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Choosing To Be Afraid: Preferences for Fear as a Function of Goal Pursuit

Maya Tamir and Brett Q. Ford
Boston College

According to an instrumental approach to emotion regulation (M. Tamir, in press), people may not always prefer to feel pleasant emotions and avoid unpleasant ones. Instead, they may be motivated to experience even unpleasant emotions when they might be useful for goal attainment. Given that fear serves to promote successful avoidance, these studies tested this hypothesis by examining preferences for fear in preparation for avoidance goal pursuits. Consistent with the predictions of the instrumental approach, participants preferred to increase their level of fear as they prepared to pursue an avoidance goal. Such preferences were higher than preferences for either excitement or anger and were unique to avoidance (vs. approach or confrontational) goal pursuits. Given the aversive nature of fear, these findings clearly demonstrate that people may sometimes prefer to feel bad if doing so can lead to instrumental benefits.

Keywords: emotion regulation, fear, avoidance, emotions, self-regulation

Research in emotion regulation has been based on the assumption that people want to feel good and avoid feeling bad at any given moment (e.g., Tice & Bratslavsky, 2000). However, hedonic considerations may not be the only determinant of what people want to feel. There is growing evidence that people want to feel emotions that are useful to them, regardless of whether they are pleasant or not (Erber, Wegner, & Therriault, 1996; Tamir, 2005; Tamir, Chiu, & Gross, 2007; Tamir, Mitchell, & Gross, 2008). In this article, we examine whether people want to feel fear as they prepare to pursue a goal that fear may help them attain.

An Instrumental Approach to Emotion Regulation

Most research in emotion regulation is based on the assumption that people are always motivated to feel pleasant emotions (e.g., happiness) and avoid unpleasant emotions (e.g., fear). This assumption, however, has recently been challenged. According to an instrumental approach to emotion regulation, people can also be motivated to feel useful emotions, regardless of whether they are pleasant or not (Erber & Erber, 2000; Parrott, 1993; Tamir, in press).

The idea that people may be willing to experience even unpleasant emotions for instrumental gain is based on the fact that people are typically motivated to maximize either short-term pleasure or utility.[1] Research on self-regulation has demonstrated that when short-term pleasure and utility conflict, people often prioritize utility despite short-term hedonic costs (e.g., Mischel, Shoda, & Rodriguez, 1989). The instrumental approach to emotion regulation, therefore, suggests that the same principles apply to the regulation of emotion. Specifically, when a particular emotion is unpleasant to experience in the short term but potentially useful in the long term, people may be willing to experience it despite the short-term cost.

Support for the idea that people are motivated to feel emotions that can help them attain their goals was recently provided in a study on preferences for pleasant emotions that vary in arousal (Tsai, Miao, Seppala, Fung, & Yeung, 2008). Compared with participants who were instructed to adjust to others, those instructed to influence others expressed stronger preferences for pleasant high-arousal emotions (e.g., excitement) compared with pleasant low-arousal emotions (e.g., calmness). These findings demonstrate that when hedonic considerations are fixed, people prefer emotions that promote their goal pursuit.

As shown in Tsai et al. (2008), people prefer pleasant emotions that are useful to pleasant emotions that are not useful. Given that both pleasant and unpleasant emotions can be either useful or not, to test the predictions of the instrumental approach to emotion regulation it is necessary to compare preferences for pleasant emotions that are not useful with unpleasant emotions that are. If emotion regulation follows the broader principles of self-regulation, people should prefer to feel useful emotions, even if they are unpleasant to experience.

Recent evidence has supported this prediction in the context of preferences for anger. Anger is generally unpleasant, but it could be useful when a person needs to confront another (e.g., Parrott, 2001). Consistent with the predictions of the instrumental model, Tamir et al. (2008) found that when participants prepared to engage in a confrontational task in which anger could promote performance, they preferred to increase their anger. When they prepared to engage in a nonconfrontational task in which anger would be unlikely to promote performance, they preferred to

Maya Tamir and Brett Q. Ford, Department of Psychology, Boston College.

Correspondence concerning this article should be addressed to Maya Tamir, Department of Psychology, Boston College, 140 Commonwealth Avenue, Chestnut Hill, MA 02467. E-mail: tamirm@bc.edu

[1] The term *utility* was originally used to refer to expected pleasure (Bentham, 1823/1968) but has been since extended to refer to any form of long-term value (for further discussion, see Edwards, 1954; Kahneman & Snell, 1990).

increase their excitement. Consistent with theoretical accounts of anger, participants who underwent an anger induction actually performed better in the confrontational task than those who underwent an excitement induction. Together, these findings suggest that people are motivated to feel anger when preparing for a task in which anger is useful.

Anger Versus Fear

Participants in Tamir et al. (2008) chose to increase their level of anger by engaging in activities that they themselves described as unpleasant. However, there has been some debate in the literature over the extent to which anger per se is unpleasant. Whereas most people agree that anger is unpleasant to experience (e.g., Berkowitz & Harmon-Jones, 2004; Russell & Barrett, 1999; Watson , Wiese, Vaidya, & Tellegen, 1999), some have argued that anger can be pleasant in certain circumstances (Lerner & Tiedens, 2006). A strong demonstration of instrumental motives for emotion regulation, therefore, would involve a case in which people are motivated to experience a potentially useful emotion other than anger, which is unpleasant by consensus.

Anger also differs from other unpleasant emotions in its motivational implications. Although anger is assumed to be useful for confrontations, its associations with the basic motivational systems of approach and avoidance have been scrutinized. Whereas some have argued that anger, like other unpleasant emotions, is linked to avoidance motivation (Watson et al., 1999), there is now overwhelming evidence that anger, like many pleasant emotions, is associated with approach motivation (Harmon-Jones, 2003; Harmon-Jones & Allen, 1998). A strong demonstration of instrumental motives for emotion regulation, therefore, would involve a case in which people are motivated to experience an emotion that promotes the pursuit of avoidance goals.

Fear is an unambiguously unpleasant emotion that has consistently been linked to avoidance motivation (e.g., Carver, 2001). From an evolutionary perspective, fear functions to promote the successful pursuit of avoidance goals by facilitating escape from threats and supporting the action of flight (e.g., Frijda, 1986; Ohman, 1993). According to the instrumental approach to emotion regulation, therefore, individuals should be motivated to increase their level of fear, despite the aversive nature of this experience, when they anticipate the need to avoid threats.

Overview of Studies

In the present studies, we examined the extent to which participants wanted to feel afraid as they prepared to pursue different goals. As in Tamir et al. (2008), goals were manipulated in the form of expected computer games. Participants were told that they would play one of several possible computer games that highlighted different types of goals. The manipulation of anticipated goal pursuits via fictitious descriptions of computer games afforded several important benefits. First, it allowed us to manipulate goals without affecting concurrent emotional experiences. Second, having a person consider the possibility of playing different games allowed us to test whether the same person would prefer to feel different emotions when preparing for different goal pursuits. Hence, our studies used within-subject designs. Finally, it allowed us to manipulate goals in ways that participants found believable and engaging.

Building on prior research, we assessed emotional preferences by asking participants to rate the extent to which they preferred to engage in different emotion-inducing activities before playing the games (see Erber et al., 1996; Tamir, 2005; Tsai et al., 2008). To ensure that preferences were guided by the emotional tone of the activity (e.g., preferences for fear-inducing activities) rather than the activity itself (e.g., musical taste), in both studies we assessed preferences for two unrelated types of activities (i.e., music and memories; see Tamir et al., 2008).

To demonstrate that people prefer emotions that promote related goal pursuits, we compared preferences for fear when preparing for avoidance goal pursuits with preferences for other emotions when preparing for other goal pursuits. Therefore, in Study 1 we also assessed preferences for excitement as participants prepared to pursue approach goals. Whereas fear is an unpleasant emotion geared to promote successful avoidance, excitement is a pleasant emotion geared to promote successful approach (e.g., Carver, 2001; Watson et al., 1999). We predicted that participants would prefer to increase their level of fear in preparation for an avoidance game, but that they would prefer to increase their level of excitement in preparation for an approach game.

In Study 2, we also contrasted preferences for fear with preferences for another unpleasant emotion that should be less relevant to avoidance goal pursuits. Specifically, we assessed preferences for fear when preparing to pursue avoidance goals, preferences for excitement when preparing to pursue approach goals, and preferences for anger when preparing to pursue confrontational goals (see Tamir et al., 2008). We predicted that participants would show stronger preferences for fear-inducing (vs. anger- or excitement-inducing) activities when preparing to pursue avoidance goals, stronger preferences for excitement when preparing to pursue approach goals, and stronger preferences for anger when preparing to pursue confrontational goals.

According to value-expectancy models of self-regulation, people prefer experiences when they expect them to be useful (e.g., Atkinson, 1958; Fishbein & Ajzen, 1974). If emotional preferences are utility driven, individuals should have stronger preferences for an emotion the more useful they expect it to be. To begin to explore this possibility, in Study 2 we assessed the expected utility of fear, excitement, and anger. We predicted that preferences for emotional experiences would be associated with the expected utility of these emotions.

Study 1

In Study 1, participants were told they would play one of several computer games that reflected an approach goal, an avoidance goal, or neither approach nor avoidance. We predicted that participants would have stronger preferences for fear when pursuing avoidance (vs. approach) goals and stronger preferences for excitement when pursuing approach (vs. avoidance) goals.

Method

Participants. Participants were 40 undergraduate students (75% female, mean age = 19.43) who participated in exchange for course credit.

Procedure and materials. Participants were told that the study examined the link between memory and computer games. They were told that some participants would be asked to complete a memory task, such as recalling an event from their past, before playing a computer game. They were further told that other participants would be asked to engage in an activity unrelated to memory, such as listening to music, before playing the game. Participants were told that their performance in the computer game would be monitored and evaluated and that they would be able to indicate what type of memory they would prefer to recall and what type of music they would prefer to listen to before playing the game. They were told that because emotional memories are often easier to remember, they would be asked to recall an event from their past that was emotional in nature.

Goals were manipulated within person in the form of different computer games the person might play later in the session. To assess emotional preferences, participants rated the extent to which they preferred listening to certain types of music and recalling certain types of memories before playing a particular game. All stimuli were presented on the computer using E-Prime.

Participants first indicated their preferences for music. On a typical trial, participants read a bogus description of a computer game, then listened to instrumental music for 30 s, and then rated the extent to which they preferred listening to this type of music as they were playing the game that was described. We created two written descriptions of bogus computer games to reflect each of three goals, including approach goals (i.e., "Your goal is to find dollar bills and grab them so you can get as rich as possible" and "Your goal is to build up a theme park that would attract the most visitors and make the most money"), avoidance goals (i.e., "Your goal is to avoid dangerous flying monsters who are trying to kill you" and "Your goal is to carefully maneuver a dangerous terrain without being detected by your enemy"), and goals that involve neither approach nor avoidance (i.e., "Your goal is to place cubes on top of each other until you reach the top of a box" and "Your goal is to connect lines to form familiar shapes").[2]

The task included two excitement-inducing clips (i.e., *Opening Theme* from the soundtrack of *The Triplets de Belleville* [Charest, B., 2004] and *Dreamoz* from *Lazy Dog 2* [Hannan, J., 2002]) and two fear-inducing clips (i.e., *End Titles* from the soundtrack of *Jeepers Creepers 2* [Salvay, B., 2003] and *The Bone Dam* from the soundtrack of *The Descent* [Julyan, D., 2006]). A pilot test ($N = 20$) confirmed that the excitement-inducing music induced more excitement than the fear-inducing music (Ms = 4.55 and 1.20, respectively), $F(1, 19) = 20.69$, $p < .05$, and that the fear-inducing music induced more fear than the excitement-inducing music (Ms = 3.35 and .85, respectively), $F(1, 19) = 7.92$, $p < .05$.

Participants then rated their preferences for recalling certain types of events before playing each game. On a typical trial, they first read a description of a game, then read a written description of a memory they could recall, and then rated the extent to which they would like to recall this memory before playing the game. Game descriptions were identical to those included in the music selection task. Memories included past events in which the participants were excited (i.e., "An event from your past in which you were excited" and "An event from your past in which you were enthusiastic") or afraid (i.e., "An event from your past in which you were afraid" and "An event from your past in which you were worried"). The music and memory selection tasks each included 24 trials. Within the music and memory portions of the task, game descriptions and activities were paired and presented in a random order and all ratings were made on a scale ranging from 1 (*not at all*) to 7 (*extremely*).

After indicating their preferences for music and memories, participants rated their current emotional experiences on a scale ranging from 0 (*not at all*) to 8 (*extremely*). To assess feelings of fear, we averaged across ratings of *fearful*, *nervous*, *worried*, and *distressed* ($\alpha = .80$). To assess feelings of excitement, we averaged across ratings of *excited*, *enthusiastic*, *happy*, and *cheerful* ($\alpha = .82$).

Finally, participants were presented with the music and memories they rated earlier in the study and were asked to indicate how they expected to feel after engaging in these activities. To assess expected fear, we averaged ratings of how afraid and worried participants expected to be; to assess expected excitement, we averaged ratings of how excited and happy participants expected to be, separately in response to listening to music and recalling memories targeting the same emotion (mean αs = .79 for music and .60 for memories). Participants also rated how much pleasure they expected to feel as a result of engaging in each activity. Ratings were made on a scale ranging from 1 (*not at all*) to 5 (*extremely*).

Results

Expected emotional reactions to emotion-inducing activities. We assumed that participants expected fear-inducing activities to make them feel afraid and excitement-inducing activities to make them feel excited. To confirm this, we ran a repeated measures analysis of variance (ANOVA) in which activity (music or memories), target emotion (fear or excitement), and expected emotion (fear or excitement) were three within-subject factors.

As expected, this resulted in a significant Target Emotion × Expected Emotion interaction, $F(1, 38) = 261.94$, $p < .05$, such that participants expected to feel more excitement ($M = 4.08$) than fear ($M = 1.45$) after engaging in excitement-inducing activities and more fear ($M = 3.36$) than excitement ($M = 1.45$) after engaging in fear-inducing activities. Follow-up paired-sample t tests confirmed that these differences were significant, ts(39) > 8.68, ps < .05. This effect was qualified by a significant Activity × Target Emotion × Expected Emotion interaction, $F(1, 38) = 17.74$, $p < .05$, such that participants expected to feel more excitement and less fear in response to the fearful music compared with the fearful memories (for fearful music and fearful memories, respectively, Ms = 2.35 and 1.65 for expected excitement and Ms = 2.86 and 3.85 for expected fear).

[2] A pilot test confirmed ($N = 10$) that the games described in the avoidance scenarios require more avoidance than those described in the approach or control scenarios (Ms = 6.59, 1.27, and 1.05, respectively), whereas the games described in the approach scenarios require more approach than those described in the avoidance or control scenarios (Ms = 6.14, 3.14, and 3.36, respectively), ts(9) > 3.55, ps < .05. The avoidance and approach games were rated as equally interesting and more interesting than the control games (Ms = 4.90, 4.27, and 2.68, respectively), ts(9) > 2.87, $p < .05$. Games did not differ significantly in how familiar they appeared to be, ts(9) < 1.67, suggesting that all scenarios appeared to be equally believable.

Other significant effects included a significant main effect for expected emotion, $F(1, 38) = 33.31$, $p < .05$, with stronger expected excitement ($M = 3.04$) than fear ($M = .40$), and a significant main effect for activity, $F(1, 38) = 9.09$, $p < .05$, with stronger expected emotions in response to the memories ($M = 2.88$) than to the music ($M = 2.56$). There was also a significant Activity × Target Emotion interaction, $F(1, 38) = 4.64$, $p < .05$, such that exciting memories were expected to induce more intense emotional reactions than exciting music (Ms = 3.01 and 2.51, respectively), and a significant Activity × Expected Emotion interaction, $F(1, 38) = 27.94$, $p < .05$, such that memories were expected to induce more fear than music (Ms = 2.80 and 2.01, respectively).

To confirm that participants expected fear-inducing activities to induce significantly less pleasure than excitement-inducing activities, we ran a repeated-measures ANOVA, predicting expected pleasure from activity (memories or music) and target emotion (fear or excitement) as within-subject factors, with gender as a between-subjects factor. As expected, we found a significant main effect for target emotion, $F(1, 38) = 190.09$, $p < .05$, such that excitement-inducing activities were expected to yield significantly more pleasure than fear-inducing ones (Ms = 3.93 and 1.59, respectively). The analysis also yielded a significant Gender × Activity × Target Emotion interaction, $F(1, 38) = 4.91$, $p < .05$, such that women expected to feel more pleasure than men in response to the excitement-inducing music (Ms = 4.1 and 3.7, respectively) and less pleasure than men in response to the fear-inducing music (Ms = 1.43 and 1.80, respectively). No other effect was significant (Fs < 1). Taken together, these findings confirm that participants understood the emotional consequences of the activities they rated.

Emotional preferences. We predicted that participants would have stronger preferences for fear-inducing activities when expecting to pursue an avoidance goal and stronger preferences for excitement-inducing activities when expecting to pursue an approach goal. To assess preferences for a specific emotion when pursuing a particular goal, we averaged across preferences for stimuli with the same target emotion and games that reflect the same goal, separately for music and memories. Reliability estimates ranged from .40 to .88 (mean $\alpha = .68$). To test our prediction, we ran a repeated measures ANOVA with activity (memories or music), goal (approach, avoidance, or control) and emotion (fear or excitement) as within-subject factors and gender as a between-subjects factor.

As predicted, we found a significant Goal × Emotion interaction, $F(2, 38) = 78.47$, $p < .05$. As shown in Figure 1, participants had stronger preferences for fear-inducing activities when expecting to play games that involved an avoidance (vs. approach) goal and stronger preferences for excitement-inducing activities when expecting to play games that involved an approach (vs. avoidance) goal. When participants expected to play games in which they needed to avoid a threat, they wanted to engage in activities that would make them afraid more than activities that would make them excited. When participants expected to play games in which they needed to approach a reward, the opposite was true. Follow-up paired-sample t tests indicated that these differences were significant, ts(39) > 10.34, ps < .05.

The analysis also yielded a significant Activity × Goal × Emotion interaction, $F(2, 38) = 27.09$, $p < .05$. Preferences for fear-inducing music were significantly greater than preferences for excitement-inducing music when anticipating threatening games (Ms = 5.25 and 2.64, respectively). However, preferences for excitement- and fear-inducing memories in the threatening context were equivalent (Ms = 4.50 and 4.13, respectively).

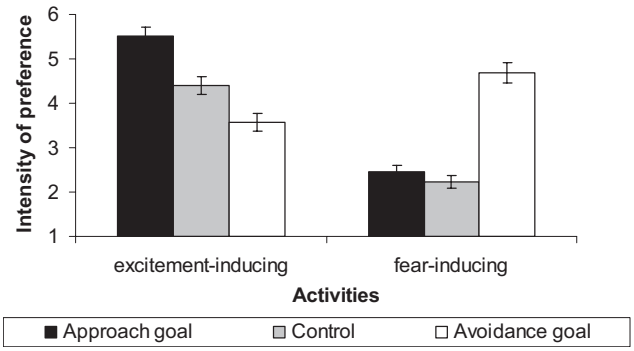

Figure 1. Preferences for fear- and excitement-inducing activities when preparing to pursue an avoidance goal, an approach goal, and neither (Study 1).

There was a significant main effect for emotion, $F(1, 38) = 72.32$, $p < .05$, with stronger preferences for excitement-inducing ($M = 4.50$) than fear-inducing ($M = 3.13$) activities. This effect was qualified by a significant Emotion × Gender interaction, $F(1, 38) = 4.62$, $p < .05$, with men showing stronger preferences for fear-inducing activities compared with women (Ms = 4.59 and 2.87, respectively). The analysis yielded a significant main effect for goal, $F(2, 38) = 18.78$, $p < .05$, so that participants showed weaker preferences for emotion-inducing activities when anticipating playing games that reflected neither approach nor avoidance goals (Ms = 3.99, 4.13 and 3.32, for approach, avoidance, and control games, respectively). A significant Activity × Goal interaction, $F(2, 38) = 13.55$, $p < .05$, indicated that preferences for music were strongest in the avoidance context, whereas preferences for memories were strongest in the approach context (Ms = 4.32 and 4.19, respectively). No other effects were significant (Fs < 2.18).

To test whether concurrent emotional experience influenced emotional preferences, we centered experienced fear and excitement and entered them as covariates in the preceding analysis. The findings remained unchanged. The only significant effect involving concurrent emotion was a Concurrent Fear × Activity interaction, $F(1, 38) = 4.83$, $p < .05$, in which the more fearful participants were, the weaker were their preferences for music compared with memories (rs = −.23 and .16, respectively). Thus, emotional preferences were not determined by concurrent emotional experiences.

Emotional preferences and expected emotional reactions. To some extent, people differ in their emotional reactions to emotion-inducing activities. If people want to feel fear when anticipating the pursuit of an avoidance goal, they should select activities that they expect would make them feel afraid, even if these activities are unlikely to make other people afraid. If this is the case, preferences for emotion-inducing activities should be associated with the anticipated emotional reactions to these activities. To test whether this is the case, we correlated preferences for emotion-

inducing activities in the context of approach and avoidance goals with expected feelings of fear and excitement in response to fear- and excitement-inducing activities.

As shown in Table 1, preferences for emotion-inducing activities were significantly and positively correlated with the expected emotional reactions to these activities. The more fearful participants expected to feel in response to fear-inducing activities, the more they wanted to engage in them when preparing to pursue an avoidance goal. The more excited participants expected to feel in response to excitement-inducing activities, the more they wanted to engage in that activity when preparing to pursue an approach goal. Interestingly, the more participants expected to feel excited in response to a fearful activity, the more they wanted to engage in that activity when preparing to pursue an approach goal. This suggests that on average, participants wanted to experience emotions geared toward the motivational context at hand.

Discussion

The findings of Study 1 demonstrate that preferences for fear and excitement depend on the goals being pursued. Preferences for fear were higher when participants expected to play threatening games in which fear could promote successful avoidance. In contrast, preferences for excitement were higher when participants expected to play rewarding games in which excitement could promote successful approach. More important, when participants were anticipating the pursuit of an avoidance goal, they actually wanted to increase their fear more than their excitement, despite the fact that they knew the fear-inducing activities would be unpleasant.

As might be expected, preferences for music differed somewhat from preferences for memories. However, the pattern of emotional preferences was replicated across these two different types of activities. Furthermore, the pattern of preferences for emotion-inducing activities corresponded to the anticipated emotional reactions to these activities, confirming that people preferred the activities because of their anticipated emotional implications. Finally, emotional preferences were unrelated to concurrent emotional experiences, ruling out the possibility that people preferred activities that were consistent with how they were feeling at the time.

Table 1
Simple Correlations Between Preferences for Fear- and Excitement-Inducing Activities When Preparing To Pursue Avoidance and Approach Goals and the Expected Emotional Reactions to These Activities (Study 1)

Preferences for activities before goal pursuits	Expected reactions to fearful activities		Expected reactions to exciting activities	
	Fear	Excitement	Fear	Excitement
Fearful				
Avoidance	**.33***	.34*	.12	.27
Approach	−.11	**.51***	.33*	−.08
Exciting				
Avoidance	−.02	.16	**.07**	.07
Approach	.29	.22	.04	**.54***

Note. Boldface type indicates support for hypothesized matches between preferences for an activity in a particular motivational context and the expected emotional impact of the activity.
* $p < .05$.

Study 2

Study 2 extends the findings of Study 1 in several important ways. First, in Study 2 we examined preferences for fear, excitement, and anger. We expected participants to have stronger preferences for fear-inducing activities than excitement- or anger-inducing activities when preparing to pursue an avoidance goal, but stronger preferences for anger-inducing activities when preparing to pursue a confrontational goal. Second, to examine whether emotional preferences were guided by considerations of utility, in Study 2 we assessed the expected utility of fear, excitement, and anger. Participants were given the opportunity to become familiar with a typical (i.e., confrontational) computer game and then asked how well they expected to play the game when feeling afraid, excited, and angry. We predicted that participants who believed fear should be useful for the task would have stronger preferences for fear, participants who believed excitement should be useful for the task would have stronger preferences for excitement, and participants who believed anger should be useful for the task would have stronger preferences for anger.

Method

Participants. Participants were 98 undergraduate students (53% female, mean age = 19.54) who were awarded $20 for their participation or received credit toward a psychology course requirement.

Procedure and materials. Participants were told that the study concerned the potential effects of the media on daily life. They were told that they would be asked to either listen to music or recall a past event from their lives and then play a computer game. As in Study 1, goals were manipulated within person and emotional preferences were assessed by having participants read bogus descriptions of computer games and rate the extent to which they wanted to listen to certain types of music and recall certain types of memories before playing the game.

Two written descriptions of computer games reflected avoidance goals (i.e., "Your goal is to be careful as you move across the spaceship in order to avoid the aliens, who are trying to kill you" and "Your goal is to quickly maneuver the dangerous map of an underground hideout, avoiding the creatures who are trying to harm you"). Two descriptions reflected approach goals (i.e., "Your goal is to build up a theme park that would attract the most visitors and make the most money" and "Your goal is to serve as many customers in this restaurant as possible to obtain the most tips and keep customers satisfied"), and two descriptions reflected confrontational goals (i.e., "Your goal is to avenge the murder of your spouse by hunting down and killing the murderers" and "Your goal is to inflict as much pain as possible on your opponents by hitting them as frequently as possible"). A pilot study ($N = 6$) confirmed that the games described in all scenarios appeared to be equally interesting and engaging, $t(5) < 1$.

As in Study 1, participants first rated their preferences for music. On each trial, the game scenario was presented on the

screen for 5 s, then participants listened to a music clip for 30 s and rated the extent to which they preferred listening to that type of music before playing the game, using a 7-point scale (1 = *not at all,* 7 = *extremely*). All stimuli were presented on the computer in E-Prime. Games and music were paired on a random basis, resulting in 36 trials. The musical clips included the same fearful and exciting clips used in Study 1 and two anger-inducing clips (i.e., *Refuse/Resist* in *Inquisition Symphony* by Apocalyptica [Tuppinen, E., 1998] and Track 8 in () by Sigur Rós [Birgisson, Dyrason, Holm, & Sveinsson, 2002]). A pilot test ($N = 10$) confirmed that the angry music induced greater anger than the fearful or exciting music (*M*s = 5.4, 0.00, and 0.00, respectively); the fearful music induced greater fear than the angry or exciting music (*M*s = 5.80, .80, and 0.00, respectively); and the exciting music induced greater excitement than the angry or fearful music (*M*s = 6.00, 0.30, and 1.90, respectively), $t(9) > 2.67$, $p < .05$. The clips did not vary by arousal or familiarity ($F < 1.9$).

After rating preferences for music, participants rated their preferences for memories. To increase reliability, memories varied by emotion (excitement, fear, or anger) and by content (concerning friends or concerning strangers), resulting in six memories (e.g., "An event in which you felt angry, concerning friends"). On each trial, the game description was presented for 5 s, and then the description of the memory was presented until a response was made. Games and memories were paired on a random basis, resulting in 36 trials.

After rating preferences for music and memories, participants rated their current emotional experiences on a scale ranging from 0 (*not at all*) to 8 (*extremely*). To assess feelings of fear, we averaged across ratings of *afraid*, *nervous*, *worried*, and *distressed* ($\alpha = .74$). To assess feelings of excitement, we averaged across ratings of *excited*, *enthusiastic*, *happy*, and *cheerful* ($\alpha = .80$). To assess feelings of anger, we averaged across ratings of *angry*, *irritated*, *hostile*, and *aggressive* ($\alpha = .79$). To support our cover story, participants were also asked to indicate the extent to which they were currently thinking about a variety of issues (e.g., work, relationships, school, family, sports).

At this point, participants were told that they would play a commercial game called *Soldier of Fortune.* They were given a short tutorial on the game and asked to play it for several minutes. After playing the game, participants rated how well they expected to play the game, which is confrontational in nature, when feeling specific emotions, using a scale ranging from 0 (*not at all well*) to 8 (*extremely well*). To assess the expected utility of fear, we averaged across expected performance when nervous and distressed ($\alpha = .61$). To assess the expected utility of excitement, we averaged across expected performance when excited and happy ($\alpha = .63$). To assess the expected utility of anger, we averaged across expected performance when angry and aggressive ($\alpha = .60$).

Results

Expected emotional reactions to emotion-inducing activities. To confirm that participants understood the emotional consequences of the activities they rated in the emotion preferences task, we ran a repeated-measures ANOVA with activity (music or memories), target emotion (excitement, fear, or anger), and expected emotion (excitement, fear, or anger) as three within-subject variables and gender as a between-subjects variable. As predicted, the analysis yielded a significant Target Emotion × Expected Emotion interaction, $F(4, 92) = 693.60$, $p < .05$. Participants expected to feel more fear than anger or excitement in response to fearful activities (*M*s = 3.10, 2.54, and 1.66, respectively), more anger than fear or excitement in response to angry activities (*M*s = 3.25, 2.59, and 1.72, respectively), and more excitement than fear or anger in response to exciting activities (*M*s = 3.82, 1.56, and 1.31, respectively). Follow-up paired-sample *t* tests indicated these differences were significant, ts$(96) < 3.30$, $p < .05$.

The analysis also yielded a significant Target Emotion × Expected Emotion × Gender interaction, $F(4, 92) = 2.49$, $p < .05$, so that compared with men, women expected to experience more excitement in response to exciting activities (*M*s = 3.76 and 3.88 for men and women, respectively) and less excitement in response to fearful activities (*M*s = 1.75 and 1.56 for men and women, respectively) and angry activities (*M*s = 1.89 and 1.54 for men and women, respectively). The predicted two-way interaction reported earlier was preserved across men and women.

To confirm that people expected fear- and anger-inducing activities to induce significantly less pleasure than exciting ones, we ran a repeated-measures ANOVA with activity (music or memories) and target emotion (excitement, fear, or anger) as two within-subject factors and gender as a between-subjects factor. As predicted, there was a main effect for target emotion, $F(2, 96) = 667.72$, $p < .05$, so that excitement-inducing activities were expected to be more pleasant than fear- or anger-inducing ones (*M*s = 3.70, 1.44, and 1.43, respectively). The analysis also yielded a significant Activity × Target Emotion interaction, $F(2, 96) = 5.71$, $p < .01$, so that fearful and angry music were expected to be more pleasant than fearful and angry memories (*M*s = 1.58 and 1.63 for fearful and angry music and *M*s = 1.28 and 1.25 for fearful and angry memories, respectively). Taken together, these analyses demonstrate that participants expected the activities they rated in the emotional preference task to induce their respective target emotions.

Emotional preferences. To assess preferences for a specific emotion when pursuing a particular goal, we averaged across preferences for stimuli with the same target emotion and games that reflect the same goal, separately for music and memories. Reliability estimates ranged from .69 to .89 (mean $\alpha = .78$). To test our prediction, we ran a repeated-measures ANOVA with activity (music or memories), goal (approach, avoidance, or confrontation), and emotion (excitement, fear, or anger) as within-subject factors and gender as a between-subjects factor.

As predicted, we found a significant Goal × Emotion interaction, $F(4, 92) = 310.47$, $p < .05$. As shown in Figure 2 and consistent with our predictions, participants had significantly stronger preferences for fear when preparing to pursue avoidance (vs. approach or confrontation) goals. Such preferences were greater than preferences for anger or excitement. Participants had significantly stronger preferences for excitement when preparing to pursue approach goals (vs. avoidance or confrontation) goals. Such preferences were stronger than those for anger or fear. Finally, participants had significantly stronger preferences for anger when preparing to pursue confrontation (vs. avoidance or approach) goals. Such preferences were stronger than those for excitement or fear. Follow-up *t* tests confirmed that all cells were significantly different from one another, $t(96) > 2$. As predicted,

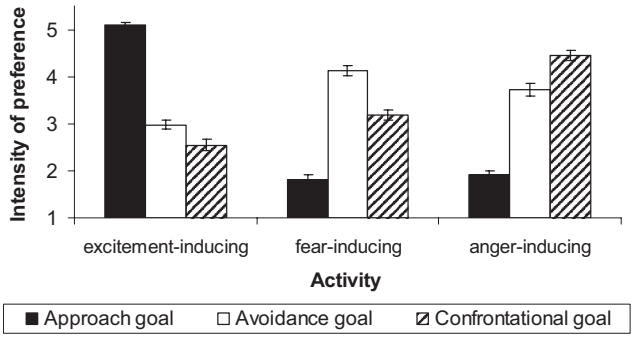

Figure 2. Preferences for fear-, excitement-, and anger-inducing activities when preparing to pursue an avoidance goal, an approach goal, and a confrontational goal (Study 2).

our Emotion × Goal interaction did not differ significantly as a function of gender, $F(4, 92) < 1.67$.

The analysis also yielded a significant Activity × Emotion × Game interaction, $F(4, 96) = 41.28$, $p < .05$. The pattern reported earlier was replicated across music and memories, except for the fact that participants showed equivalent preferences for anger-inducing music when preparing to pursue confrontation and avoidance goals (*M*s = 4.69 and 4.57, respectively), whereas this was not the case with preferences for memories (*M*s = 4.20 and 2.85, respectively).

The interaction described earlier qualified main effects for activity, $F(1, 96) = 4.32$, $p < .05$, with stronger preferences for music than for memories (*M*s = 3.40 and 3.22, respectively); emotion, $F(2, 96) = 15.80$, $p < .05$, with stronger preferences for excitement ($M = 3.54$) than for anger ($M = 3.36$) or fear ($M = 3.04$); and a main effect for goal, $F(2, 96) = 63.79$, $p < .05$, with weaker preferences when preparing for approach than confrontation and avoidance goal pursuits (*M*s = 2.94, 3.61, and 3.39, respectively).

Although less central to our hypotheses, the analysis also yielded a significant Activity × Emotion interaction, $F(2, 96) = 34.51$, $p < .05$, for which preferences for anger-inducing music were higher than for excitement-inducing music (*M*s = 3.70 and 3.30, respectively), yet preferences for excitement-inducing memories were higher than those for anger-inducing memories (*M*s = 3.79 and 3.02, respectively), regardless of the goal context. There was also a significant Activity × Game interaction, $F(2, 96) = 26.10$, $p < .05$, such that participants had stronger preferences for all types of music when preparing to play a confrontational game, whereas this was not true for memories (*M*s = 3.89 and 3.32 for preferences for music and memories before a confrontational game, respectively).

To test whether concurrent emotional experiences influenced emotional preferences, we ran the preceding analysis using centered ratings of concurrent fear, excitement, and anger as covariates. The main findings remained unchanged, and none of the effects with concurrent emotions were significant (*F*s < 2.50).

Emotional preferences and expected emotional reactions. To test whether participants preferred activities they believed would make them afraid when anticipating an avoidance game, activities that would make them excited when anticipating an approach game, and activities that would make them angry when anticipating a confrontational game, we correlated preferences for emotion-inducing activities with expected emotional reactions in response to fear-, excitement-, and anger-inducing activities. As shown in Table 2, our predictions were largely supported. The more fearful participants expected to feel in response to either fear- or anger-inducing activities, the more they wanted to engage in them when preparing to pursue an avoidance goal. The more angry participants expected to feel in response to either anger- or fear-inducing activities, the more they wanted to engage in those activities when preparing to pursue a confrontational goal. Finally, the more excited they expected to feel in response to excitement-, anger-, or fear-inducing activities, the more they wanted to engage in those activities when preparing to pursue an approach goal.

Table 2
Simple Correlations Between Preferences for Emotion-Inducing Activities When Preparing To Pursue Avoidance, Approach, and Confrontational Goals and the Expected Emotional Reactions to These Activities (Study 2)

Preferences for activities before goal pursuits	Expected reactions to fearful activities			Expected reactions to exciting activities			Expected reactions to angry activities		
	Fear	Excitement	Anger	Fear	Excitement	Anger	Fear	Excitement	Anger
Fearful									
Avoidance	**.48***	.29*	.37*						
Approach	.31*	**.34***	.10						
Confrontational	.07	.29*	**.33***						
Exciting									
Avoidance				**−.05**	.34*	.03			
Approach				.26*	**.57***	.10			
Confrontational				−.04	.16	**−.04**			
Angry									
Avoidance							**.42***	.38*	.51*
Approach							.08	**.34***	.06
Confrontational							.30*	.33*	**.43***

Note. Boldface type indicates support for hypothesized matches between preferences for an activity in a particular motivational context and the expected emotional impact of the activity.
* $p < .05$.

Expected utility of emotions and emotional preferences. We predicted that participants would view anger as most useful for playing confrontational games, compared with excitement or fear. To test this prediction, we ran a repeated measures ANOVA with emotion (excitement, fear, or anger) as a within-subject factor and gender as a between-subjects factor. As predicted, this resulted in a significant main effect for emotion, $F(2, 96) = 85.33$, $p < .05$, such that participants expected anger to be the most useful for performance in the confrontational game ($M = 5.47$), followed by excitement ($M = 4.98$), and fear ($M = 2.79$). Paired-sample t tests confirmed that these expectancies were significantly different from each other, $ts(96) > 2.13$. We repeated this analysis with experienced fear, excitement, and anger as centered covariates. None of the effects with concurrent emotion experience were significant, indicating that experienced emotions did not determine expected utility ($Fs < 1$).

More important, we expected emotional preferences to be linked to expected emotional utility. To test this prediction, we correlated expected emotional utility with emotional preferences. As shown in Table 3, we found significant associations between emotional preferences in the confrontational context and expected emotional utility. The more participants expected anger to be useful, the stronger were their preferences for anger-inducing activities; the more they expected fear to be useful, the stronger were their preferences for fear-inducing activities; and the more they expected excitement to be useful, the stronger were their preferences for excitement-inducing activities.

As an additional test of our hypotheses, we ran a series of linear regressions, predicting emotional preferences in preparation for a confrontational game, with the expected utility of fear, excitement, and anger as simultaneous predictors. When predicting preferences for fear in a confrontational context, the only significant predictor was the expected utility of fear, $s\beta = 0.39$, $t(95) = 3.70$, $p < .05$. When predicting preferences for excitement in a confrontational context, the only significant predictor was the expected utility of excitement, $s\beta = 0.21$, $t(95) = 2.13$, $p < .05$. When predicting preferences for anger in a confrontational context, none of the predictors were significant when entered simultaneously, $ts(95) < 1.56$.

Discussion

The results of Study 2 provide direct support for our hypotheses. First, we were able to demonstrate that people prefer to experience emotions that may promote their goal attainment. This was simultaneously demonstrated in the context of three different emotions (i.e., fear, excitement, or anger) and the goals associated with them (i.e., avoidance, approach, or confrontation). Furthermore, we were able to show that emotional preferences were emotion but not valence specific because participants showed strong preferences for fear, but not anger, when pursuing an avoidance goal, and strong preferences for anger, but not fear, when pursuing a confrontational goal.

Second, consistent with the proposed utilitarian underpinnings of such preferences, emotional preferences corresponded to the expected utility of emotions in a specific motivational context. Participants who believed that fear would be useful for a confrontational task preferred to feel fear before engaging in such a task. Participants who believed anger would be useful for the task preferred to feel angry. Finally, participants who believed excitement would be useful for the task preferred to feel excited.

Table 3
Simple Correlations Between Preferences for Fear, Excitement, and Anger, When Anticipating a Confrontational Goal Pursuit and the Expected Utility of These Emotions in That Context (Study 2)

	Preferences for activities		
Expected utility	Fear inducing	Excitement inducing	Anger inducing
Fear	**.41***	.13	.15
Excitement	.003	**.20***	.05
Anger	.23*	.01	**.21***

Note. Boldface type indicates support for hypothesized matches between preferences for an activity in a particular motivational context and the expected emotional impact of the activity.
* $p < .05$.

General Discussion

According to the instrumental approach to emotion regulation (Tamir, 2005; Tamir et al., 2007, 2008), short-term pleasure is not the only determinant of emotional preferences. Instead, people may prefer to feel even unpleasant emotions when such emotions can potentially promote goal attainment. Consistent with this approach, the current studies demonstrate that people actually want to be afraid (vs. excited or angry) as they prepare to pursue avoidance goals. By demonstrating that people are willing to increase their fear when preparing to pursue an avoidance goal, despite the unequivocally aversive nature of such experience, the current findings provide direct support for the predictions of the instrumental approach.

Ruling Out Alternative Hypotheses

Did participants in our studies want to feel fear because of its utility, or did they prefer to engage in fear-inducing activities for other reasons? The current studies allowed us to rule out several competing hypotheses. First, perhaps participants preferred fear-inducing activities because they already felt fear and such activities were consistent with their feelings. This, however, was not the case. Participants in both studies reported experiencing very little fear ($M = 1.45$, $SD = 1.42$, in Study 1; $M = 1.29$, $SD = 1.28$, in Study 2). In addition, emotional preferences remained unchanged when controlling for concurrent emotional experiences.

Second, perhaps preferences for emotion-inducing activities simply reflected prior experience with computer games, many of which include background music. However, our findings suggest otherwise because the same pattern of emotional preferences emerged when participants rated preferences for music to listen to and memories to recall before playing the game.[3]

Third, perhaps participants did not understand the emotional consequences of the activities they rated or expected fear-inducing activities to be pleasant (see Andrade & Cohen, 2007). This,

[3] In both studies, we asked participants to report the frequency with which they play computer games and entered this variable as a covariate in our analyses. In both studies, doing so did not change our Emotion × Goal interactions, $F(2, 38) < 2.25$ in Study 1 and $F(4, 92) < 1$ in Study 2.

however, was not the case. In both Studies 1 and 2, participants understood that fear-inducing activities would increase their level of fear and expected such activities to be significantly less pleasant compared with other activities.

Fourth, perhaps preferences for fear-inducing activities were not driven by the anticipated emotional impact of such activities, but by other irrelevant factors (e.g., perhaps recalling a fearful memory could bring to mind effective avoidance strategies). Our findings, however, demonstrate that preferences for emotion-inducing activities were associated with anticipated emotional reactions. In both Studies 1 and 2, the more participants expected an activity to make them feel afraid, the more they wanted to engage in that activity before playing a game that required successful avoidance.

Finally, perhaps preferences for emotion-inducing activities were not driven by utility per se. For instance, preferences may reflect what participants believe are appropriate emotional reactions. Although preliminary, the findings in Study 2 demonstrate that preferences for emotion-inducing activities are, indeed, associated with the expected utility of emotions, at least in some contexts. Consistent with the assumptions of value-expectancy models (e.g., Fishbein & Ajzen, 1974), the more participants expected an emotion to be useful for a specific goal pursuit, the more likely they were to try to increase the experience of that emotion when expecting to pursue that goal.

Taken together, these findings are consistent with the idea that preferences for emotions can be driven by instrumental considerations, such that people are willing to increase their own level of fear when they expect it to be useful for the task at hand.

Limitations and Future Directions

The current findings also leave several important questions for future research. First, in using fictitious computer games to manipulate goals, the current findings provide a conservative test of our hypothesis. If participants are willing to be afraid when they expect to promote the pursuit of a goal that is not personally meaningful, we would expect such motives to be even stronger in the context of personally relevant goal pursuits. To test this hypothesis, however, future research should assess motives for emotional experience in the context of goal pursuits as they occur in daily life.

Second, the findings of Study 2 demonstrate that emotional preferences may be associated with the expected utility of emotion. To ensure participants understood the task at hand and could assess the utility of emotions for the task, we presented them with an example of a concrete confrontational game. Because many computer games are confrontational in nature, we were able to use a commercial computer game to this end. The limitation of doing so, however, was that we could only assess the expected utility of emotions in the context of confrontational goal pursuits. Future research should assess beliefs about the utility of emotions in the context of avoidance and approach goals and the extent to which such beliefs are linked to emotional preferences in those contexts. We would expect people to be motivated to increase their level of fear when they expect fear to be useful for goal pursuit, regardless of whether such belief is substantiated (see Tamir et al., 2007).

There was another motivation to assess beliefs about the utility of emotions in the context of a confrontational computer game. Our prior research (Tamir et al., 2008) demonstrated that anger promotes successful performance in this game. Therefore, by examining the expected utility of emotions for performance in the game, we could indirectly examine the accuracy of participants' beliefs about the utility of their emotions. Our findings suggest that people are generally accurate in their beliefs because most people expected anger to be useful for the task. However, future research is needed to examine beliefs about the utility of emotions as well as performance outcomes in the same experimental context. In this respect, it may be particularly constructive to assess whether being afraid promotes successful avoidance performance and whether such effects are reflected in the layperson's beliefs about the utility of fear.

Finally, the current findings demonstrate that emotional preferences vary as a function of their potential utility. Specifically, participants preferred to engage in fear-inducing activities more than excitement-inducing ones when they prepared to play a game that required them to avoid threats. An important question that remains, however, is how intensely people want to feel fear as they prepare for subsequent goal pursuits. One possibility, for example, is that people prefer to feel fear only if it is experienced at a low intensity. Another possibility is that people prefer to feel fear at a level of intensity that is optimal for performance. Yet another possibility is that people prefer to feel fear at any level of intensity. These questions and others can be addressed empirically in future research to delineate how people strategically use their emotions in ways that benefit them in daily life.

References

Andrade, E. B., & Cohen, J. B. (2007). On the consumption of negative feelings. *Journal of Consumer Research, 34,* 283–300.

Atkinson, J. W. (1958). *Motives in fantasy, action, and society: A method of assessment and study.* Princeton, NJ: Van Nostrand.

Bentham, J. (1968). An introduction to the principles of morals and legislation. In A. L. Page (Ed.), *Utility theory: A book of readings* (pp. 3–29). New York: Wiley. (Original work published 1823)

Berkowitz, L., & Harmon-Jones, E. (2004). Toward an understanding of the determinants of anger. *Emotion, 4,* 107–130.

Birgisson, J., Dyrason, O., Holm, G., & Sveinsson, K. (2002). Untitled 8. [Recorded by Sigur Ros]. On *( )* [CD]. Los Angeles, CA: MCA Records.

Carver, C. S. (2001). Affect and the functional bases of behavior: On the dimensional structure of affective experience. *Personality and Social Psychology Review, 5,* 345–356.

Charest, B. (2004). Opening theme [Recorded by J. C. Donda]. On *Les triplets de Belleville* [CD]. New York, NY: Higher Octave.

Edwards, W. (1954). The theory of decision making. *Psychological Bulletin, 51,* 380–417.

Erber, R., & Erber, M. W. (2000). The self-regulation of moods: Second thoughts on the importance of happiness in everyday life. *Psychological Inquiry, 11,* 142–148.

Erber, R. Wegner, D. M., & Therriault, N. (1996). On being cool and collected: Mood regulation in anticipation of social interaction. *Journal of Personality and Social Psychology, 70,* 757–766.

Fishbein, M., & Ajzen, I. (1974). Attitudes towards objects as predictors of single and multiple behavioral criteria. *Psychological Review, 81,* 59–74.

Frijda, N. (1986). *The emotions.* London: Cambridge University Press.

Hannan, J. (2002). Dreamoz [Recorded by L. De Lanka]. On *Lazy dog volume 2* [CD]. New York, NY: Astralwerks.

Harmon-Jones, E. (2003). Anger and the behavioral approach system. *Personality and Individual Differences, 35,* 995–1005.

Harmon-Jones, E., & Allen, J. J. B. (1998). Anger and frontal brain

activity: EEG asymmetry consistent with approach motivation despite negative affective valence. *Journal of Personality and Social Psychology, 74,* 1310–1316.

Julyan, D. (2006). Bone dam. On *The descent* [CD]. London, England: Cooking Vinyl.

Kahneman, D., & Snell, J. (1990). Predicting utility. In R. M. Hogarth (Ed.), *Insights in decision making: A tribute to Hillel J. Einhorn* (pp. 295–310). Chicago: University of Chicago Press.

Lerner, J. S., & Tiedens, L. Z. (2006). Portrait of the angry decision maker: How appraisal tendencies shape anger's influence on cognition. *Journal of Behavioral Decision Making, 19,* 115–137.

Mischel, W., Shoda, Y., & Rodriguez, M. L. (1989, May 26). Delay of gratification in children. *Science, 244,* 933–938.

Ohman, A. (1993). Fear and anxiety as emotional phenomena: Clinical phenomenology, evolutionary perspectives, and information-processing mechanisms. In M. Lewis & J. Haviland (Eds.), *Handbook of emotions* (pp. 511–536). New York: Guilford Press.

Parrott, W. G. (1993). Beyond hedonism: Motives for inhibiting good moods and for maintaining bad moods. In D. M. Wegner & J. W. Pennebaker (Eds.), *Handbook of mental control* (pp. 278–305). Englewood Cliffs, NJ: Prentice Hall.

Parrott, W. G. (2001). Implications of dysfunctional emotions for understanding how emotions function. *Review of General Psychology, 5,* 180–186.

Russell, J., & Barrett, L. F. (1999). Core affect, prototypical emotional episodes, and other things called emotion: Dissecting the elephant. *Journal of Personality and Social Psychology, 76,* 805–819.

Salvay, B. (2003). Endtitles. On *Jeepers creepers 2* [CD]. Los Angeles, CA: Varese Sarabande.

Tamir, M. (2005). Don't worry, be happy? Neuroticism, trait-consistent affect regulation, and performance. *Journal of Personality and Social Psychology, 89,* 449–461.

Tamir, M. (in press). What do people want to feel and why? Pleasure and utility in emotion regulation. *Current Directions in Psychological Science.*

Tamir, M., Chiu, C. Y., & Gross, J. J. (2007). Business or pleasure? Utilitarian versus hedonic considerations in emotion regulation. *Emotion, 7,* 546–554.

Tamir, M., Mitchell, C., & Gross, J. J. (2008). Hedonic and instrumental motives in anger regulation. *Psychological Science, 19,* 324–328.

Tice, D. M., & Bratslavsky, E. (2000). Giving in to feel good: The place of emotion regulation in the context of general self-control. *Psychological Inquiry, 11,* 149–159.

Tsai, J. L., Miao, F. F., Seppala, E., Fung, H. H., & Yeung, D. Y. (2008). Influence and adjustment goals: Sources of cultural differences in ideal affect. *Journal of Personality and Social Psychology, 92,* 1102–1117.

Tuppinen, E. (1998). Refuse/resist [Recorded by Apocalyptica]. On *Inquisition symphony* [CD]. Los Angeles, CA: Mercury Records.

Watson, D., Wiese, D., Vaidya, J., & Tellegen, A. (1999). The two general activation systems of affect: Structural findings, evolutionary considerations, and psychobiological evidence. *Journal of Personality and Social Psychology, 76,* 820–838.

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