

The Development of the Self-Schema in Adult Depression

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Literature is reviewed questioning whether the negative self-references of depressives are regularly founded in a cognitive self-schema as would be predicted by Beck's cognitive model of depression. Using methods of memory research, 15 short-term depressives were compared with 15 long-term depressives and 30 nondepressives on the subjective organization of self-descriptive adjectives in multitrial free recall. All subjects were clients at a private counseling agency. As hypothesized, short-term depressives showed the lowest levels of subjective organization of personal adjectives. These group differences remained significant in subsequent analyses considering alternative explanations such as ability, expectancy of success, and certainty in self-reference differences. The results are interpreted within a developmental extension of Beck's model. It is suggested that the self-schema of the short-term depressive is not a strong organizer of personal information but that as depression endures, the self-schema reorganizes to gain predepression levels. The implications of this developmental self-schema model are discussed together with methodological caveats for future researchers.

Negative self-referencing, or the process of negative self-description, plays an important role in current conceptions of depression (e.g., Beck, 1967; Abramson, Seligman, & Teasdale, 1978) as in the conceptions proposed in earlier theories (e.g., Bibring, 1965; Freud, 1955). For instance, Beck proposes that depressives make idiosyncratic cognitive distortions and negative self-statements on the basis of relatively stable cognitive schemata for conceptualizing personal and environmental information (Beck, Rush, Shaw, & Emory, 1978). Beck and Rush (1978) defined a schema as a stable cognitive pattern of response to similar types of events (Beck et al., 1978, p. 7). The purpose of the present study is to test the strength of the self-schema among depressives.

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The advent of experimental memory research into the sphere of personality has made it feasible to test Beck's theory and to explore the structure of negative self-reference in depression. Increasingly, methods of memory research have been used to study cognitive organization, and many researchers now contend that it is legitimate to make inferences about the strength of cognitive schemata from recall data—for example, see Bartlett (1932), Cantor & Mischell (1977), Tsujimoto, Wilde, & Robertson (1978).¹ The use of memory data in the study of schemata is founded theoretically in the works of Bartlett (1932) and Piaget (1952). Rumelhart and Ortony (1977) have extended this earlier work and employ the term *schema* to indicate an organized body of information that is structured and stored in memory (see Manusco & Ceely, 1980). Manusco and Ceely (1980) have proposed further that personal information is temporally dated and spatially located in episodic memory of personally experienced events and episodes (cf. Tulving, 1972). In summary, memory

¹ See Craik (1979) and Hastie and Kamur (1979) for review and criticism of this trend.

researchers have used the word *schema* to refer to a structured body of information that is stored in memory and that is capable of organizing and clustering new incoming environmental information. The strength of a self-schema is, therefore, reflected in the recall and organization for recall of personal information.

Drawing on this theoretical base, Rogers and his associates have developed evidence that the self operates as an organizing schema in the encoding and recall of personal information (Kuiper & Rogers, 1979; Rogers, 1977; Rogers, Kuiper, & Kirker, 1977). Davis (1979a) used the incidental recall paradigm of Rogers et al. (1977) to specifically test Beck's theory that depressives use a self-schema in the organization of personal information. The data revealed that depressives show relatively low memory for personal adjectives encoded under self-reference instructions when compared with nondepressives. More importantly, post hoc analyses suggested that the strength of the self-schema in depression develops with duration of depression. These data were interpreted in contradiction to Beck's theory as evidence that some depressives show non-schema based self-reference and that over time the self-schema develops the capacity to organize self-descriptive personal information.

Davis (1979b) reached a similar conclusion in a study of university undergraduate short-term depressives. Depressives were compared with nondepressives on multitrial free recall (MFR) of self-descriptive adjectives. On the basis of low levels of subjective organization on MFR for depressives as compared with nondepressives, it was again concluded that for the short-term depressive the self-schema is an unstable and relatively inefficient organizer of personal information.

In summary, a developmental model was advanced in which the self-schema, as defined in Beck's theory, was cast as a relatively inefficient and unstable organizer of personal information for only some depressives—persons who had for only a short time conceived of themselves in depressive terms. These findings are significant because convergent evidence from clinical reports and

earlier research have suggested otherwise. For example, Beck's early clinical work with the masochistic dream content of depressives led him to the conclusion that the depressive's self-perceptions were schematized (Beck, 1967). Furthermore, the finding that depressives appear to resist positive performance feedback (De Monbreun & Craighead, 1977) suggests that a cognitive set is responsible for the systematic negative distortion of performance feedback. Finally, Hammen's studies have shown, in keeping with Beck's schema model, that depressives show cognitive distortions of personal information (Hammen & Krantz, 1976).

The present study was undertaken to test the developmental self-schema model first proposed by Davis (1979a, 1979b). In this model, it is proposed that the strength of the self-schema increases with duration of depression such that short-term depressives should show lower levels of organization in personal information-processing than long-term depressives.

As an alternate to an incidental recall test of this model, as used in earlier studies, a more direct method of estimating whether persons use a schema to organize personal information might be to assess subjective organization in multitrial free recall (MFR) of self-descriptive adjectives. Tulving (1962) suggested that when one is studying organization in memory from the perspective of the learner who imposes order on a randomly ordered environment, one is studying subjective organization (SO). In MFR, words to be recalled are presented in random order over repeated trials. Sternberg and Tulving (1977) have noted the well-established finding that over MFR trials learners develop and use an increasingly consistent order of word recall.

SO is believed to be a direct method for estimating whether persons use a schema to organize personal information because its measurement is based on the assumption that words coded together in a subjective unit (i.e., in a schema) tend to be recalled contiguously. Organization in memory thus reflects the degree to which the learner assimilates or schematizes his (word) environment. Studies in developmental psychology suggest that experience with (semantic) con-

cepts facilitates SO and subsequent recall. In an attempt to test this hypothesis, Bjorklund, Ornstein, and Haig (1977) asked children to sort words into semantic groupings on the basis of meaning. Subsequent recall revealed that despite word comprehension, young subjects do not spontaneously use word interrelationships to impose structure on their word lists. Similarly, Naus and Ornstein (1977) have shown that the ability to use word categories (organizers) on recall tasks develops with age.

As with children, it is possible that some depressives have not yet interrelated, or elaborated on, the meanings of their references. Should elaboration deficits occur, then low levels of SO of self-descriptive adjectives would be expected. Such SO levels would indicate inadequate development of the self-schema.

The present study was designed to test this developmental model. It was hypothesized that duration of depression would predict the SO of self-descriptive adjectives on MFR. It was considered important to test such a hypothesis in order to shed greater light on negative self-reference—a phenomenon clinicians generally accept as a symptom of depression.

Method

Subjects

Subjects were 30 depressed and 30 nondepressed male and female adult clients (over age 18) of a private counseling agency who volunteered for 1½ hours of testing on "the way people think." Volunteers were recruited from the waiting room over a 5-month period. Two criteria were used in screening for nonpsychotic depression: (a) depressed subjects had to score 6 or above of a possible 39 on the Beck Depression Inventory-Short Form (BDI; Beck & Beamesderfer, 1974) to indicate at least a mild depression; and (b) depressed subjects were also required to meet the modified Feighner research criteria A-E for definite (nonpsychotic) depression (Zubin et al., 1975). Beck and Beamesderfer (1974) have shown a correlation between the short and long forms of .96, but they have published no reliability data on the abridged form of the BDI.

Thirty depressives were asked to estimate the duration of their current depressive episode before they were cast into two groups of 15 subjects each by a median split for duration. Table 1 summarizes the BDI scores, the duration of depression, and the ages of the short-term, long-term, and nondepressive groups.

Materials

Subjects were tested for multirial free recall of 48 adjectives and 24 abstract nouns. The adjectives (e.g., *extravagant, awful, successful*) were those used by Rogers et al. (1977), with the single substitution of *bothersome* for *pretentious* as made by Davis (1979a). (This substitution was required because the original word was not understood by many clinical subjects used in earlier research.)

The 24 nouns (e.g., *moment, tendency, opinion*) were selected for abstractness so that they would be comparable to the adjectives. The nouns were low in concreteness according to the norms of Paivio, Yuille, and Madigan (1968). In these norms the mean concreteness rating of 925 nouns was 4.95; the abstract nouns selected for the present study had a mean concreteness rating of 3.31. In the Paivio et al. normative study, imagery was also rated; imagery had a correlation of .83 with concreteness. Each of the present nouns fell below the normative means on imagery.

Finally, to ensure that the 24 nouns and 48 adjectives were of comparable word frequency in standard English, average Thorndike-Lorge (1952) frequencies per million were compared for each word set. These frequencies were 18.25 and 18.31, respectively. (Three adjectives were not listed in the Thorndike-Lorge frequencies and thus were not included in the average.)

Three groups of eight words were derived after adjective and noun ratings (see Procedure) and were used in MFR: self-descriptive adjectives, moderately descriptive adjectives, and abstract nouns. The two adjective word groups were formed by dividing the 48 adjectives into three equal groups according to the position each had received on the individual subject's self-description ratings. That is, the 16 adjectives given the highest ratings were labeled self-descriptive, and the 16 adjectives given the next highest ratings were defined as moderately self-descriptive because they fell within the mid-range of the ratings. From each group of 16 adjectives, 8 were randomly chosen for MFR. Thus, each subject had his own set of MFR words. The self-descriptive adjectives appeared to be equivalently valid descriptors for both depressives and nondepressives. Adjectives chosen in this category had a mean Likert rating of 6.4 for depressives and 6.2 for nondepressives. Likewise, the moderately self-descriptive adjectives also appeared to be equivalently useful descriptors for each group. Adjectives chosen in the moderate range had ratings of 3 to 6. The moderately descriptive adjectives had mean ratings of 4.6 and 4.8 for depressives and nondepressives, respectively. The 8 nouns were randomly selected from the list of 24 nouns. Imagery and concreteness norms are not available for the adjectives. Therefore, one subject's list cannot be compared to another's on these criteria.

Procedure

First, subjects completed semantic and self-reference processing of 48 adjectives and structural processing of 24 abstract nouns. On the adjectives, subjects first gave a semantic yes or no rating to indicate whether or not they understood the word meanings, then rated the ad-

Table 1
Group Means on Depression, Duration of Depression, and Age

Group	BDI		Duration of depression in months		Age (years)		
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	Range
Short-term depressives (<i>n</i> = 15)	12.00	5.34	5.33	3.12	43.4	8.12	22-53
Long-term depressives (<i>n</i> = 15)	11.93	5.89	74.6	59.08	29.2	7.51	20-47
Nondepressives (<i>n</i> = 30)	2.50	1.59			30.87	5.84	23-46

Note. BDI = Beck Depression Inventory. Scores are based on the short form (Beck & Beamesderfer, 1974).

jectives they understood on a 7-point Likert scale according to how well they felt each described them. Second, subjects rated on another 7-point Likert scale how certain they were that they had described themselves accurately. Third, on the nouns, subjects gave structural long or short ratings according to their judgments of the relative word lengths of 24 nouns. This rating task ensured that subjects had seen each word prior to an incidental recall task that was given to obtain an estimate of each subject's ability to recall words. Each subject was allowed 3 minutes to record as many of these nouns as he or she could remember.²

Fourth, for MFR using the format of Sternberg and Tulving (1977), the experimenter now explained to subjects individually that their next task was to learn a group of words. The subjects were told that on each trial they would see and be read aloud eight words consecutively presented on 3 in. × 5 in. cards. Subjects were told that after presentation they were to recall aloud as many words as remembered, in any order. For post hoc analysis subjects were asked to estimate on a 7-point Likert scale how successful they would be on this task. The words were then presented at a rate of one word/3 sec on five trials. Following the presentation of the word group on each trial, 45 sec was given for recall.

After subjects had completed five trials on the first word group, they were told that they would have to learn a second group of different words that would be presented in the same manner as the first group. The same procedure was followed for the presentation of the third word group. Six random orders were generated for the presentation of the three word groups in MFR. A multivariate analysis of variance (MANOVA) on the three types of SO showed no effect due to work order, $F(15, 143) = 1.09, ns$. Between the second and third group of trials, subjects were again asked to estimate success. This estimate was also taken for post hoc analysis.

The pair frequency measure (Sternberg & Tulving, 1977) was used to compute subjective organization on multitrial free recall. SO represents the number of words that were paired on consecutive recall trials corrected by the number that would be expected due to chance. Thus, if the words *extravagant* and *successful* appeared together in either order on consecutive trials, then this would be counted as an instance of subjective organi-

zation. The number of such instances was added; from this sum was subtracted the number of pairs of items that would be expected to be paired on two adjacent trials. (For an elaboration of the arithmetic form of this measure together with reliability and validity data, see Sternberg & Tulving, 1977.)

Results

Multitrial Free Recall

The major hypothesis was that there would be differences among short-term depressives, long-term depressives, and nondepressives in the subjective organization (SO) of nouns, moderately self-descriptive adjectives, and self-descriptive adjectives on MFR. In order to determine if this hypothesis was supported, a one-way MANOVA was conducted. The results of this analysis supported the hypothesis. Results revealed significant differences among groups classified on the depression factor on the mean of noun SO, moderately self-descriptive adjective SO, and self-descriptive adjective SO in MFR, $F(6, 110) = 3.99, p < .001$.

Further analyses of the MANOVA results were conducted to determine the sources of the significant omnibus *F*. The univariate analysis of variance (ANOVA) on nouns and the univariate ANOVA on self-descriptive adjectives reached statistical significance; that is, there were significant differences among the short-term depressives, long-term de-

² This ability estimate was used later as the covariate in a post hoc ANCOVA. The results of this analysis did not meaningfully add to the interpretation of the data and are not reported. They are available from the first author on request.

pressives, and nondepressives on the SO of nouns, $F(2, 57) = 4.97, p < .01$, and on self-descriptive adjectives, $F(2, 57) = 3.26, p < .05$. Table 2 presents the means for the SO data and correlated t tests of the within-group difference between noun and self-descriptive adjective SO. Inspection of these means reveals that the short-term depressives had lower self-descriptive adjective SO than long-term and nondepressed. Duncan post hoc tests revealed meaningful differences between the SO of self-descriptive adjectives means of short-term depressives as compared with long-term and nondepressives ($p < .05$). Adjective SO differences between long-term depressives and nondepressives did not reach statistical significance. Severity of depression, as measured by the BDI, was not significantly correlated with either noun or self-descriptive adjectives SO for either short-term or long-term depressives ($r_s < .24, p > .05$).

Duncan post hoc tests showed that noun SO for short-term depressives significantly exceeded that for the other two groups ($p < .05$). Thus, a post hoc analysis of covariance (ANCOVA) was conducted to determine whether the observed group differences on self-descriptive adjective SO were significantly over and above this unexplained pattern of noun subjective organization. The ability to subjectively organize nouns was the covariate. Table 3 presents the ANCOVA data and illustrates that on self-descriptive adjective SO there were significant differences among groups of the depression factor

over and above the covariate of noun SO, $F(2, 56) = 6.12, p < .005$.

Short-term depressives were significantly older than long-term depressives and nondepressives, $F(2, 57) = 35.06, p < .05$. The correlation between adjective organization and age for short-term depressives was positive ($r = .49, p < .05$). The same correlations for long-term depressives and nondepressives were negative ($r = -.23, ns$, and $r = -.34, p < .05$, respectively).

Post Hoc Analyses

This section contains two sets of analyses concerning possible mediators of the recall and multitrial free recall data. Specifically, it was assessed whether certainty about the accuracy of self-descriptions or expectancy of success related to the SO of nouns and self-descriptive adjectives.

Certainty in self-reference. In order to determine if certainty in self-reference was meaningfully related to the dependent variables, correlations between certainty in self-reference and each of the dependent memory variables were evaluated. None of three within-group correlations reached statistical significance ($r_s < .15, ns$). This finding, a logical first stage in the analysis of possible predictor-criterion relationships (Skinner, 1978), suggests that certainty in self-reference was not systematically related to the memory data.

Expectancy for success in MFR. A second check for possible mediators of the

Table 2
Mean Subjective Organization of Self-Descriptive Adjectives and Abstract Nouns with Correlated t Tests of Differences Between the Means

Group	Self-descriptive adjectives		Moderately self-descriptive adjectives		Abstract nouns		t -test value ^a	df	p
	M	SD	M	SD	M	SD			
Short-term depressives	.47	.55	.49	.23	.69	.39	1.48	14	>.05
Long-term depressives	.86	.44	.56	.38	.37	.24	5.11	14	<.0001
Nondepressives	.83	.46	.43	.25	.44	.27	4.49	29	<.0001

^a t -test values are for differences between means of self-descriptive adjectives and abstract nouns.

Table 3
*Analysis of Covariance of Depression (3 Levels)
 on Adjective SO with Noun SO as Covariate*

Source	<i>df</i>	<i>MS</i>	<i>F</i>	<i>p</i>
Covariate				
noun SO	1	.45	2.05	<i>ns</i>
Depression	2	1.27	6.12	<.005
Error	56	.21		

Note. SO = subjective organization.

memory data was to determine whether or not group differences in the recall tasks were mediated by expectancy of success on these tasks. Expectancy for success was rated on a 7-point Likert scale just prior to the first MFR trail. To determine if group differences could be accounted for by differences in the expectancy for success, a one-way ANOVA was conducted. The results of this analysis revealed no significant differences in expectancy for success among groups classified on the depression factor, $F(2, 57) = .27, p > .05$.

To determine if group differences could be accounted for by changes in expectancy for success between trials one and three on MFR, a second one-way ANOVA was conducted. The results of this ANOVA revealed that group differences were not statistically significant, $F(2, 57) = .51, p > .05$.

Discussion

The present study asked whether short-term depressives, long-term depressives, and nondepressives differ with respect to the strength of a self-schema. A developmental model was presented in which it was proposed that, over time, the self-schema becomes a more viable unit for the processing of personal information. Beck has allowed that his cognitive model may be integrated with developmental cognitive theories (Kovacs & Beck, 1977). Earlier studies (Davis, 1979a, 1979b) and the present research represents an attempt to achieve this integration.

The present data suggest that in depression the self-schema is in a transition phase for short-term depressives and that it becomes a stronger information processor for long-term depressives.³ This suggestion rests

on the data showing significantly higher subjective organization of self-descriptive adjectives for long-term depressives and nondepressives than for short-term depressives. Subjects, irrespective of depression status, were equivalently certain that their chosen self-descriptors were accurate and showed equivalent expectancy of success on multitrial free recall. The severity of depression did not relate systematically to these memory data. Essentially, the results suggest that the short-term depressive lacks the breadth of self-schema necessary for obtaining higher SOs on self-descriptive adjectives than on abstract nouns.

In support of this conclusion, an analysis of covariance revealed that despite relatively high levels of noun subjective organization for short-term depressives, group differences in adjective subjective organization remained significant over and above the ability to organize nouns in recall. Differences in noun organization were not predicted and are not interpretable within a developmental framework. The ANCOVA suggests that the generalizability of the findings on adjective organization is not limited by the observed differences in the ability to organize nouns.

At first glance significant age differences between short-term depressives, on the one hand, and long-term depressives and nondepressives on the other, might appear to make interpretation difficult. However, among short-term depressives, who were older than the other subjects, adjective organization had a significant positive correlation with age, whereas among other subjects, adjective organization correlated negatively with age. These patterns suggest that the present results are conservative; had ages been more evenly distributed one would expect that, given these correlations, group differences would have been more pronounced. Future research with this model will, of course, have to control better for age differences among experimental subjects.

³ That depressives are said to have "negative" self-schemata was not addressed in the present study. Simply, the schematization of a given self-description was assessed without regard to adjective tone. As addressed in post hoc analyses, both depressives and nondepressives felt that the adjective list enabled them to describe themselves accurately.

It is inferred here that differences in SO have occurred because the long-term depressives and the nondepressives, with stable self-schemata, were familiar with their respective self-descriptive adjective lists prior to the task and saw their adjectives as interrelated. It is reasoned that familiarity with self-descriptors, interrelatedness among these descriptors (as experimentally operationalized by relatively high levels of SO), and regularity of self-descriptor use are founded in the self-schema.

As outlined in the introduction, some memory researchers infer the strength of a schema from the recall of schema-related words. If subjects have a stable schema for a given word group, it can be assumed that they will feel a familiarity with these words and that they will see word interrelationships. Cantor and Mischel (1977) studied recognition bias of trait-related words after familiarizing their subjects with the trait. In accord with the present reasoning, their subjects showed recognition bias and confidence in their recognition errors when their choices were highly related to the trait-descriptive (or schema-related) words on the initial list. Data that further support the present reasoning have been provided by Tsujimoto, Wilde, and Robertson. (1978).

Evidence that within-list interrelatedness (schematization) improves memory was presented in a study by Bellezza, Cheesman, and Reddy (1977). In their memory research, they factorially varied word list organization and semantic elaboration before concluding that beyond word comprehension, it was within-list word relatedness that improved recall. In the present context, this would mean that persons who had related one personal attribute to another would have had an enhanced probability of high subjective organization on self-descriptive adjective recall.

In summary, it is inferred from the data that subjects recall self-descriptive adjectives in an orderly fashion when the adjectives are organized into subjective units by a cognitive schema of self. Based on this reasoning, the results suggest that the short-term depressive has an inadequately developed schema for terms that he uses in self-description. The data showing stronger or-

ganization for personal referents among long-term depressives than among short-term depressives suggest that in depression the self-schema undergoes transition and development. The self-schema possibly starts as a strong personal information processor before it is weakened by the change in self-referents that accompanies the onset of depression. During this phase, many terms once used in self-description are replaced by new ones. Over time, however, the schema reorganizes and regains its strength as an information processor. This developmental conclusion is tentative and awaits both longitudinal studies and studies with extensive matching of subjects on parameters of depression that do not vary over the course of a given level of depression.

This model has implications for the cognitive therapy of depression. In cognitive therapy, the therapist and patient try to expose negative beliefs, to re-evaluate these beliefs, and to change the underlying schema. An individual who is not described by the traditional approaches is the short-term depressive who has negative views of self and/or the world but does not have a strong schema for organizing self-beliefs. The present results suggest that cognitive therapists will have to devise different methods for those who are in crisis and do not have a strong self-schema than for those who do have a well-organized self-belief system.

Of the several problems apparent in the proposed developmental model, the first is that the model has been misinterpreted to be a "nonschema" model (Kuiper, Derry, & MacDonald, in press). This misinterpretation has occurred despite the fact that the duration of depression has in this and earlier studies by Davis (1979a, 1979b) been correlated with the strength of the self-schema in depression. Although Davis has contended in earlier articles that the short-term depressive lacks a stable self-schema, this was never intended to mean that the short-term depressive lacks a self-schema altogether. In fact, Davis (1979b) explicitly suggested that the developmental model represents an attempt to integrate theories of cognitive development with Beck's theory.

As noted, Kuiper et al. (in press) have also studied negative self-referencing in depres-

sion. They have proposed a "content-specificity," self-schema model based on their findings with the incidental recall paradigm. Their data show that depressives have strong recall of self-descriptive and negatively toned adjectives when compared with nondepressives; Davis (1979a) found weak recall of self-descriptive, neutrally toned adjectives. Reasons for the differences may reflect lower severity of depression in the Kuiper et al. sample and the use of undergraduates as opposed to the hospital inpatients used by Davis. As Depue and Monroe (1978) point out, it is not clear whether nonclinical depressed individuals are qualitatively equivalent to their clinical counterparts.

Presuming, however, the clinical status of the Kuiper et al. subjects (i.e., that they would meet criteria other than simple BDI ratings), the most important findings of their study deserve attention: (a) depressives recalled neutrally toned self-descriptors better than they recalled negatively toned self-descriptors; and (b) depressives recalled negatively toned self-descriptors better than nondepressives did. These findings suggest that the depressive has a broad self-schema. It is capable of processing neutrally toned self-information as efficiently as that of nondepressives and capable of processing negatively toned self-information more efficiently than that of nondepressives.

If these findings are replicable it is possible that for the present subjects, the self-schema of short-term depressives was less efficient as an organizer of personal information simply because it had only recently added breadth to include depressive, negative self-descriptors. This suggestion awaits testing in future research.

A second problem of the proposed developmental model lies in the measurement of a schema. It is possible that, in the future, researchers will draw on other experimental models in cognitive psychology to arrive at different conclusions about the viability of the self-schema (e.g., by using the Anderson & Pichert, 1978, approach of assessing the influence of role assumption on the story recall). It is further possible that in adjective memory research some adjectives will have higher semantic interrelationships than nouns. Thus, it will always be necessary to

compare the recall of such adjectives to the recall of nouns and to show different patterns of recall for short- and long-term depressives.

Further, in research with clinical subjects it is possible that the strength of the self-schema is, in part, mediated by the length of time an individual has been in psychotherapy, a process that fosters self-reflection. Future researchers will have to control for such factors.⁴

Finally, researchers will have to develop better methodological controls over duration of depression estimates than those used in the present study. Since both physician and patient perceptions can be in error, perhaps only those patients whose estimates agree with those of an external judge should be included in the experimental sample. Further, if a patient says he has been depressed for, say 3 weeks, care should be exercised to ensure that the dysphoric mood was not simply the continuation of a chronic depression interrupted only briefly. Perhaps in future research, *short-term depression* should be defined as as depression of less than 1 year's duration with no antecedent episodes of depression in 5 previous years.

⁴ This suggestion was first made by Constance Hammen, June 1, 1979, in a personal communication.

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