

Altered cognitions in depression: are dysfunctional attitudes stable?

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Summary—In this study we tested whether dysfunctional attitudes (DAs) as hypothesized by Beck's theory of depression, are non-reactive to changes in mood. Subjects were undergraduate students who participated in a laboratory procedure and were given false feedback as to having either failed or succeeded on a cognitive task, with both mood and dysfunctional attitudes measured at pre- and post-conditions. Results showed no significant changes in dysfunctional attitudes, thus providing support for Beck's theory of DAs as stable vulnerability markers for depressive disorders.

INTRODUCTION

Cognitive theories of depression propose that negative cognitive schemata play a central role in the onset of depressive reactions. These models suggest an etiological chain in which negative cognitions intervene at various levels in the development of depression. For instance, according to Beck's theory, the immediate, and *sufficient*, antecedent of depression is the 'negative triad', described as a negative view of oneself, one's world and one's future. This negative triad, in turn, is the product of the diathesis/stress interaction of environmental stressors (frequently loss or failure) and an *underlying* cognitive schema.

For Beck, this underlying cognitive schema is made up of dysfunctional attitudes. "These 'predisposing' attitudes are reflected in relatively stable schemas that reflect the individual's enduring orientations, rules, and behavioral inclinations" (Beck, 1987, p. 14). These attitudes form a set of inappropriate beliefs about the self and the world, which often represent perfectionistic standards for self-evaluation and develop as a result of certain early life experiences.

These dysfunctional attitudes have been hypothesized to hold the following characteristics: (a) *enduring* trait-like schemata that process and screen information in a negative, unrealistic way; (b) latent structures that are only activated by schema congruent stressors (Riskind & Rholes, 1984; Miranda, 1992; Persons & Miranda, 1992); (c) schemata which exist independently of the depressive symptomatology proper; and (d) cognitive structures *non-reactive* to either mood changes or environmental influences.

Several studies have shown a positive relationship between Dysfunctional Attitude Scale scores (DAS, Weissman & Beck, 1978) and depression. Both clinically depressed Ss (Dobson & Shaw, 1986; Watkins & Rush, 1983; Norman, Miller & Dow, 1988; Blackburn, Jones & Lewin, 1986; Zimmerman, Coryell, Corenthal & Wilson, 1986) and depressed students (Dobson & Breiter, 1983; Gotlib, 1984) in general score higher on the DAS than do normal non-depressed Ss. Yet, only 50-55% of acutely symptomatic depressed patients show elevated scores (Norman, Miller & Klee, 1983; Hamilton & Abramson, 1983).

Despite this rather consistent relationship, there is some controversy about the *causal* role of these dysfunctional attitudes in depression. In a recent review of empirical studies comparing levels of dysfunctional attitudes and their predictiveness for future depressions, Barnett and Gotlib (1988) conclude that there is, in fact, little consistent evidence for the predictive ability of dysfunctional attitudes. O'Hara, Rehm and Campbell (1982), for example, did not find DAS scores predictive of later post-partum depression in pregnant women. Williams, Healy, Teasdale, White and Paykel (1990), found that dysfunctional attitudes do have a predictive role on the persistence of depression within a 6-week period, but do not predict relapses over a 6-month period, suggesting that cognitive dysfunctions need to be assessed when the patient is symptomatic.

Other studies have also found that dysfunctional attitudes decrease when depression remits (Eaves & Rush, 1984; Blackburn *et al.*, 1986; Simons, Garfield & Murphy, 1984; Persons & Rao, 1985; Wilkinson & Blackburn, 1981). If such dysfunctional beliefs are theoretically stable markers of depressive vulnerability, then remitted patients would be expected to score higher on this variable. The data do not appear to confirm this hypothesis. In fact, scores of remitted patients are often not significantly different from those of non-depressed controls (Hamilton & Abramson, 1983; Simons *et al.*, 1984; Persons & Rao, 1985; Silverman, Silverman & Eardley, 1984; Blackburn & Smyth, 1985; Hollon, Kendall & Lumry, 1986).

In a recent study, Miranda and Persons (1988) tested the hypothesis that dysfunctional attitudes are mood-state dependent. Using a mood-induction technique (Velten, 1968), they found that DAS scores for non-depressed Ss were significantly affected (decreased) by induction of elation. DAS scores were slightly, but not significantly, affected by an induction of negative effect. These authors interpreted these results as evidence that dysfunctional attitudes are mood-state dependent, questioning their supposed stable, causal role in the onset of depression. Similarly, Rholes, Riskind and Neville (1985, Study 2) failed to find effects of a failure experience on a measure of dysfunctional cognitions (the Cognitive Checklist).

A related issue in assessing the validity of the concept of dysfunctional attitudes, is the question of stability. According to Beck's theory, "(certain) cognitive processes seem chronically atypical among depressed patients and may represent a

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stable characteristic of their personality" (Kovacs & Beck, 1978, p. 530). Here, too, the research findings paint a complicated and contradictory picture. With the exception of one study (Dobson & Shaw, 1986), DAS scores did decrease significantly in patients whose depression improved after a course of therapy (Eaves & Rush, 1984; Hamilton & Abramson, 1983; Reda, Carpiniello, Secchiaroli & Blanco, 1985; Silverman *et al.*, 1984; Simons *et al.*, 1984). These findings are even more striking, given the fact that none of the therapeutic interventions in these studies were directly aimed at changing dysfunctional attitudes.

Based on these inconsistent findings on the stability and causal role of dysfunctional attitudes, the current investigation empirically evaluates whether dysfunctional attitudes are susceptible to change after *Ss* are exposed to an *experimentally* induced success or failure experience. Several investigations in the field of cognition and depression have demonstrated that these types of mood manipulations may affect cognitive processes such as memory (see Blaney, 1986; Matt, Vázquez & Campbell, 1992). In an experimental laboratory setting, we wondered if a stressful manipulation such as a failure experience would be sufficient to not only activate dysfunctional cognitive schemata, but whether these attitudes would be susceptible to alteration in some form. If Beck's theory is confirmed, dysfunctional attitudes should remain relatively unchanged, even in conjunction with a positive or negative mood shift, since those cognitions are not supposed to be mood dependent.

METHOD

Subjects

Participants were 109 psychology undergraduate students who volunteered to participate in the experimental study. Eighty three percent of the sample was female. Average age of the *Ss* was 21.5 ± 3.7 years.

Assessment instruments

Beck Depression Inventory (BDI, Beck, Rush, Shaw & Emery, 1979), a reliable and frequently used 21-item measure of depressive mood (Beck, Steer & Garbin, 1988).

Dysfunctional Attitudes Scale (DAS, Weissman & Beck, 1978). Each of two parallel forms of the DAS contains 40 items to which *Ss* respond on a 7-point scale from 'Totally agree' to 'Totally disagree'. An example of the items is 'If others dislike you, you cannot be happy'. For this study, we employed the two parallel forms which have been shown to have coefficients of internal consistency near 0.90 (see Weissman, 1979; Dobson & Breiter, 1983; Dobson & Shaw, 1986). The order of presentation of the dual forms was randomly assigned for each *S*.

Visual Analogue Scale (VAS). This simple scale was designed as an efficient and rapid measure of transient depressive mood (Shaw, Shaw, Vallis & McCabe, 1985). It is a continuous 10 cm line on which *Ss* mark their current mood from 0, very low to 10, excellent. The rating is quantified by measuring the distance from the 0-point in the scale to the *Ss*' mark. The VAS was included as a means of evaluating the effects of our success/failure manipulation on mood and to test whether changes in mood are independent of changes in dysfunctional attitudes, as is suggested in Beck's theory.

Experimental task

Ss were informed that they were about to participate in an experiment of concentration and mental speed, and the accuracy with which people judge their own performance on such tasks. Next, they were instructed how to perform a computerized concentration task (UCLA Continuous Performance Test, CPT, Nuechterlein & Asarnow, 1987). The CPT consists of continuous and rapid blurred stimuli presented to the *S* on a computer screen. The *Ss*' task was to vigilantly watch a 20-min series of random numbers presented on a computer monitor, and push a button always and exclusively at the presentation of the target stimulus (i.e. the number zero) but not in the presence of any other non-target stimuli (i.e. numbers other than zero). Target stimuli were distributed at a rate of 20% of the total of stimuli presentations. The stimulus duration was 82 msec and the interstimulus interval was 1 sec in length. *Ss* were told that their performance would reflect 'general cognitive abilities and concentration'. We specifically chose this highly demanding task for its ambiguity in that *Ss* have great difficulty in guessing their actual level of performance.

Procedure

At the beginning of the experimental session the *S* was asked to fill out the self report measures (BDI, DAS and VAS). After completing 2 min of the CPT, the experimenter presented the *S* with randomly assigned false feedback (success/failure) about his/her CPT performance. The experimenter asked the *S* to rest for a few minutes while he went to get the results from a printer in the next room. The experimenter returned with a previously prepared feedback sheet with the *Ss* name across the top, and the falsified feedback below. *Ss* in the success condition were informed that they had achieved a 92% success rate, while *Ss* in the failure condition were informed of having achieved a 67% success rate. In addition, the experimenter combined this printed feedback with verbal feedback, telling the *S* that he/she had an extremely high (or low) performance level in comparison with sample norms for his/her age range.

The *S* then continued for a further 10 min with the CPT, at the end of which time, he/she received more of the same feedback as before, although this time only verbally. Following procedures similar to those used in learned helplessness research, and in order to maximize the impact of the deception, this double feedback strategy was employed to increase the impact of the experimental manipulation.

After receiving the second set of feedback, to measure changes in dysfunctional attitudes, the *S* was asked to fill out the second parallel form of the DAS, as well as fill out the VAS for a second time. As a mood check, the VAS was presented only to a fraction of the participants ($n = 48$). Unfortunately, this mood check was added late to the experimental procedure and thus all *Ss* do not have VAS scores. Finally, *Ss* were debriefed as to the hypotheses and manipulations used in the study. Upon debriefing *Ss*, only one reported that he had suspicions about the truthfulness of the feedback, which suggests to us that the procedure was both credible and effective.

RESULTS

Sample characteristics

The mean BDI score for this sample ($M = 6.26$; $SD = 5.32$) was within the expected range for a sample of non-depressed college students (Kendall, Hollon, Beck, Hammen & Ingram, 1987; Beck *et al.*, 1988).

Table 1. DAS means and standard deviations on the pre- and post-manipulation (Time 1 vs 2)

Experimental condition	DAS	
	Time 1	Time 2
Failure ($n = 53$)	119.4 \pm 23.1	115.0 \pm 23.6
Success ($n = 56$)	125.5 \pm 26.5	126.5 \pm 26.8

Higher scores indicate more dysfunctional attitudes.

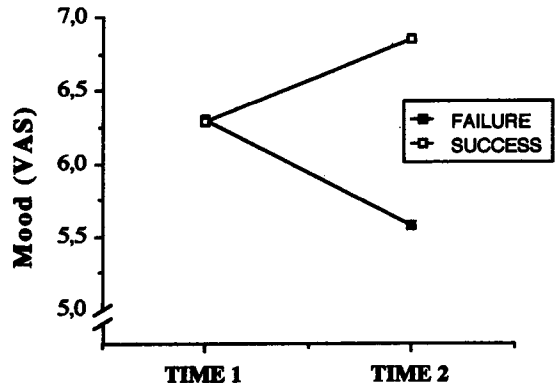


Fig. 1. Mood ratings (evaluated by the VAS), before and after experimental manipulation (Failure vs Success).

With regard to the DAS, the mean for this Spanish college sample at Time 1 was 122.6 ± 25.0 , which is also consistent with previous data with undergraduate students in other countries (Weissman, 1979; Kuiper, Olinger & Martin, 1988; Dobson & Shaw, 1986) although higher than those reported by Dobson and Breiter (1983). It is interesting to note that absolute values for depressed patients in some reports are surprisingly not all that different from the scores for normal populations. For instance, Silverman *et al.* (1984) reported a DAS mean score of 123.35 (SD = 29.50) in a sample of 63 major unipolar depressives.

As in Weissman and Beck (1978), our assessment of the equivalence of the two forms of the DAS revealed no significant differences between forms A ($M = 120.9$; $SD = 24.4$) and B ($M = 124.3$; $SD = 25.7$), $t(107) = 0.71$, $P < 0.48$. Depressive mood (BDI) was significantly related to dysfunctional attitudes (DAS), $r = 0.33$ ($P < 0.05$), which is a correlation almost identical to previous reports (e.g. Dobson & Breiter, 1983).

Effects of failure/success manipulation

Mean scores for pre- and post-manipulation DAS scores are shown in Table 1. A 2 (Time 1 vs 2) \times 2 (Success vs Failure) ANOVA with repeated measures in the first factor, was performed to analyze the impact of the experimental manipulation on DAS and VAS scores.

Results showed no significant interaction effects on DAS scores, $F(1,105) = 2.85$, $P < 0.09$. Thus there were no differences between dysfunctional attitudes at Time 1 and 2, under either of our experimental conditions. Neither were the main effects significant.

However, a significant interaction was found on the VAS scores, $F(1,46) = 15.92$ ($P < 0.0001$). As shown in Fig. 1, *Ss'* mood after failure was significantly lower ($M = 5.57$) than *Ss'* in the success condition ($M = 6.85$), whereas there were no differences in mood between the two groups prior to the experimental manipulations ($M = 6.30$ and 6.29 , respectively).

The correlation between our two measures of mood—the BDI and the VAS—prior to the beginning of the experimental tasks was surprisingly high ($r = 0.59$), given the relative simplicity of the VAS. This confirms the apparent validity of this mood instrument (Shaw *et al.*, 1985).

DISCUSSION

Our results indicate that, in fact, dysfunctional attitudes are stable and non-reactive to *environmental* influences. In our study, failure or success laboratory manipulations did not significantly alter *Ss'* dysfunctional attitudes even though *Ss'* mood did in fact change. This finding supports Beck's theoretical description of dysfunctional attitudes as stable trait-like schemata. Nevertheless, the possibility still exists that even stronger or more specific stressors may significantly alter *Ss'* cognitive schemata. In the only other study that has attempted to change dysfunctional attitudes through experimental manipulations, depressed mood-induction procedures were found ineffective in altering *Ss'* DAS scores (Miranda & Persons, 1988). However, as presented above, this conclusion has been disputed, for instance, by clinical studies using remitted depressed patients (Stiles & Götestam, 1988; Barnett & Gotlib, 1988).

As Miller and Norman (1986) suggested, perhaps there is a subgroup of patients according to their scores on the DAS (i.e. those who score high) who do behave very much like Beck's predictions. It might be possible, then, that stability results, such as those reported here, might be qualified by *Ss'* DAS scores.

Another issue for future research is the specificity of heightened dysfunctional attitudes to depression (Greenberg, Vázquez & Alloy, 1988). In fact, non-depressed psychiatric control patients reported similar or even higher DAS scores than did depressed samples (Silverman *et al.*, 1984; Zimmerman *et al.*, 1986). Another related problem of specificity is that the DAS provides a total score, encompassing many different types of items measuring various different types (or contents) of dysfunctional attitudes. Moreover, as Barnett and Gotlib (1988) have suggested, it is likely that the sensitivity of current cognitive measures is low and, therefore, cognitive theories of depression need "... increasingly specific environmental stressors and smaller subsets of cognitions" (p. 118). Future research will need to address the heterogeneous nature of this measure, and evaluate how different stressors may specifically affect different types of dysfunctional cognitions.

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