Exploring alternative deterrents to emotional intensity: Anticipated happiness, distraction, and sadness[*]

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Abstract:

A recent theory of emotional intensity (Brehm, 1999) argues that emotions are functionally identical to motivational states. Like motivational states, the intensity of an emotion should be a joint function of the importance of instigating events and the magnitude of deterrence to the emotion. "Deterrence" is definable as impediments or forces that interfere with the experience or expression of the emotion— reasons for not feeling what one is feeling. When experiencing an emotion, a person will feel it more intensely as the reasons for not feeling that emotion increase, up to a point. When great enough, the reasons for not feeling the emotion overwhelm it and reduce it to a low level. The deterrents investigated thus far have all involved events whose valence opposes the emotion's valence. Two experiments explore the breadth of events that have deterrent power. The first was designed to see if merely anticipating an event of opposite valence has a deterrent effect on an emotion. The second explored whether an affectively neutral stimulus (background noise) would also have deterrent effects. The results of the first experiment partially supported the theory, whereas the results of the second provided complete support.

Article:

A recent theory (Brehm, 1999; Brehm & Brummett, 1998) attempts to explain the determinants of emotional intensity within a framework provided by earlier research on motivational intensity (Brehm &Self, 1989; Wright, 1996; Wright & Brehm, 1989). Both approaches emphasise immediate contextual and cognitive factors that influence moment-to-moment changes in intensity, such as the importance of an event and the perceived difficulty of instrumental action. Integrating these two areas only requires the assumption that emotional states are fundamentally motivational states. This notion can be traced to the early writings of Darwin (1872/1998) and others (e.g., Lund, 1939; McDougall, 1908/ 1960), although contemporary ideas of emotion and motivation usually take the work of Silvan Tomkins (1962, 1963) and Magda Arnold (1960) as their starting point.

Tomkins (1962) argued that emotions are "the basic wants and don't wants of the human being" (p. 21). People do not need to learn to like the experience of happiness or dislike the feelings of distress and shame—emotions are inherently rewarding and punishing. The innate significance of emotions enables them to serve as "the primary motivational system" (p. 6). Emotions motivate behaviour by making the organism care about certain events and thereby activating and organising other systems (perceptual, cognitive-symbolic, motor) to adapt to the events.

But emotions do not simply motivate single actions aimed at single events. The human's core dilemma is that he or she cares about a great many things. People have many important goals and a near infinite number of possible things they could be doing at any given time. The key to an emotion's motivational power is that it changes the momentary significance of a person's many goals. A person encountering a dangerous dog, for example, cares about avoiding the dog and gives little attention to previous actions or thoughts. The notion that

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emotions do not simply urge action toward one goal but rather regulate action more broadly by also prioritising and organising behavioural options has influenced later ideas about emotion (e.g., Oatley & Johnson-Laird, 1996; Simon, 1967).

The intensity aspect of emotion thus becomes critical for several reasons. First, events differ in their demands for action. Variable levels of intensity enable fine-grained and efficient adaptation to more and less important events. Second, and more relevant to our concerns, an emotion needs to compete with other signals and possible emotions. Given the multiplicity of goals, a given emotion cannot organise and control action unless it can overwhelm other possible emotions and problems. One means of monopolising behaviour is to increase an emotion's intensity and thus its priority over other signals. Emotions, in this view, can become more intense when other concerns become prominent and threaten to divert activity (Tomkins, 1962, p. 295).

"Difficulty" and motivational intensity

This brief overview suggests that the functional link between motivation and emotion is fundamental. If we take this link literally, then the causes of emotional intensity should be essentially the same as the causes of motivational intensity (Brehm &Self, 1989). Past work has shown that motivational arousal is jointly influenced by the *importance* of a goal and the *difficulty* of achieving it. Importance does not directly influence actual intensity—it only sets the "potential intensity", which is the ceiling on how much a person is willing to do or endure to achieve the goal (Brehm &Self, 1989). Actual intensity, as measured by the goal's attractiveness (Wright &Brehm, 1989) or by cardiovascular indices of effort (Wright, 1996), is determined by the difficulty of action needed for goal attainment.

When the level of difficulty is unknown, motivational intensity is at the high level established by the goal's importance. This reflects the system's "liberal conservatism". The motivational system is primarily designed to achieve goals; resource conservation is secondary when the two conflict. It is generally better to excessively energise and actually get the goal when difficulty is unknown because saving some energy is not terribly important to a starving or dead organism. Yet when difficulty is known, it determines intensity. Low difficulty leads to low levels of motivational arousal—even if a goal is important, little motivation will be aroused to achieve an easy goal. As difficulty increases, motivational intensity increases correspondingly—to a point. Motivational arousal eventually hits the ceiling established by the goal's importance. If difficulty increases beyond this point, motivational intensity will drop to a low level. Either the person is incapable of the behaviour or the goal simply is not important enough to merit the effort.

The intensity of motivation, then, follows a cubic function: it is high when difficulty is unknown, low when difficulty is known to be low, and then increases with increasing difficulty until the point is reached at which the needed action is impossible or requires more effort than the goal is worth; intensity then falls to a low level.

"Deterrence" and emotional intensity

If we agree that emotions are primarily motivational mechanisms that organise and control behaviour, as suggested by Tomkins (1962) and others (Brehm & Brummett, 1998; Izard, 1977; Oatley & Johnson-Laird, 1996), then emotional intensity should be determined by the same class of variables that determine motivational intensity. Although it is still sensible to speak of the "importance" of an emotion's goal state or the general situation that instigated an emotion, "difficulty" seems too narrow to capture the range of concerns, problems, and events that can make it more or less demanding for an emotion to effectively direct action. We thus prefer the term "deterrence", which refers to anything that impedes or acts against the function of an emotion.

We suggest that emotional intensity, like motivational intensity, is a cubic function of importance and deterrence. Importance establishes the ceiling of "potential intensity", and deterrence establishes the actual intensity of the emotional state. When deterrence is unknown, emotional intensity will be at a high level set by the ceiling of importance. Again, this reflects the fact that emotions are primarily motivational mechanisms aimed at organising and controlling behaviour. If some significant event has occurred and the difficulty of coping with it is unknown, it is better to have a maximally intense emotion that monopolises the organism's

resources and accomplishes the adaptational project. A less intense emotion, although perhaps conservative in many respects, runs the risk of being dwarfed by the uncertain demands of the situation or by some competing concern or emotion.

Yet it simply is not efficient for emotions always to be maximally intense when the level of deterrence is known. Intense emotions imperialistically monopolise consciousness, perception, and action, and the physiological demands of such states can be high (Tomkins, 1962). People are also considerably less flexible because they are less likely to notice or be capable of responding to another important event. Emotions should thus only be as intense as necessary—this enables a better use of energy and more flexible behaviour control.

As a result, when deterrence is low, emotional intensity should likewise be low. This allows fine-grained behaviour control, conserves physiological resources, and allows other events to impinge on the cognitive system. As deterrence increases, emotional intensity should likewise increase as a way of competing with the impediments to behaviour control. Emotional intensity will eventually encounter the ceiling of potential intensity. If deterrence increases beyond this point, it has essentially become more important than the event that gave rise to the original emotion, and the intensity of the original emotion will decline to some low level. These predictions are represented in Figure 1.

Emotional intensity is thus a cubic function of deterrence. It is proportional to the importance of the instigating event when the deterrence level is unknown and is then low when deterrence is known to be low. As deterrence increases intensity will increase until the potential intensity set by importance is reached. Additional deterrence will then lead to a sharp drop in emotional intensity. Similar ideas were proposed by Tomkins (1962, p. 295) in his "fourteenth hypothesis" concerning affect dynamics. He suggested "if ongoing responses are not weakened by antagonistic responses, they are strengthened by them" (p. 295). Thus, "a person who is angry is made more angry by an attempt at appeasement which produces only the weakest of smiles ... A person who is frightened is made more frightened by the reassuring smile of a well-intentioned person who cannot adequately reassure" (p. 295).

The key difference is our prediction concerning the relation between unknown deterrence and emotional intensity. The drop in intensity from the unknown deterrence to the low deterrence condition may seem counter-intuitive. Yet these two circumstances simply reflect different adaptational scenarios. In the first case, the person is uncertain exactly how hard it will be to do whatever it is that the emotion aims to do. The person thus "prepares for the worst", or at least the most difficult, by maximally energising at a level commensurate with the situation's importance. In the second case, there are few impediments to the

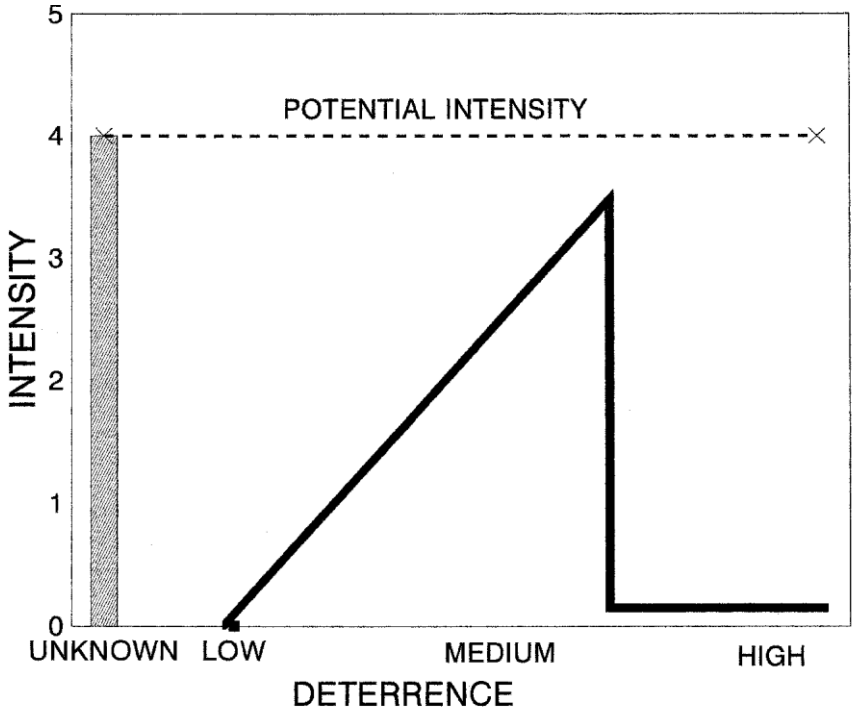

Figure 1. Predicted relationship between emotional intensity, level of deterrence, and importance.

emotion's aim and there is thus no need for a highly intense emotion. Apart from the physiological effects of sustained intense experience, such a state would dominate the person's resources and reduce the ability to notice, respond to, and pursue other concerns that might arise. The emotion is thus only as intense as it needs to be.

A series of recent studies has supported these predictions (Brehm, Brummett, & Harvey, 1999). To induce sadness, participants were asked to read a sad account that was presumably written by another undergraduate student. After reading the account, some participants (for ostensibly unrelated reasons) were given gift certificates to a local fast-food restaurant. Receiving a free gift was expected to be a deterrent to the existing state of sadness simply because it is a reason not to feel sad, or more specifically, a reason to feel happy rather than sad. To create different levels of deterrence, participants received different amounts of gift certificates. The "low deterrence" group received $1, the "medium deterrence" group received $2, and the "high deterrence" group received $3. In the "unknown deterrence" group, no gift certificates were given or mentioned. As expected, sadness was relatively high in the "unknown" condition, decreased in the "low" condition, and then increased and decreased from the "medium" to the "high" deterrence conditions. Similar results have been obtained on happiness, anger, sympathy, and well-being (see Brehm, 1999; Brehm & Brummett, 1998).

THE PRESENT STUDIES

We have proposed that deterrence is a key determinant of emotional intensity, and have defined deterrence as anything that impedes an emotion's function. Theoretically (Brehm, 1999), emotions can be deterred by antagonistic emotions, the difficulty of carrying out the emotional urge, stimuli that threatened to distract the person away from the emotion episode, or generally any reason not to experience the emotion. But past research has only considered the first of these—the deterrence of an existing emotion by reasons for an antagonistic emotion. Sadness has been deterred by reasons to be happy (Brehm et al., 1999), happiness has been deterred by reasons for sadness (D'Anello, 1997), anger has been deterred by reasons to be happy (Brummett, 1996; Dill, 1997), and sympathy for another person has been deterred by reasons for disliking the person (Billings &Brehm, 1997).

Yet it is important to support the general definition of deterrence. As indicated above, the theory is not simply concerned with emotional conflict—it relies on larger notions of emotion and behaviour control that necessitate

our broad concept of deterrence. If emotional intensity is not influenced by a wide of range of impediments, we would have to question the generality and scope of the theory. It would also suggest that past effects are attributable to some specific quality of the affective system, such as how it negotiates incompatible emotions, and not to a broad functional identity between emotion and motivation.

The present experiments thus explored alternative forms of deterrence to emotional intensity. The first study explored the effects of anticipated happiness on the intensity of sadness. The second study tested whether an affectively neutral stimulus—stimuli competing for attention—would deter sadness. Through these demonstrations, we hoped to muster support for the theory's conception of deterrence, and also to highlight what we feel are some unusual predictions. Both experiments used sadness as the initial emotion. This allowed us to compare the present exploratory studies in relation to past research, which successfully deterred sadness with reasons for happiness (Brehm et al., 1999). Sadness is also interesting from a motivational perspective because it does not seem to urge much overt motor activity. It thus enables a stronger test of our proposed conceptual link between emotional intensity and earlier research on motivational intensity, which concerned effort and cardiovascular energisation (Wright, 1996; Wright &Brehm, 1989). Much more is known about sadness as an emotion than we have noted here (e.g., Lazarus, 1991, pp. 247–253; Tomkins, 1963); the present studies confine themselves to the intensity of sadness.

Although these studies used self-reports of emotional intensity, the theory is not only concerned with how deterrence influences consciously experienced affect. Deterrence is assumed to influence emotions at a general functional level by threatening to interfere with the emotion's ability to control behaviour. Consciously experienced affect is a convenient index of the emotional response that roughly parallels changes in other emotional components, such as expressive actions (Izard, 1977).

EXPERIMENT 1: ANTICIPATED HAPPINESS AS DETERRENCE

Whereas earlier studies gave participants an actual reason to feel happy, such as gift certificates (Brehm et al., 1999) or funny cartoons (Dill, 1997), the first study led people merely to anticipate the possibility of feeling happy some time in the future. Anticipating reasons for an opposing affect is a "minimal manipulation" of deterrence—expecting a possiblemood change may be a weak reason not to feel an emotion. Expectations are often inaccurate or incorrect (Wilson & Klaaren, 1992), so people might not weigh the difficulty information provided by expectations very heavily when assessing the level of deterrence to an emotion. Because this seems like a weak deterrence manipulation, it allows a conservative test of our predictions.

Another advantage of this deterrent is that surprisingly little research has explored the intersection of emotion and expectations. One notable exception is Wilson and Klaaren's (1992) research on how expectations about an event's emotion-inducing properties can influence emotional responses to the event. A second and more tangential exception is provided by Carver and Scheier (1998), who argue that expectations regarding the rate of goal attainment generate positive and negative affect. Neither of these examples, however, concerns how expectations regarding future emotional events influence existing affective states.

We predicted a high level of sadness when the level of deterrence was unknown. Sadness was expected to decline when deterrence was perceived as low, increase as the level of deterrence increased, and eventually decline when the deterrence was high in magnitude.

METHOD

Participants

A total of 68 female undergraduates enrolled in Introductory Psychology participated in order to partially fulfil a research participation option. Participants were assigned to a "unknown", "low", "medium", or "high deterrence" condition in randomised blocks of eight. Five participants were excluded; two people were suspicious of the study's purpose, and three people failed to understand or follow the experimental procedures.

Procedure

All persons participated individually. The participant was greeted by the experimenter and seated at a table containing a cassette player and headphones, a file folder, and a white letter-size envelope. After obtaining the participant's informed consent, the experimenter explained that he was interested in people's reactions to a set of taped personal accounts that had been developed by several persons at Kansas University. The participant was told that she would be asked to listen to several taped accounts and give her reactions to them by completing a brief questionnaire after each account. The experimenter then gave the participant asheet with filler information about the first account (e.g., gender of speaker, account length) and asked her to go through the materials in the file folder after listening to it. All participants then listened to the "first account".

Sadness induction. The "first account" (in reality the only account) contained a sad essay presumably composed and narrated by a female first-year undergraduate.[1] The narrator of the sad essay described her recent experience of being dumped by her boyfriend of six years. Pre-testing and past research (Brehm et al., 1999) indicated that the sad essay reliably induced moderate amounts of sadness in female undergraduates. The recording was approximately two minutes long.

Deterrence manipulation. Participants read the contents of the file folder after listening to the sad essay. The file folder contained a brief description of the alleged "second personal account" followed by a questionnaire. In the unknown deterrence condition, the brief description simply contained filler information about the speaker's gender, the duration of the account, and when the account was made. In the low, medium, and high deterrence conditions, there was an additional paragraph that stated "this personal account has been used in a number of past studies. Many participants in these studies have described this personal account as a little/very/extremely funny and humorous", respectively. A sentence at the bottom of the sheet instructed participants to complete the attached questionnaire.

Dependent measures

Emotional intensity was measured by asking participants to indicate the extent to which they presently felt the following emotional states: fearful, happy, sad, full of pep, frustrated, tense, angry, content, "feeling down", hopeless, disgusted, surprised, full of dread, good mood, and bad mood. Although "sad" was our primary measure, past research (Brehm et al., 1999) found that "bad mood" showed similar effects, and "feeling down" was included as an exploratory measure. Participants responded on a 0–10 scale ranging from "Not at all" to "Extremely". To examine the unlikely possibility that changes in sadness were due to arousal, the PANAS (Watson, Clark, & Tellegen, 1988) was included. The five-item negative affect/active subscale served as a measure of arousal. Participants were debriefed on completion of the questionnaire.

RESULTS

Emotional intensity

Polynomial contrasts using a pooled error term were conducted to determine if the intensity of sadness in the unknown, low, medium, and high deterrence conditions followed the predicted cubic pattern. As shown in Figure 1, we predicted a decline in the intensity of sadness from the unknown to the low deterrence condition, an increase from the low to the medium deterrence condition, and then a decline from the medium to the high deterrence condition. Means for sadness and similar items are displayed in Table 1.

Sadness. Analysis of the sadness data revealed a significant cubic trend, $F(1, 59) = 4.48, p < .038$, although the pattern did not entirely conform to our predictions. The unknown deterrence condition reported significantly greater sadness than the low deterrence condition, $t(29) = 2.37, p < .025$. Sadness then increased significantly from the low to the medium deterrence condition, $t(28) = 3.22, p < .003$. The slight decrease in sadness from the medium to the high deterrence condition was not significant, ($t < 1$).

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[1] We are indebted to Amy Eshleman for skilfully reading the sad essay on to audiotape.

Other items. Polynomial contrasts failed to find any significant trends for "feeling down" and bad mood, (all *F*s < 2.51), although an inspection of the means shows that they generally parallel the trend obtained for sadness.

TABLE 1
Means for sadness and other negative emotions: Experiment 1

	Deterrence level			
	Unknown	*Low*	*Medium*	*High*
Sad	4.88	2.50	5.25	4.88
"Feeling down"	4.53	2.86	3.69	4.00
Bad mood	3.35	1.93	2.38	3.06
n	17	14	16	16

Note: Scale values range from 0 "Not at all" to 10 "Extremely".

No significant trends were obtained for any of the other emotion items. One-way ANOVAs on the positive affect items failed to find significant effects (all *F*s < 1).

Measure of arousal. The five items on the PANAS negative affect/active subscale were summed to form an arousal index. A one-way ANOVA failed to find variability among the groups ($F < 1$).

Discussion

Experiment 1 offered qualified support for our predictions. As expected, sadness was at a high level when the deterrence level was unknown. Sadness declined when deterrence was low and increased as the expected likelihood of happiness increased. Our highest level of anticipated happiness, however, failed to produce a reliable decrease in sadness. The "very funny" and "extremely funny" conditions may not have been experienced as psychologically different.

Nevertheless, the drop in sadness from the unknown to the low deterrence condition, followed by the rise in sadness with increased deterrence, demonstrate that merely anticipating the experience of an affective state that is incongruous with an existing state is enough to deter an emotion. The failure of the highest level of deterrence to produce a reliable decrease in sadness may reflect a weak manipulation or may indicate a more general weakness that expectations have in deterrent value. Experiment 2 and past research on sadness (Brehm et al., 1999) found decreases in sadness under high deterrence conditions, so we are confident in the general validity of this prediction.

Although no published criticisms of Brehm's (1999) theory have appeared, arousal-labelling (Schachter &Singer, 1962) and self-perception (Bem, 1972) are often raised as alternative explanations during informal discussions or presentations of the theory, and they merit a brief mention here. An arousal- labelling explanation assumes that the deterrent induces arousal commensurate with the deterrent's intensity. The arousal is then combined with the existing emotion to form a more or less intense emotional experience. Other problems aside, such an explanation predicts: (1) that the unknown deterrence group will experience the least sadness of all conditions because no deterrent was presented: and (2) that emotional intensity will increase from the no deterrence to the low deterrence condition due to the increase in arousal. These expectations were not supported in either the present studies or in previous studies (e.g., Brehm et al., 1999; Brummett, 1996; D'Anello, 1997).

Self-perception theory is even less plausible, if only because it is less of a theory than a perspective on the nature of self-knowledge (Wicklund &Eckert, 1992). It assumes that people judge their current emotional state by comparing their experience with environmental cues concerning intensity; different deterrence levels presumably provide different cues. Experiment 1 casts doubt on self-perception because people did not have two events to compare, such as an actual deterrent and an existing emotion. Self-perception theory also has trouble explaining the drop in intensity from the unknown to the low deterrent condition, given that there are no "intensity cues" in the unknown condition. And the self that is perceived, according to the theory, only involves

immediate and remembered behaviours. Expectations and anticipations of future self-states are thus outside of the theory's purview (Bem, 1972; Wicklund &Eckert, 1992).

EXPERIMENT 2: DISTRACTION AS DETERRENCE

Experiment 2 sought to go even farther afield from valenced deterrence by exploring distraction as a possible deterrent. If emotions function as behaviour control mechanisms and focus attention on the instigating events and concerns, then anything that competes for attention should deter the emotion. Dis- tractors, valenced or otherwise, threaten to usurp attention and thus interrupt the control of ongoing behaviour. Sadness is ideal for testing the deterrent effects of distraction because its behaviour implications suggest a resistance to distracting stimuli. Lazarus (1991), for instance, notes that "in sadness there seems to be no clear action tendency—except inaction, or withdrawal into oneself"(p. 251). Research indicating that sadness increases self-focused attention is consistent with this reasoning (Wood, Saltzberg, & Goldsamt, 1990). The inactivity and self-reflection may serve as an opportunity for the person to adjust and reorient after a loss (Klinger, 1975). Distracting stimuli might interfere with the withdrawal into the self or self-reflection, and should therefore act as deterrents.

METHOD

Participants

A total of 40 female undergraduates enrolled in Introductory Psychology participated in order to partially fulfil a research participation option. Participants were assigned to a "unknown deterrence" ora "low", "medium", or "high deterrence" condition in randomised blocks of four. No participant expressed suspicion about the procedure, materials, or manipulation.

Procedure

The procedure and cover story were largely identical to Experiment 1. The experimenter greeted the participant, led her to a private room, and seated her at a table with a cassette player and headphones, a manila envelope labelled "Questionnaire", and a white letter-size envelope. As in Experiment 1, the participant expected to listen to several taped accounts and give her reactions by
completing a brief questionnaire after each account. The experimenter asked the participant to listen to the first account, complete the questionnaire contained in the manila envelope, and then seal the questionnaire in the letter-sized envelope to ensure that her responses would be anonymous.

Sadness induction and deterrence manipulation. The first (and only) account contained the sad essay used in Experiment 1. In the unknown deterrence condition, participants listened to the noise-free master recording of the sad essay. In the low, medium, and high deterrence conditions, participants listened to a recording of the sad essay with ambient noise (the soft hum of a computer's exhaust fan) mixed in at a low, medium, or high volume, respectively. The ambient noise began and ended at the same time as the sad essay. To reduce potential suspicion regarding the deterrence manipulation, the experimenter casually mentioned before the participant listened to the account that some of the recordings were of poor quality.

Dependent measures

After listening to the tape containing the sad essay and the deterrent (if any), participants completed the questionnaire contained in the manila envelope. Emotional intensity was measured by asking participants to indicate the extent to which they presently felt the following emotional states: fearful, happy, sad, full of pep, frustrated, tense, angry, content, "feeling down", hopeless, disgusted, surprised, full of dread, good mood, and bad mood. Participants responded on a 0–10 scale anchored by "Not at all" and "Extremely".

Although the tapes had been carefully pre-tested, it was nonetheless possible that participants in the high deterrence condition would not be able to attend to or comprehend the sad essay due to the relatively high degree of distraction. The predicted low degree of sadness would thus simply result from an inability to hear and become immersed in the sad essay. We included several measures to test this possibility. A five-item multiple-choice test assessed recall of the essay's essential points, and participants indicated the difficulty of

hearing the speaker's voice on a 0–10 scale. Participants were also asked about their ability to hear the sad essay during debriefing.

Finally, the possibility remained that the different levels of ambient noise somehow differentially influenced participants' perceptions of the sad essay, thus clouding interpretation of the emotional intensity data. To evaluate this possibility, a 19-item adjective checklist was included. Participants were asked to check any of the following adjectives that they felt described the sad essay: long, suspenseful, boring, unusual, uplifting, typical, strange, ordinary, interesting, brief, pointless, complex, feminine, inaccurate, sincere, truthful, memorable, depressing, and predictable. Participants were also asked to indicate how important the event described in the sad essay was to the speaker on a 0–10 scale. Participants were probed for suspicion, debriefed, and thanked on completion of the questionnaire.

RESULTS

Emotional intensity

Polynomial contrasts using a pooled error term were conducted to determine if the intensity of sadness in the unknown, low, medium, and high deterrence conditions followed the predicted cubic pattern. As shown in Figure 1, we predicted a decline in the intensity of sadness from the unknown to the low deterrence condition, an increase from the low to the medium deterrence condition, and then a decline from the medium to the high deterrence condition. Means for sadness and similar items are displayed in Table 2.

Sadness and related items. As predicted, a significant cubic pattern emerged for sadness, $F(1, 36) = 56.4, p < .001$. The intensity of sadness decreased from the unknown deterrence condition to the low deterrence condition, $t(18) = 4.74, p < .001$, and then increased from the low to the medium deterrence condition, $t(18) = 4.39, p < .001$. Finally, our predictions concerning high deterrence were supported, as the decrease from the medium to the high deterrence condition was significant, $t(18) = 6.11, p < .001$.

A significant cubic trend was also obtained for "feeling down", $F(1, 36) = 21.2, p < .001$. As with sadness, the unknown deterrence condition reported greater intensity than the low deterrence condition, $t(18) = 3.37, p < .003$. The increase from the low to the medium deterrence condition was significant, $t(18) = 3.14, p < .006$, as was the decrease from the medium to the high deterrence condition, $t(18) = 3.14, p < .006$.

Finally, a significant cubic pattern emerged for bad mood, $F(1, 36) = 8.34$, $p < .007$. The decrease from the unknown deterrence to the low deterrence condition was significant, $t(18) = 2.44, p < .025$, as was the increase from the low to the medium deterrence condition, $t(18) = 2.46, p < .024$. The decrease from the

TABLE 2
Means for sadness and other negative emotions: Experiment 2

	Deterrence level			
	Unknown	*Low*	*Medium*	*High*
Sad	6.3	2.3	6.4	2.3
"Feeling down"	5.1	1.8	5.3	2.2
Bad mood	3.2	1.1	4.0	2.2

Note: $n = 10$ per condition. Scale values range from 0 "Not at all" to 10 "Extremely".

medium to the high deterrence condition approached significance, $t(18) = 1.73$, $p < .10$.

Other items. No additional emotion items were significantly cubic (all Fs < 2). Not surprisingly, one-way ANOVAs indicated that distraction had no effects on the intensity of positive affect items (happiness, contentment, and good mood), (all Fs < 1). This suggests that, as intended, distraction did not consist of reasons to feel an opposing emotion.

Other measures

Was the high deterrence condition too distracting? To test the possibility that people in the high deterrence condition reported low sadness because they were unable to hear or attend to the sad essay, responses to the recall test and reported difficulty item were examined. All 40 participants answered all five multiple-choice recall questions correctly. Furthermore, analysis of participants' ratings of how difficult it was to hear the speaker's voice revealed only a marginally significant negative linear trend, $F(1, 36) = 3.17, p < .083$, and no reliable differences were found between the four conditions. All four means were near or below one on a 0–10 scale, which strongly suggests that everyone could easily hear the sadness-inducing essay. A covariance analysis also found that the pattern and significance of effects were entirely unchanged when this item was used as a covariate. Finally, during debriefing no participant indicated (either spontaneously or when probed) having problems hearing the sad essay.

Did the deterrence colour perceptions of the sad essay? To see if the different deterrence levels somehow influenced participants' perceptions of the essay, responses to the adjective checklist and the perceived importance of the event to the speaker were analysed. Chi-square analyses were performed on each of the 19 adjectives in the adjective checklist. No significant differences between the four conditions were found for any of the 19 items. The data were explored further by computing the mean number of adjectives endorsed by each condition. A one-way ANOVA failed to find a significant difference ($F < 1$), as did subsequent focused comparisons (all Fs < 1). There were also no differences in the perceived importance of the event to the speaker; all four conditions indicated very high perceived importance. The consistent failure to find differences on any of these measures suggests that the deterrence manipulation did not systematically influence participants' perception of the sad essay.

Discussion

This study supported the hypothesis that a potentially distracting stimulus can deter an emotion's intensity. By doing so, it further supported our contention that a wide range of factors can act as deterrents. Whereas Experiment 1 used the anticipation of reasons for an opposing emotion as deterrence, Experiment 2 eschewed valence entirely—sadness was deterred by a potentially distracting but affectively neutral stimulus. As predicted, sadness was intense when the deterrence level was unknown, low when deterrence was low, and then increased as deterrence increased. Unlike the first experiment, this study found the predicted drop in intensity when deterrence was high. Because the distracting stimuli were not valenced, this study is an especially strong justification of our broad conceptualisation of deterrence.

Threat of distraction is a particularly interesting deterrent because, theoretically, it could deter all emotions, not just sadness. A reason to focus on something else threatens to interfere with doing whatever an emotion is oriented toward doing. Distraction could thus interfere with all emotions, inasmuch as all emotions function to control behaviour. The present study provides the only evidence for this, of course, and it is possible that distraction is effective only on emotions that involve introspection and self-reflection. Future research will have to evaluate the generality of the deterrent effects of distraction.

GENERAL DISCUSSION

The study of emotion has probably never been more popular, yet little attention has been given to the intensity aspect of emotion. A recent theory (Brehm, 1999) assumes that the primary function of emotions is to organise and control behaviour. As a rule, when events important to the person are involved, behaviours can be determined in regard to only one event at a time. A person cannot grieve and be elated simultaneously. Nevertheless, people can have many simultaneous goals and concerns—and the problem of determining which will control behaviour can be determined if an emotion can increase in intensity as a way of privileging one course of action over another (Tomkins, 1962). Even better, if only one emotion is produced at a time, then the reasons that would produce less intense emotions would actually produce no affect at all, and therefore, no conflict of motivations (Brehm, 1999). In addition, when the importance of conflicting reasons is low relative to

that of an event that causes an emotion, the intensity of that emotion need not be proportional to the importance of its cause in order to produce control of behaviour.

The intensity of an emotion should thus be a function of "deterrence"— factors that interfere with whatever the emotion aims to accomplish. The potential intensity is set by the importance of the event or concern. An emotion will be at this level of intensity when the level of deterrence is unknown. This ensures that the emotion is sufficiently intense to overcome any competing alternative that is less important than the emotional event. But when the level of deterrence is known, it alone determines intensity within the limit set by importance. Thus, intensity will be low when deterrence is low even though the importance of the causal event is high. This is presumably because intense emotions monopolise the person's cognitive and physiological resources, and therefore his/her ability to respond to other events. A person is thus better able to note and respond to situational change when an emotion is only as intense as needed. As deterrence increases, emotional intensity will correspondingly increase until it reaches the ceiling of potential intensity. If deterrence continues to increase beyond this level, the deterring event has essentially become more important than the original event that gave rise to the emotion, and the original emotion will disappear as the cognitive system becomes absorbed with the deterrent.

Past research on sadness (Brehm et al., 1999) and other emotions (Brehm, 1999) has shown that an emotion can be deterred by reasons for feeling an opposing emotion. While the theory predicts that cognitive conflict is one form of deterrence, it views deterrence much more generally. Because past research has only used reasons for antagonistic emotions as deterrents, the present studies sought to support our broad concept of deterrence by exploring some alternatives. Experiment 1 led sad people to anticipate reasons for feeling some measure of future happiness. Experiment 2 used varying levels of potential distraction to deter feelings of sadness. Both studies gave at least partial support to the predicted effects of deterrents and thereby demonstrated the breadth of factors that can potentially deter emotions. These certainly are not the only possible alternative deterrents, yet they give us confidence in asserting that the theory is not limited to cases of potential emotional conflict.

Both experiments involved female participants only because we expected the sadness induction—a young woman discussing relationship problems—to have a greater impact on women. Although this might possibly limit the generality of our conclusions, neither the present ideas about emotional intensity nor general emotion models (e.g., Izard, 1977; Tomkins, 1962) assume that the broad relations between emotion and action manifest differently in women and men. Indeed, the continuities between human and animal emotions (Panksepp, 1998) and similarities in emotion across cultures (Griffiths, 1997) suggest that the broad functional and dynamic aspects of emotions have very little to do with gender. In any case, past research on deterrent effects (Brehm et al., 1999; Brummett, 1996; D'Anello, 1997) has used both genders, and in only one case (D'Anello, 1997) was there evidence for different responses. Although there is always the possibility that males and females will respond somewhat differently to either the instigator of an emotion or to particular deterrents, in the absence of a compelling alternative theory that specifies why gender would matter, or at least evidence to that effect, we simply assume generality across genders.

The deterrence approach is broadly consistent with other perspectives on emotional intensity. Sonnemans and Frijda (1994, 1995), for example, discuss the structure of self-reported emotional intensity, general classes of determinants, and how intensity unfolds across the duration of an emotion episode. Clore (1994) likewise addresses general variables involved in intensity, such as the extent to which an event implicates important strivings or the amount of cognitive restructuring that results. Our approach, in contrast, focuses on a single concrete determinant of intensity—deterrence—and emphasises moment-tomoment changes in emotional intensity rather than extended emotion episodes. In this sense the approaches are compatible, inasmuch as they are focusing on different aspects of emotional intensity.

Yet our view is inconsistent with many specific aspects of these theories. Both Clore (1994) and Sonnemans and Frijda (1994, 1995), for example, assume that the importance of the event directly influences emotional intensity. We argue that importance only directly determines intensity when deterrence levels are unknown.

Intensity is otherwise determined by deterrence within the parameters established by importance. The most conspicuous difference is our interest in decidedly nonlinear effects. If nothing else, the present findings suggest that future research needs to be sensitive to the possibility of nonlinear relations between the instigators and indices of emotional intensity, no matter how intuitive a linear relation might seem.

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