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Repressive Coping: Distraction Using Pleasant Thoughts and Memories

Joseph M. Boden and Roy F. Baumeister
Case Western Reserve University

To avoid exposure to unpleasant or unwanted emotional material, some people may distract themselves by summoning up pleasant thoughts such as happy memories. Manipulation of negative affect might therefore result in heightened accessibility of pleasant thoughts and memories, contrary to hypotheses of mood-congruent recall. In Experiment 1, repressors were faster to recall happy memories after watching an unpleasant film than after watching a neutral film. Nonrepressors showed the opposite effect (i.e., mood-congruent memory). In Experiment 2, after an unpleasant film, repressors were faster to recall a happy memory than to recall a sad memory. In Experiment 3, repressors spontaneously generated pleasant thoughts after watching an unpleasant film, whereas nonrepressors did not. Thus, repressors apparently cope with exposure to negative affective material by accessing pleasant thoughts. Results are discussed in terms of cognitive defenses against emotional distress and the associative structure of repression.

Defense against unwanted thoughts and feelings often seems to be a futile exercise. Most individuals' environments are littered with stimuli (e.g., "daily hassles") that can create unwanted ruminations or unpleasant mood states. Some individuals are routinely affected by such stimuli and find that their thoughts and mood states are inextricably tied to events outside of their control, events such as traffic jams, drops in the stock market, or a visit from in-laws. Some individuals, on the other hand, seem immune to the effects of such hassles. These individuals seem to move through life on an "even keel," coping with negative events without bother or irritation, and often without any acknowledgment of the unpleasant stimulus. These individuals seem to be able to defend themselves routinely from unwanted thoughts or unpleasant mood states. In the psychological literature, these individuals have been termed *repressors* (Weinberger, 1990; Weinberger, Schwartz, & Davidson, 1979), people who seem largely unaffected by negative emotional stimuli. The purpose of the present investigation was to examine one strategy by which repressors might defend themselves from unwanted stimuli. We reasoned that because the nature and possible effects of unpleasant stimuli often seem to be outside of the awareness of repressors, the manner in which repressors defend themselves from negative emotional stimuli must be highly efficient, perhaps involving the control of attention. We believe that one way that repressors might avoid processing unpleasant or unwanted material might be to summon up pleasant thoughts or memories as a distraction from unpleasant stimuli. Our prediction was that this self-distraction would be reflected in an increased accessibility of pleasant, happy memories in response to an induction of negative affect and also in an increase in spontaneously generated thoughts. In other words, the threat of negative emotions would ironically facilitate the recall of happy memories and the expression of pleasant thoughts.

There were several reasons to expect that our prediction of apparent mood-incongruent cognition and recall would be most strongly confirmed among highly defensive participants, specifically repressors. In the first place, emotional distress is presumably the primary threat against which defensive people defend (Freud, 1896/1989; Weinberger, 1990; Weinberger et al., 1979), so, in principle, almost any defensive response should be found most readily among them. Second, and more important, recent work (Hansen & Hansen, 1988) has concluded that the associative links between memories involving negative affect are weaker among repressors than among other participants, which suggests that repressors may be best able to resist any tendency for one unpleasant thought to evoke another. Instead, repressors may be able to shift from one unpleasant thought to something more pleasant and happy with reasonable facility, which would be an effective way of avoiding the processing of unpleasant material. The process by which this shift might be achieved may be the generation of pleasant thoughts and memories as a distraction from the unpleasant stimulus.

Repressors

Repressors are individuals who seem averse to both the exposure to unpleasant material and the experience of negative affect. Over a number of studies, repressors have shown an aversion to attending to unpleasant stimuli (e.g., Olson & Zanna, 1979),

Joseph M. Boden and Roy F. Baumeister, Department of Psychology, Case Western Reserve University.

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Correspondence concerning this article should be addressed to Joseph M. Boden, who is now at the Department of Psychology, Gilmer Hall, University of Virginia, Charlottesville, Virginia 22903. Electronic mail may be sent via the Internet to jmb5z@virginia.edu.

report experiencing lower levels of negative affect than nonrepressors (Weinberger et al., 1979), demonstrate an impoverished memory for emotional events (Davis & Schwartz, 1987; Hansen & Hansen, 1988), and show poorer memory for negative personality feedback (Baumeister & Cairns, 1992). Thus repressors seem to avoid negative emotional stimuli habitually, with resultant effects on mood and memory.

Weinberger (1990) has described repressors as individuals who generally try to keep an even keel at all costs, such that their cognition of, memory for, and reactivity to negative affective events are somehow attenuated severely. It should be noted that while some researchers have believed that the behavior of repressors is nothing more than impression management (acting as though they always feel pleasant) or socially desirable responding (e.g., Tomaka, Blascovich, & Kelsey, 1992), Weinberger and colleagues (Weinberger, 1990; Weinberger & Davidson, 1994) have shown that repressors actually do not experience unpleasant affective states as often as nonrepressors. In other words, repressors do not merely say they feel fine, they believe it. For example, Weinberger and Davidson compared repressors with impression managers (high self-monitors) on a task that asked the participants to act either emotionally expressive or emotionally restrained. Repressors were unable to act as emotionally expressive as impression managers, and impression managers were unable to act as restrained as the repressors. Thus Weinberger and Davidson ruled out the possibility that repressors are nothing more than socially desirable responders, concluding that repressors' defensive behavior was motivated by defense against the awareness of unpleasant affect.

Weinberger (1990) has also pointed out that trait repressiveness differs from *self-assuredness* (which corresponds to self-esteem). Weinberger demonstrated that repressors actually responded very differently than individuals described as self-assured to the induction of high levels of negative affect. Repressors were found to exercise much more restraint in their range of behaviors, which Weinberger interpreted as a defensive or self-protective stance. In this way, the construct of trait repressiveness does not appear to correlate with self-esteem (although individuals with high self-esteem may indeed regulate affect quite effectively; Smith & Petty, 1995).

To identify a sample of repressors, we used the measure of trait repressiveness designed by Weinberger et al. (1979). In this system, people who score high on a measure of social desirability (i.e., defensive, excessively self-aggrandizing response style) and low on a measure of trait anxiety are classified as repressors. This measure has been used in multiple contexts to identify repressors (e.g., Baumeister & Cairns, 1992; Davis, 1987; Davis & Schwartz, 1987; Hansen & Hansen, 1988; see Weinberger, 1990, for review). It should be noted here that although the social desirability scale in question (the Marlowe–Crowne Social Desirability Scale; Crowne & Marlowe, 1964) is by name and design a measure of socially desirable responding, Crowne and Marlowe themselves noted after a series of studies that the scale more accurately represented defensiveness rather than social desirability. The authors pointed out that individuals scoring high on their social desirability measure were more susceptible to dissonance manipulations (i.e., changed their privately held attitudes more often after a dissonance induction), were less able to report feelings of anger and hostility (even when such feelings might be understandable or condoned), and seemed to fear rejection or the dislike of others quite intensely. Thus, Crowne and Marlowe concluded that the behavior patterns of individuals scoring high on their Social Desirability Scale might be more appropriately termed *defensive*, in view of their attempts to protect the self from harm or rejection (in light of this distinction, we have chosen to refer to individuals who score high on the Marlowe–Crowne Scale as defensive).

Several past findings made it seem especially likely that repressors would be prone to use a cognitive defense, the control of attention, to avoid exposure to unpleasant material. First, repressors show strong reactivity to unpleasant stimuli on physiological measures but tend to deny strong reactions to the same stimuli on self-report measures (Weinberger, 1990), consistent with the view that they find negative affect especially threatening and seek to avoid and minimize it whenever possible. Second, Hansen and Hansen (1988) suggested that the associative networks that link affectively aversive memories together appear to be relatively weak among repressors, which raises the possibility that they would find it easier than other people to break free from a chain of affectively negative memories. Indeed, repressors may prevent such networks from forming precisely by learning to turn their attention from distressing events to wholly unrelated, pleasant thoughts and memories. Third, Baumeister and Cairns (1992) found that repressors were especially prone to use attentional defenses to minimize the impact of unpleasant, threatening material. Repressors were unable to remember many of the words from a (primarily negative) feedback list that purported to describe them, even after they had been informed that the list was bogus and was meant only to make them feel uncomfortable. The authors concluded that the repressors were using some sort of blanket defense that removed all of the words on the list from their awareness (the few positive words as well as the many negative words). These findings are congruent with earlier findings that suggest that repressors use an attentional defense against unwanted material. For example, Haley (1974) found that repressors averted their gaze from unpleasant film sequences more often than nonrepressors. Olson and Zanna (1979) found that repressors spent less time looking at paintings that they rated as unpleasant than paintings they rated as pleasant. Tublin and Weinberger (1987) found that repressors tended to focus on other thoughts as a distraction in reaction to hearing an unpleasant audiotape. Bonanno, Davis, Singer, and Schwartz (1991) found that repressors will avoid attending to auditory information that is unpleasant in nature. The evidence suggests, then, that repressors use some type of attentional defense against unpleasant stimuli. Accordingly, we predicted that repressors would be the most likely to show the cognitive defense that we sought to investigate, namely, drawing on pleasant thoughts to escape or minimize negative affect.

Attention and Self-Distraction in Reaction to Emotional Stimuli

Many of the ways in which individuals seek to control the effects of unpleasant stimuli seem to involve the control of attention. For example, Bryant and Zillmann (1984) found that watching humorous television programs may be one way of reducing feelings of anger or hostility. Similarly, Tice (1990)

found that individuals report being able to reduce feelings of anger through such activities as isolating oneself from others or distracting oneself from the source of anger. Such techniques may be effective not only with anger but also with unpleasant feelings in general. Erber and Tesser (1992) reported that individuals who have been subjected to a negative mood induction feel better after shifting their attention to an alternate task. Thus, the control of attention seems to be one way in which people try to reduce their exposure to unpleasant stimuli.

To control attention, however, it may not be enough to try to move one's attention off of the disturbing stimulus—it may be necessary to have some alternative, attention-absorbing stimulus to capture and hold one's attention. For example, Wegner, Schneider, Carter, and White (1987) showed that participants who were simply instructed not to think about a white bear were often unable to do this successfully. However, participants who were given a particular alternative stimulus to focus on were much better able to avoid thinking about the bear. Thus, it appears that thinking an alternative thought is a more effective strategy for controlling one's thoughts than merely trying to avoid an unwanted thought. In a similar argument, Steele and Josephs (1990) concluded that alcohol use is only effective for escaping from distress when used in combination with an absorbing attentional stimulus—otherwise, the alcohol merely restricts attention to the problem, thereby intensifying distress. A broad review of many forms of self-regulation failure by Baumeister, Heatherton, and Tice (1994) found that loss of attentional control was central to nearly all of them; whereas self-distraction proved to be one of the most effective techniques for overcoming undesired responses to many varieties of tempting, goading stimuli. The findings of Erber and Tesser (1992), mentioned previously, suggested that individuals seemed to recover from the effects of the mood induction only when the secondary task absorbed their attention.

Hence it is reasonable to conclude that control over unwanted cognitive and emotional responses is easiest to attain when there are distracting stimuli available to draw attention away from whatever would activate the undesired response. In plain terms, it is nice to have something to take one's mind off of one's troubles.

Unfortunately, however, the immediate environment does not always cooperate in providing suitable distractors. Sometimes there is simply no compelling stimulus available that can compete with the upsetting or distressing one, which after all usually has powerful interest value to the person in question. At other times the supposedly distracting stimuli can aggravate the problem. For example, in one study participants tried to distract themselves from angry, hostile feelings by watching television comedies, but these contained aggressive humor that backfired and increased the hostile feelings (Zillmann, Hezel, & Medoff, 1980).

In the present research we explored an alternative to external distraction, namely, self-distraction. By generating one's own distracting stimuli, one can perhaps bring one's attention away from distressing or upsetting stimuli and hence bring the unpleasant responses under control. Self-distraction has the advantage of freeing the person from the vagaries of environmental stimuli. One's memories, for example, are presumably always available, and if one could respond to a distressing event by recalling a happy memory, one might have a powerful and reliable technique for escaping from distressing stimuli. For example, Parrott (1993) has proposed that autobiographical memories may be good tools for affect regulation because focusing on the memory may activate emotions associated with the remembered events. Of course, various other pleasant thoughts might serve just as well. The present research was thus designed to investigate the process of defending oneself against negative emotional material by activating unrelated, pleasant thoughts and memories.

Mood-Incongruent Cognition

Defending oneself against emotionally distressing material by generating pleasant thoughts or memories is a form of *mood-incongruent cognition* (e.g., Smith & Petty, 1995). That is, individuals are able to process and recall material of an affective valence opposite that of the material or situation to which they are exposed. One goal of the present research was thus to contribute to the literature on mood-incongruent cognition. Parrott and Sabini (1990) found mood-incongruent effects after the induction of bad moods in naturalistic settings. Over a series of experiments, the researchers found that participants who had been put into either a good mood or a bad mood (often through nonexperimental methods, such as by a real exam grade or the weather outside) would often think about or recall material of an affective valence opposite that of their supposed mood state. However, when the participants were informed at the outset of the experiment that their mood states would be the subject of study, the mood-incongruent cognition vanished. The researchers concluded that the presence of the mood-incongruent thoughts was due to the participants' attempts at regulating their mood states. Erber and Erber (1994) found that effortful recall (as opposed to effortless recall) of mood-incongruent memories changed the mood of participants from their original mood, whether that mood was happy or sad. The relevance of personality differences to these patterns was recently shown by Smith and Petty (1995), who found that participants high in self-esteem exhibited mood-incongruent recall after a negative mood induction—whereas low self-esteem individuals showed the opposite (mood-congruent) pattern. The researchers exposed participants to an unpleasant film and then asked the participants to write a story in response to an ambiguous picture. High self-esteem individuals wrote stories that contained significantly more positive elements than low self-esteem individuals. All of the researchers concluded that the patterns of mood-incongruent cognition suggested that people were trying to regulate their affective states.

Until recently, most research concerning mood and cognition was mainly interested in mood-congruent effects (e.g., Bower, 1981; Nasby & Yando, 1982; Natale & Hantas, 1982; Teasdale & Russell, 1983). This has changed, however. Isen (1984) cited multiple studies that failed to find mood-congruent cognition (Isen, Shalker, Clark, & Carp, 1978; Teasdale & Fogarty, 1979; Teasdale & Taylor, 1981; Teasdale, Taylor, & Fogarty, 1980)—yet only for bad moods. Her review concluded that good moods do reliably produce mood-congruent processing. She reported further that the discrepancy between the good mood and bad mood findings was due to attempts at affect regulation. When

people feel good, they often wish to prolong that state, and so they may dwell on pleasant thoughts. In contrast, people want to escape from or avoid bad moods, and so they may try to avoid dwelling on unpleasant thoughts.

These findings are consistent with an associative network model proposed by Hansen and Hansen (1988). These authors have suggested that affect-laden memories are connected to other memories having a similar affective valence. Hence, one happy memory will cue another, and one angry memory will likewise bring another angry episode to mind. Even if the person manages to pull his or her attention off of one upsetting stimulus, the mind may drift readily to another unpleasant thought, creating a vicious cycle in which chains of depressing or upsetting thoughts perpetuate the bad mood (e.g., Wenzlaff, Wegner, & Roper, 1988). In a provocative thesis, however, Hansen and Hansen proposed that some people (repressors) manage to defeat this pattern by preventing the growth of an associative network that links unhappy thoughts together. There would seemingly be two ways to do this.

One would involve the formation of associations that would link unpleasant thoughts to pleasant ones. This strategy has two potential drawbacks. First, if associations do continue to have affect, the linking of pleasant and unpleasant memories could be difficult to do because of the clash of affect. Second, it runs the risk of spoiling pleasant moods because positive thoughts could activate upsetting or distressing ones.

The other strategy would consist of learning to skip from unpleasant thoughts to wholly unrelated, pleasant ones, without necessarily invoking any associative link. In view of the difficulties of the first strategy, it seems more likely that people would prefer the latter route, involving the use of unrelated, pleasant distractors without associative links.

Thus, although the mood-incongruency effect has been linked to the regulation of affect and attempts to control exposure to negative affective material, the exact mechanism by which this regulation occurs has not been specified. In this investigation we sought to determine whether the mood-incongruency effect was a result of repressors' generation of pleasant thoughts to serve as a distraction from an unpleasant stimulus.

Experiment 1

Experiment 1 was designed to show that a distressing stimulus would result in increased accessibility of (apparently mood-incongruent) happy memories among repressors. We reasoned that happy memories are one important form of pleasant thoughts. Indeed, Parrott and Sabini (1990) and Parrott (1993) have suggested that pleasant memories might be a useful means of regulating affect. We predicted that participants, particularly repressors, would respond to a negative mood induction by shifting their attention to pleasant, happy memories as a means of deflecting or avoiding attending to an unpleasant stimulus. This strategy would therefore generate the opposite prediction from mood-congruent memory hypotheses: Specifically, exposing participants to a negative mood induction should increase the accessibility of happy memories.

In our procedure, participants were exposed to a mood manipulation in the form of an unpleasant, distressing videotape and were then asked to recall a happy memory from their own life. The main measure was the speed with which participants came up with a happy memory. If exposure to an unpleasant stimulus brings mainly sad memories, then participants should find it relatively difficult to recall a happy experience, and so they should be slower than control participants (who were exposed to an affectively neutral stimulus) to think of one. In contrast, if some people try to defend against exposure to an unpleasant stimulus by accessing pleasant, happy thoughts, then the negative emotional induction should actually increase the accessibility (and hence the speed of recall) of happy memories.

Method

Participants

Participants included 60 undergraduate psychology students (36 men and 24 women; gender was included as a factor in the analyses but was dropped when no effects were detected) who participated in the experiment for course credit. Utilizing the measure suggested by Weinberger et al. (1979), we identified participants as repressors and nonrepressors through prescreening. Participants scoring in the upper tertile of the Marlowe–Crowne Social Desirability Scale (Crowne & Marlowe, 1964; on the basis of the present sample), and in the lower half of the short form of the Taylor Manifest Anxiety Scale (Bendig, 1956), were identified as repressors for the purpose of the experiment. All other individuals were identified as nonrepressors. Potential participants were contacted by telephone and asked to participate. Participants took part individually in the experiment and were randomly assigned on arrival to view either the unpleasant or neutral videotape. A total of 30 repressors and 30 nonrepressors participated; half of each group viewed the unpleasant videotape, whereas the other half viewed the neutral tape.

Procedure

Each participant was seated at a desk in front of a television and VCR. The experimenter first explained that the purpose of the experiment was to study mood and memory. The experimenter told the participant that the experiment consisted of viewing a short videotape and then recalling and writing a true story about oneself, the content of which would be explained later. The experimenter asked whether the participant had any questions and then started the tape.

The experimenter left the room while the participant viewed the 5-min videotape, which was either unpleasant or neutral in affective content. The unpleasant tape was a short excerpt from the film *Mondo Cane* (Jacopetti, Cavera, & Prosperi, 1963), which depicted an island in the South Pacific where atomic bomb testing had been conducted. The animals and birds indigenous to the island had suffered mutations as a result and were slowly dying off, which was depicted very graphically. This tape was chosen to induce an unpleasant mood in participants who viewed it (as in Averill, 1969). The neutral videotape was excerpted from a National Geographic Society (1988) special about National Parks in the United States, which depicted winter scenes in Yellowstone National Park. The tape was chosen for its relative lack of affective content.

On conclusion of the tape, the experimenter reentered the room and turned off the video equipment. The experimenter explained to the participant that the next part of the experiment consisted of the participant's recall and writing about a specific personal experience, the topic for which would be explained in a moment. The experimenter explained that he would tell the participant what sort of memory to recall, and the participant should indicate when he or she had thought of a suitable memory, after which the experimenter would provide the participant with pen and paper to write about the memory that had been generated. The experimenter explained that the memory could be drawn from any time period in the participant's life and that the participant should en-

deavor to tell "the whole story," the exact interpretation of which was left to each participant to decide. The experimenter then explained the desired content of the story, saying, "The specific memory I would like you to recall is a time in your life when you felt particularly happy." At the conclusion of this statement, the experimenter began to time surreptitiously the number of seconds the participant took to recall the memory, recording the elapsed time on a stopwatch hidden in the experimenter's coat pocket. When the participant indicated that he or she had thought of a story to write about, the experimenter turned off the stopwatch, handed the participant pen and paper, and left the room while the participant wrote the story. When the participant indicated that he or she had finished writing, the experimenter reentered the room, debriefed the participant, and answered any questions the participant might have had concerning the experiment.

Coding of Stories

The happiness stories written by participants were coded by two raters according to several criteria. Each rater (unaware of the hypotheses and levels of the independent variables) read all of the stories and coded them on each criterion dimension. These criteria included whether the story was related in some way to the content of the videotape (coded *yes* or *no;* such references might include beaches, sun, snow, animals, etc.), the number of significant other characters in the story (other people mentioned by name such as "my friend Mary" or by title such as "my mother"), the number of words related to an emotion or emotional state (such as happy, sad, anxious, etc.), the number of words related to happiness (the emotion words specific to positive emotions: happy, joyful, content, and pleasant), the ratio of happy words to total emotion words (calculated from the codings), whether the author explicitly mentioned feeling happy (coded *yes* or *no*), and whether the story concerned a specific event or was more general in nature (coded as *specific* or *general*). The stories were also coded as to whether the memory was somehow linked to events in the present (e.g., statements such as "I think about this time often") and as to how many present tense sentences were included. Additionally, the stories were coded as to their relative level of happiness on a scale with responses ranging from 1 (*not at all happy*) to 9 (*very happy*). Finally, the stories were coded for length (number of words, not coded by raters but rather determined by using the "count words" feature of the word processing program). These codings were conducted to determine whether the stories differed systematically among the conditions, which would shed further light on the hypothesized differences in response latency.

The reliability between raters was determined by correlating the two raters' ratings on each dimension, and the total reliability between raters was the mean correlation across dimensions. The mean correlation between raters was found to be reliable (r = .92), with each of the individual dimension correlations as follows: relation of story to videotape (r = .87), number of significant other characters in the story (r = .95), number of emotion words (r = .87), number of happiness words (r = .88), explicit mention of happiness (r = .97), specific or general event (r = .98), linked to events in the present (r = .95), number of present tense sentences (r = .97), and the relative level of happiness (r = .88). The number of words coding was not subject to a reliability test as it was not coded by the raters.

Results

Manipulation Check

We expected that a standard manipulation check (i.e., one that asks participants about the mood they were in after viewing the videotape) would be inadequate to the purposes of the present investigation because it was expected (because of the hypothesized self-distraction) that repressors would not experience an unpleasant mood as a result of viewing the tape. Therefore, a separate pilot investigation was done to verify that the videotapes would be effective at manipulating mood. Ten participants were randomly assigned to watch one of the tapes and rate it on a 7-point scale as to how pleasant or unpleasant the tape was. These participants rated the unpleasant videotape as being significantly more unpleasant (M = 4.60) than the neutral videotape (M = 2.60), $F(1, 8) = 9.52$, $p < .05$. Participants were also asked to rate how the tape would likely make people in general feel. On this measure, again, participants rated the unpleasant videotape as significantly more unpleasant (M = 5.60) than the neutral tape (M = 2.80), $F(1, 8) = 39.20$, $p < .001$.

Speed of Recall

The main dependent variable was the length of time participants took to recall a happy memory (i.e., latency to recall). The means and standard deviations for this measure are found in Table 1. A 2 (trait repressiveness) × 2 (videotape) analysis of variance (ANOVA) on these latencies revealed a significant interaction between the two variables, $F(1, 56) = 5.60$, $p < .05$. Consistent with predictions, repressors recalled a happy memory faster after viewing the unpleasant videotape than after the neutral videotape—contrast, $F(1, 56) = 4.02$, $p < .05$; repressors/unpleasant video, M = 15.53; and repressors/neutral video, M = 25.88—whereas nonrepressors showed the opposite effect: contrast, $F(1, 56) = 5.87$, $p < .05$; nonrepressors/unpleasant video, M = 29.82; nonrepressors/neutral video, M = 13.66; and contrast between repressors and nonrepressors in the unpleasant video condition, $F(1, 56) = 4.61$, $p < .05$. Neither main effect was significant.

To correct for possible skewness in the distribution of the latency to recall data, and in particular to minimize any effects of outliers, we transformed these data by using a square root transformation, which was chosen on the basis of the shape of the distribution of raw scores (Tabachnick & Fidell, 1989). This transformation was suitable insofar as it brought skewness and kurtosis values for the distribution below 1.5. An ANOVA on the transformed scores again revealed a significant interaction

Table 1
Latency to Recall (in Seconds) for Experiment 1

	Videotape	
Trait repressiveness	Unpleasant	Neutral
Repressor group		
M	15.53	25.88
SD	17.64	16.28
Nonrepressor group		
M	29.82	13.66
SD	15.59	12.13

Note. n = 15 for all cells.

between trait repressiveness and mood manipulation, $F(1, 56) = 4.92$, $p < .05$. Main effects were not significant.

Content of Memories

The memories were coded on multiple dimensions, and univariate ANOVAs were conducted on each dimension (ANOVAs were conducted on the averaged codings of the two raters and the codings of one of the raters chosen at random, with no differences between the two emerging; reported here are the results of one rater's codings chosen at random). In general, these analyses failed to yield any significant main effects or interactions (with one exception, noted below; reported here are nonsignificant interaction effects). Of particular interest was the rating of the degree of pleasantness or happiness in the remembered story: Again, no significant differences emerged, $F(1, 56) = 0.79$, *ns*. For the analysis of whether the content of the memory was in some way related to the video, $F(1, 56) = 0.58$, *ns*. For the analysis of the number of words related to an emotion or an emotional state, $F(1, 56) = 1.62$, *ns*. For the analysis of the number of words related to happiness, $F(1, 56) = 1.01$, *ns*. For the analysis of the ratio of happy words to emotion words, $F(1, 56) = 0.36$, *ns*. For the analysis of whether the author explicitly mentioned being happy, $F(1, 56) = 0.58$, *ns*. For the analysis of whether the story concerned a specific event or was more general in nature, $F(1, 56) = 0.36$, *ns*. For the analysis of whether the story was linked to the present, $F(1, 56) = 0.62$, *ns*. For the analysis of the number of present tense sentences, $F(1, 56) = 0.70$, *ns*. For the analysis of the number of words, $F(1, 56) = 1.34$, *ns*. This pattern of null findings suggests that participants recalled very similar memories regardless of their level of trait repressiveness and regardless of the mood manipulation. This finding appears to contradict any suggestion that the unusually fast recall by repressors of happy memories following the unpleasant videotape reflected some willingness to settle for a trivially happy memory (e.g., favoring speed and accessibility over affective intensity).

The only significant effect that emerged was on the dimension of the number of significant other characters mentioned in the participant's story. There was high agreement between the two raters on this dimension, $r = .95$ (again, overall agreement was found to be high as well, $r = .92$). An ANOVA on the number of significant characters yielded both a main effect for trait repressiveness, $F(1, 56) = 6.38$, $p < .05$, indicating that repressors generally included fewer significant other people in their happy memories than nonrepressors did and a significant interaction between trait repressiveness and manipulated mood, $F(1, 56) = 6.38$, $p < .05$. The interaction suggests that it was mainly in response to the unpleasant videotape that repressors ($M = 0.33$) and nonrepressors ($M = 1.47$) diverged in terms of the number of other people included in their happy memories: contrast, $F(1, 56) = 4.23$, $p < .05$. After the neutral videotape, repressors ($M = 0.60$) and nonrepressors ($M = 0.60$) included nearly the same number of people in their stories: contrast, $F(1, 56) = 0.00$, *ns*. This result was not predicted and we hesitate to draw conclusions about its implications. Its direct meaning appears to be merely that in response to unpleasant affect, happy memories of relatively solitary episodes become more accessible to repressors, whereas nonrepressors tend to gravitate toward happy memories with multiple other people.

Social Desirability

Some investigators have criticized the method of classifying repressors developed by Weinberger et al. (1979) and used in this work, suggesting instead that social desirability alone may account for many of the effects obtained (see Holmes, 1990; Tomaka, Blascovich, & Kelsey, 1992). Our investigation was concerned with a particular cognitive–affective strategy that would be especially used by highly defensive people (i.e., we believe that the strategy mediates the effect of the unpleasant stimulus on repressors, and trait repressiveness moderates whether an unpleasant stimulus will result in an increased accessibility of pleasant thoughts and memories), so our results might not differ whether we use the Weinberger et al. method or the Social Desirability Scale (Crowne & Marlowe, 1964) to identify these people. Accordingly, we reanalyzed the latency data by using the Social Desirability Scale alone rather than in combination with the Taylor Manifest Anxiety Scale (Bendig, 1956). An ANOVA on these latency scores revealed a significant interaction between social desirability and mood manipulation, $F(1, 56) = 8.26$, $p < .01$. Highly defensive individuals (i.e., those scoring high on the Marlowe–Crowne Social Desirability Scale) recalled happy memories more quickly in response to the unpleasant videotape than in response to the neutral one, whereas people scoring low in social desirability showed the opposite pattern.

Weinberger (1990) has also suggested breaking down the nonrepressors into discrete groups rather than lumping them all together, and we analyzed our data in this fashion too. Specifically, we sorted nonrepressors into a low social desirability, low-anxiety group, and a low social desirability, high-anxiety group. (The other possible permutation, consisting of people who scored high in both social desirability and anxiety, contained only 2 individuals, so it was deleted from the analysis.) This 2 × 3 ANOVA again yielded a significant interaction between personality type and manipulated mood, $F(2, 54) = 6.02$, $p < .005$. The pattern of means was largely just a confirmation of the main analysis reported above. The only provocative new information to emerge from this analysis was the unusually slow ($M = 57.53$ s) mean latency exhibited by participants scoring low on both scales and receiving the unpleasant mood manipulation.

Discussion

As predicted, repressors showed an increased speed of recalling a happy personal memory after seeing a videotape that was unpleasant. Nonrepressors showed the opposite effect, in which exposure to an unpleasant video apparently reduced the accessibility of happy memories.

We postpone full consideration of these findings until the General Discussion section and focus our comments here on some of the interpretive problems in these data. One possible explanation is that repressors are generally faster than nonrepressors to recall happier memories, which would be consistent with their general demeanor of being happy, well-adjusted indi-

viduals (see Weinberger, 1990). This explanation is contradicted by the control condition, however: Repressors were slower than nonrepressors to recall a happy memory after an affectively neutral stimulus videotape. Thus, the enhanced accessibility of happy memories appears to be specific to repressors who have been exposed to affectively negative stimuli.

A second possible explanation is that repressors responded to the unpleasant videotape by summoning up any available happy memory, even one that was relatively weak, whereas nonrepressors took a longer time to come up with a more profoundly happy memory. Our content coding failed to find any evidence for this hypothesis. Blind ratings of how happy the memories were failed to yield any differences among the conditions. Indeed, with one exception, we could find no differences at all in content between the memories produced in the four conditions. The one exception, having to do with the number of significant other people in the remembered episode, does not seem able to explain the differences in latency to recall in any apparent way. We cannot rule out the possibility that the different conditions may have elicited happy memories that differed systematically on some other dimension that was not included in our coding, but for the present, there is no support for the view that the differences in memory speed were accompanied by differences in content (again, except for the presence of significant others).

A third possible explanation is that the repressors sought to cope with the unpleasant affect induction by doing a good job on the next task, so they responded to the request for a happy memory as rapidly as possible. This could reflect an interpersonal strategy of making a good impression on the experimenter to counter the unpleasant stimulus. Alternatively, it could signify another variant of attention regulation, by which repressors sought to distract themselves from exposure to the unpleasant stimulus by throwing themselves wholeheartedly into the next task. The procedures from Experiment 1 were not sufficient to rule out this explanation that repressors were merely trying to do an extra good job on the follow-up task, so Experiment 2 was conducted as a direct test of it.

We noted earlier that opinions among researchers differ as to the optimal method for assessing trait repressiveness. Our findings were not intended to help resolve that controversy. The fact that we obtained similar results by using only the social desirability measure, the same as when using the combined measures of social desirability and anxiety, can be taken as encouraging by those who regard the anxiety measure as superfluous. On the other hand, our sample was systematically constructed to overrepresent people scoring high on social desirability and low in anxiety (i.e., repressors), so one could argue that the social desirability analyses are implicitly confounded with trait anxiety. Indeed, we had only 2 participants in our sample who scored high on both scales, which weakens the argument that the use of the trait repressiveness construct is superfluous. Meanwhile, the typological approach favored by Weinberger (1990) also yielded significant results. Again, however, it may be important to note that the authors of the Social Desirability Scale (Crowne & Marlowe, 1964) themselves pointed out that their scale seemed to measure defensiveness rather than socially desirable responding, a point reiterated by Weinberger.

For present purposes, the essential point is that the main findings appear to hold up regardless of which method is used to classify dispositionally defensive individuals. Whatever criteria were used to set up the analysis, we found that defensive people showed the increased accessibility for happy memories after the exposure to the distressing videotape.

Experiment 2

Thus, the most obvious alternative explanation for the results of Experiment 1 is that repressors were simply trying to do an exceptionally good job at the next task assigned to them after watching the affectively unpleasant videotape. That is, to counteract the effects of the unpleasant affective induction, the repressors threw themselves wholeheartedly into the task, performing better than they had without the motivation of the unpleasant affect induction. We do not, however, think this was the case. Our original hypothesis was that repressors accessed specifically pleasant or happy memories to overcome any effects arising from the unpleasant videotape. Thus, we predicted that happy memories in particular would be recalled faster under those conditions. In contrast, the alternative explanation suggests that repressors would show increased effort or success on whatever task was given to them. Our finding of increased speed of recalling happy experiences would be merely part of a larger pattern of doing whatever was asked of them faster or better. So, if repressors were merely motivated to be "good participants," then they should be able to recall any memory with equal facility when motivated to do so by a negative affect induction.

The decisive question, therefore, was whether repressors would show increased speed of recall for only happy memories (as we predicted) or for other memories as well (consistent with the alternative explanation that is based on wanting to perform well or becoming efficient at the task). Experiment 2 was therefore designed to rule out alternative interpretations of Experiment 1 by investigating how fast repressors could come up with sad memories in response to an unpleasant affect induction. Experiment 2 should rule out the possibility that repressors will distract themselves from a source of unpleasant affect by putting greater effort into the recall task, no matter what the affective valence of the memory. We predicted that if repressors are specifically using pleasant thoughts and memories to distract themselves from the unpleasant affect induction, then after the unpleasant induction repressors should be able to recall happy memories more quickly than sad memories.

Method

Seventeen individuals (9 men and 8 women; again, there was no effect for gender detected) participated in Experiment 2. They were drawn from introductory psychology courses under the same terms as in Experiment 1. All participants fit the criteria for classification as repressors that was used in Experiment 1, namely, scoring above 16 on the Social Desirability Scale (Crowne & Marlowe, 1964) and below 9 on the Manifest Anxiety Scale (Bendig, 1956). They had filled out the questionnaires in their psychology class and were contacted by telephone and asked to participate. The number of 17 essentially comprised all of the available repressors during the semester that the study was run. (Several additional ones existed but either were not able to be reached by telephone, despite several tries, or declined to participate when con-

tacted, mainly because they had completed the recommended number of experiments.)

The procedure followed that of Experiment 1, with several changes. First, as already noted, there were no nonrepressors. Second, no neutral videotape was used; all participants saw the unpleasant videotape. Third, by random assignment, half of the participants were instructed to recall a sad memory, whereas the rest were instructed to recall a happy one.

As in Experiment 1, the main dependent variable was the latency to recall. Also, as before, all participants were fully debriefed, thanked, and dismissed after they finished writing the story.

Results and Discussion

For a manipulation check, the happiness ratings of the content of the memories were done as in Experiment 1 (in which they were a dependent variable rather than a manipulation check). The overall agreement between the two raters was comparable to that of the first experiment ($r = .89$). An ANOVA on these ratings confirmed the effectiveness of the instruction to recall a happy or a sad memory by showing a significant effect for type of story, $F(1, 15) = 55.59$, $p < .001$, showing that stories were significantly and substantially happier in the happy memory condition ($M = 7.00$) than in the sad memory condition ($M = 2.63$). As a second manipulation check, the number of words connoting happiness was counted for each story, and an ANOVA on these tallies again found significantly more happy words in the happy memory condition than in the sad memory condition, $F(1, 15) = 7.73$, $p < .05$.

Using type of memory (i.e., happy or sad) as the independent variable and latency to recall as the dependent variable, we conducted a one-way ANOVA. The difference between the two conditions was significant, $F(1, 15) = 5.25$, $p < .05$. Participants (all repressors) were significantly faster at recalling a happy memory ($M = 9.78$) than at recalling a sad memory ($M = 17.56$).

Although these data appeared to be within acceptable limits for skewness and kurtosis, using the same square root transformation as in Experiment 1, we nonetheless conducted a confirmatory analysis on transformed scores (in the interest of duplicating the analytical strategy used in the first experiment). The ANOVA on the transformed scores was again significant, $F(1, 15) = 5.12$, $p < .05$.

These data indicated that the findings of Experiment 1 appear to be specific to happy memories. Repressors who were confronted with a distressing stimulus were significantly faster to recall a happy memory than a sad one. The alternative explanation that is based on repressors simply recalling all emotional memories (or all memories) faster after exposure to a potential source of unpleasant affect was not supported, thus fulfilling the primary goal of Experiment 2. We hesitate to draw further conclusions from Experiment 2 because of its limited nature, but we believe that the study addresses at least one of the major questions raised by Experiment 1. We should also note, however, that it is possible that the repressors in Experiment 2 (as well as in Experiment 1) were motivated to present themselves in a positive light (by looking like happy people) and, therefore, were particularly quick to access the happy memories. The data from Experiment 2 do not rule out this possibility, but again, as Weinberger (1990) has pointed out (see also Weinberger & Davidson, 1994), repressors are not merely impression managers but rather truly defensive individuals. Thus, although repressors could be merely presenting themselves in a positive manner, previous evidence suggests that this is not the case.

Because in Experiment 1 we found that the memories differed systematically as to the number of significant other characters involved, we conducted a similar coding and analysis of Experiment 2. (Again, significant other characters were coded as references to a specific other person.) A significant effect for story type was found, $F(1, 15) = 6.79$, $p < .05$. Repressors writing happy stories included significantly fewer other characters ($M = 0.44$) than did repressors writing sad stories ($M = 1.38$). Once again, the possibility of emotional distress seems to impel repressors to think of happy memories that are relatively solitary.

Experiment 3

The results of Experiments 1 and 2 are broadly consistent with the view that repressors respond to an emotionally distressing stimulus by thinking about more pleasant thoughts. Several aspects of the procedures used in these studies make it difficult, however, to draw a general conclusion about how people defend themselves against negative affective stimuli. Also, we wanted to examine whether the self-distraction process might be a form of affect regulation. In Experiment 3 we sought to remedy these problems and to increase generality.

The first and probably most important issue is that we have not provided any evidence that people spontaneously (i.e., without prompting) generate happy thoughts in response to an unpleasant stimulus—all we have shown is that people respond more readily and quickly when they are instructed to do so. In Experiment 3 we used a thought-listing procedure in which people were given no instructions for thinking about (or avoiding) any particular topic. In this way, it would be possible to see whether repressors and possibly other people indeed respond to a bad mood induction by thinking pleasant, happy thoughts. (To avoid any potential confound that was due to differing baseline frequencies of pleasant thoughts, we obtained a baseline measure of pleasant thoughts before seeing the film in order to use it as a covariate.) In this way, we hoped to eliminate any demand that might have occurred as a consequence of the instruction to recall something happy.

Second, in Experiments 1 and 2 we did not seek to measure any improvement in mood in connection with this strategy of generating happy memories. We argued that repressors will think about pleasant thoughts to avoid the effects that would normally follow exposure to the unpleasant videotape, the primary effect being the experience of negative mood or emotion. Experiment 3 was designed to test this notion directly by measuring the mood of each participant shortly after exposure to the videotape (and after a brief period of thought listing). If pleasant thoughts do indeed help repressors ward off bad moods, they should report relatively pleasant moods after the thought-listing period, as compared with nonrepressors who saw the same, unpleasant videotape.

A third goal of Experiment 3 was to broaden the generality of the findings by looking at thoughts in general rather than focusing specifically on happy memories. We found that repressors were quick to come up with happy memories when instructed to do so, but this does not necessarily mean that they

would shift attention to happy thoughts in general. It seems possible that while happy memories might be a good source of distraction from an unpleasant stimulus, any pleasant thought (perhaps such as "nice day out today") might do as well. In Experiment 3 we sought to include a greater range of pleasant cognitions.

A further, particular advantage of using an unguided thought-listing procedure was that it would allow us to examine both relevant and unrelated thoughts. On the basis of Hansen and Hansen's (1988) model, we proposed that repressors may be especially skilled at shifting attention off of an upsetting stimulus onto an entirely unrelated pleasant thought. Although the happy memories in Experiments 1 and 2 did not generally have any apparent relation to the distressing stimulus, it is plausible that the instruction to produce a happy memory disrupted the normal chain associations. Hence, Experiment 3 was necessary to see whether people would follow thoughts associated with the distressing stimulus or would instead shift to unrelated thoughts.

Finally, in Experiments 1 and 2 we did not include a manipulation check (although we did pretest the videotapes). In particular, one might propose that repressors might not find the same videotape to be particularly unpleasant, which could conceivably confound the subsequent differences in speed of recall of happy memories. Of course, our model asserts that repressors would indeed not be upset by the content of the videotape but should still find the content of the tape distressing. To this end, Experiment 3 included a manipulation check administered just before the mood measure to ensure that the unpleasant videotape was indeed being perceived by the participants as more unpleasant than the neutral videotape and to investigate whether repressors saw the unpleasant video as more or less unpleasant than nonrepressors.

Method

Participants

Participants included 129 undergraduate psychology students (51 women and 78 men) who participated for course credit. Participants were pretested to determine level of trait repressiveness through use of the measure suggested by Weinberger et al. (1979). Participants scoring in the upper tertile of the Marlowe–Crowne Social Desirability Scale (Crowne & Marlowe, 1964; on the basis of the present sample), and the Bendig (1956) short form of the Taylor Manifest Anxiety Scale, were identified as repressors for the purpose of the experiment. Unlike each of the previous experiments, however, trait repressiveness scores were not used to determine whether participants would be asked to participate in the experiment. All people who reported completing the measure of trait repressiveness were invited to volunteer for the experiment. Four participants were dropped from analyses because of their failure to complete the trait repressiveness measure, leaving 125 participants. Participants took part individually in the experiment and were randomly assigned on arrival to view either the unpleasant or neutral videotape.

One possible concern is whether the individual differences measure was confounded with gender differences, such as if repressors were predominantly men and nonrepressors were predominantly women. Among repressors, there were 21 male and 9 female participants; among nonrepressors, there were 56 male and 39 female participants. Thus, the distributions were not substantially disproportionate. More to the point, the major analyses yielded quite similar results for both sexes, and, if anything, the effects were slightly more marked among female participants. Furthermore, gender was included (as in the first two experiments) in the major analyses, but no effects were detected. Thus, gender does not seem to have mediated or confounded our results, and we report analyses collapsing across this variable.

Procedure

On arrival at the experiment, each participant was informed that the purpose of the experiment was to examine the relationship between one's thoughts and reactions to exposure to various types of media. Each participant was seated at a desk in front of a television and VCR. The experimenter told the participant that the experiment consisted of the participant writing down his or her thoughts for two 5-min periods and that between thought-sampling periods the participant would be asked to view a short videotape. The experimenter then explained that after the second thought-sampling period the participant would be asked to answer three questionnaires. The experimenter asked the participant whether he or she had any questions and then handed the participant a thought inventory sheet. The thought inventory consists of numbered lines upon which participants are asked to write one thought on each line for a 5-min period. The experimenter left the room for 5 min during which participants recorded their thoughts on the thought inventory.

At the end of 5 min the experimenter reentered the room and collected the thought inventory. The experimenter explained that the participant would now be asked to view a 5-min videotape. The experimenter started the tape and left the room while the participant viewed the tape. The videotape was either unpleasant or affectively neutral in content, and the videotapes used in Experiment 3 were the same as those used in Experiment 1. (The unpleasant tape was the same used in Experiment 2.)

On conclusion of the videotape, the experimenter reentered the room and turned off the video equipment. The experimenter then handed the participant a second thought inventory sheet and asked the participant to report his or her thoughts for the next 5 min. The experimenter left the room for 5 min during which the participant again recorded his or her thoughts on the thought inventory.

On reentering the room, the experimenter collected the thought inventory and handed the participant a three-page questionnaire for him or her to complete. The first page of the questionnaire consisted of a manipulation check, which comprised two questions: "How did the movie make you feel?" and "How do you think this movie would make the average person feel?" Each question had a 7-point response scale, 1 (*good*) to 7 (*bad*), that consisted of drawn facial expressions. The participant was asked to circle the face most closely related to the way he or she felt, or how he or she thought the average person would feel. The rest of the questionnaire consisted of the Mayer Brief Mood Introspection Scale (BMIS; Mayer & Gaschke, 1988) and a mood valence scale (a 20-point scale with responses ranging from *unpleasant* to *pleasant*). The experimenter left the room while the participant completed the manipulation check and mood questionnaire.

On reentering the room, the experimenter collected the questionnaire and handed the participant a one-page questionnaire consisting of a modified version of the Cognitive Interference Questionnaire (CIQ; Sarason, Sarason, Keefe, Hayes, & Shearin, 1986). The questionnaire was modified in that only one of the two original subscales was used—the Task–Irrelevant Thoughts subscale. Also, a 7-point scale asking how much the participant felt his or her mind wandered during the experiment, and a 5-point scale asking how much the participant felt he or she had thought about something pleasant during the experiment, were added to the questionnaire. The experimenter left the room while the participant completed the questionnaire. On reentering the room, the experimenter collected the questionnaire, debriefed the participant, and answered any questions the participant might have had concerning the experiment.

Coding of Thought Inventories

The thought inventories compiled by each participant both before and after viewing the videotape were coded by two raters according to several criteria. Listed here are the criteria and the correlations between the two raters on each dimension. Again, the agreement among raters averaged across scales was found to be high (r = .94). These criteria included the total number of thoughts (no reliability calculated as this was a purely objective measure), the number of thoughts relevant to the experiment (r = .93), the number of pleasant thoughts (r = .95), and the number of pleasant thoughts unrelated to the video or experiment (r = .94). The total number of pleasant thoughts and the experiment- and film-unrelated thoughts reported after viewing the videotape served as the main dependent measures in the experiment, with the number of pleasant thoughts reported before viewing the videotape serving as the covariate (to account for the possibility that the number of pleasant thoughts may be confounded with trait repressiveness). The coding of total number of thoughts and experiment-related thoughts was conducted to determine whether the thought inventories varied in any other systematic way among conditions, which would shed further light on the hypothesized differences in number of pleasant thoughts.

The thought inventories were coded by two independent raters as to the total number of thoughts (how many lines on the inventory were filled out), the number of experiment-related thoughts (such as "This is a boring experiment" or "I wonder when the experimenter is going to come back in"), the number of pleasant thoughts (the main dependent variable, which could include anything pleasant such as "I'm glad my sister is coming to visit me" or "I'm really excited about the Browns game Sunday"), and the number of pleasant thoughts unrelated to the video or experiment (i.e., any thoughts of a personal nature that did not seem germane to the experiment or experimental setting). Analyses were performed both on the first rater's codings and the averaged set of codings (the results that are based on the first rater's codings are reported here as there was no difference between the results of each of the analyses). The high correlation suggests that the codings were adequately reliable.

Results

Manipulation Check

As stated previously, each participant responded to two questions designed to ensure that the experimental manipulation of emotion achieved the desired effect. Each question was answered on a 7-point scale with responses ranging from 1 (*most pleasant*) to 7 (*most unpleasant*). Analysis of response to the first question "How pleasant did you find the video to be?" revealed a significant main effect for condition, $F(1, 123) = 29.15$, $p < .001$. Participants who viewed the unpleasant video reported that the video made them feel significantly more unpleasant (M = 4.20) than participants who viewed the neutral video (M = 3.13). Analysis of response to the second question "How do you think this video would make the average person feel?" revealed a significant main effect for condition, $F(1, 123) = 173.51$, $p < .001$. Participants who viewed the unpleasant video reported that they believed the video would make other people feel significantly more unpleasant (M = 5.39) than participants who viewed the neutral video (M = 3.10). It is important to note that there was no significant effect for trait repressiveness nor was there an interaction between trait repressiveness and condition. The absence of any difference suggests that repressors and nonrepressors had approximately the same perceptions of the effects of the videos, even though we fully expected that repressors' emotional state would not be affected by viewing the video (which also rules out the use of a more conventional manipulation check here such as a mood measure). Hence it appears that one cannot attribute the results of these experiments to any differential perception of the videotape itself.

Contrasts

Contrast analyses were performed on many of the analyses reported in this section to support our interpretations of the interactions. In all cases, weighted contrasts were used (Rosenthal & Rosnow, 1985). For four cell contrasts, weights of 3 were given to the group in question (typically the repressors) and −1 to each of the other groups. For two cell contrasts, weights of 1 and −1 were assigned to the groups.

Thought Inventory

The main focus of Experiment 3 was the listing of thoughts by individual participants after they watched the videos. Frequency analyses revealed that the coding dimensions for number of pleasant thoughts and the number of pleasant thoughts unrelated to the experiment or video derived from the thought inventories were significantly skewed (skewness greater than 1.5). Each coding dimension was therefore transformed by using a square root transformation (appropriate for use with data containing values of zero; Tabachnick & Fidell, 1989) that brought skewness levels into an acceptable range.

A second problem that needed to be addressed was the small number of participants in one of the nonrepressor groups, specifically the high-defensive high-anxious group (n = 12). This group was smaller than any of the other groups because of two factors, the first being that the two scales (the short form of the Taylor Manifest Anxiety Scale and the Marlowe–Crowne Social Desirability Scale) used to identify repressors were negatively correlated (r = −.2). Second, because we used a conservative cutoff figure for identifying repressors (the upper third of the Marlowe–Crowne Scale rather than the upper half), the number of individuals who fell into the range of scores was restricted. Therefore, only 12 individuals who participated in the experiment were identified as *high* on both scales. Eight of these individuals were randomly assigned to the unpleasant video condition, whereas only 4 were assigned to the neutral condition. The low number of participants in these cells increased the risk of unreliable findings, so we conducted all of the major analyses twice: once including all of the trait categories and once after deleting the high-defensive high-anxious group. In general, the significance levels of all analyses were identical for both analyses.

The main hypothesis was that repressors would respond to the distressing videotape with pleasant thoughts, particularly ones that were irrelevant to the topic of the tape. The main analyses therefore focused on the pleasant thoughts (especially irrelevant ones) reported by participants during the thought-listing period.

Total pleasant thoughts. We began with the simplest variable; namely, the total number of pleasant thoughts listed by participants after viewing the videotape. We conducted an analysis of covariance (ANCOVA) by using the square root transfor-

mation of total number of pleasant thoughts after viewing the video as the dependent variable, trait repressiveness and video condition (unpleasant or neutral) as the independent variables, and number of pleasant thoughts reported before viewing the video as the covariate (as there was reason to suspect that the baseline number of pleasant thoughts might vary according to group). This analysis revealed a significant interaction between trait repressiveness and condition, $F(3, 123) = 3.15$, $p < .05$ (see Table 2). Repressors viewing the unpleasant video reported more pleasant thoughts than any of the nonrepressor groups—contrast analysis revealed a marginally significant finding, $F(1, 115) = 3.09$, $p = .08$, in partial support of the interpretation; repressors, $M = 1.13$; high-defensive high-anxious, $M = 0.38$; low-defensive low-anxious, $M = 0.40$; and low-defensive high-anxious, $M = 0.32$—whereas repressors viewing the neutral video reported about the same number of pleasant thoughts as any of the nonrepressor groups: contrast, $F(1, 115) = 0.50$, *ns*. The analysis also revealed a significant main effect for condition, $F(1, 123) = 32.84$, $p < .01$. Participants viewing the neutral video reported significantly more pleasant thoughts ($M = 1.09$) than participants viewing the unpleasant video ($M = 0.45$).

We repeated this analysis after dropping the high-defensive high-anxious group, and results were essentially the same. The interaction between repressiveness and condition was again significant, $F(2, 111) = 3.70$, $p < .05$, as was the main effect for video condition, $F(1, 111) = 25.60$, $p < .01$.

Irrelevant pleasant thoughts. The next analysis focused specifically on the number of pleasant thoughts that were apparently unrelated to the video or the experiment reported by the participants because of the special theoretical importance of irrelevant thinking in self-distraction. Thus, for example, the neutral video contained winter landscape scenes, and some participants later expressed the wish that they could be skiing in Aspen rather than sitting in our laboratory. For each participant, we generated a count of unrelated pleasant thoughts on both the baseline premeasure and the dependent measure, and, because of skewness, we subjected these tallies to the same square root transformation (see Table 3). An ANCOVA, with the premeasure as covariate again, yielded a significant interaction between trait repressiveness and condition, $F(3, 123) = 6.79$, $p < .001$. Repressors viewing the unpleasant video reported a greater number of pleasant thoughts not related to the video than repressors viewing the neutral video—contrast, $F(1, 115) = 6.55$, $p < .05$; repressors/unpleasant video, $M = 0.88$; and repressors/neutral video, $M = 0.07$—or nonrepressors viewing the unpleasant video—contrast, $F(1, 115) = 6.73$, $p < .05$; repressors, $M = 0.88$; high-defensive high-anxious, $M = 0.30$; low-defensive low-anxious, $M = 0.13$; and low-defensive high-anxious, $M = 0.14$. Repressors viewing the neutral video also reported fewer pleasant thoughts unrelated to the video than individuals in any of the nonrepressor groups: contrast, $F(1, 115) = 4.79$, $p < .05$; repressors, $M = 0.07$; high-defensive high-anxious, $M = 0.75$; low-defensive low-anxious, $M = 0.65$; and low-defensive high-anxious, $M = 0.91$. There was also a main effect for video condition, $F(1, 123) = 3.99$, $p < .05$, indicating higher levels of pleasant thoughts after the neutral than the unpleasant video and a significant effect for the covariate, $F(1, 123) = 7.94$, $p < .01$.

Again, we repeated this analysis without the high-defensive high-anxious group. The interaction between trait repressiveness and condition was significant, $F(2, 105) = 10.43$, $p < .001$, as was the significant effect of the covariate, $F(1, 123) = 3.99$, $p < .05$. The main effect for video condition dropped to only marginal significance on this analysis, however.

Proportion of pleasant, irrelevant thoughts. The third and arguably most important analysis concerned the proportion of each participant's thoughts that were both pleasant and irrelevant to the experimental setting and stimuli. For each participant, we divided the number of pleasant, irrelevant thoughts by the total number of thoughts listed by that participant, and these proportions (see Table 4) were subjected to a simple ANOVA.

Table 2
Total Number of Pleasant Thoughts Reported After Viewing Video in Experiment 3

Trait repressiveness	Videotape	
	Unpleasant	Neutral
Repressor group		
M	1.13	1.64
SD	0.51	0.60
n	16	14
High-defensive high-anxious group		
M	0.38	2.25
SD	0.39	0.73
n	8	4
Low-defensive low-anxious group		
M	0.40	1.70
SD	0.47	0.45
n	15	23
Low-defensive high-anxious group		
M	0.32	2.05
SD	0.39	0.64
n	22	22

Table 3
Total Number of Pleasant Thoughts Unrelated to the Video or Experiment Reported After Viewing Video in Experiment 3

Trait repressiveness	Videotape	
	Unpleasant	Neutral
Repressor group		
M	0.88	0.07
SD	0.61	0.32
n	16	14
High-defensive high-anxious group		
M	0.30	0.75
SD	0.35	0.90
n	8	4
Low-defensive low-anxious group		
M	0.13	0.65
SD	0.77	0.68
n	15	23
Low-defensive high-anxious group		
M	0.14	0.91
SD	0.79	0.70
n	22	22

Table 4
Proportion of Pleasant, Irrelevant Thoughts (in Experiment 3)

Trait repressiveness	Videotape	
	Unpleasant	Neutral
Repressor group		
M	.10	.01
SD	.12	.02
n	16	14
High-defensive high-anxious group		
M	.05	.11
SD	.03	.11
n	8	4
Low-defensive low-anxious group		
M	.01	.07
SD	.05	.11
n	15	23
Low-defensive high-anxious group		
M	.02	.11
SD	.05	.13
n	22	22

It revealed a significant interaction between trait repressiveness and video condition, $F(3, 123) = 5.10$, $p < .05$. Repressors reported a higher proportion of unrelated pleasant thoughts after viewing the unpleasant video than after the neutral video—contrast, $F(1, 115) = 6.05$, $p < .05$; repressors/unpleasant video, $M = .10$; and repressors/neutral video, $M = .01$—whereas each of the nonrepressor groups showed the reverse: contrast between repressors and nonrepressors in the unpleasant video condition, $F(1, 115) = 5.38$, $p < .05$; repressors, $M = .10$; high-defensive high-anxious, $M = .05$; low-defensive low-anxious, $M = .01$; and low-defensive high-anxious, $M = .02$ and contrast between repressors and nonrepressors in the neutral video condition, $F(1, 115) = 5.49$, $p < .05$; repressors, $M = .01$; high-defensive high-anxious, $M = .11$; low-defensive low-anxious, $M = .07$; and low-defensive high-anxious, $M = .11$. The interaction was also significant when the ANOVA was conducted after deleting the high-anxious high-defensive group, $F(2, 111) = 7.30$, $p < .01$.

Thus, these analyses supported the hypothesis that repressors would respond to the distressing videotape by thinking about irrelevant, pleasant topics. As compared with nonrepressors who watched the same tape and as compared with repressors who saw a neutral tape, these participants reported a higher total number of pleasant thoughts, a higher number of pleasant and irrelevant thoughts, and a higher proportion of pleasant, irrelevant thoughts.

Total thoughts. Next we examined the total number of thoughts listed by participants, including both pleasant and unpleasant and relevant and irrelevant ones. The total number of thoughts listed in the baseline thought-listing period (i.e., before watching the video) was used as a covariate. An ANCOVA revealed a significant main effect for video condition, $F(1, 123) = 4.51$, $p < .05$. Individuals viewing the unpleasant film reported fewer thoughts ($M = 8.41$) than individuals who viewed the neutral film ($M = 9.02$). The same result was found after dropping the high-defensive high-anxious group, $F(1, 111) = 4.10$, $p < .05$. Thus, the analyses indicated that viewing the unpleasant film seemed to restrict the number of thoughts generated by participants. The interaction between trait and video condition failed to reach significance ($p = .108$).

Total relevant thoughts. An ANCOVA on the number of thoughts relevant to the experiment after viewing the video (using number of thoughts relevant to the experiment before viewing the video as a covariate) revealed a significant main effect for video condition, $F(1, 123) = 9.09$, $p < .01$. Participants who viewed the unpleasant film reported more experiment-related thoughts ($M = 6.18$) than participants who viewed the neutral film ($M = 4.24$). The same pattern was found after dropping the participants in the high-defensive high-anxious condition, $F(1, 111) = 5.95$, $p < .05$. Thus, the results indicate that viewing the unpleasant film caused participants to dwell on aspects of the film or experiment to a greater extent than viewing the neutral film.

Summary of thought-listing data. These data shed light on people's spontaneous (unprompted) thought processes in response to affect-inducing stimuli. Some effects appeared to be common to nearly all participants. In particular, an upsetting or distressing video reduced the total amount of thinking people did while simultaneously increasing the number of thoughts about the immediate situation. In other words, there was a decrease in total number of thoughts despite an increase in thoughts about the experiment. Apparently, then, exposure to distressing information had the effect of restricting one's thought processes to the here and now.

Meanwhile, however, repressors showed certain patterns of thinking that differentiated them from other (nonrepressor) participants, as well as supporting our hypotheses. Repressors reported far more pleasant thoughts in response to the upsetting video than did nonrepressors. In fact, repressors had about the same number of pleasant thoughts after the unpleasant video as they had after the neutral video. Repressors especially stood out when we coded pleasant thoughts that were irrelevant to the video (and any other features of the experiment). Repressors who had seen the distressing video reported a relatively high rate of such thoughts. Accordingly, when we calculated what proportion of each participant's thoughts involved pleasant, unrelated thoughts, we found that repressors who had seen the unpleasant video were exceptionally high on this measure. The implication is that repressors respond to the unpleasant, upsetting stimulus by thinking about pleasant matters that have no relation to the unpleasant, upsetting stimulus. Such a response seems ideally suited to a self-distraction pattern of coping with distressing information.

Mood Scales

Two measures of mood were administered to participants after the second thought inventory. The first measure was a 21-point mood valence scale with the question "Overall, my mood is" and the endpoints labeled −10 (*unpleasant*) and 10 (*pleasant*). Analysis of the mood valence scale revealed a significant main effect for condition, $F(1, 123) = 6.41$, $p < .05$. Participants who viewed the unpleasant film reported their mood as being less pleasant ($M = 1.07$) than participants who viewed the neutral film ($M = 3.48$). The analysis was also conducted after dropping the participants in the high-defensive high-anxious

group. Again, the analysis revealed a significant main effect for condition, $F(1, 111) = 14.18$, $p < .001$. Participants who viewed the unpleasant film reported their mood as being less pleasant ($M = 0.92$) than participants who viewed the neutral film ($M = 3.59$).

The second measure of mood used in the study was the BMIS (Mayer & Gaschke, 1988) that was also administered to participants after the second thought inventory. The BMIS comprises four subscales including a Pleasant–Unpleasant Mood subscale (with a range of possible scores from 48 [*pleasant*] to −48 [*unpleasant*]), which was of primary interest to us (although all four subscales were analyzed). Analysis of the Pleasant–Unpleasant Mood subscale revealed a significant main effect for condition, $F(1, 123) = 6.49$, $p < .05$. Participants who viewed the unpleasant video ($M = -0.26$) reported a more unpleasant mood than participants who viewed the neutral film ($M = 5.05$). The analysis also revealed a significant main effect for trait repressiveness, $F(3, 123) = 3.39$, $p < .05$. Repressors reported a more pleasant mood than individuals in any other group: repressors, $M = 8.40$; high-defensive high-anxious, $M = -0.17$; low-defensive low-anxious, $M = -0.13$; and low-defensive high-anxious, $M = 1.30$. A similar effect was obtained on the Positive–Tired subscale of the BMIS.

Next, we performed a contrast analysis on the Pleasant–Unpleasant Mood subscale of the BMIS to determine whether repressors felt better than individuals in any of the nonrepressor groups after watching the unpleasant video; thus, the contrast was performed only for the unpleasant video condition. The analysis revealed a significant effect: $F(1, 115) = 3.95$, $p < .05$; repressors, $M = 5.13$; high-defensive high-anxious, $M = -0.88$; low-defensive low-anxious, $M = 4.67$; and low-defensive high-anxious, $M = -0.95$. The results of the contrast indicate that repressors felt significantly more pleasant after viewing the unpleasant video than individuals in any of the nonrepressor groups. A second contrast compared repressors in the neutral video condition with nonrepressors in the neutral video condition, revealing a significant effect: $F(1, 115) = 4.27$, $p < .05$; repressors, $M = 12.14$; high-defensive high-anxious, $M = 1.25$; low-defensive low-anxious, $M = 2.83$; and low-defensive high-anxious, $M = 3.55$. Repressors who viewed the neutral video also reported feeling more pleasant than individuals in each of the nonrepressor groups: contrast between repressors unpleasant video and repressors neutral video, $F(1, 115) = 2.32$, *ns*.

The mood results seem to indicate that although repressors reported a less pleasant mood immediately after viewing the unpleasant tape than after viewing the neutral tape, repressors did not seem to be affected by the unpleasant tape in the same manner as nonrepressors. That is, the unpleasant tape did not seem to induce lingering mood effects in repressors—consistent with the idea that they distracted themselves from the negative stimulus with positive thoughts. Specifically, repressors' self-reported mood after the unpleasant tape was more pleasant than that of nonrepressors who watched the same tape. This finding is tempered, however, by the contrast between repressors and nonrepressors for the neutral video, in which repressors again reported a significantly more pleasant mood than nonrepressors. Although the data in the unpleasant video condition might suggest that repressors are regulating their affective state better than nonrepressors, it may be that repressors are merely feeling more pleasant than nonrepressors all of the time (especially given the highly positive mood ratings of repressors after the neutral video). Thus we cannot conclude from the mood data that repressors are indeed successfully regulating their affect through the self-distraction process.

Cognitive Interference

Four analyses were performed on the modified CIQ (Sarason et al., 1986). The first analysis examined the question "How much do you feel your mind wandered during this experiment?" that was answered on a 7-point scale with responses ranging from 1 (*not at all*) to 7 (*very much*). The analysis revealed a significant main effect for condition, $F(1, 123) = 41.20$, $p < .001$. Participants who viewed the unpleasant film reported that their mind "wandered" less ($M = 2.93$) than participants who viewed the neutral film ($M = 4.73$). The same result was found after dropping the individuals in the high-defensive high-anxious condition, $F(1, 111) = 38.72$, $p < .001$.

The second CIQ analysis examined the question "How often (during the film) did you think of something pleasant?" that was answered on a 5-point scale with responses ranging from 1 (*not at all*) to 5 (*very much*). The analysis revealed a significant main effect for condition, $F(1, 123) = 43.76$, $p < .001$. Participants who viewed the unpleasant film reported having fewer pleasant thoughts ($M = 2.07$) than participants who viewed the neutral film ($M = 3.41$). The same result emerged from a reanalysis conducted after dropping the participants in the high-defensive high-anxious condition, $F(1, 111) = 37.23$, $p < .001$.

The third CIQ analysis examined the question "I thought about the purpose of the experiment," which was also answered on a 5-point scale. The analysis revealed a significant main effect for trait repressiveness, $F(3, 123) = 3.17$, $p < .05$. Repressors reported thinking less about the purpose of the experiment than participants in any other group (repressors, $M = 2.70$; high-defensive high-anxious, $M = 2.92$; low-defensive low-anxious, $M = 3.26$; and low defensive high-anxious, $M = 3.43$). This effect was also significant after dropping the participants in the high-defensive high-anxious group, $F(2, 111) = 4.76$, $p < .05$.

The fourth CIQ analysis used the total of the Task–Irrelevant Thoughts subscale as the dependent variable (scores ranged from 11 to 55; see Table 5). The analysis revealed a significant main effect for condition, $F(1, 123) = 7.38$, $p < .01$. Participants who viewed the unpleasant film reported having fewer task–irrelevant thoughts ($M = 22.34$) than participants who viewed the neutral film ($M = 25.62$). This effect too was significant on the reanalysis that omitted the high-defensive high-anxious group, $F(1, 111) = 6.79$, $p < .05$. The reanalysis also revealed a significant interaction between trait repressiveness and condition, $F(2, 111) = 3.88$, $p < .05$. Repressors who viewed the unpleasant film reported having fewer task–irrelevant thoughts than participants in any other group or condition—contrast between repressors and nonrepressors in the unpleasant video condition: $F(1, 107) = 4.03$, $p < .05$; repressors, $M = 18.94$; high-defensive high-anxious, $M = 22.38$; low-defensive low-anxious, $M = 21.27$; and low-defensive high-anxious, $M = 25.55$; contrast between repressors unpleasant video and repressors neutral video, $F(1, 107) = 6.94$, $p < .05$; and contrast

Table 5
Cognitive Interference Questionnaire Task–Irrelevant Thoughts Subscale for Experiment 3

Trait repressiveness	Videotape	
	Unpleasant	Neutral
Repressor group		
M	18.94	25.21
SD	15.62	20.13
n	16	14
High-defensive high-anxious group		
M	22.38	26.75
SD	18.95	27.62
n	8	4
Low-defensive low-anxious group		
M	21.27	26.57
SD	19.21	23.87
n	15	23
Low-defensive high-anxious group		
M	25.55	24.68
SD	20.33	21.20
n	22	22

between repressors and nonrepressors for the neutral video condition, $F(1, 107) = 0.11$, *ns*.

Discussion

The results of Experiment 3 suggest that repressors will spontaneously (without prompting) generate pleasant thoughts in response to an unpleasant videotape. Furthermore, these thoughts seem to be generally unrelated to the content of the videotape or the experiment in which the individual is participating. When asked to report their thoughts after viewing the video, repressors reported a significantly greater number of pleasant thoughts than nonrepressors. Repressors who saw an unpleasant video were especially likely to report a high frequency of pleasant thoughts that had no apparent relation to the video (or any other aspect of the present situation). Although repressors did not differ in the total number of pleasant thoughts with respect to video condition, the pleasant thoughts generated by repressors after the neutral film seemed to be primarily related to the subject of the video, winter in Yellowstone National Park; whereas after the unpleasant video, repressors reported thinking about such topics as doing well on a test, going to parties, and listening to good music. Apparently, then, repressors are quite willing to pursue pleasant lines of thought suggested by the situation, but if the situation fails to provide a stimulus for such pleasant thoughts, they are quite successful at generating pleasant thoughts on their own that are irrelevant to the immediate situation.

The pattern of results for the mood data, however, was equivocal and did not allow us to conclude that repressors use the self-distraction process as a form of affect or mood regulation. Repressors and nonrepressors reported that they found the unpleasant videotape to be equally distressing, but after engaging in unstructured rumination for a few minutes, repressors reported much more favorable moods. This finding suggests that although the repressors found the video to be unpleasant, they found some way of responding during and after the video that enabled them to avoid the lingering unpleasant mood evidenced by other participants. Repressors also reported much more favorable moods than nonrepressors after the neutral video as well, however, casting into doubt any conclusions that might be drawn from the data.

One possible reason for the equivocal findings from the mood scale data is that the mood scale was given too long after the presentation of the stimulus to be of value. Although this might be true to some extent, the primary purpose of this experiment was to examine the effect of exposure to an unpleasant stimulus on the thought patterns of the participants. Thus, it was necessary for us to use our most important dependent measure, the thought listing, immediately following presentation of the stimulus. Also, we were concerned that measuring mood directly after (or during) the stimulus would introduce demand into the experiment in a manner similar to that pointed out by Parrott and Sabini (1990). These authors reported that participants in their studies reacted quite differently depending on whether they were informed that their mood state was of concern to the study. We wished to avoid the possibility that participants might alter their behavior (particularly their response to the thought listing) in some important way if they were informed that mood was an important part of the experiment. Finally, we were primarily interested in the mood states of the participants as a residual effect not only of the presentation of the stimulus but also of their own efforts (if any) at self-regulation of mood. It is possible that an indirect measure of mood, or application of the mood questionnaire directly after viewing the videos, might better capture the mood effects we wished to investigate.

Across all participants, we found that viewing the unpleasant film led to an increase in the number of thoughts related to the experiment—yet produced a decrease in the total number of thoughts. The unpleasant video seemed to capture participants' interest and attention and occupy their thoughts afterward. Thus, overall, the effect of the distressing stimulus was to narrow the range of cognitive activity to the immediate present. In an important sense, then, the pleasant self-distractions of repressors ran counter to the dominant trend.

Likewise, the responses on the CIQ (Sarason et al., 1986) suggested that viewing the unpleasant video tended to result in fewer thoughts irrelevant to the experiment, especially those of repressors. In fact, the only irrelevant thoughts repressors seemed to have after viewing the unpleasant video were pleasant ones. The cognitive responses of repressors seemed almost a parody of grandmotherly advice: "If you can't think of something nice, then don't think of anything at all."

General Discussion

These three studies have provided support for the view that repressors respond to an emotionally distressing stimulus by summoning up pleasant thoughts such as happy memories. More precisely, we found that repressors who had been shown an affectively unpleasant videotape were unusually fast in responding to a subsequent instruction to describe a happy experience from their personal lives (Experiments 1 and 2) or to report pleasant thoughts that were unrelated to the current upsetting stimulus environment (Experiment 3).

We hypothesized that this cognitive response would arise in the service of affect regulation: People prefer to focus on pleasant thoughts as a way of avoiding the potential negative mood induced by our manipulation. This is consistent with the notion that pleasant thoughts and affective memories may be recalled in the service of altering mood and emotional states. Experiment 3 failed to provide convincing evidence to support the affect regulation view. Repressors thought the video was unpleasant, but after an unstructured rumination period (during which they tended to think about pleasant, irrelevant matters) they reported relatively good moods. Repressors also, however, reported more pleasant moods than nonrepressors after the neutral video, which might suggest that repressors feel more pleasant than nonrepressors much of the time.

Alternative Explanations

Many of the specific findings in these studies are subject to multiple explanations and alternative interpretations. To help evaluate the conclusions about coping with exposure to unpleasant stimuli, we briefly review how we sought to rule out these alternative explanations.

First, in Experiment 1 the pattern of generating happy memories more quickly after exposure to an unpleasant affect induction was confined to repressors. Nonrepressors, in fact, responded rather slowly in that same condition, suggesting that they found it relatively difficult to generate a pleasant memory after being exposed to a distressing stimulus. Thus, the happy memory strategy was associated with participants who habitually try to defend themselves against emotional distress (indeed, participants who were chosen on precisely that basis). Apparently it is necessary to invoke some form of defensiveness or repressiveness in explaining these results, which suggests that the attentional strategy we found was a way of defending oneself against the emotional threat.

Second, as Experiment 2 showed, the increase in speed appears to be specific to happy memories. An alternative interpretation, that repressors would be fast at recalling any memories (or indeed at carrying out any instruction) after exposure to the distressing stimulus was not supported. Distressing stimuli appear to make repressors ready to recall happy memories in particular. Still, the findings could not rule out the possibility that repressors respond to the unpleasant stimulus by presenting themselves in a good light (by recalling happy memories quickly or unpleasant memories slowly), but evidence from prior studies suggests that this is not the case.

Third, these findings do not appear to reflect any general tendency for repressors to be especially quick to access memories or happy memories. After the neutral stimulus tape in Experiment 1, repressors were slower than nonrepressors to recall a happy memory.

Fourth, Experiment 3 showed that these effects are not limited to recalling happy memories under special instructions. In Experiment 3, repressors showed a preponderance of pleasant thoughts during an unstructured rumination (thought-listing) exercise that followed exposure to an unpleasant stimulus.

Fifth, it does not appear that the results are due to some idiosyncratic perception of the distressing stimulus by repressors as being amusing or pleasant. Experiment 3 showed that repressors rated the video as being just as unpleasant, for themselves and for people in general, as nonrepressors rated it.

Thus, these results seem to indicate that this response pattern (of accessing pleasant, unrelated thoughts and memories) is indeed a means of protecting oneself from exposure to an unpleasant stimulus. By shifting one's attention to pleasant, happy thoughts, people may be able to prevent themselves from dwelling on the unpleasant stimulus and succumbing to any effects of dwelling on that stimulus.

Informal observations were consistent with the interpretation that the avoidance of the unpleasant stimulus was indeed a driving factor. One participant, when asked by the experimenter how she had liked the unpleasant video, responded that all she could think about during it was her cousin's upcoming birthday party and how much fun that was going to be. There is no apparent way in which that thought would be triggered by a videotape of giant sea turtles dying pathetically from the effects of nuclear waste. Undoubtedly, however, the birthday party was a far more cheerful thought.

Implications

The present findings are relevant to several other lines of work. First, our results fit the view that negative affective states have contradictory consequences, which makes understanding negative affect especially difficult (see Isen, 1984; Taylor, 1991). The pattern of responses shown by nonrepressor participants in Experiment 1 suggested that negative affect can inhibit the memory search for positive affective memories. On the other hand, repressors in that same study responded in a way that suggested an increased accessibility of mood-incongruent memories. Thus, at least some participants respond to an unpleasant affect induction by making pleasant thoughts all the more accessible, presumably to counter the potential effects of attending to the stimulus. Taken together, these suggest that both mood-congruent processing and the avoidance of negative stimuli may occur. Our findings support Isen's (1984) suggestion that negative affect may lead to competing, opposed processes, and which one prevails may depend on a variety of situational and dispositional factors.

The present results fit the growing body of evidence that controlling attention is a common means of self-regulation. Billings and Moos (1984) and Morrow and Nolen-Hoeksema (1990) both found that active, self-distracting responses were effective means of controlling depressed moods (see also Derryberry & Rothbart, 1988; Miller, 1987). Pennebaker and Lightner (1980) found that attending to external cues improved athletic endurance by delaying the recognition of muscular fatigue (see also McCaul & Haugtvedt, 1982). Rodriguez, Mischel, and Shoda (1989) found that distracting oneself facilitated delay of gratification (see also Karniol & Miller, 1983). Wegner et al. (1987) showed that efforts to suppress unwanted thoughts succeed much better if an engrossing distractor is used. Wenzlaff et al. (1988) showed that depressed people sometimes perpetuate their dysphoric cycle by distracting themselves from depressing thoughts with other thoughts that are similarly unpleasant. The latter finding suggests that the best distractor for avoiding a negative affective stimulus would be something

highly pleasant and positive—which is precisely what the repressors in the present study seemed to reach toward.

Self-generated distraction by turning attention away from unpleasant thoughts and toward pleasant thoughts such as happy memories may indeed be an effective technique for avoiding exposure to an unpleasant stimulus, but it is not necessarily repression. Although our findings linked this strategy to the repressive personality, it must be acknowledged that trait repressiveness in our study does not correspond to the original Freudian (1896/1989) definition of repression, which involved banishing unacceptable thoughts to the unconscious. Indeed, the cognitive strategy exhibited by our participants may be closer to the Freudian defense mechanism of *reaction formation,* defined as the replacement of an unacceptable impulse or feeling by its opposite. We confronted participants with an unpleasant stimulus intended to induce a bad mood, and defensive participants apparently responded by turning attention to happy memories instead. Thus, it seems most appropriate to interpret our trait measure as simply dealing with a broadly defensive stance rather than with classical repression per se. It should be noted as well that the classical Freudian definition of these defense mechanisms requires that the unacceptable thought, impulse, or feeling defended against be outside of awareness, a factor that we did not address in our experiments.

The long-term effect of such defensive processing could approximate the pattern that Freud (1896/1989) chose to describe as repression, however. Research has found that recall memory is a function of time spent attending to the stimulus to be learned and the complexity with which the stimulus is processed (Baddeley, 1990; Craik & Lockhart, 1972; Craik & Tulving, 1975; Klein & Saltz, 1976). If repressors do not attend to unpleasant information and do not process it thoroughly or deeply, then it will not leave a strong memory trace. Instead, it may end up stored haphazardly in the memory and may be relatively inaccessible as a result. Heightened inaccessibility of distressing material could be compared with keeping that material buried in an "unconscious" portion of the mind.

One of the most important contributions to understanding trait repressiveness was Hansen and Hansen's (1988) work on the "architecture" of emotional associations. They contended that dispositional repressors have an intrapsychic structure of memories in which distressing memories are relatively isolated from each other. Such a structure would facilitate the kind of defense that repressors apparently used in our study, as already noted. Furthermore, our findings suggest how repressors might end up with that structure. If they do indeed respond to unpleasant experiences by turning attention to pleasant thoughts that presumably have no relation to the distressing events, then their cognitive processing would be unlikely to forge a chain of associations between unpleasant memories. In contrast, depressed participants, who move from one unpleasant thought to another, would be much more likely to establish a network of dysphoric memories.

It has been noted that the findings of the current investigation correspond well with those of Smith and Petty (1995) and Parrott and Sabini (1990)—that pleasant thoughts and memories seem to arise when affect regulation might be occurring. We think that trait repressiveness may indeed have operated in our studies in the way that self-esteem and negative mood regulation may have operated in the Smith and Petty experiments, but we believe that the repressive coping construct is especially useful in addressing how such a process might operate. First, it is well established that repressors are consistent regulators of their affective states (see Weinberger, 1990, for review), even in response to seemingly trivial or minor inductions of negative affect. Furthermore, previous research indicates that the mechanism by which repressors may be avoiding negative emotions may be primarily cognitive. For example, research has shown that repressors consistently demonstrate impoverished memory for affective events (e.g., Baumeister & Cairns, 1992; Davis, 1987; Davis & Schwartz, 1987; Hansen & Hansen, 1988). As stated previously, our assertion that repressors fail to attend to unpleasant or unwanted stimuli because they are busy thinking about pleasant thoughts may help explain these results and indicate that these individuals who are consistent regulators of affect rely on a cognitive (rather than overtly behavioral) mechanism to do so.

Another question that arises is whether the repression construct is just another facet of some general negative affectivity factor. Indeed, the anxiety scale that makes up part of the repressiveness measure is generally considered to be one of the major components (or perhaps the major component) of the negative affectivity factor (Watson & Clark, 1984). Weinberger (1990) noted, however, that the purpose of combining the social desirability measure with the anxiety measure was to discern the difference between individuals who were truly low in anxiety (the truly "laid back") and those who were low in anxiety because they seemed to be protecting themselves much of the time. Thus, trait repressiveness does not seem to map onto the general negative affectivity factor particularly well.

Limitations and Issues for Future Research

Several issues remain for further work. One issue concerns the automaticity of the response. It is apparent that some attentional control strategies are pursued with deliberate, conscious effort, but it also seems plausible that defensive responses of repressors become habitual and overlearned. Indeed, it might be possible that the shift of attention that seems to occur in repressors in response to exposure to an unpleasant stimulus might no longer be to avoid any effects of the stimulus but rather is a more reflexive action undertaken in the presence of a negative stimulus. Parrott (1993) has speculated that some emotional regulation strategies may be so well rehearsed that they occur below the level of consciousness. Indeed, our data from the revised CIQ (Sarason et al., 1986) in Experiment 3 suggested that if repressors were thinking about pleasant things to avoid processing the unpleasant stimulus, they were certainly unaware that they were doing so. Future work may benefit from exploring what sorts of attention regulation strategies become overlearned and automatic and what benefits actually accrue to individuals from such automatization. Indeed, Wegner's (1994) recent work suggested that intentionally trying to use such a strategy might backfire and result in thinking more about the unpleasant material.

Our assumption has been that repressors are simply more extreme than other people in their readiness and willingness to use defensive strategies. For ethical and pragmatic reasons, in

the present study we used a distressing stimulus that was relatively mild compared with the traumas and misfortunes that can threaten people outside of the laboratory. This is merely an assumption, however, and it remains to be seen whether the patterns shown by repressors in response to mild laboratory threats will also be used by nonrepressors in response to severe and nonlaboratory threats. In a recent study, however, Bonanno, Keltner, Holen, and Horowitz (1995) found that among individuals who had suffered a painful emotional trauma (the death of a spouse), the individuals who seemed to suffer the least from the trauma were those who somehow (and, most important, unintentionally) tended to distract themselves from thinking about the event. These findings suggest that the self-distraction behaviors used by repressors in our study may be used by individuals in response to real-life traumatic experiences and also that such a strategy may be more effective when automatic rather than intentional (although the automaticity of the process was speculated on by Bonnano et al. on the basis of the participants' self-reports rather than supported empirically). Still, although the present results have demonstrated that a particular defensive strategy exists, its generality remains to some extent undetermined.

Conclusion

Unpleasant events in daily life are often a source of frustration or irritation, yet some people seem to be able to avoid the unpleasant effects of daily hassles, namely, repressors. The present investigation has demonstrated one possible strategy that repressors apparently use when confronted with negative affective stimuli. This strategy involves turning one's attention away from the distressing stimuli and toward pleasant thoughts such as happy memories that are apparently unrelated to the distressing stimuli. More specifically, we found that happy memories and pleasant thoughts in general were especially accessible among repressors who were exposed to an upsetting movie excerpt.

Our results provide one example of the strategic use of cognitive processes to control exposure to emotionally laden material. It has long been accepted in psychology that people use elaborate cognitive processes to predict and control their external environment, including both their natural surroundings and the social world. Increasingly, however, it is becoming apparent that people use their cognitive resources to predict and control the inner environment too. From a simple, mechanistic view of the human mind, it might seem counterintuitive that exposing individuals to an unpleasant mood induction could enhance the recall of happy memories. The growing view of the human psyche as a self-regulating system makes such a pattern far more understandable, however.

In this context, the emotional content of memories may be more than a potentially useful bit of information: It may be itself an affective resource. For some people, at least, happy memories seem to resemble a stock of latent good feelings that can be summoned up to ward off distressing thoughts even when current external events are potentially upsetting.

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