preferences fell between those of anxious and sad participants.

These results cannot be explained in terms of judgment mood congruency (e.g., Isen et al., 1978). Both anxious participants and sad participants were in a negative mood. Yet, compared to a neutral-mood condition, anxious participants' preferences tended to favor one option, whereas sad participants' preferences tended to favor the other. For the same reasons, it is difficult to explain the findings in terms of reduced processing capacity. According to previous accounts, both anxiety and sadness tend to reduce processing capacity (e.g., Conway & Giannopoulos, 1993; Ellis & Ashbrook, 1988; Eysenck, 1982; Sanbonmatsu & Kardes, 1988). However, these two affective states exhibited distinct

TABLE 2

Study 1: Mean Preference Ratings (and Standard Deviations) and Choice Probabilities

	Affect manipulation		
	Anxiety ($n = 25$)	Neutral ($n = 31$)	Sadness ($n = 27$)
Preference ratings	2.84^a ($SD = 1.70$)	3.37^{ab} ($SD = 1.91$)	3.94^b ($SD = 1.78$)
Choice probabilities	24%	38%	45%

Note. Higher scores imply greater preference or higher choice probability for the lower probability/higher payoff option (Gamble B). Numbers with different superscripts in a given row differ at $p < .05$.

influences on participants' preferences for the gambles. Even if the two affective states had differential effects on participants' processing capacity, a processing capacity account would not be very plausible. Processing interference effects of negative affect are primarily observed with complex tasks (e.g., Abramson, Alloy, & Rosoff, 1981; Conway & Giannopoulos, 1993; Silberman, Weingartner, & Post, 1983); the gambles used in this study were extremely simple.

It could also be argued that the findings were driven by difference in arousal across conditions. Anxiety is generally associated with high arousal, whereas sadness is generally associated with low arousal (e.g., Russell, 1980). The pretest results indeed suggest the anxiety scenario induced greater levels of alertness than did the sadness scenario. However, a difference in arousal does not appear to explain the findings. Previous research suggests that arousal should increase *risk seeking* (Mano, 1994). Yet in this experiment, anxious participants (who were presumably more aroused) were more *risk averse* than sad participants (who were presumably less aroused).

The mood-repair explanation (e.g., Schaller & Cialdini, 1990; Zillmann, 1988) may be more congenial with our theoretical explanation. That is, sad and anxious participants may have preferred one of the options because it would somehow make them "feel better." However, compared to previous accounts of mood repair, our theorizing makes more specific predictions about which type of option (low risk vs high reward) will be preferred under different negative affective states.

A limitation of this experiment is that the observed effects were not particularly strong. Furthermore, the task of choosing between two gambles may be somewhat artificial. One is entitled to wonder whether the observed effects are reliable and generalizable to other decision problems. These issues are examined in Experiment 2.

EXPERIMENT 2

To assess the robustness and generalizability of our results, we replicated Experiment 1 in a different domain. Instead of choosing between two economically equivalent options, participants in this second experiment had to choose between two job options. One option, Job A, was described as offering a high salary with low job security, whereas the other option, Job B, was described as offering an average salary with high job security. As in Experiment 1, the decision involved a trade-off between a higher risk/higher reward option (Job A) and a lower risk/lower reward option(Job B). It was predicted that participants in an anxious mood would favor Job B, whereas participants in a sad mood would favor Job A. Participants in a neutral mood were expected to exhibit preferences between those of the other two groups.

Method

Participants were 73 students (31 men and 42 women) at Columbia University who were paid $10 for their participation. They were randomly assigned

to one of three mood conditions: sadness, anxiety, or neutral. The procedure closely followed that of Experiment 1. After being induced into an anxious, sad, or neutral mood, participants were presented with the job decision. They were asked to imagine that they had to evaluate two jobs: Job A was described as "high salary with low job security," whereas Job B was described as "average salary with high job security." The participants reported their relative preferences for the two jobs on a 7-point scale anchored at *I find Job A more attractive* and *I find Job B more attractive*. They were then asked which of the two jobs they would choose. As a process check, participants were also asked to assess which characteristic of the two jobs was more important in their decision. This measure was assessed on a 7-point scale anchored at *The pay difference was more important* and *Difference in job security was more important*.

Results

As in Experiment 1, the preference ratings were converted to a 1–7 scale, where higher numbers reflected preferences for the higher risk/higher reward option (Job A). An omnibus ANOVA of these ratings revealed a significant effect of the affect manipulation, $F(2, 70) = 6.77$, $p < .01$, $\hat{\omega}^2 = .13$. As reported in Table 3, sad participants had the highest preference for Job A, the higher risk–higher reward option ($M = 5.39$), whereas anxious participants had the lowest preference for this option ($M = 3.28$). As in Experiment 1, participants in a neutral mood exhibited an intermediate level of preference for the higher risk–higher reward option ($M = 4.72$). The linear trend was highly significant, $F(1, 70) = 12.82$, $p < .001$, $\omega^2 = .14$. The choice probabilities exhibited a similar pattern. Sad participants had the highest probability of choosing Job A (78%), and anxious participants had the lowest probability (32%). (Note that the choice probabilities actually reversed across anxiety versus sadness.) The choice probabilities of participants in the neutral condition again fell between those of the other two groups (56%). The linear trend was also significant (Mantel–Haenszel χ^2 (1) = 10.225, $p = .001$, $\phi = .38$).

The pattern of job preferences suggests that anxious participants were primarily concerned by the differential security of the two jobs, whereas sad participants were primarily concerned by the difference in salary. We examined

TABLE 3

Study 2: Mean Preference Ratings (and Standard Deviations) and Choice Probabilities

	Affect manipulation		
	Anxiety ($n = 25$)	Neutral ($n = 25$)	Sadness ($n = 23$)
Preference ratings	3.28^{a} ($SD = 2.21$)	$4.72^{a,b}$ ($SD = 1.90$)	5.39^{b} ($SD = 1.99$)
Choice probabilities	32%	56%	78%

Note. Higher scores imply greater preference or choice probability for the high-pay/low-job-security option (Job A). Numbers with different superscripts in a given row differ at $p < .05$.

this interpretation further by analyzing the participants' rating of how important the difference in job security was as opposed to the pay difference in their decisions. Higher ratings indicated greater relative importance of job security and lower ratings indicated greater relative importance of pay. An ANOVA revealed that these importance ratings differed significantly across mood conditions ($F(2, 70) = 6.71$, $p < .01$, $\hat{\omega}^2 = 14$). Consistent with the proposed interpretation, anxious participants rated the difference in job security as relatively more important (and the difference in pay as relatively less important; $M = 5.04$), whereas sad participants rated the difference in pay as relatively more important (and the difference in job security as relatively less important; $M = 2.57$). Neutral-mood participants rated the two characteristics as equally important ($M = 3.96$). Their ratings fell between those of the other two groups. Again, the linear trend was significant ($F(1, 70) = 12.82$, $p < .001$, $\hat{\omega}^2 = .15$).

Discussion

The results of this experiment conceptually replicate those of the first experiment. While anxious participants favored the lower salary–higher security job, sad participants favored the higher salary–lower security job. It is important to note that, as in Experiment 1, neutral-mood participants exhibited intermediate-level preferences and choices. This particular pattern of results—anxiety < neutral < sadness—cannot be easily explained by previous theorizing of the effects of negative affect on decision making.

The results show that, although the effects observed in Experiment 1 were relatively small, they are reliable. It is also noteworthy that parallel results were obtained across gambling and job-selection decisions. These effects seem to be both robust and generalizable.

Although Experiments 1 and 2 provide convergent evidence of the distinct influences of anxiety and sadness on decision making, the processes underlying these effects need to be clarified. If anxious and sad individuals are pursuing different implicit goals when making decisions, is the underlying process passive and spontaneous, or more active and strategic? This question is examined in Experiment 3.

EXPERIMENT 3

One objective of this experiment was to replicate further the main result that anxiety and sadness induce distinct preferences for risky options. The main objective, however, was to examine more closely the underlying process. Two types of processes would be consistent with the explanation that anxiety and sadness prime different goals in decision making. One explanation is an overlearned attentional shift. Over time, people may have learned to attend to sources of uncertainty when experiencing anxiety and to attend to sources of reward when experiencing sadness. Because these tendencies are learned

over numerous experiences, these attentional shifts would presumably be passive rather than active or strategic. Alternatively, anxiety and sadness may bias decisions through an active process of feeling-monitoring. Anxious and sad individuals may actively assess the feeling implications of their options by asking themselves, "What would I feel better about . . . ?" (see Martin, Abend, Sedikides, & Green, 1997, for a related idea). Given that different goals are presumably salient among anxious and sad individuals, the options would have different feeling implications. An option that has high (low) reward potential would feel better (worse) if the individual were sad, whereas an option that minimizes (increases) uncertainty would feel better (worse) if the individual were anxious.

Participants were presented with a choice between the two gambles used in Experiment 1. Two factors were manipulated. The first factor manipulated participants' affective states, anxiety or sadness. The second factor framed the perspective from which participants were asked to make their decisions. In the self condition, participants were instructed to evaluate the gambles from their own perspective, as in the first two experiments. That is, participants were told to examine the gambles as if they actually had to choose for themselves and face the outcome of their decisions. In the agent condition, participants were instructed to evaluate the gambles as if they were making the decision for someone else. It was emphasized that the outcome of the decision would not affect the participants personally.

The predictions were as follows. If anxiety and sadness bias decision making by prompting an overlearned (passive) attentional shift, the bias should not depend on whether participants would be personally affected by the outcome of their decisions. Compared to anxious participants, sad participants should exhibit higher preference for the high-risk/high-reward option *regardless* of whether they are making the decision for themselves or for someone else. If, on the other hand, anxiety and sadness bias decision making because individuals actively monitor the feelings associated with their decisions, the magnitude of the bias should depend on whether participants expect to experience the consequences of their decision. The bias should be more pronounced when participants (and their feelings) can be affected by the outcome of their decisions than when participants cannot be affected (see Manucia, Baumann, & Cialdini, 1984, for similar reasoning). As a result, the effects of sadness vs anxiety on preference for the options should be stronger in the self condition than in the agent condition.

Method

Ninety-one students at Columbia University (33 men and 58 women) were recruited and paid $12 in compensation for participating in the study. They were randomly assigned to one of four conditions of a 2 (affective state: anxious vs sad) $\times$ 2 (framing: self vs agent) between-subjects design. The procedure closely followed that of the first two experiments, except that no neutral-mood condition was included. After being put into either an anxious or a sad state,

TABLE 4

Study 3: Mean Relative Preference Ratings (and Standard Deviations) and Choice Probabilities

	Affect manipulation	
	Anxiety (n = 47)	Sadness (n = 46)
Preference ratings		
Self (n = 49)	2.68[a]	4.63[b]
	(SD = 1.52)	(SD = 1.92)
Agent (n = 44)	3.08[a]	3.54[a]
	(SD = 1.82)	(SD = 2.24)
Mean	2.89[a]	4.06[b]
	(SD = 1.68)	(SD = 2.14)
Choice probabilities		
Self (n = 49)	27%[a]	59%[b]
Agent (n = 44)	20%[a]	29%[a]
Mean	23%[a]	43%[b]

Note. Higher scores imply greater preference or choice probability for the lower probability/higher payoff option (Gamble B). Numbers with different superscripts in a given row differ at $p < .05$.

participants were asked to evaluate the same two gambles as in Experiment 1. The framing of the decision differed across conditions. In the self condition, participants received the same instructions as in Experiment 1. They were instructed to evaluate the gambles as if they had to choose between them for themselves. In the agent condition, participants were told to make the decision on behalf of someone else. The instructions emphasized that "the decision will not affect you personally." After comparing the two options, participants first reported their relative preference on a 7-point scale, then their choice between the two gambles. Finally, participants described their feelings on a multi-item mood scale similar to that used in the pretest and completed questions assessing their attitudes toward risk.[4]

Results

As in the first study, preference ratings were converted to a 1–7 scale where higher numbers indicated a preference for Gamble B (the higher payoff, more risky option). The means are reported in Table 4. As in Experiment 1, overall preferences were skewed toward Gamble A (overall mean across conditions = 3.47). The preference ratings were submitted to a 2 (affective state) × 2 (framing) ANOVA. The analysis revealed a significant main effect of mood ($F(1, 89) = 9.36$, $p < 0.01$, $\hat{\omega}^2 = .08$), revealing that, overall, anxious participants

[4] The purpose of these questions was to assess whether feelings of sadness and anxiety would predict participants' momentary attitudes toward pure risk activities (e.g., bungee jumping). The results (available from the authors) were inconclusive and are therefore not reported. This issue is elaborated in the General Discussion.

had a relative preference for the less risky option ($M = 2.89$), whereas sad participants had a relative preference for the option with the higher payoff ($M = 4.06$). This finding replicates the first two experiments' main results.

More important, the analysis also revealed a significant mood by framing interaction ($F(1, 89) = 3.57$, $p = 0.06$, $\hat{\omega}^2 = .025$). Planned contrasts show that the simple main effect of affective states was significant in the self condition ($F(1, 89) = 11.63$, $p < .001$, $\hat{\omega}^2 = .10$) but not in the agent condition ($F < 1$, *ns*). The findings thus seem to support an active feeling-monitoring explanation as opposed to a more passive attentional shift.

The choice probabilities between the two gambles exhibited a directionally consistent pattern (see Table 4). A two-way (affective state by framing) log-linear analysis revealed a significant main effect of affective state ($\chi^2(1) = 3.93$, $p < 0.05$, $\phi = .21$), showing that the probability of choosing the high-risk/high-reward option was higher among sad participants (43%) than among anxious participants (23%). This tendency was primarily driven by participants in the self condition (sad = 59%, anxious = 27%, $z = 2.13$, $p < .02$, $\phi = .32$). The tendency was not significant in the agent condition (sad = 29%, anxious = 20%, $z = .76$, $p = .22$, $\phi = .11$). However, the affective state by framing interaction was not significant ($\chi^2(1) = .83$, $p = .36$).

Discussion

As in the previous experiments, sad participants were again found to exhibit greater preference for the high-risk/high-reward option, whereas anxious participants tended to prefer the low-risk/low-reward option. However, the pattern of preferences depended on the framing of the decision. While preferences showed the predicted affective bias in the self condition, preferences were insensitive to participants' affective states in the agent condition. This contingency appears to rule out a passive, overlearned, attentional shift. Had the process been beyond participants' control, a parallel affective bias should have been observed in the agency condition. The data appear more consistent with an active feeling-monitoring explanation. Anxious and sad individuals may be inclined to assess the feeling implications of their decisions, asking themselves, "What would I feel better about . . . ?" Sad individuals may intuit that they would feel better if they chose a high-reward option, whereas anxious individuals may intuit that they would feel better if they chose a more secure option. However, if the task is framed as an agent decision task, anxiety and sadness cease to influence people's decisions, presumably because people's feelings are less relevant when they are making decisions on behalf of someone else (see Forgas, 1991).

GENERAL DISCUSSION

All Negative Moods Are Not Equal

The pervasiveness of emotional stress in personal and organizational life underscores the importance of studying how affective states, especially negative

ones, influence decision processes. Previous research on this issue has primarily focused on the contrast between positive, negative, and neutral affective states. Potential differences in decision making arising from affective states of the same valence have been largely overlooked (see Lerner & Keltner, in press, and Mano, 1992, 1994, for exceptions). This paper shows that two affective states of the same negative valence—anxiety and sadness—can have distinct influences on decision making about gambles. It was found across three experiments that sadness biases preferences toward high-risk/high-reward options, whereas anxiety biases preferences toward low-risk/low-reward options. These biases appear to arise because anxiety heightens people's preoccupation with risk and uncertainty, whereas sadness heightens people's preoccupation with reward. Despite both being negative affective states, anxiety and sadness thus seem to trigger distinct motivational inclinations. This finding echoes the recent distinction in the motivation literature between "promotion focus," which emphasizes nurturance and the search for reward, and "prevention focus," which emphasizes security and the avoidance of punishment (see Higgins, 1997). These motivational inclinations may shape decision making above and beyond previously identified effects of negative affective states, such as coloring, processing interference, and mood management. In a study contrasting the effects of anger and fear on risk perceptions, Lerner and Keltner (in press) recently observed conceptually related results.

This finding has clear substantive implications. It is noteworthy that the observed biases occurred even though the affect-inducing event (the fictitious scenarios) and the decision targets were completely unrelated. It is likely that the biases will be even more pronounced when the source of the negative affective state *is* related to the decision domain (see, e.g., Dunegan, Duchon, & Barton, 1992). For instance, a person who has been sad because of a layoff may be inordinately seduced by job options that emphasize reward characteristics (e.g., high compensation, travel opportunities) as opposed to job options that emphasize greater security. The finding also has implications for coping strategies. Lay theories of how to deal with emotional states when making decisions speak to the better established influences of affective states on decision processes. For instance, recommendations such as "look at the bright side of it" are implicitly meant to correct for the coloring effect of negative affective states (e.g., Clark & Isen, 1982). In contrast, coping strategies that address the specific biases uncovered in this research are less likely to be part of a person's repertoire.

Feelings of Risk, Feelings of Reward

The pattern of results across experiments provides some insights about the processes underlying people's decisions when sad or anxious. Had the results been obtained with gambling decisions alone, one might be tempted to conclude that the effects of anxiety and sadness on decision making are particular to expectancy-valuation processes (probability $\times$ consequence). However, the results of Experiment 2—which used stimuli that were less amenable to an

expectancy-valuation process—suggest that the effects of anxiety and sadness may be independent from expectancy valuation per se.[5] The effects appear to be mediated by people's responses to the risk and reward components of the options, rather than their expectancy-valuation combination (see Aschenbrenner, 1978, for related results). We believe that these responses to risks and rewards are *feelings*.

In Experiment 3 anxious and sad participants behaved as if they were actively monitoring their feelings in response to the options. A spontaneous shift of people's attention could not account for the data. Anxious and sad individuals may consider each option and ask themselves, "What would I feel better about . . . ?" Options that are superior on the goal dimension highlighted by the affective state (low risk/high certainty versus reward) may "feel better," thereby skewing people's preferences toward these options. This process is related to the How-do-I-feel-about-it (HDIF) heuristic (Schwarz & Clore, 1988) in that feelings experienced when a person is considering a target are used as a basis for evaluating the target. However, it is important to note that the feelings that are apparently being used do not come directly from the person's affective state as in previous demonstrations of the HDIF heuristic (e.g., Gorn et al., 1993; Schwarz & Clore, 1983). In our studies, participants' sadness or anxiety did not simply carry over to their evaluations of the two options (see Martin et al., 1997, for a similar argument). Instead, the feelings that are used appear to come from the person's affective responses to the options ("Option A/B feels better"; see Pham, 1998), which are *conditional* on the person's preexisting affective state ("I am anxious/sad"). The use of feelings in decision making may thus be more complex than previously recognized. Experiment 3's finding that anxiety and sadness influenced the decisions only when participants (in the self condition) could expect to experience the consequences of their decisions echoes recent findings suggesting that people may be flexible in choosing to use or not use feelings depending on the relevance of these feelings to the decision (Pham, 1998).

The Past and the Future

It is instructive to relate our findings with previous studies and suggest potential avenues for future research. Situational anxiety has been found to increase risk seeking in lotteries (Mano, 1992). This finding seems to conflict with the consistent risk aversion exhibited by the anxious participants our studies. It appears, however, that it is not anxiety per se that increases risk seeking; it is the physiological arousal that often accompanies high anxiety (Mano, 1992, 1994). Heightened arousal indeed appears to be a necessary condition for increased risk taking under negative affect (Leith & Baumeister,

[5] Recall that participants in that experiment had to choose between a high salary with low job security and an average salary with high job security. To rely on expectancy valuation, participants would have to assess and compare expected salary streams over time. Although such a process is conceivable—and normatively sensible—it does not appear very plausible psychologically.

1996). Our scenario manipulation of anxiety may not have elevated participants' arousal as much as manipulations in other studies. It is therefore important to disentangle the effects of anxiety and arousal in studies of negative affect and decision making. While anxiety itself may produce a motivational inclination toward risk aversion, any physiological arousal that may accompany anxiety may increase risk-seeking tendencies.

Our account of the effects of sadness and anxiety in decision making combines *processing* ideas from the affect-as-information framework (e.g., Martin et al., 1997; Pham, 1998; Schwarz, 1990) with *content* ideas from cognitive theories of affect (e.g., Lazarus, 1991; Scherer, 1984). Although we believe that this account has much to offer to the study of affect and decision making, we do not regard it as a substitute for previous accounts of affect and decision making. Attempts to accommodate the wide range of affect-and-decision-making phenomena into a single, parsimonious framework may be overly ambitious. Future research should not be geared to identify which account is the most valid. It should rather be geared to formalize the conditions under which one explanation (e.g., process interference) is more likely to apply than other explanations. For instance, there is growing evidence that processing interference effects of negative affect are more likely when the processing demands of the task are high than when these demands are low (e.g., Abramson et al., 1981; Conway & Giannopoulos, 1993). We also speculate that processing-interference effects are characteristic of relatively severe affective conditions, such as depression (e.g., Abramson et al., 1981; Silberman et al., 1983), chronic dysphoria (e.g., Conway & Giannopoulos, 1993), and high physiological arousal (e.g., Pham, 1996; Sanbonmatsu & Kardes, 1988).

Under what conditions will affective states have the type of motivational influences documented by our studies? First, we offer that these influences are particular to choice situations. We suspect that the information that feelings provide consists primarily of behavioral directions ("Do A rather than B"). Unless one has a choice to make, such behavioral directions are of little use. Second, we surmise that these influences are more likely when the decision imposes a significant trade-off. Feelings are essentially heuristics (Clore, 1992; Pham, 1998; Schwarz & Clore, 1988). Their information value increases when the decision is not easily amenable to other judgment processes (Clore, Schwarz, & Conway 1994; Strack, 1992). Decisions that involve trade-offs, such as risk versus reward, are inherently difficult to solve, especially when formal criteria, such as expected value, fail to provide a clear answer (as in Experiments 1 and 3) or are not easily applicable (as in Experiment 2). Finally, the motivational influences of affective states may be contingent on their chronicity. In chronic affective conditions, such as clinical depression, feelings may lose their perceived diagnosticity.

Aside from formalizing the conditions under which affect will have the type of motivational influences proposed in this article, three issues are clearly worthy of further investigation. First, an obvious extension of this research would be to examine how other affective states—positive (e.g., pride vs joy)

and negative (guilt vs anger)—influence decision processes. Second, sad participants in our studies appeared to be systematically risk seeking. However, our theorizing suggests that it was not risk per se that sad participants were seeking; it was the greater reward (higher payoff or higher salary) associated with the riskier option. One way of testing this proposition would be to examine how anxious, sad, and neutral-mood individuals would respond to *pure* risk activities (e.g., thrill seeking). Third, the choice domains in our studies all revolved around potential gains rather than losses. It would be interesting—both substantively and theoretically—to investigate how anxiety and sadness influence decision processes about potential losses.

Finally, it is important to reflect on the broader theoretical implications of this research. First, the research reinforces the importance of looking at moods, feelings, and emotions as discrete entities with distinct meanings and motivational implications (see, e.g., Frijda, 1986; Roseman et al., 1990; Scherer, 1984), as opposed to continuous variations in valence and arousal (see, e.g., Russell, 1980). Second, the research suggests a different way of looking at the role of affect in decision making. As embodied by the "rational-versus-emotional" dichotomy, affect is often regarded as exerting an undesirable influence on decision making (see, e.g., Loewenstein, 1996). This view may be unduly pessimistic. It is at odds with a vast body of literature suggesting that feelings and emotions have adaptive value (Frijda, 1986; Plutchik, 1980). We would like to argue that affect often *assists* decision making (Pham, 1998). In many decisions, feelings may indeed be the most useful information people have.

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