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Stroop Interference following Mood Induction: Emotionality, Mood Congruence, and Concern Relevance

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Research using the emotion Stroop task has established that individuals with various emotional disorders exhibit increased interference for stimuli specifically related to their disorder due to the concern relevance and negativity of these stimuli. Our study expands this research to normal populations. We examined the influence of emotionality, mood congruence, and concern relevance following experimental mood-induction procedures (MIPs) on emotion Stroop performance of college students. Participants completed a computerized emotion Stroop task following positive and negative MIPs. Results supported the mood congruence and concern relevance but not the emotionality hypotheses. The implication of these findings for theories of emotional breakdown and the importance of studying the idiographic aspects of affective experience are discussed.

KEY WORDS: Stroop; emotion; mood congruence.

A robust finding based on the emotion Stroop effect is that individuals suffering from an emotional disorder exhibit selective processing of stimuli that are idiosyncratic to their disorder (for reviews, see Logan & Goetsch, 1993; Mathews & MacLeod 1994; Williams, Mathews, & MacLeod, 1996). This selective processing could be attributed to three distinct factors: emotionality (i.e., the ‘‘emotional impact’’ of the stimulus, regardless of its valence), concern relevance (i.e., the association between the stimulus and the participant's current concerns), and mood congruence (i.e., the concordance between a person's affective state and the valence of the stimulus). For certain stimuli, all three factors coincide. For example, social phobics are likely to perceive such stimulus words as *humiliation* or *rejection* as extremely emotional, congruent with their dysphoric affect, and highly related to their current concerns. In contrast, other stimuli may differentiate among these factors. For instance, the words *cancer* or *accident,* although high in emotionality and negativity, are not related to social phobics' concerns. Similarly, words such as *acceptance,* although possibly high in emotionality and in concern relevance, are not negative.

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On the basis of an extensive review of the literature on emotional Stroop and psychopathology, Williams et al. (1996) conclude that individuals with emotional disturbance show disproportionate color-naming interference for negative stimuli and for stimuli related to personally relevant themes. It seems likely that the interference of negative materials in clinical populations (which is over and above the interference due to these materials' concern relevance) is due to mood-congruence effects. Stroop interference in highly anxious participants is influenced by positive as well as negative mood (Richards, French, Johnson, Naparstek, & Williams, 1992, Experiment 2). Combined, these findings suggest that emotion Stroop interference in clinical and subclinical participants is mediated by mood congruence and concern relevance, but not by emotionality.

The extent to which each of the three factors—emotionality, mood congruence, and concern relevance—affects Stroop interference in normal populations is not yet clear. Williams et al. (1996) hypothesize that concern relevance but not other factors may characterize selective processing of nonclinical populations. Indeed, Stroop interference with concern relevant stimuli has been found in nonclinical populations (e.g., Giles & Cairns, 1989; Riemann & McNally, 1995). In contrast, there are mixed findings regarding the effects of mood congruence on selective attention to valenced stimuli in nonclinical and subclinical populations. Whereas some researchers observed mood-congruent effects on Stroop interference following an experimental mood induction (e.g., Mogg, Mathews, Bird, & Macgregor-Morris, 1990, Experiment 1; Richards et al., 1992, Experiment 2), others have not (e.g., Gotlib & McCann, 1984, Experiment 2; Riemann & McNally, 1995). Most of these studies did not attempt to separate the effects of mood congruence and concern relevance. Finally, the effect of emotionality has received little attention in the nonclinical literature.

The goal of our study is to investigate the effects of emotionality, mood congruence, and concern relevance in a nonclinical population within a unified framework. Specifically, consistent with the findings of Richards et al. (1993), we postulated that individuals exhibit greater Stroop interference with mood-congruent stimuli in both negative and positive mood states than with either neutral or mood-incongruent words. Second, we hypothesized that words highly related to individuals' concerns would elicit more interference than would words with low concern relevance. No specific predictions were made with respect to the effects of word emotionality. Differentiating among the contributions of these three factors is essential to the understanding of the general mechanisms underlying the emotion Stroop effect. Furthermore, such an investigation is also crucial to the understanding of the similarities and differences in selective attention between clinical and nonclinical individuals, and thus may potentially elucidate cognitive processes that are specific to emotional disorders.

METHOD

Participants

Eighty-four (84) college students participated in the experiment as part of a course requirement. Participants were run in groups of 1 to 4. The experimental session lasted about 50 min. Data from three participants were lost due to equipment failure.

Materials

There were six types of stimuli: experimenter-provided neutral words, experimenter-provided positive words, experimenter-provided negative words, participant-generated words involving neutral experiences, participant-generated words involving positive experiences, and participant-generated words involving negative experiences. Experimenter-provided neutral words were *global, metric, tangible, verbal, genetic,* and *temporal*. Experimenter-provided negative words were *hurt, upset, lonely, depressed, helpless,* and *miserable*. Experimenter-provided positive words were *excited, friendly, cheerful, joyful, tender,* and *carefree*. The positive and negative emotion words were equated for frequency, length, and emotionality based on John's (1988) ratings. Participant-generated words included personal "codes" related to a particular neutral, positive, or negative experience. For example, a participant might provide the words *message, physics, professor,* and *Tuesday* as his or her "codes" for a neutral experience.

Procedure

Participants were told that the experiment was designed to test the effects of mood on simple cognitive processing. The stimuli and the instructions were presented on an Apple Macintosh IIci computer with a color monitor. The controlling software handled the mood-induction procedure (MIP) and stimuli presentation. It also recorded participants' mood ratings and their reaction times (RTs) to Stroop stimuli.

Introductory Phase

Participants were asked to recall a neutral, positive, and negative experiences and provide four "key words" for these experiences. The order of recall of positive and negative experiences was counterbalanced across participants. Next, participants practiced the Stroop task by identifying the color of a single stimulus (the word *practice*) by pressing an appropriately labeled key. After reaching a criterion performance level on this task,[4] participants proceeded to the first mood-induction phase: negative mood induction in the NP condition and positive mood induction in the PN condition.

[4]Criterion performance was defined as a sequence of 10 consecutive error-free trials, with the difference between the mean time to respond to the preceding 10 trials and the mean of 10 final trials being no more than 10%. The minimum number of trials (regardless of performance) was 40, and the maximum number of trials was 100.

[5]Other data-reduction strategies (such as eliminating response latencies > 2 *SD* above each participant's mean) produced essentially identical results.

[6]Analyses using the overall mood ratings are presented for the sake of simplicity. For both experiments, analyses using individual mood scales produced essentially identical results.

Experimental Phase

The experimental phases consisted of three steps: mood induction, mood rating, and the Stroop task. During the mood-induction procedure, participants were first instructed to reexperience sad/happy events using ''relive'' instructions adapted from Salovey (1992). Next, participants concentrated on their feelings while listening to music. An excerpt from Beethoven's string quartet op. 131 was played for the negative MIP. An excerpt from Vivaldi's ''Spring'' concerto of the ''Four Seasons,'' op. 12, was played for the positive MIP. The concentration step lasted about 1 min. Finally, before proceeding to the Stroop task, participants rated their current mood on six unipolar (*sad, frustrated, anxious, happy, content,* and *optimistic*) and one bipolar (*overall*) visual analog scales. The unipolar scales were anchored with *not at all* (coded as intensity rating of 0) and *extremely* (coded as intensity rating of 100). The *overall* scale was anchored with *very positive* (coded as intensity rating 50) and *very negative* (coded as intensity rating of −50).

During the Stroop task, participants were presented with 150 stimuli. The intertrial interval was 2 sec. The stimuli for this task were six words from each of the experimenter-provided categories and four words from each of the participant-generated categories. Participants saw five presentations of each word from this 30-word stimulus list, resulting in a total of 150 presentations. The order of presentation and the color of stimuli were randomly determined for each participant subject to the constraint that no two consecutive words were displayed in the same color. Following the completion of the Stroop task, participants rated their moods.

Between the two experimental phases, participants completed a 5-min long filler task evaluating the computer program they were using. This filler task was intended to ensure that the effects of the first MIP would dissipate before the beginning of the second MIP. After the completion of the filler task, participants proceeded to the next experimental phase. Apart from the valence of the mood induced (positive in the NP condition, negative in the PN condition), the structure of the second experimental phase was identical to that of the first. Specifically, after completing an MIP, participants rated their mood and performed the Stroop task.

Neutralizing Phase

In order to stabilize participants' mood before the end of the experiment, participants were asked to relive the previously recalled neutral experience. Their mood ratings after the completion of the neutral MIP were taken to represent their baseline mood. Finally, the participants were debriefed and thanked for their participation.

RESULTS

Data Analysis

Trials involving incorrect key pressing or extreme scores [i.e., response time (RT) longer than 2500 ms or shorter than 333 ms] were eliminated from further analyses. Excluded responses occurred on 5% of the trials, and their number did not differ as a function of word type.

Efficacy of MIPs

To determine the efficacy of the positive and negative MIPs, participants' overall mood rating were analyzed using two separate two-way ANOVAs. We computed mood change scores as the differences between participants' overall mood ratings after an induction and their mood ratings at baseline (i.e., after the neutral MIP). Mean negative and positive change scores were −12.3 (SD = 18.1) and 22.5 (SD = 19.4), respectively. Absolute change scores were analyzed using a three-way ANOVA, with order of recall (NP vs. PN) and order of MIP (NP vs. PN) as between-subjects factors and valence of MIP as a within-subject factor. No effects or interactions involving either order of recall or order of MIP were found. Test of simple effects indicated that both negative and positive change scores differed significantly from zero ($F(1,79) = 38.4$, $p < .001$, and $F(1,79) = 102.7$, $p < .001$, respectively). The positive MIP produced greater changes in self-ratings than did the negative MIP, $F(1,79) = 8.9$, $p < .05$. To ensure that the PN and the NP groups did not differ in the baseline mood scores, we examined overall baseline mood scores. Mean baseline scores of the PN and NP groups were −5.7 (SD = 14.7) and −4.6 (SD = 11.3), respectively. A one-way ANOVA on baseline overall mood ratings was conducted. No differences between the groups' baseline moods was revealed, $F(1,79) < 1$.

Mood Congruence, Concern Relevance, and Emotionality Effects

Table I presents the means and standard deviations of RTs to different stimulus types in the positive and negative experimental conditions.

Preliminary analyses of reaction times were conducted with order of emotional experience recall (PN vs. NP) as a between-subjects variable and word frequencies and word length as covariates. No main effects or interactions involving any of these variables were detected in these analyses, nor did they qualitatively modify any other main effect or interaction. Therefore, these variables were omitted from the final analyses.

A potential problem in using participant-generated vs. experimenter-provided

Table I. Means and Standard Deviations of Response Latencies for Stimulus Identification

	Stimulus origin					
	Experimenter			Participant		
Condition	Neutral	Negative	Positive	Neutral	Negative	Positive
Negative	772	806	786	796	812	791
	(127)	(142)	(135)	(130)	(150)	(136)
Positive	747	748	763	759	756	770
	(105)	(108)	(110)	(119)	(122)	(113)

Note: N = 80. Standard deviations (in milliseconds) are shown in parentheses.

materials is that these two sets of stimuli might differ on several lexical dimensions, such as word length, word frequency, and so on. To assess whether these differences in lexical properties influenced RT, we conducted several regression analyses. For each valence category (i.e., positive, negative, and neutral), we regressed the mean RT to participant-generated words (predicted variable) on three predictors: the RT to experimenter-generated words, the mean frequency ratings of this participant-generated category (computed using Francis & Kucera, 1982, norms), and the mean word length measures of this participant-generated category. For example, the RT to neutral participant-generated words was regressed on the RT to neutral experimenter-provided words, mean frequency ratings of the neutral key words provided by this participant, and mean word length of these neutral key words. None of the partial correlations between RT to participant-generated words and word frequency ratings or word length measures approached significance (all ps > 0.3). These analyses suggest that differences in lexical properties between stimulus sets did not exert significant influences on reaction time. It is important to note that this conclusion is in line with the results of all past investigations regarding the effects of lexical properties on emotion Stroop RTs: neither word length nor word frequency accounted for Stroop interference effect with personally relevant words (e.g., Riemann, Amir, & Luoro, 1994; Riemann & McNally, 1995; Williams et al., 1996).

To examine concern relevance, emotionality, and mood-congruence hypotheses, mean RTs were analyzed using a four-way ANOVA, with order of MIP (PN vs. NP) as a between-subjects variable, and mood-induction valence (negative vs. positive), word origin (participant vs. experimenter), and word valence (neutral, mood congruent, or mood incongruent) as within-subject variables. There was no main effect of order, $F(1,79) = 1.18$, n.s. As expected, there was a time effect as indicated in this analysis by a significant MIP × Order interaction, $F(1,79) = 20.8$, $p < .001$. This effect indicated that participants' RTs were longer in the first mood-induction condition than they were in the second mood-induction condition (mean RTs for the first and second MIPs were 800.1 and 751.2, respectively). No other significant interactions involving Order emerged from these analyses (all ps > 0.1). A significant effect of MIP was revealed, such that participants' RTs in the negative condition were significantly longer than were their RTs in the positive condition (mean RTs in the negative condition = 793.9 and positive condition = 759.2, $F(1,79) = 9.6$, $p < .01$).

A main effect of Origin indicated that participant-generated words elicited significantly more interference than did words provided by the experimenter, $F(1,79) = 19.9$, $p < .001$. There was a significant effect of word Valence, $F(2,158) = 3.14$, $p < .05$. Two planned comparisons were conducted to clarify this effect. The first indicated that mood-incongruent words did not elicit more interference than did neutral words, $F < 1$. The second planned comparison indicated that mood-congruent words elicited more interference than did neutral words, $F(1,79) = 11.0$, $p < .001$. There was a significant MIP × Valence interaction, $F(2,158) = 8.4$, $p < .001$. A planned comparison indicated that, in the negative MIP, participants' RTs to negative words were longer than they were to positive words, whereas this pattern was reversed in the positive MIP, $F(1,79) = 12.1$, $p <.01$. There were no other significant interactions.

To examine whether the main effects of Valence and Origin were significant in the negative and positive mood-induction conditions, we conducted separate three-way ANOVAs for each of these conditions. In each ANOVA, order of MIP (PN vs. NP) was a between-subjects variable, and word origin (participant vs. experimenter) and word valence (neutral, mood congruent, or mood incongruent) were within-subject variables.

In the analysis of RTs in the negative condition no main effect of Order was identified, $F < 1$. There were no other interactions involving Order (all ps $> .2$). There was a significant effect of word Valence, $F(2,158) = 7.7$, $p < .05$. Planned comparisons indicated that negative words elicited more interference than did neutral or positive words among experimenter-provided words ($t(79) = 3.9$; $p < .01$; $t(79) = 2.8$, $p < .05$, respectively). Identical pattern was observed among participant-generated words ($t(79) = 2.1, p < .05; p(80) = 1.95; p < .05$, respectively). A main effect of Origin $F(1,79) = 15.6$, $p < .05$ as found. RTs to participant generated words were longer than to experimenter provided words. This effect was modified by a significant Origin × Valence interaction, $F(2,158) = 4.7$, $p < .05$. Post-hoc comparisons indicated that the effect of word origin was greater for the neutral words than for negative or positive words ($F(1,79) = 4.75$, $p < .05$; and $F(1,79) = 9.4$, respectively).

In the analysis of RTs in the positive condition a main effect of Order was identified, $F(1,79) = 9.8$, $p < .001$. RTs in the NP condition were faster than RTs in the PN condition. There were no other interactions involving Order (all ps $>$ .2). A main effect of Origin $F(1,79) = 8.5$, $p < .05$ was found. RTs to participant-generated words were longer than to experimenter-provided words. There was a significant effect of word Valence, $F(2,158) = 3.5$, $p < .05$. Planned comparisons indicated that positive words elicited more interference than neutral or negative words among experimenter-provided words ($t(79) = 2.8$; $p < .05$; $t(79) = 2.0$, $p < .05$, respectively). No such differences were observed among participant-generated words (all ps $> .2$). There was no significant Origin × Valence interaction, $F < 1$.

DISCUSSION

We investigated the effects of mood congruence, concern relevance, and emotionality on Stroop interference following experimentally induced positive and negative moods in a nonclinical population. Our results support the mood-congruence and the concern-relevance hypotheses, but not the emotionality hypothesis. First, consistent with the mood-congruence hypothesis, we found that interference effects in the negative condition were specific to negative-emotion words, and that interference effects in the positive condition were specific to the positive-emotion words. Our results are consistent with those reported by Richards et al. (1992) in demonstrating that both positive and negative affective states increase the selective processing of mood-congruent materials. Second, words generated by the participants elicited more interference than did experimenter-provided materials, supporting the concern-relevance hypothesis. It is important to note that this effect was not due to lexical differences between the two stimulus sets. We concur, therefore, with

Mathews and Klug (1993), who state that judgments of personal emotional relevance are stronger predictors of interference than are judgments of emotionality *per se*. Finally, inconsistent with the emotionality hypothesis, mood-incongruent words, although as ‘‘emotional’’ as mood-congruent ones, did not elicit interference compared to neutral words. In contrast, mood-congruent words elicited significantly more interference than did neutral words. It is possible that previous research that identified emotionality effects (e.g., Martin, Williams, & Clark, 1991) confounded the effects of emotionality with the effects of concern relevance.

Nonclinical individuals' pattern of selective attention seems to parallel that of high-trait anxious, clinically anxious, and clinically depressed individuals (Williams et al., 1996). Combined, these data suggest that, for all populations, concern relevance and mood congruence contribute independently to Stroop interference, whereas emotionality does not. If so, what distinguishes clinical from nonclinical processing of valenced stimuli? One possibility is that the difference is merely quantitative. Indeed, the effect sizes in studies with clinical participants are greater than the effect sizes in our study (see Williams et al., 1996). Alternatively, it is possible that the differences between clinical and nonclinical individuals manifest themselves in the strategies they use to cope with their cognitive interference rather than in the interference itself. Individuals with clinically significant emotional problems may not be able to inhibit such interference, whereas nonclinical individuals may be able to override it (Gotlib, Roberts, & Gilboa, 1996).

Our findings suggest several explanations for the inconsistent pattern of results regarding the mood-congruence hypothesis using the emotional Stroop task. First, the specifics of the mood-induction procedures might affect the strength of Stroop interference. Bower (1987) suggests that the induction of ‘‘weak, temporary and nonspecific moods of happiness and sadness in the laboratory have not primed perceptual processing of the general class of positive and negative words, respectively’’ (p. 448), and argues further that to obtain a mood-congruence effect, the priming may have to point to a more specific set of words and emotional themes. Consistent with Bower's hypothesis, ‘‘focused’’ affective states (e.g., those induced by autobiographic MIPs) may be more likely to be associated with Stroop interference than ‘‘diffused’’ inductions (e.g., Velten MIP). Indeed, Niedenthal, Haberstadt, and Setterlund (1997) found that focused emotional states affect lexical decisions and word-naming latencies of emotion-congruent words.

Mood congruence is a well-recognized phenomenon with respect to memory and judgment processes. Researchers have consistently found enhanced memory for mood-congruent materials in nonclinical individuals (Blaney, 1986; Matt, Vazquez, & Campbell, 1992). Similarly, research on judgment processes suggests that experimentally induced moods affect participants' judgments of a variety of real and hypothetical events (for a review, see Gotlib, Gilboa, & Sommerfield, in press). However, mood congruence is less well established with respect to attention. Thus far, the association between attention and mood has been limited to negative affective states, especially anxiety (e.g., Mathews & MacLeod, 1994). Moreover, studies attempting to obtain mood-congruence effects in attentional tasks with a wider range of affective states (typically sadness and happiness) yield an inconsistent pattern of findings (e.g., Challis & Krane, 1988; Clark, Teasdale, Broadbent, & Martin, 1983).

Our findings using the emotion Stroop task suggest that mood congruence may extend to attentional processes as well. However, it is frequently argued that this task is not a pure measure of attention (e.g., MacLeod & Mathews, 1988; Mathews & MacLeod, 1985). In particular, a Stroop task in which the stimuli are presented in a ‘‘blocked’’ format (i.e., the stimuli are grouped by word type, such that, for example, all negative words are presented in succession) may not provide a ‘‘pure’’ measure of attention because the post-attentional rumination about a negatively valenced word might delay the color naming of the next word (e.g., McNally, Riemann, & Kim, 1990). It is important to note that our Stroop task involved a random rather than a blocked presentation of the Stroop stimuli, making the Stroop interference index less likely to be contaminated by post-attentional processing. Thus, our results, combined with those of Richards et al. (1992) and Niedenthal et al. (1997), suggest that mood affects attentional processes in negative (e.g., anxious and sad) as well as positive affective states (see also Williams et al., 1996). Therefore, consistent with Beck’s (1976) and Bower’s (1981) theories of the relation between affect and cognition, the effects of mood on cognitive processes extend beyond memory and judgment to attentional processes.

LIMITATIONS AND FUTURE DIRECTIONS

The present research examined parameters affecting selective processing of valenced information, using laboratory-induced positive and negative affective states. Obviously, experimental mood induction enlists participants’ cooperation in modifying their affective states and therefore creates demand characteristics. Might the participants be consciously attending to critical words in order to please the experimenter, rather than responding ‘‘naturally’’? We think this is unlikely for two reasons. First, both musical MIPs and autobiographic MIPs were found to be effective in influencing objective (e.g., reaction time) as well as subjective (e.g., mood rating) measures (e.g., Niedenthal et al., 1997; Salovey, 1992). In addition, reviews of the mood-induction literature suggest that MIPs affect a variety of cognitive, physiological, and psychomotor measures (e.g., Larsen & Sinnett, 1991; Gerrards-Hesse, Spies, & Hesse, 1994). For example, Neidenthal et al. (1997, Experiment 3) found that emotional state influenced attentional processes using lexical decision and word-naming tasks. Second, although demand characteristics for clinical subjects with their disorder-relevant words should be no less obvious than the demand characteristics after MIPs, studies using subliminal Stroop found that the pattern of interference with subliminally presented words resembled the pattern of interference with superliminal stimuli (MacLeod & Rutherford, 1992; Williams et al., 1996). Therefore, it seems unlikely that emotional Stroop interference in our study depends on participants’ conscious decisions to attend more to mood-congruent stimuli. However, it will be important to replicate these findings using techniques in which the demand characteristics are less salient (e.g., film clips, as in Gross & Levenson, 1995; or naturally occurring affective states) and other cognitive measures.

In our discussion, we emphasize the effects of mood on the selective processing of valenced information. Yet it is also possible that the observed selective processing can be partially accounted for by the effects of cognitive priming independent of mood. According to the cognitive-priming hypothesis, mood congruence is associated with the *cognitive* activation of affective concepts, rather than with the effect of mood *per se* (e.g., Rholes, Riskind, & Lane, 1987). Although in our experiment cognitive priming does contribute to selective processing of emotion-related materials, affect-free cognition is unlikely to be the sole cause of this selectivity. First, we found that participants selectively processed mood-congruent experimenter-provided words, which were not part of the participants' recollected events. Experimenter-provided words, not being part of the autobiographic memories retrieved by the participants, are related to these memories primarily through affective associations. Second, the effects of cognitive priming typically dissipate within seconds (e.g., Fischler & Goodman, 1978), whereas the selective-processing effects observed in our studies persisted for minutes. These arguments notwithstanding, our results are unlikely to resolve the debate about cognitive vs. affective priming, partly because emotional effects and cognitive priming of emotion-relevant materials are not easily separable. To fully disentangle the effects of cognitive and emotional priming, future research might attempt to examine the effects of recollection *per se* (without the emotional reexperience) on selective processing.

In interpreting our findings, we assumed that interference with participant-generated stimuli is due to the relevance of these stimuli to participants' personal concerns. However, the *process* of generating these materials, rather than their concern-relevant *content,* may have made those stimuli more salient to the participants. Indeed, words that are generated by participants tend to be better remembered than words that are provided by the experimenter (e.g., Gardiner & Hampton, 1985). Although it is possible that the process of stimulus generation facilitates selective attention, we believe it is unlikely that our effect is due solely to this process rather than to the content of these stimuli. First, we have found differentially selective processing of self-generated stimuli in positive and negative mood-induction conditions. If only the process of generating these materials, rather than their content, affected selective attention, such differences would not be found. Second, the repeated activation of memory traces, which results in generation effects in memory tasks, need not necessarily result in corresponding effects in attentional processing. Future research, employing other procedures to elicit idiographic materials, might examine whether our results regarding Stroop interference depend on the self-generation effect. Enhanced salience of idiographic materials is not unique to the self-generation procedure. For example, rating of materials for the degree of "disturbance" before performing the Stroop task is also likely to increase the salience of those materials (e.g., McNally et al., 1994). However, replicating our results with other elicitation procedures (e.g., rating) will reinforce the present findings.

Finally, future research should explore mood congruence in clinical and subclinical populations. So far, research has concentrated on examining clinical individuals in their natural (i.e., anxious or dysphoric) mood. This research established that naturally occurring negative states are associated with selective processing of negative materials. However, a comprehensive test of the mood-congruence hypothesis also requires a demonstration that selective attention to positive emotional material occurs in positive affective states. Unfortunately, positive mood inductions with clinical populations have not been conducted. Such studies would enable us to further explore the similarities and differences between clinical and nonclinical populations and, ultimately, to understand the nature of emotional breakdown.

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