SELF-CRITICISM AND DEPENDENCY
AS VULNERABILITY FACTORS TO DEPRESSION

by

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ABSTRACT

The present study investigated the interpersonal schemata of self-criticism and interpersonal dependency as cognitive vulnerability factors to depression. The study's primary hypothesis was that dependency and self-criticism schemata remain stable at remission and that they are independent of mood. Stability in these two factors was related both to their self-report at remission and to their endurance as components influencing the information processing of patients during remission.

Twenty clinically depressed individuals, 20 remitted depressives, and 20 normal controls were compared on memory tasks, a modified Stroop task, the Depressive Experience Questionnaire (DEQ) and the Interpersonal Dependency Inventory (IDI). The above instruments converged to measure dependency and self-criticism.

Current and remitted depressives reported significantly higher levels of self-criticism and interpersonal dependency than the normal control group, when measured by the DEQ and the IDI. Performance on the three memory tasks was more ambiguous. For the free recall task, remitted depressives recalled more self-critical traits than other traits; however, the control group also recalled more self-critical traits than dependent ones, and the current depressives did not show the predicted bias. Performance on the recognition and impression formation tasks did not support the study's main hypothesis. For the Stroop interference scores, currently depressed individuals demonstrated a trend to have more interference on the mood-congruent cards than the normal control group.

Overall, the three components of the study -- questionnaires, memory tasks and Stroop task -- elicited three different patterns of results. The DEQ and the IDI indicated the presence of self-criticism and dependency in both current and remitted depressives, and thus supported
the schemata's stability and independence from mood. Performance on the memory tasks offered weak support to the proposition that remitted depressives process information according to a self-critical schema, although no evidence was obtained for the dependent schema. Results of performance on the Stroop task suggested the presence of a mood congruent attentional bias in currently depressed individuals; however, no evidence was found for a self-critical or dependent attentional bias in either groups of depressives.

Two explanations are offered to interpret the conflicting findings. First, a negative mood induction may be necessary to prime the interpersonal schemata. Second, tasks that are more self-focused, such as the questionnaires, than other-focused, such as the memory and Stroop tasks, may be needed to activate the schemata.
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INTRODUCTION

The earliest attempts that examined clinical depression in the twentieth century consisted predominantly of studies relying on psychoanalytical concepts (Abraham, 1911; Freud, 1917). These initial endeavours exerted an important influence on subsequent developments and lead to the formulation of a coherent syndrome of depression. Following in the footsteps of psychoanalytic concepts, modern definitions of clinical depression possess a common denominator of loss: loss of pleasure, loss of energy, loss of self-esteem, loss of hope, loss of the will to live. In addition, the most recent Diagnostic and Statistical Manual of the APA (DSM-III-R, 1987) includes somatic symptoms such as sleep disturbances, change of eating habits, fatigue, and psychomotor retardation or agitation.

The focus of research on clinical depression in the last two or three decades has shifted from the descriptive analysis to the empirical study of its etiology and causal factors. Various causal models have been proposed: social (Brown & Harris, 1978; Oatley & Bolton, 1985), biological (Bunney & Davis, 1965), object loss (Bowlby, 1969), reinforcement (Ullman & Krasner, 1969) and cognitive models (Beck, 1967, 1976; Abramson, Seligman, & Teasdale, 1978). From these models, psychological factors contributing to depression have now been identified and incorporated into a diathesis-stress model that captures the complexities in the development of a depressive episode. Two types of etiological factors can be identified: external factors such as social support, marital distress and life events, and cognitive predispositions, such as attributional styles, dysfunctional attitudes, and negative self-schemata (Barnett & Gotlib, 1988).

The present study focused on only one type of cognitive predisposition to depression, the self-schema. This choice of emphasis was predicated on the finding that cognitive therapy, which targets the cognitive components of depression, has proven to be more
effective than waiting-list or no-treatment control, pharmacotherapy, and behavior therapies (Dobson, 1989), or equally effective as pharmacotherapy (Hollon, DeRubeis, Evans, Weimer, Garvey, Grove, & Tuason, 1988). The effectiveness of cognitive therapy has also been supported by recent theoretical and research developments in the field, as amplified in the following chapters.

Borrowing from earlier theoretical developments (Bartlett, 1932; Markus, 1977; Piaget, 1975), the self-schema, a central and fundamental core of one's personality, has received increased attention in recent years as a stable cognitive vulnerability factor to depression (Segal, 1988). The self-schema is comprised of organized personal schemata based on one's past experiences, and guides the acquisition of new knowledge and the appraisal of our world (Bartlett, 1932); it is a body of knowledge that "colors" our perception of the world (Segal, 1988).

The structure of the representation of the self remains a nebulous area in cognitive psychology. Of the many models which have been developed recently, one model conceptualizes the self as one of many nodes in an associative network (Bower & Gilligan, 1979). Another model assumes that the self is organized as a hierarchy of traits, values, and specific memories (Rogers, 1981; Kihlstrom & Cantor, 1984). The self can also be conceptualized as a memory structure consisting of an agglomeration of different schemata linked in varying degrees to the self (Markus, 1977; Markus & Sentis, 1982). In this latter model, "the schema is not only the plan but also the executor of the plan, it is a pattern of action as well as a pattern for action" (Neisser, 1976, p. 55-56). Therefore it represents the self both as a knower and as an object of knowledge (for a review of these models, see Greenwald & Pratkanis, 1984). Over the years, there has been a progression in the conceptualization of the self; the self has evolved theoretically from the self-concept, a static data structure, to the self-schema, an active
information processing structure. Most researchers now agree on the fundamental characteristics of the models of the self; it is generally accepted that the self is a dynamic, active structure, which processes intrapersonal as well as interpersonal information (Markus & Wurf, 1987).

It is believed that the self-schema plays an important role in the predisposition to and in the experience of emotional disorders. Persons with emotional disorders rely to a greater extent than normal individuals on their self-schema to anticipate events and to retain some sense of control. These individuals will rely on their possibly biased self-schema to process information:

"In their broadest sense, schemata in clinical disorders are cognitive structures that guide recall selectively and provide default information to fill in gaps in ongoing processing" (Safran, Segal, Hill, & Whiffen, 1990, p.144).

In the case of depressed individuals, recent developments (Barnett & Gotlib, 1988) point to the existence of two interpersonal schemata that would guide their information processing. The two schemata, self-criticism and interpersonal dependency, are believed to be critical components of the depressive's self-schema. They are acquired through negative childhood experiences, and they bias information processing in such a way that may precipitate and maintain a depressive episode. The two cognitive vulnerability factors, self-criticism and dependency, provided the focus of the present study.

In order to understand the novelty and usefulness of the concepts of self-criticism and dependency, one has to examine past trials to uncover a stable vulnerability factor to depression. The learned helplessness model of depression (Abramson, Seligman, & Teasdale, 1978; Peterson & Seligman, 1984) specified an attributional style believed to lead to
depression. The attributional style was hypothesized to be comprised of internal, global, and stable factors that served to explain negative events, and external, specific, and unstable factors that were used to explain positive life events. Based on Beck's cognitive triad -- negative view of the self, of the world, and of the future, (Beck, 1967, 1976) -- dysfunctional attitudes and automatic thoughts have also been invoked as cognitive vulnerability factors. Dysfunctional attitudes consist of unrealistic, perfectionistic standards by which the self is judged (Weissman & Beck, 1978) and which precipitate negative cognitions. Past research generally did not support attributional style (see Barnett & Gotlib, 1988, for a review) and dysfunctional attitudes (Dobson & Shaw, 1986; Hamilton & Abramson, 1983; Blackburn & Smith, 1985; Hollon, Kendall, & Lumry, 1986) as stable, cognitive vulnerability factors. Differences between depressives and normal control groups tended to disappear at remission, thus suggesting that negative attributional style and dysfunctional attitudes were episode markers of depression rather than stable vulnerability traits for depression.

The absence of a negative bias in remitted depressives described above is now believed to be attributed to the emphasis of past experiments on negative mood content, such as negative self evaluations (Segal, 1988). The "mood congruence hypothesis" suggests that depressives will report and recall more information congruent with their depressive mood, such as negative self evaluations, during an episode of depression, and that this effect will disappear at remission. Therefore, in order to uncover vulnerability factors to depression that would remain stable and observable even after the end of an episode of depression, one has to measure non-mood-congruent components of the self-schema.

The present study attempted to circumvent the mood congruence hypothesis by examining the role of interpersonal schemata not confounded with negative mood, as
vulnerability factors to depression. The influence of the interpersonal schemata of
self-criticism and dependency on information processing was assessed in an effort to make
use of the functional and dynamic nature of the self-schema. The study compared the
interpersonal schemata of actively depressed individuals, remitted depressives, and of
normal controls, by examining their performance on various information processing tasks
tailored to converge on the two cognitive vulnerability factors to depression --
self-criticism and interpersonal dependency. A modified Stroop task -- an automatic
preattentive task -- was used, as well as a memory task, an impression formation task, and
questionnaires. Such research examining vulnerability factors to depression could have
implications for the prevention of clinical depression and may provide insights into the
phenomenon of depression itself.

The present document is organized into eight chapters. The first chapter presents
a critical survey of results obtained with remitted depressive populations regarding the
negative self-schema as a vulnerability factor to depression. Criticism of existing
methodologies are considered in the second chapter and suggestions for new avenues in
research that utilize preattentive and memory tasks are proposed. A review of research
concerned with the two vulnerability factors of interest, dependency and self-criticism, is
found in chapter three, followed by a review of memory tasks, preattentive tasks, and Stroop
models in chapter four. In chapter five, an overview of the present study and its main
hypotheses is presented. It is followed by the study's method in chapter six, by the study's
results in chapter seven, and by a discussion of the main findings in the final chapter.
Chapter 1

THE SELF-SCHEMA AS A VULNERABILITY FACTOR TO DEPRESSION

The social significance of clinical depression is immense, as it represents one of the most pervasive forms of psychopathology. Prevalence rates range from 9% to 26% for females, and from 5% to 12% for males (DSM-III-R, 1987). Moreover, one of the most disturbing aspects of clinical depression is its high rate of recurrence. In studies determining relapse rates, many methodological problems persist, such as the homogeneity of the sampled population, the definition of recovery and the definition of relapse (Belsher & Costello, 1988). However, if one chooses the most conservative studies using the strict diagnostic criteria of the DSM-III or the Research Diagnostic Criteria (RDC; Spitzer, Endicott, & Robins, 1978) for unipolar depressives with no underlying dysthymia, the rates of relapse for a two month period average around 24% (Keller & Shapiro, 1981; Keller, Shapiro, Lavori, & Wolfe, 1982), around 37% for a 12 month period (Keller, Lavori, Endicott, Coryell, & Klerman, 1983; Simons, Murphy, Levine, & Wetzel, 1986), and 47% for an 18 month period (Keller et al., 1983). It is estimated that approximately half of the individuals suffering from depression will experience another episode during their life time (NIMH, 1985). Remitted depressives constitute a group of individuals who have been depressed in the past and who are statistically at increased risk for future depressive episodes (Barnett & Gotlib, 1988; Belsher & Costello, 1988). Given that people from all walks of life suffer from depression, is there a common denominator in the psychological make-up of current and remitted depressives that renders them vulnerable to this disorder?

In view of its social impact, it is important to identify the vulnerability factors of depression that influence the onset of a depressive episode. A negative self-schema has been proposed as a vulnerability factor to depression (Barnett & Gotlib, 1988; Beck, 1967;
Segal, 1988) and several methods have been applied to investigate its existence as a stable vulnerability factor to depression. Questionnaires have been used to measure negative attributions and dysfunctional attitudes, which are conceptualized as products of the self-schema. The self-schema has also been examined by studying its effect on self-referent tasks.

Methodological issues related to vulnerability studies will first be considered in this chapter. Studies assessing cognitive vulnerability for depression with questionnaires will then be reviewed in this chapter. It is assumed that a stable aspect of one's self-schema rendering one vulnerable to depression would remain accessible during remission. Therefore, emphasis will be placed on studies of remitted depressives since they represent the population offering the most insight into the concept of vulnerability to depression. The scar theory (Lewinsohn, Steimetz, Larson, & Franklin, 1981) -- which suggests that a depressive's self-schema consolidates with each episode of depression -- will be discussed. It will be followed by a review of studies using Self-Referent Encoding Tasks (SRET).

Methodological Issues

Two types of vulnerabilities can be distinguished: onset vulnerability and relapse vulnerability. These types of vulnerabilities may be mediated by different factors. The present study focused on the factors involved in relapse vulnerability. Several research designs are available for investigating vulnerability to depression. They will now be reviewed.

Investigation of onset vulnerability requires the use of a prospective design (Hammen, Marks, deMayol, & Mayo, 1985a; Lewinsohn, Steinmetz, Larsen, & Franklin, 1981): a group of initially nondepressed individuals are assessed and followed for a certain period of time. Differences in premobid state between those who remain nondepressed and
those who become depressed, are considered to point to possible onset vulnerability factors. The advantage of this design is that the assessment of premobid state is not a retrospective one and, thus, it is not confounded by the experience of depression. The disadvantage of the design is its great cost, both in time and subjects, which explains its relative scarcity in the literature.

A second type of design is the two-wave panel design (Barnett & Gotlib, 1988), which addresses both onset and relapse vulnerabilities: one or several variables are measured at time 1 as predictors of subjects' level of depression at time 2. If the variables significantly predict future depression, they are considered likely vulnerability factors for depression. It should be noted that this design, in its assessment of onset and relapse vulnerability factors, can not differentiate the two.

The third type of design examines indirectly the relapse vulnerability by assessing whether certain types of schemata remain stable during the periods of remission (e.g. Dobson & Shaw, 1987). Typically, current depressives, remitted depressives, and normal controls are compared on factors that might predispose an individual to relapse into depression. The design can be implemented either in a longitudinal fashion, by following a group of depressives through their recovery, or in a cross-sectional fashion, by comparing a group of depressives with a group of remitted individuals. These designs are based on the assumption that, because the remitted depressives have been vulnerable in the past and are statistically at risk for future depressive episodes, the difference in predisposing factors they show with normal controls are taken to be indices of vulnerability factors for depression. More specifically, if the hypothesized predisposing factors remain stable during remission, they are not episode markers, but markers of a vulnerability.

The above third design was used in the present study. Such a design is in fact more
focused on relapse vulnerability than on onset vulnerability. Its main drawback is the fact that, concerning onset vulnerability factors, it is impossible to assess whether the factors measured were in fact present before the first episode of depression. There remains the possibility that factors measured at remission are in fact consequences of having had a depressive episode. Furthermore, the predictive value of variables for future relapses is not directly assessed by the present study's research design. Instead, their predictive value is based on the assumption that remitted depressives are a statistically high-risk group for future episodes of depression.

Critical Survey of Studies Based on Questionnaires

Studies Examining Remitted Clinical Depressives

Although there are a large number of questionnaire-based studies in the area of depression, among these there is a paucity of research examining remitted clinical depressives. Six studies, which included remitted depressives, will be examined in terms of how they support or disconfirm a model of cognitive vulnerability to depression. Differences between remitted depressives and normals on the questionnaires were taken to indicate whether or not that which was measured by the questionnaire was an episode marker of depression or a trait vulnerability factor.

Among the questionnaires used in the six studies were the Dysfunctional Attitudes Scale (DAS; Weissman, 1978; Weissman & Beck, 1978), the Attributional Style Questionnaire (ASQ; Seligman, Abramson, Semmel, & von Baeyer, 1979), the Hopelessness Scale (HS; Beck, Weissman, Lester, & Trexler, 1974) and the Automatic Thoughts Questionnaire (ATQ; Hollon & Kendall, 1980). The DAS assesses the presence of a general negative belief system as described by Beck (1967), while the ASQ evaluates the type of attributions made as described by Seligman (Abramson et al., 1978). The ATQ assesses the
frequency of conscious negative thoughts and the HS assesses levels of hopelessness
(psychometric properties of all questionnaires are found in Table 1).

Among the six studies of remitted depressives, two found significant differences
between remitted depressives and normals in their responses to questionnaires. Eaves and
Rush (1984) found that biased attitudes on the DAS and biased attributions on the ASQ
persisted beyond the episode of depression: the remitted depressives' scores were
significantly higher than the normals' scores, but were also significantly lower than scores
obtained during the episode of depression. It should be noted that 7 depressed patients did not
remit during the course of the experiment, which leaves open the possibility that the most
seriously depressed, or at least the most chronically depressed, were not included in the
group of the 24 remitted patients. If they had been included in the study, this group of
patients may have shown even more depressive cognitions when remitted than the selected
remitted group of this study. As predicted, ATQ scores, measuring more symptomatic
aspects of depression, reverted to normal levels during remission. The overall results
provide evidence that automatic negative thoughts measured by the ATQ are state dependent,
and attitudinal biases measured by the DAS and ASQ may form part of a permanent
configuration of vulnerability to depression.

In a second study (Dobson & Shaw, 1986), four questionnaires were used: the
DAS, the Interpretation Inventory (II), the Cognitive Response Test (CRT) and three scales of
the Differential Anxiety and Depression Inventory (DADI). No significant differences were
found between the scores of depressed patients during an episode of depression and during
remission on the following measures: the DAS, the II, the CRT, and the Social Exits scale of the
DADI. The dependent variables showing significant changes between the depressed and
remitted phases were the ATQ, the Anticipatory situations, and the Assertiveness-persistence
Table 1

Psychometric properties of questionnaires

1. The Dysfunctional Attitudes Scale (DAS; Weissman, 1978; Weissman & Beck, 1978) is a 40-item measure that assesses the presence of a general negative belief system described by Beck. It has high internal reliability (Dobson & Breiter, 1983).

2. The Attributional Style Questionnaire (ASQ; Seligman, Abramson, Semmel, & von Baeyer, 1979) is a 60-item measure. Stemming from Seligman's learned helplessness theory, it evaluates the type of attributions made. It has good internal reliability and good test-retest reliability (Peterson, Semmel, von Baeyer, Abramson, Metalsky, & Seligman, 1982).

3. The Automatic Thoughts Questionnaire (ATQ; Hollon & Kendall, 1980) is a 30-item scale that assesses frequency of negative thoughts in the past week. High internal reliability (Dobson & Breiter, 1983; Harrell & Ryan, 1983; Hollon & Kendall, 1980) is reported.

4. The Hopelessness Scale (HS; Beck, Weissman, Lester, & Trexler, 1974) is a 20-item inventory that assesses degree of hopelessness. High internal consistency for this scale is reported (Beck, 1976) as well as high correlations with ratings of hopelessness of psychiatric patients.

5. The Interpretation Inventory (II; Stake, Warren, & Rogers, 1979) is a 20-item inventory that measures the likelihood that the respondent will interpret a given situation in a dysfunctional manner. The scale has strong internal reliability (Dobson & Breiter, 1983).


7. The Differential Anxiety and Depression Inventory (DADI; Dobson, 1980; Shaw & Dobson, 1981) consists of 6 subscales, each describing situations that are likely to engender a depressive response. It has strong reliability, moderate test-retest reliability, and strong cross-situational consistency (Dobson, 1980; Shaw & Dobson, 1981).
scales of the DADI.

The four other studies (Dohr, Rush, & Bernstein, 1989; Hamilton & Abramson, 1983; Hollon, Kendall, & Lumry, 1986; Silverman, Silverman, & Eardly, 1984) which are among the six studies examining remitted depressives, contrast sharply with the findings just reviewed. These four studies included the DAS, two (Dohr et al., 1989; Hamilton & Abramson, 1983) included the HS and the ASQ, and two (Dohr et al., 1989; Hollon, Kendall, & Lumry, 1986) included the ATQ. No differences were found between remitted and normal subjects on the DAS, the ASQ, the ATQ and the HS. Since the ATQ and the HS were designed to measure symptomatic aspects of depression, it is not surprising that scores on these measures of remitted depressives were comparable to those of normal individuals. However, because the DAS and the ASQ assess what is assumed to be a general and stable belief system, the absence of differences between the remitted depressives and the control groups on the DAS and ASQ scores represented a critical result which seriously challenged the view of dysfunctional attitudes or negative attributions as vulnerability factors to depression. The results, therefore, supported the proposition that a depressive cognitive style is an episode marker of depression, rather than a stable trait.

Overall, conflicting findings permeate the few studies of remitted clinically depressed patients, when using questionnaires. The two former studies described (Dobson & Shaw, 1986; Eaves & Rush, 1984) supported the stability of a vulnerability factor to depression, while four others did not (Dohr et al., 1989; Hamilton & Abramson, 1983; Hollon et al., 1986; Silverman et al., 1984). Despite the ambiguity of the findings reviewed, the possibility of gaining information on the prevention of depression justifies further research on a stable vulnerability trait for depression. Furthermore, alternative methods of measurement may be more sensitive to the permanent aspects of the hypothesized negative
measurement may be more sensitive to the permanent aspects of the hypothesized negative self-schema of depressives, and help clarify the controversy.

The Scar Theory

If one assumes the existence of a trait-like disposition for depression, the next logical step would be to examine its evolution across depressive episodes. Such a step appears to be premature given the rudimentary state of our knowledge, but some theorists have proposed stimulating hypotheses. Lewinsohn, Steimetz, Larson and Franklin (1981) have formulated the "scar theory" which states that the depressive's vulnerability to depression consolidates as a result of each episode of depression. Unfortunately, they have not specified details of their model. It is not clear whether the consolidation phenomenon applies to automatic thoughts, to general negative beliefs, or to other aspects of the self-schema. It is equally unclear whether the consolidation of the vulnerability complex occurs as a function of the number of episodes, or of the length of the episodes, or of both.

Nevertheless, if it were demonstrated that each episode of depression increases the probability of a future episode, the concept of vulnerability to depression could be supported. In fact, rates of relapse do tend to vary greatly for first time and multiple time depressives: the relapse rate for individuals who have suffered from a first episode of depression is 15% for a 6 month period and 22% for a 12 month period, and for those who have suffered from more than one episode of depression, the corresponding rates are 35% and 66% respectively (Belsher & Costello, 1988).

Before examining the research related to the scar theory, its limitations should be noted. The scar theory is only one possible explanation for a vulnerability factor. As has been mentioned before, other factors, such as life events or cognitive predispositions that are not influenced by the number or length of depressive episodes, can also explain vulnerability to
depression. Furthermore, the scar theory does not explain how the first episode of depression arises.

One longitudinal study specifically investigated the scar theory (Lewinsohn et al., 1981). The study examined if negative cognitions precede, accompany, or follow an episode of depression. It was largely unsuccessful in supporting the theory as it did not find an increase of negative cognitions, as measured by questionnaires, prior to or after the episode of depression. The lack of success of this study may explain why the theorists did not give further attention to the development of their model. However, their study suffered from methodological flaws; the most noteworthy of which were an entirely self-selected population and very weak measures assessing locus of control, self-esteem, irrational beliefs and expectancy of positive and negative outcomes.

Although the Lewinsohn et al. (1981) study remains the only endeavour specifically designed to test the scar theory, several other studies offer tangential insight concerning its validity. For instance, in the Eaves and Rush (1984) study, significant correlations were found between ASQ internal, stable, and composite scores of attributions for failure, and total time spent depressed, average episode length, and current episode length, measured by the Global Chronicity Severity Index (Eaves & Rush, 1984). These findings suggest that longer episodes of depression increase the magnitude of depressive attributions.

The Self-referent Effect

Studies using self-referent tasks have implications for the scar theory. They are reviewed in the present section after a brief overview of the rationale for self-referent effects.

The self-referent effect, which emphasize the active role of the self-schema, has been used to further our understanding of the consolidation of a vulnerability factor. The
underlying rationale for this effect is the idea that the processing of information is more efficient and therefore better remembered when it is done in relation to the self (Banaji, Devine, & Greenwald, 1983; Belleza, 1983; Friedman & Pullybank, 1982). The self acts as a rich point of reference which selects and organizes information.

Rogers (1981) first demonstrated that the self-referent processing of adjectives (e.g. "are you a friendly person?") results in a better memory for these adjectives than when they are processed semantically (is friendly a synonym for honest?). Since Rogers' study, enhanced recall and recognition of self-relevant information has been confirmed repeatedly when looking at personal experiences (Banaji, Devine, & Greenwald, 1983; Belleza, 1983; Friedman & Pullybank, 1982). Furthermore, several studies have compared self-reference (are you friendly?) versus other-reference (is your brother friendly?) in terms of the effect on subsequent recall. Keenan and Baillet (1980) report that recognition memory with other-reference improves as the degree of familiarity with the other increases, but recognition memory with self-reference remains superior. Chew (1983) and Claeys (1983) have replicated this finding.

Self-referent processing is also found to be more efficient if one considers the speed of processing as an index of its efficiency. Markus (1977) found that persons who are "schematic" for a trait will make self-relevant judgements more rapidly on that trait than for other traits. As well, they make such judgements more rapidly than people who are not schematic for that trait.

Finally, individuals show a heightened sensitivity to self-relevant stimuli. Who has not experienced the "cocktail party phenomenon" where a person actively involved in a conversation suddenly overhears her name mentioned in another distant conversation, as if it is springing out of a flow of unattended words? The experimental equivalent to such a situation
is found in the dichotic listening task, where a person pays attention to the information given to one ear, while ignoring another source of information given to the other ear. During a dichotic listening task, self-relevant words interfere with performance when presented in the unattended ear (Bargh, 1982). Subjects reported no awareness of the words being presented in the unattended ear, suggesting that the interference can occur even without the subjects' awareness.

This brief overview of self-referent effects has demonstrated how the way one views oneself appears to be inseparable from the way one responds to the world. One can assess self-schemata of subjects by examining their ability to recall information that was previously presented to them: better recalled information would indicate that the information is related to the self-schema.

Performance on self-referent tasks of depressives and normal controls will be discussed in the next section, followed by studies including subjects judged as vulnerable to depression. Implications for the scar theory will be considered as well as relevance to the vulnerability concept in general.

**Comparing Depressives and Normal Controls**

**College Populations**

A recent study (Hammen, Miklowitz, & Dyck, 1986) reported that currently depressed students who had experienced a prior episode of depression (defined as 1 week or more of depressive symptoms in the previous 6 months) demonstrated greater recall of negative self-referent adjectives than students currently depressed but without a prior episode of depression. Given that self-referent information is believed to be better remembered than non self-referent information, the results suggested that depressed college students who had been depressed before had a stronger negative self-schema than
"first-episode" depressed college students. These findings support the scar theory, in that they demonstrate an evolution of the self-schema with repeated episodes of depression. While a main effect was found for prior depression, there was no main effect due to the severity of the current depression and there was no Prior Depression X Current Depression interaction. It should be noted that prior and current depression were not confounded. When subjects recalled events exemplifying a negative trait previously rated as self-descriptive (Hammen et al., 1986), a highly significant correlation was found between the duration of the most recent episode of depression and the number of behavioural examplars of negative traits recalled.

Thus, it appears that previous experience with depressive symptoms increases the recall of negative self-referent adjectives in currently depressed college students. This finding is consistent with the existence of a depressive self-schema.

**Clinically Depressed Populations**

Davis and Unruh (1981) examined the consolidation of the self-schema within an episode of depression. In this study a group of short-term depressive patients, long-term depressive patients, and normals were presented with idiographic self-referent adjectives (adjectives previously chosen as self-descriptive by each individual subject), and were asked to recall them 45 seconds later. A multitrial free recall procedure (MFR; Sternberg & Tulving, 1977) with five trials was used. The dependent variable was subjective organization which represented the number of words that were paired on consecutive trials corrected by the number that would be expected by chance (Sternberg & Tulving, 1977). Subjective organization is based on the principle that words coded together in a subjective unit (i.e. a schema) tend to be recalled contiguously. Short-term depressives demonstrated less subjective organization, suggesting that their self-schema was more disorganized than the long-term depressives -- a finding that was possibly due to their having less time to adjust
their self-schema to the new experience of depression. This main effect was not related to the severity of depression, but only to the length of depression. It appears, then, that the organizing capacity of the depressives' self-schema is reduced during the new experience of depression, but that over time it reorganizes itself and regains its strength as an information processor.

The central weakness of the Davis and Unruh study (1981) was their experimental design's absence of control for word content; the design did not specify when adjectives were positive, negative, or neutral. Organization of the self-schema, as measured by the MFR procedure, was investigated rather than its content. This problem was quickly tackled by Kuiper (Derry & Kuiper, 1981; Kuiper & Derry, 1982; Kuiper & MacDonald, 1982; Kuiper, Olinger, & MacDonald, 1989), whose experiments were aimed at determining whether the severity of depression affects the content of the self-schema. Kuiper and his colleagues differentiated between positive and negative content adjectives to test a content-specificity model of self-reference. They predicted facilitated recall for both positive self-descriptors by nondepressives, and negative self-descriptors for depressives (Derry & Kuiper, 1981). Based on the assumption that more efficient processing would be reflected by shorter duration of processing, they also predicted quicker reaction times for information congruent with the content of the self-schema. More specifically, they predicted shorter reaction times for both negative words in depressives and positive words in nondepressives. It should be noted that their predictions focused solely on contrasting depressives and nondepressives and did not address the question of the performance of the remitted depressives.

Several of Kuiper and colleagues' studies did support a content-specific self-schema effect (Derry & Kuiper, 1981; Kuiper & Derry, 1982; Kuiper & MacDonald,
1982; Kuiper et al., 1989). Normals were found to have better recall of positive self-descriptors than negative self-descriptors, clinical depressives demonstrated better recall of negative self-descriptors than positive self-descriptors (Derry & Kuiper, 1981; Kuiper & Derry, 1982; Kuiper & MacDonald, 1982), and mild depressives presented a mixed effect (Kuiper & Derry, 1982; Kuiper & MacDonald, 1982). These results suggest that normals maintain a predominantly positive self-schema, clinical depressives present a negative self-schema, and the mildly depressed exhibit a combination of both. Clearly, the severity of depression has a strong effect on the content of the self-schema.

Reaction times reflecting the efficiency of self-schematic processing pointed to different response patterns for each of the three groups. Normals had significantly shorter reaction times for positive than negative words (Derry & Kuiper, 1981; Kuiper & MacDonald, 1982), depressives had shorter reaction times for negative than positive words (Derry & Kuiper, 1981), and mild depressives had significantly longer reaction times for both positive and negative adjectives than the control group (Kuiper & MacDonald, 1982). The latter group's results suggest that mild depressives have a disorganized self-structure and are unable to process information efficiently. These results are markedly similar to those of short-term depressives (Davis & Unruh, 1981) that suggest reduced organizing capacities due to mild or recent depression. Thus, mild and short-term depressives may suffer a period of uncertainty in regards to the perception of their self due to the mild or recent nature of their symptoms.

Summary

In support of the scar theory, these results suggest that the self-schema of the currently depressed is altered by previous experience of a depressive episode. A previous history of depression facilitates recall of negative self-referent adjectives and facilitates
memory for negative self-referent information (Hammen et al., 1986). The results of the Davis and Unruh study (1981) suggest that changes in the self-schema may occur during the actual episode of depression. In addition to the duration of the current depression (Davis & Unruh, 1981), severity of the depression acts as a determining factor for the content (positive or negative) and the efficiency (reaction times and recall) of the self-schema (Derry & Kuiper, 1981; Kuiper & Derry, 1982; Kuiper & MacDonald, 1982; Kuiper et al., 1989). Hence, changes in the self-schema occur during an episode of depression. If the self-schema is altered in some permanent way, the changes in the self-schema could render an individual more vulnerable to future episodes of depression, and would constitute a relapse vulnerability factor.

Comparing Vulnerable and Nonvulnerable Individuals

The clarity of the results obtained with Kuiper and Derry's information processing method encouraged researchers to apply this method to determine whether or not a negative self-schema constitutes a vulnerability component for depression or whether it is more simply part of the configuration of episode markers. Studies done on college populations will first be considered, followed by studies on clinical populations.

College Populations

The studies that follow all used groups sampled from the same population, that is, groups identified as vulnerable to depression but not depressed. These groups were included to parcel out mood congruence effects from vulnerability effects in order to assess stable vulnerability factors.

Kuiper and his colleagues used the DAS to measure vulnerability to depression and the BDI to measure level of depression. These instruments placed subjects in one of four groups; vulnerable-depressives, nonvulnerable-depressives,
nonvulnerable-nondepressives, or vulnerable-nondepressives. The latter group of subjects were of most interest as they represented the analogue of individuals who are predisposed to depression but who are not yet depressed.

The first study that implemented this type of subject classification (Kuiper, Olinger, & MacDonald, 1988) used college students, and consequently the average level of depression was mild. They were asked to rate the degree of self-descriptiveness of adjectives and then to recall these same adjectives. Vulnerable-depressives did choose more negative adjectives as self-descriptive and also recalled more negative adjectives. This finding replicated previous findings that a negative self-schema biases information processing during a depressive episode (Derry & Kuiper, 1981; Hammen et al., 1986; Kuiper & Derry, 1982; Kuiper & MacDonald, 1982). However, it was also found that vulnerable-nondepressives demonstrated the same response pattern on the studies' tasks as the nonvulnerable-nondepressives; both groups displayed a positive content for the self-schema. The vulnerable-nondepressives' performance did not resemble that of the vulnerable-depressives, since they did not recall equal numbers of positive and negative adjectives. These results argue against the role of a negative self-schema as a vulnerability factor. Instead they suggest that the self-schematic effects are mood congruent, and, at least in the college population, imply that they are only part of the depressive symptomatology.

In studies done with college students, the role of the negative self-schema as an episode marker in depression has been supported repeatedly. Hammen and her colleagues consistently found that a negative self-schema is congruent with the presence of a negative mood, and that the magnitude of the negative self-schema in currently nondepressed college students does not predict future depression (Hammen, 1985a; Hammen et al., 1985; Hammen, Miklowitz, & Dyck, 1986).
Clinically Depressed Populations

Only one study has compared remitted depressed patients with actively depressed patients, nondepressed psychiatric controls, and nonpsychiatric controls (Dobson & Shaw, 1987) on performance of self-referent processing tasks. The recall of positive and negative adjectives as well as reaction time associated with recall, did not differentiate depressed and remitted patients from the two control groups. Of special interest was the fact that both control groups rated significantly more nondepressed-content adjectives as self-descriptive than depressed-content adjectives. In contrast, this tendency was not significant for the remitted depressed group. For the currently depressed, the pattern was reversed as they rated significantly more depressed-content adjectives as self-descriptive than non-depressed ones.

These results indicate that the recall and reaction time measures of the self-referent task were not sensitive to the effects of the self-schema on processing in clinical depressives. The results suggest that the ratio between positive and negative adjectives chosen as self-descriptive may be a more sensitive measure of stable aspects of the self-schema.

Summary

This chapter examined the use of questionnaires and self-schematic tasks in uncovering a negative self-schema as a vulnerability factor to depression. Overall, questionnaires appear to offer a superficial assessment of one's vulnerability to depression. Studies reviewed using questionnaires offered ambiguous results. Many did not demonstrate the role of attitudinal biases and negative automatic thoughts as stable cognitive vulnerability factors. Self-referent tasks indicated that one's prior experience with depression, as well as the severity and length of one's current depression, exercise a direct influence on
self-schematic processing when an individual is currently in an episode of depression. Self-referent task studies that pertain directly to the question of a stable vulnerability to depression in college students have been unsuccessful. However, for the rare remitted patients, results support the possibility of a self-schematic vulnerability factor to depression. Clearly, the paucity of research done on clinical populations, and even more so on remitted patients, makes it difficult to arrive at firm conclusions concerning the role of the self-schema in clinical depression. Moreover, the ambiguity of the results warrants a close inspection of the existing methodology. The selection of subjects, the validity of the questionnaires used, and the problematic use of mood-congruent adjectives in self-schematic tasks, are discussed in the next chapter.
CRITICISM OF EXISTING METHODS: WHERE DO WE GO FROM HERE?

Efforts to uncover a stable vulnerability factor that would explain the high recurrence rate of depression have proven unsuccessful. How can we explain that remitted depressives, in between episodes of depression, do not show reliable signs of a dysfunctional self-schema or of an information bias that differs from a group of non-depressed normals? Before abandoning any hopes of clarifying this question, we need to evaluate critically the methodology we have been using up to now. The subject selection and methods found in the extant research will now be reviewed.

Selection of Subjects

The importance of the status of subjects as clinical depressives or analog subjects must not be understated. College students often suffer from mild and transient forms of depression. Most college students' depression may not only be quantitatively but also qualitatively different from clinical depression. Despite the fact that this observation is often made, it is rarely reflected in the choice of subjects. College samples are often selected for practical reasons: a population of college students is more accessible, available in larger numbers, and often offers the possibility of more experimental control. Studying depression in a college population represents a reasonable first step; however, it is now time to expend more effort in studying clinical depressives.

Recent studies have used the DAS to categorize subjects as vulnerable and nonvulnerable to depression (Kuiper, Olinger, & MacDonald, 1988; Kuiper & Cole, 1988). Despite this categorization, no evidence exists that students with high DAS scores will ever experience a true clinical depression. Results concerning the predictive validity of the DAS in remitted depressives are more encouraging: two longitudinal studies of remitted patients show
that DAS scores measured at posttreatment predicted future dysphoria or relapse at 6-month and 1-year follow-ups (Rush, Wessenberger, & Eaves, 1983; Simons, Murphy, Levine, & Wetzel, 1986). Nevertheless, the aforementioned studies do not offer any direct indication of the predictive value of the DAS for college students specifically concerning the eventuality of a clinical depression. The use of the DAS with college students as a predictive measure of depression is therefore questionable.

A further issue with the selection of subjects concerns the status of the normal control groups in all studies cited. Individuals in the control group are non-depressed at the time of assessment, and they are often not assessed for the presence of past episodes of depression. It is therefore quite possible that in comparisons between remitted depressives and non-depressed controls, the two groups are in fact less than pure and may overlap in the pathology examined. The normal non-depressed group may include subjects with a past history of depression but whose time elapsed since the last episode is greater than for the remitted group. The fact that currently nondepressed control subjects may have been depressed in their past may obviously confound results. Future research should control for the possible effects of past depressive episodes. The present study therefore included only never depressed subjects in the control group.

**Measures**

The methods employed in studies of remitted depressives present difficulties. The specificity of the ASQ, ATQ, DAS and HS can be questioned as these measures do not differentiate remitted depressives from remitted nondepressed psychiatric controls (Hamilton & Abramson, 1983; Hollon, Kendall, & Lumry, 1986). Furthermore, no differences were found between the DAS scores of actively depressed groups and those of the actively schizophrenic patients (Hollon et al., 1986).
The self-report aspect of questionnaires, as well as of the initial self-referent component of the SRET, is problematic. These measures remain open to social desirability and self-representational effects (Segal, 1988). More importantly, self-reports are descriptive measures of the self-schema, and do not capture the functional aspects of the self-schema, which constitute the crucial dimension of a dynamic conceptualization of the self (Markus & Wurf, 1987).

The central drawback inherent in all of the studies reviewed derives from the fact that a mood congruence explanation can not be eliminated. It has been well documented that information that matches one's mood is more accessible and therefore more easily recalled (Blaney, 1986). Moreover, this effect is stronger in the case of personally evaluative information than for abstract concepts (Isen et al., 1978; Markus, 1977; Rogers, Kuiper, & Kirker, 1977; Teasdale & Russell, 1983). Therefore, a mood congruence explanation would predict many of the results obtained: depressed individuals choose and recall negative self-descriptive adjectives because these are more accessible, and this effect disappears at remission when the depressed mood lifts. The mood congruence explanation makes it difficult to measure the stability of the self-schema and its potential components, which are not mood-congruent. Past studies included tasks that were comprised of self-evaluative decisions about mood valenced items, precisely the type of task open to a mood congruency explanation. Since these tasks focused on negative and positive mood items, they did not allow the experiment to obtain an independent measure of other non-mood congruent content of the self. Hence, it is impossible to determine whether the absence of vulnerability signs in remitted depressives was due to a mood congruence effect or to the absence of stable vulnerability traits in remitted depressives.

The present study attempted to control for the mood congruence explanation by
focusing on non-mood congruent aspects of the self-schema, that is the interpersonal schemata of self-criticism and dependency. Moreover, in order to assess the dynamic aspect of the self-schema, preattentive and memory tasks were used to measure the effect of the interpersonal schemata on information processing. These methodological aspects are discussed in the next two chapters.
Chapter 3
SELF-CRITICISM AND INTERPERSONAL DEPENDENCY

There is mounting evidence suggesting that vulnerability to depression may cluster into two major interpersonal constructs -- dependency and self-criticism (for a review, see Barnett & Gotlib, 1988). A brief description of the meaning of the two constructs will be offered along with their historical and conceptual background, and will be followed by a discussion of the methodological advantages of using dependent and self-critical concepts rather than global positive and negative mood concepts. Finally, recent studies examining the two relevant constructs are presented.

Conceptual and Historical Background

The dependency and self-criticism constructs have been described as interpersonal schemata (Safran, 1990), rather than strictly as self-schemata. An interpersonal schema is defined as "a generalized representation of self-other relationships, rather than a representation of self or a representation of others. It is, thus, intrinsically interactional in nature" (Safran et al., 1990, p. 151). The use of interpersonal schemata, rather than strictly intrapersonal ones, is in line with the recent theoretical shift in models of depression: The interpersonal model of depression is now attracting more attention (Beck et al., 1983; Coyne, 1976; Safran et al., 1990).

Dependent individuals are especially sensitive to interpersonal relationships; they are fearful of abandonment and rejection, feel lonely and helpless, and want to be close to and dependent upon others. They may have concerns about hurting people and have difficulty managing aggression for fear of losing someone (Pincus, 1987). Self-critical individuals respond more to achievement-related events and failure; they are critical of themselves, may feel guilty, unsatisfied, and are fearful of failing to meet expectations. They may have
concerns about their inability to assume responsibility and a tendency to assume the blame for failure (Pincus, 1987). Despite being conceptually distinct, dependency and self-criticism can be found concurrently in the same individual.

The concepts of dependency and self-criticism are well established in the history of psychology. Dependency and self-criticism map on to Blatt's (1974) definitions of anaclitic and introjective depressions, respectively. They can also be found in the perspectives of both the cognitive theorists (Barnett & Gotlib, 1988; Beck, 1982, 1983) and the psychodynamic theorists (Arieti & Bemporad, 1980; Blatt, 1974; Blatt, D'Affitti, & Quinlan, 1976).

A more extensive body of theoretical writing exists on dependency than on self-criticism. Theories of dependency stem from three major sources. The psychoanalytic approach (Freud, 1938) construes dependency as an instinct and places the emphasis on intrapsychic factors. The social learning approach (Dollard & Miller, 1950; Gewirtz, 1969; Whiting, 1944) views dependency as a drive subject to environmental contingencies. Finally the ethological theory of attachment (Bowlby, 1969) blends both previous approaches by looking at the behavioral consequences of the intrapsychic phenomenon of attachment. The limitation of all approaches is that their differentiation of attachment and dependency is not specified.

Hirschfeld, Klerman, Gough, Barrett, Korchin, and Chodoff (1977) do attempt to define attachment and dependency as follows: "The attachment bond is enduring and specific to a single individual, and is associated with strong emotions. In contrast, dependency refers to that class of behaviors stimulating general help, approval, and attention" (p. 616). What is characteristic of dependency is first an anxious type of attachment (Bowlby, 1969) at an affectional level, an insecurity in identity (Laing, 1965) that leads to a relation of fusion with the other, and finally a deferential attitude reflecting a self-destructive character and
low self-esteem (Beck, 1967). The latter characteristic of deficient self-esteem constitutes the primary link with depression according to Birtchnell (1984), and also appears to be related to the self-criticism concept.

Methodological Advantages

Avoiding Mood Congruence Effects

Past studies tended to use words describing a depressed or happy mood, and exposed the design to a mood congruence explanation (Derry & Kuiper, 1981; Dobson & Shaw, 1987; Hammen et al., 1985a; Hammen, Miklowitz, & Dyck, 1986). Words were chosen to represent sad mood - such as sad, blue, low - or happy mood - such as cheerful, dynamic. The present study involved adjectives that are not directly descriptive of a depressive mood, such as dependent (e.g. lonesome) and self-critical (e.g. incompetent) words, to avoid the competing mood congruence explanation. The independence of levels of self-criticism and dependency from change in mood status has been documented previously (Hammen et al., 1985b).

Thus, the methodological advantage of studying dependent and self-critical interpersonal schemata as vulnerability factors to depression is that the permanent non mood-congruent aspects of one's self-schema are measured and the confounding factor of mood congruence is diminished.

Specificity and Stability

Conceptually, the two schemata of self-criticism and interpersonal dependency offer a more specific model of vulnerability to depression than previous models of general negative self-schemata. Rather than proposing a global negative self-schema as a vulnerability factor, the use of self-critical and dependent interpersonal schemata tries to narrow in on the more crucial and specific aspects of the depressive's self-schema. The specificity of dependency and self-criticism constructs to unipolar depressed
patients compared to bipolar patients (Hammen et al., 1989) has been demonstrated. The stability of the two interpersonal schemata over a period of two months (Hammen, Marks, Mayol, & de Mayo, 1985b) has also been documented, based on a procedure of retrieval of memories.

Instrumentation

Interest in self-criticism and dependency was sparked by a study revealing that remitted depressives endorsed more of items on the DAS that reflected a need to please others and a perfectionistic self-reliance than other types of items (Reda, Carpiniello, Secchiaroli, & Blanco, 1985). Following this observation, attention was directed to instruments that had been developed previously to differentially measure dependency and self-criticism. The most notable instruments were the Interpersonal Dependency Inventory (IDI; Hirschfeld, Klerman, Gough, Barrett, Korchin, & Chodoff, 1977), the Depressive Experience Questionnaire (DEQ; Blatt et al., 1976), and the Sociotropy-Autonomy Scale (SAS; Beck, KEpstein, Harrison, & Emery, 1983).

The DEQ has three factors of Dependency, Self-Criticism, and Efficacy. While the first two factors remain consistent with the definitions provided earlier, the last factor corresponds with a sense of confidence about one's personal resources and a sense of autonomy. The IDI has been factor analysed and shown to reflect Emotional Reliance, Assertion of Autonomy, and Lack of Self-confidence (Hirschfeld et al., 1977). Despite the fact that the IDI putatively assesses dependency only, two of its factors map on to the DEQ's factors: the IDI Emotional Reliance factor corresponds to the DEQ Dependency factor and the Assertion of Autonomy coincides with the Efficacy factor (Pincus, 1987). The Lack of Social Confidence of the IDI reflects a need for help in decision making, in taking initiative and in socializing. A third scale was developed -- the Sociotropy-Autonomy Scale (SAS; Beck et al., 1983) -- in
which sociotropy reflects dependency, and autonomy reflects a sense of independence from others.

Very few studies have examined the convergent validity of the IDI, DEQ, and SAS. The existing data suggests that there are moderate correlations among dimensions within the same instrument and moderate correlations among dimensions of different instruments measuring the same construct (Nietzel & Harris, 1990).

Empirical studies

Studies using the above instruments to measure self-criticism and dependency are now reviewed. Those based on currently depressed patients and college populations are considered first, followed by studies of remitted patients. Studies on the construct validity of self-criticism and dependency are then presented.

The self-criticism scale of the Depressive Experience Questionnaire has been found to be more related to depression than the dependency scale in college students (Blatt et al., 1976) and in currently depressed patients (Blatt, Quinlan, Chevron, McDonald, & Zuroff, 1982; Pilon, Olioff, Bryson, & Doan, 1986). The sociotropy dimension of the Sociotropy-Autonomy Scale has been found to be related to depression in college students (Cappeliez, 1991). In contrast, the autonomy scale has not been found to be related to depression in college students (Cappeliez, 1991) and in currently depressed patients (Gilbert & Reynolds, 1990). Two studies reported a weak relationship between the SAS autonomy scale and depression in college students (Robins, 1985, 1986; Robins & Block, 1988). Finally, when considering the predictive validity of the constructs, the dependency dimension of the DEQ has been found to predict anaclitic depression, and the self-criticism dimension has been found to predict introjective depression in a study with subjects from a college population (Zuroff, Igreja, & Mongrain, 1990).
To date no studies have examined remitted depressed patients with the DEQ. The few studies examining remitted depressed patients with the IDI have consistently demonstrated that scales reflecting dependency and self-criticism differentiated remitted clinical depressives from normal controls while the autonomy scale did not (Hirschfeld, Klerman, Clayton, & Keller, 1983; Hirschfeld, Klerman, Clayton, Keller, & Andreasen, 1984; Pilowsky & Karsikitis, 1983; Reich, Noyes, Hirschfeld, Coryell, & O'Gorman, 1987).

In an effort to establish the validity of the dependent and self-critical schemata, researchers have studied whether dependent individuals are more easily depressed by interpersonal rejections and, conversely, whether self-critical individuals are more easily depressed by failures. Using retrieval of memories (Hammen, Marks, Mayol, & deMayo, 1985b), DEQ subscales (Zuroff & Mongrain, 1987), or SAS subscales (Hammen, Ellicott, Gitlin, & Jamison, 1989) to assess dependent and self-critical schemata, studies have shown that individuals with dependent interpersonal schemata reacted with higher levels of depression to interpersonal life-events (e.g. rejection) than to schema-irrelevant events (e.g. failure). The parallel pattern for self-critical individuals did not achieve statistical significance in two studies (Hammen et al., 1989; Zuroff & Mongrain, 1987), but it did in one study (Hammen et al., 1985b). Such results substantiate the construct validity of dependency and, to a lesser degree, of self-criticism as vulnerability factors to depression.

Taken together, the studies reviewed suggest that the adoption of a new conceptualization of vulnerability to depression reflecting self-criticism and dependency schemata may prove to be fruitful. The studies examining populations of remitted patients are scarce but encouraging. Their results warrant a more in depth study looking at both dependency and self-criticism as vulnerability factors to depression. Examining vulnerability to depression from this new angle may permit us to improve on previous global positive and
negative mood bound concepts, and to eliminate the mood congruence explanation for the absence of differences between the self-schematic processing of normals and remitted depressives.
Chapter 4
THE INFLUENCE OF PERSONAL SCHEMATA ON PREATTENTIVE PROCESSING AND SCHEMATIC MEMORY TASKS

Several new methods of investigation may be sensitive to the functional aspects of the self-schema and avoid the problems of self-representational biases (Segal, 1988). One of these methods is adopted from the domain of social cognition where preattentive processes are frequently considered (for a review, see Bargh, 1987). The second method consists of looking at information processing biases evident in memory tasks (for a review, see Higgins & Bargh, 1987). In both cases, it is believed that personal schemata can have an influence on the preattentive processing of information and recall of information.

This chapter reviews the literature that is relevant both to automatic processes and to how they can mediate the effect of personal schemata on preattentive tasks and on memory tasks. Models of the preattentive task used in the present study -- the Stroop test -- are then presented. Finally, the relationship found between the Stroop and emotional disturbance is explored.

Automatic Processes

According to Bargh (1987), automatic processes have three defining characteristics. First, they do not require intention; second, they use minimal amounts of one's processing capacity; third, their activation can not be controlled. In contrast, controlled processes are intentional, make more demands on processing capacity, and are controllable. These two types of processes often interact in various information processing tasks. Bargh's three assumptions will be examined and the advantages of automatic tasks will be discussed.

Bargh's first assumption states that automatic processes are not intentional. Automatic processes can be initiated and guided by environmental triggers. The priming
paradigm (Warren, 1972) constitutes an example of environmental triggering where an external stimulus will automatically activate a specific neural pathway and facilitate the processing of other stimuli that use the same pathway (Posner & Snyder, 1975). A second priming paradigm involves the priming of a schema without subjects' awareness. In one study, subjects rated a target person as possessing more of a trait which was subliminally presented earlier (Bargh, Bond, Lombardi, & Tota, 1986). Thus, even when the priming stimulus is not consciously perceived by the subject, it activates the trait category.

Automatic processing can also be guided by chronically accessible personal schemata without being triggered by a priming stimulus. Chronically accessible personal schemata develop through frequent and consistent experience with a specific class of environmental information (Bargh, 1987). For instance, if a person has experienced a series of depressive episodes, personal schemata related to depression are presumed to be more developed than before the episodes. Recent research suggests that chronically accessible schemata have an influence on processing that is similar to the influence of primed schemata. One study (Higgins, King, & Mavin, 1982), selected subjects who possessed a chronically accessible schema for a trait, where chronic accessibility was defined as that trait that came first to mind when describing other people. Two months later, when subjects read a series of behaviors performed by a target person, it was found that their memory for behaviors exemplifying their chronically accessible schemata was better than memory for inaccessible schemata. The relationship between the first experiment taking place 2 months before, and the second experiment, was not pointed out to subjects; as well, they were not reminded of their choice of a trait in Experiment 1. In addition to the illustration of the lack of intentionality of automatic processes, one of the most noteworthy aspects of this experiment resides in the establishment of the schemata's stability over time (2 months) and stability across methods.
of eliciting the construct (first trait that comes to mind and recall of a target person's behavior).

Bargh's (1987) second assumption is that automatic tasks make minimal demands on information processing capacity. Hence when a task has to be done at an extremely rapid speed, a chronically accessible schema's influence should remain relatively unaffected. An experiment by Bargh and Thein (1985) tested this premise. Like the previous study cited (Higgins et al., 1982), subjects were first assessed for the presence of a chronically accessible schema of honesty. Subjects read about a target person who performed twice as many honest than dishonest behaviors, or vice versa, and were asked to form an impression of the person. Some subjects read each description at their own pace, whereas other subjects had only two seconds to read each description and therefore utilized automatic processes. In the latter condition, only subjects with chronically accessible honesty schemata differentiated between honest and dishonest targets; in the former condition, subjects performed equally well. Therefore, when little processing time is available, a chronically accessible schema that is relevant to the task will guide information processing in an effective way. If the relevant schema is not present, the subsequent information processing will be inefficient.

The third characteristic of automatic processes is their uncontrollability. Bargh and Pratto (1986), in a recent study, found that subjects cannot ignore a source of information relevant to a personal schema, even if they try to. They used the Stroop color-naming task (Stroop, 1935), in which words of different colors are presented and the subject's task is to name the color as quickly as possible. The words must therefore be ignored, but to the extent that they are processed anyway, they represent competing responses to the color naming response. In the experiment, the time to name the color of words related to chronic personal schemata was significantly greater than for non-chronic words. The subjects
could not control their automatic process of reading the words relevant to their personal schemata, and it interfered with the competing task of naming the colors. A more detailed account of the proposed mechanisms of interference is provided in the next section.

In summary, chronic personal schemata have been found to guide information processing. Their effect has been observed in automatic tasks at a preattentive level, such as the Stroop task (Bargh & Pratto, 1986), and in memory tasks such as the recall of the behavior of a person (Higgins et al., 1982) and the impression formation of a target person (Bargh et al., 1986; Higgins et al., 1982).

When compared to the traditional methodologies of questionnaires and SRET, tasks eliciting automatic processes present many advantages as measures of active personal schemata. Due to their unintentional and uncontrollable nature, chronic personal schemata mediating information processing can be assessed without asking the subject directly about them. Dependent measures (e.g. what type of information is remembered) are obtained independently of the task goal perceived by the subject (e.g. remembering the most information possible). Thus they avoid the problem of self-representational strategies. Moreover, experimental material can cease to be presented as self-evaluative such as for the SRET. Such experimental material loses the mnemonic advantage associated with self-evaluative tasks, and decreases the influence of the mood congruence effect.

Models of the Stroop Task

Research interest in the Stroop task has been revived in recent years, as this task offers the possibility of circumventing the problem of self-representational strategies. This section describes the original Stroop task and it discusses three explanatory models for the Stroop phenomenon: the models of relative speed of processing, of automaticity, and of parallel distributed processing. The modified Stroop task that has been used to investigate emotional
disorders will be discussed at the end of the section.

In the original Stroop test (Stroop, 1935), subjects were asked to name the color of the ink of a color-word -- for instance the word *Blue* written in green ink -- or to simply read the word. Four observations can be made about this task. First, word reading is faster than color naming. Second, word reading is not affected by the color of the ink. Even if the color appears some time before the word, it does not interfere with word reading (Glaser & Glaser, 1982). Third, when the color of the ink is incongruent with the word, the word interferes with the color naming task, that is, the time required for naming the color of the ink is longer than for word reading or color-naming of colored X's. If the color of the ink is congruent with the word, the color-naming task is facilitated (i.e. less time is required for naming colors). Fourth, the degree of facilitation is much less than the degree of interference: compared to a control condition (colored X's), the decrease in reaction time for the word *Blue* written in blue ink is smaller than the increase in reaction time for the word *Green* written in blue ink. The latter effect is called the asymmetry of interference and facilitation. These four effects are highly robust and have been found in many variations of the Stroop task (for reviews, see Dyer, 1973; MacLeod, 1989).

The first account of these observations focused on the *relative speed of processing* and it is often referred to as the "horse-race model" (Dyers, 1973). This model emphasizes that the processing of words is faster than the processing of color naming. The model assumes that the word information arrives at a response level before the color information. If the word information is incongruent with the color information, the word will slow down the color response. If it is congruent with the color, it will facilitate the response. In contrast, when reading words, the color information is available after the word information and therefore does not interfere with word reading.
The second model focuses on the dichotomy of automatic and controlled processes (Posner & Snyder, 1975). It assumes that 1) word reading is automatic, 2) color naming is controlled and 3) if two processes conflict, one of the two processes will be slowed down. The rationale is the following: because color naming is under voluntary control, it will not occur when the task consists of ignoring the color and reading the word, and no interference with word reading will be observed. When the task is to name the color of the ink, the automatic and involuntary aspect of word reading will interfere with the color response. Therefore, according to the automaticity model, automatic processes interfere with controlled processes, but not vice versa. Moreover, automaticity is conceptualized as "all or none", whereby a process is either automatic or controlled -- the importance of the latter notion will be addressed latter.

Both models of speed of processing and of automaticity have come under important criticism in recent years (for a review, see Cohen, Dunbar, & McClelland, 1990). Two experiments directly addressed the apparent simplicity of the speed of processing model. In the first experiment, Glaser and Glaser (1982) demonstrated how placing a color patch before a word by as much as 400 ms did not influence a word reading task. Therefore, even when the color response became available before the word response, it did not affect word reading. In the second experiment (Dunbar & MacLeod, 1984), the words were rotated upside down and backward, therefore greatly reducing the speed of processing of the word reading. Yet, incongruent words still interfered with color naming. This interference was experienced to the same degree as with normally oriented words. The slower and non-automatic process (word reading) was interfering with the faster and automatic process (color naming), a finding which directly contradicted results predicted by the relative speed of processing model.
With respect to the automaticity model, a third experiment (MacLeod & Dunbar, 1988) discredits the notion of an automatic/controlled dichotomy and points to the existence of a graded continuum of automaticity. In this experiment, subjects were trained for a total of 20 hours (one hour a day) to use color words to name different shapes, e.g. subjects were trained to respond to a triangle by saying Red. The shape naming was tested by presenting shapes in colors that were either congruent or incongruent with the newly learned color-name of the shape. On the first day of training, shapes had no effect on naming the color of the ink, while the color of the ink interfered with or facilitated the shape naming. The importance of these results resides in the fact that, in this experimental paradigm, color naming did not present itself as a controlled process as in the original Stroop paradigm, but acted more as an automatic process relative to the shape naming task. Later in the experiment - after 20 days of practice - shapes produced interference and facilitation to ink naming, and ink color produced less interference and facilitation to shape naming than on day 1. The processing involved in shape naming was now faster than the processing involved in naming the color of the ink. Color naming and shape naming had in fact reversed the roles of automatic and controlled processes over the course of 20 days. Whereas color naming was more automatic than shape naming at the beginning of the training period, the shape naming grew more automatic than color naming over the 20 days. The results of the MacLeod and Dunbar experiment (1988) discredit the notion of an automatic/controlled dichotomy advocated by the automaticity model and point to the existence of a graded continuum of automaticity.

The final model of parallel distributed processing (PDP; Cohen, Dunbar, & McClelland, 1990) appears as the natural answer to MacLeod and Dunbar's (1988) results. The model is framed within the spread of activation model (Collins & Loftus, 1975), in which
activation spreads from one unit to the other, and in which each mental process has a specific pattern of activation or "processing pathway". It is assumed that automaticity is determined by the strength of a processing pathway which in turn depends on practice. The more practiced a process is, the more often the processing pathway is activated, and the stronger the pathway becomes. The stronger a pathway is, the lower is the threshold of activation of its units, the less attention is needed for its activation, which leads to increased automaticity and to increased speed of processing. Practice therefore increases automaticity, and automaticity ceases to be an all-or-none phenomenon. Automaticity of processes lies along a continuum and can change. This aspect of the model can accommodate the finding of increased automaticity of shape naming with practice.

When applied to the Stroop, the PDP model predicts that if two processing pathways intersect and move in the same direction of activation (color blue and word blue), there will be a facilitation of the task. However, if the two processes are moving in different directions of activation (color red and word yellow,) it is the stronger pathway which will be the preferred response. Despite its similarity with the speed of processing model presented earlier, the PDP model views information processing not in terms of speed, but rather in terms of the strength of the pathway. Unlike the speed of processing model, it does not attribute unchangeable speed of processing to each type of process. The PDP model emphasizes the effect of practice on the strength of a processing pathway which subsequently alters the speed of processing.

Contrary to the automaticity model (Posner & Snyder, 1975) which assumes that automatic processes do not use any attentional capacity, the PDP model proposes that attention modulates the responsiveness of a processing pathway through "task demand units" which allocate attention to pathways. Attention can either be facilitory or inhibitory, or both
(simultaneously facilitating a color response and inhibiting a word response). Attention is determined by the strength of a pathway (the stronger a pathway is, the less it needs attentional input) and by the context (color naming of incongruent color words demands more attention than color naming of shapes recently associated with color names).

The Stroop Task and Emotional Disturbance

In recent years, the Stroop task has been modified to examine emotional disorders such as depression (Gotlib & Cane, 1987; Gotlib & McCann, 1984) and other types of psychopathology (anorexia, Ben-Tovin, Walker, Fok, & Yap, 1989; Channon, Hemsley, & deSilva, 1988; anxiety, Mathews & MacLeod, 1985; paranoia, Bentall & Kaney, 1989; phobias, Watts, McKenna, Sharrock, & Trezise, 1986). A brief outline of how the PDP Stroop model can be applied to this new line of research will be made. The major findings related to depression and anxiety will be discussed and followed by a review of the studies attempting to discriminate between the effects of depression and of anxiety on the Stroop task.

The modified Stroop paradigm used to study emotional disturbances involves the presentation of colored words which are related to the disorder studied and which are believed to be prominent in the personal schemata of the subjects afflicted with the disorder (eg. "spider" or "web" for a spider phobic). A control condition with neutral words and a control group of subjects are usually involved. What is generally observed is that subjects suffering from the disorder have longer reaction times for the naming of the color of the disorder words than of the neutral words (for spider phobics, see Watts, McKenna, Sharrock, & Trezise, 1986). From a PDP perspective, one can hypothesize that for the patient group the personal schemata related to the disorder words are more often used than the ones associated with the neutral words - the amount of processing of spider information necessary to avoid spiders and all related forms is assumed to be greater in spider phobics than in non-spider phobics.
Simply observe a spider phobic entering a basement! Therefore, for a person with a certain emotional disorder, the "disorder" pathway is activated more often and is thus stronger than a "neutral" pathway. Hence, according to the PDP model, a "disorder" word will interfere to a greater extent with the color response in a person with the disorder than in a normal control. Another explanation offered is that the emotional arousal arising from the perception of the disorder words disrupts the attentional set and slows down the color-naming process (Mathews & MacLeod, 1985). The latter interpretation is not incompatible with the PDP model, however it has not been tested empirically and it remains to be seen whether an emotional state does develop before the color naming response.

In studies of depressed individuals, depressed subjects are found to be significantly slower in naming the colors of negative mood-congruent words (e.g. sad, gloomy) in opposition to positive or neutral words, when compared with normals (Gotlib & Cane, 1987; Gotlib & McCann, 1984). Similar results have also been obtained using physically or socially threatening words with hypochondriacal or socially anxious patients (Mathews & McLeod, 1985), and using words associated with spiders with spider phobic subjects (Watts, McKenna, Sharrock, & Trezise, 1986).

Given that anxiety interferes with performance on the Stroop task (Mathews & MacLeod, 1985; Watts, McKenna, Sharrock, & Trezise, 1986) and because anxiety significantly overlaps with depression (Dobson, 1985), it remains necessary to determine whether the effects found in Gotlib and McCann's study (1984) can be attributed to depression, anxiety, or even to emotionality in general. Three studies tackled the problem of the depression-anxiety confound by comparing the effects of depression and anxiety on interference in the Stroop task. Williams and Broadbent (1986) assessed mood in their subjects with the Profile of Mood States (McNair et al., 1981). This 65-item questionnaire
assesses state levels of fatigue, anxiety, vigour, anger, depression and confusion; it has good test-retest reliability as well as good internal validity. Overdose suicide attempters, hospital controls and normal controls participated in the study where the Stroop task consisted of general emotional words, overdose words, and neutral words. Stroop interference on emotional and overdose words was correlated with the depression subscale, even when anxiety/tension was parcelled out. Similarly, Williams and Nulty (1986) found that the degree of interference in "worrying" women was best predicted by the level of depression assessed 12 months before with the BDI, and to a lesser degree by current level of depression. Interference was not predicted by the level of trait anxiety assessed 12 months prior with the Spielberger Anxiety Inventory (SAI; Spielberger et al., 1970). The validity of the "diagnosis" of "worrying" women can certainly be questioned in this study: only half of the experimental group had received treatment for anxiety, and their level of depression varied between mild and moderate.

In a third Stroop study (Mathews & MacLeod, 1985) using threat words as stimuli, depression was measured by the BDI, and trait and state anxiety were measured by the STAI in a population of anxious subjects. In contrast to previous studies described, the state anxiety measured by the STAI was found to be the greatest predictor of interference rather than trait depression as in the Williams and Nulty (1986) study.

The results of the studies discussed point to a more general problem that pertains to the interpretation of the Stroop phenomenon which subsumes the anxiety-depression confound. How does one explain the disparity in the results of the three latter studies where the interference effect was predicted in one case by state anxiety (Mathews & MacLeod, 1985), in the other by trait and state depression (Williams & Nulty, 1986), and in another by state depression (Williams & Broadbent, 1986)? The explanation may lie in one of the
most serious controversies surrounding the Stroop phenomenon, that is the determination of the effect of the specificity of the stimulus words and of the emotional state of subjects. Most researchers have assumed that words specific to a subject's personal schemata will produce more interference than words not specific to that person's schemata. Others have argued that it is the level of general emotionality both in the word stimulus and in the subject that determines the interference effect, regardless of the word's specific meaning to the subject.

As often happens in psychological disputes, empirical evidence does not point to a clear reconciliation of the issues as both sides have received support. In support of the specificity of word effect, it was found in Mathews and MacLeod's study (1985) that anxious subjects mostly preoccupied by physical worries experienced more interference on the physical threat words than on the social threat words. However, both physically and socially anxious subjects' performances were disrupted by the social threat words, a finding that argues against the word specificity effect. The results of Williams and Broadbent's study (1986) were equally mixed with regards to the word specificity and general emotionality hypotheses. They found that suicide attempters by overdose, normal controls, and hospital controls displayed interference due to general emotional words; however, the extent of the effect was significantly greater for the suicide attempters on words specifically related to an overdose theme. Suicide attempters had significantly longer latencies than the two other groups on both overdose words (supporting word specificity effect) and general emotional words (supporting general emotionality effect).

Overall, these results suggest that although general emotionality, both in the stimulus words and in the subjects, produces interference on the Stroop, words specifically related to the subjects' self-schema will increase this effect. Moreover, an anxious or depressed state will increase interference on words when they are specific to a particular
anxious or depressed mood. Stated in another way, these studies suggest a Mood X Word Specificity interaction which may activate a relevant schema. When integrated within a PDP perspective, a subject's mood and a mood-specific word may function in a similar capacity as attention units, by activating certain units in order to alter their threshold of activation.

Recommendations for studies assessing personal schemata with modified Stroop tasks are in order at this point. The importance of the content specificity of the words for Stroop performance should be underscored; the specificity of the words is to be evaluated relative to their meaning for a given group of individuals. The more specific the word content is to a given group's personal schemata, the more probable that a Stroop interference effect will occur. With regards to depression, the Stroop task has not yet been used effectively to uncover stable effects that indicate a vulnerability to depression in remitted depressives. Depression has been found to correlate with the interference effect on emotional words of the Stroop task (Gotlib & Cane, 1987; Gotlib & McCann, 1984; Williams & Broadbent, 1986), however, this effect disappeared at remission for clinically depressed individuals (Gotlib & Cane, 1987; Segal, personal communication, 1988). This is most probably due to the words chosen to reflect symptoms of depression rather than stable schemata of depressives. The choice of global negative and positive words in past studies made them sensitive to mood congruence effects. It was hoped in the present study that use of self-critical and dependent words in the Stroop task would elicit interference effects specific to current and remitted depressives.
Chapter 5

OVERVIEW OF THE STUDY AND HYPOTHESES

The critical survey of studies examining the existence of a depressogenic self-schema demonstrates how research examining vulnerability factors to depression has focused on a global negative self-schema. Questionnaires measuring automatic thoughts and dysfunctional attitudes often have proven unrewarding as differences between depressives and normals disappeared at remission. SRET and automatic tasks such as the Stroop task similarly found that global negative content of the self-schema was more of an episode marker than a stable vulnerability factor. However, there remain many conflicting results in this area that warrant further research clarifying the controversy of a negative self-schema as a vulnerability factor to depression.

Concerning the effect of depressive episodes on future depression, studies have shown how past episodes of depression affect current depressives' self-schematic organization and processing efficiency (Davis & Unruh, 1981) as well as its content (Derry & Kuiper, 1981; Hammen et al., 1986; Kuiper & Derry, 1982; Kuiper & MacDonald, 1982; Kuiper et al., in press). The above studies support the scar theory (Lewinsohn et al., 1981) as they indicated that episodes of depression alter one's self-schema in such a way that it modifies one's information processing in future episodes of depression.

Most of the methods used previously to investigate the self-schema of current and remitted depressives focused on the negative and positive content of the self-schema: SRET and Stroop tasks used mood-congruent adjectives, and DAS and ATQ questionnaires measured mood-congruent cognitions. The use of such instruments could not eliminate a mood congruence explanation for the disappearance of signs of a negative self-schema at remission. In contrast, studies concentrating on the interpersonal schemata of self-criticism and interpersonal
dependency have proven to be more fruitful (Hirschfield et al., 1983; Hirschfield et al., 1984; Pilowsky & Karsikitis, 1983; Reich et al., 1987). These interpersonal schemata, which are components of the self-schema, were not anticipated by experimenters to be contingent on mood. In fact, remitted depressives were found to retain self-critical and dependent schemata at remission when measured by the IDI. These results suggest that the use of self-critical and dependent content helps to avoid the mood congruence hypothesis, which confounded other studies.

The purpose of the present study was to investigate the interpersonal schemata of self-criticism and interpersonal dependency as cognitive vulnerability factors to depression. The study's overarching hypothesis was that dependency and self-criticism are stable personal schemata that guide one's information processing in such a way as to render one vulnerable to depression. Based on the results obtained with the IDI, it was assumed that these personal schemata would remain active at remission. Thus, it was predicted that the stable vulnerability factors of dependency and self-criticism would be found in both an actively depressed group and in a remitted depressive group.

The study attempted to use innovative methods to measure the two interpersonal schemata. A fundamental assumption of the study was that the effects of personal schemata observed in information processing reflect the content of one's self-schema. Consequently, interpersonal schemata of self-criticism and dependency were investigated by examining their effects on information processing. Two tasks were included to investigate the functional aspects of the self-schema: a modified Stroop task and a memory task, both of which focused on self-criticism and interpersonal dependency. The modified Stroop task examined the effect of interpersonal schemata on preattentive automatic processing. The memory task examined the effect of interpersonal schemata on the processing of an integrated body of information -- that
What differentiates the present study from past research is its method and its content. First, examining self-criticism and dependency with information processing tasks is a novel approach that attempts to capture the dynamic aspect of the self-schema. Second, given the paucity of research done on clinical populations of remitted depressives, the study adopted strict criteria in the selection of currently and remitted depressed individuals. Moreover, efforts were made to obtain a purer group of never-depressed rather than non-depressed in order to control for the effect of past experiences with depression. Third, the DEQ had not yet been given to remitted depressives and it was included in the test battery. Finally, the content of the self-schema as a vulnerability factor to depression converged on self-criticism and interpersonal dependency, rather than on negative self-attributes. Such a shift in focus was utilized to diminish mood congruence effects. Moreover, in theory, it suggests an interpersonal view of depression, rather than an intrapersonal one. An interpersonal model of depression corresponds to a wider conceptualization of depression than an intrapersonal model, since it includes both one’s self-perception as well as one’s perception of others.

The present study compared the performance of 20 active clinically depressed individuals, 20 remitted depressives, and 20 normal controls on a modified Stroop task, a memory task (free recall, recognition, impression formation) as well as on the DEQ and the IDI questionnaires. All instruments were designed to measure dependency and self-criticism. A brief review of the measures with the relevant hypotheses is provided.

**Hypotheses**

**DEQ and IDI**

The DEQ and IDI are two self-report questionnaires assessing self-criticism and interpersonal dependency, as well as a third dimension reflecting a sense of autonomy and of
positive self-esteem. The lead to the following hypothesis:

1. DEQ results of currently depressed patients (Blatt et al., 1982; Pilon et al., 1982) and IDI results of remitted patients (Hirschfeld et al., 1983; Hirschfeld et al., 1984; Pilowsky & Karsitis, 1983; Reich et al., 1987) demonstrate that both populations report the presence of self-critical and dependent interpersonal schemata, as opposed to normal controls. Given that the DEQ and IDI are believed to measure the same dimensions of self-criticism and dependency (Pincus, 1987), group differences were predicted where currently depressed and remitted depressed patients would obtain higher scores on the dependency and self-criticism subscales of the DEQ and of the IDI than the normal control group.

Memory Task Performance

Subjects were asked to listen to the taped story of a person's day reflecting self-critical and dependent traits, as well as two neutral traits -- aggressive and boring. The latter two traits were chosen as they are considered to be moderately negative like the self-critical and dependent traits, but unrelated to depression. Controlling for negativity of traits would eliminate mood congruence for differences found. Information processing of the story was examined with three tasks: two memory tasks -- free recall and recognition, and one impression formation of the target person. Based on the assumption that currently depressed patients and remitted depressed patients have self-criticism and dependency as personal schemata, and that normal controls do not hold self-criticism and dependency as prominent personal schemata, a Group X Trait interaction was predicted. Two specific hypotheses focused on this interaction, namely:

2. Memory for behaviors exemplifying one's schemata has been found to be more accurate than for behaviors not related to one's schemata (Higgins et al., 1982).
Thus, it was predicted that currently depressed patients and remitted depressed patients would recall from the story more dependent and self-critical traits than aggressive and boring traits on the free recall and recognition tasks. No such within-group effect was predicted for the control group.

3. It has been found that one's schemata are prominent in one's impressions of others (Bargh et al., 1986; Higgins et al., 1982). Thus, it was predicted that currently depressed patients and remitted patients would report more dependent and self-critical attributes than aggressive and boring attributes in their written impressions of the target person. No such within-group effects was predicted for the control group.

**Stroop Task Performance**

The modified Stroop test was comprised of 6 cards. The first two cards were used to obtain baseline measures of subjects' reading and color naming speed. The 4 other cards were experimental cards, each containing words of the same category, namely self-critical words, dependent words, neutral words, and depressive mood-congruent words. Based on the assumption that Stroop interference on words related to personal schemata is significantly greater than for non-schematic words (Bargh & Pratto, 1986), a Group X Card interaction was predicted. The thesis examined four specific hypotheses concerning this interaction:

4. Based on the assumption that current and remitted depressives hold self-criticism and dependency as personal schemata, and that normal controls do not, it was predicted that currently depressed patients and remitted depressed patients would show more interference on the self-critical and dependent Stroop cards than on the neutral Stroop card. No such within-group effect was predicted for the normal control group.
Based on the assumption that the normal control group does not hold self-criticism and dependency as personal schemata, their level of Stroop interference on self-critical and dependency cards was expected to be lower than for the two depressive groups (Bargh & Pratto, 1986). Thus, it was predicted that interference on the self-critical and dependent cards would be higher for the currently depressed patients and remitted depressed patients than for the normal control group. No such between-groups differences were predicted for the neutral card.

Previous Stroop studies (Gotlib & Cane, 1987; Gotlib & McCann, 1984) have shown that currently depressed individuals experience interference on depressive mood-congruent word. Thus, a replication of these results was predicted: It was expected that currently depressed patients would show more interference on the depressed mood-congruent Stroop card than on the neutral Stroop card. No such within-group effect was predicted for the normal control group or for the remitted depressive group.

Based on results of previous studies (Gotlib & Cane, 1987; Williams & Broadbent, 1986), it was predicted that interference on the depressed mood-congruent Stroop card would be higher for currently depressed patients than for both the normal control group and the remitted depressed patients. Such a between-groups difference was not predicted for other Stroop cards.
Chapter 6

METHOD

Overview

The study attempted to determine if the effects of self-critical and dependent schemata persist beyond the episode of depression, thereby suggesting that such schemata constitute vulnerability factors for depression.

Differences in self-criticism and dependency between three groups -- currently depressed patients (n = 20), remitted depressed patients (n = 20), and nondepressed community controls (n = 20) -- were assessed. The differences were examined with two self-report questionnaires -- the Depressive Experience Questionnaire (DEQ) and the Interpersonal Dependency Inventory (IDI)--, as well as with a memory task and a modified Stroop task.

Classification of depressed subjects was made by using the DSM-III-R diagnosis provided by the psychiatrist and confirmed by the Inventory to Diagnose Depression, a self-report measure (IDD; Zimmerman, Coryell, Corenthal, & Wilson, 1986a; Zimmerman & Coryell, 1987), the Hamilton Rating Scale for Depression rated by a clinician (HRSD; Hamilton, 1967), and a structured interview -- the modified lifetime version of the Schedule for Affective Disorders and Schizophrenia (SADS; Endicott & Spitzer, 1978). Moreover, the Beck Depression Inventory (BDI; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961) and the state version of the State-Trait Anxiety Inventory (STAI; Spielberger, Gorsuch, & Lushene, 1970) were administered as additional measures of the levels of depression and anxiety. To assess any changes in mood due to experimentation, the 12-item Mehrabian-Russell (1974) Semantic Differential was also used before and after testing to index pleasure and arousal levels.
For the automatic processing part of the study, subjects performed a Stroop task to compare the level of interference on words related to self-criticism, dependency, depressed mood, as well as neutral words. For the memory part of the study, they performed a recall task for a story about a fictitious character, whose description centered around self-criticism, dependency, or two other traits -- aggressivity and boringness. Subjects were then asked to free recall the story as best as they could, to write their impression of the hypothetical person, and to complete a recognition task from items from the story.

Subjects

Inclusion and Exclusion Criteria

The two patient groups -- remitted and currently depressed -- were recruited from the Department of Psychiatry at the Health Sciences Hospital (Vancouver) and from the Affective Disorders Clinic of the Allan Memorial Institute (Montreal), while the community controls were recruited from local community centers and hospitals. All subjects met the following inclusion and exclusion criteria:

Inclusion criteria:

1. Age: 18-65
2. Minimum of 8th grade education or sufficient ability to complete the self-report scales without help.
3. English language as mother tongue, or 10 years of experience with English as both the working language and the predominant language spoken at home.

Exclusion criteria:

1. DSM-III-R diagnosis of any of the following:
   - bipolar illness
   - alcoholism
The above inclusion and exclusion criteria were first assessed with the report of the psychiatrist and a review of the medical chart. If the patient seemed to be appropriate for the study and agreed to participate, the inclusion criteria were reassessed by the experimenter at the beginning of the interview with the SADS structured interview.

Currently Depressed Group

The twenty subjects met the criteria for Major Depressive Episode according to the Diagnostic and Statistical Manual of Mental Disorders, revised (DSM-III-R, 3rd edition, American Psychiatric Association, 1987; see Appendix A). The DSM, the most prevalent system in America (Leber, Beckham, & Danker-Brown, 1985), is intended to be an atheoretical diagnostic system reflecting clinical consensus on what symptoms constitute the various disorders. Reliability statistics are more numerous for the DSM-III than for DSM-III-R; however, the two manuals' definitions of a Major Depressive Episode do not differ, apart from the creation of subtypes in the DSM-III-R which were not relevant for the present study. In two field trials of the DSM-III, reliability coefficients for Major Depressive Disorders ranged from Kappa .68 to .80 (American Psychiatric Association, 1980), which suggests adequate agreement among raters using this system.

The IDD score, which was designed to follow the DSM-III criteria, was used to confirm the diagnosis. Furthermore, currently depressed subjects had to obtain BDI scores of 16 or more and HRSD scores of 17 or more to be included in the study.

Depressed subjects were undergoing pharmacotherapy for depression. The subjects were not undergoing cognitive therapy since this type of therapy can address specifically
themes of self-criticism and dependency. Subjects undergoing electroconvulsive treatment were excluded since this treatment has been implicated in altering cognitive functions (Hay & Hay, 1990; Wright & Simon, 1990).

Remitted Depressed Group

The twenty subjects in this group had previously received a DSM-III-R diagnosis of Major Depressive Episode from the same psychiatrists evaluating the group of currently depressed subjects. They had undergone pharmacotherapy for depression and, at the time of the present study, had not been depressed according to DSM-III-R criteria for a period of at least one month. The IDD scores of these individuals also confirmed their remitted state; their BDI score was less than 15.

Nondepressed Community Control Group

The twenty subjects in this group did not meet and had never met DSM-III-R criteria for Major Depressive Episode or Dysthymia based on the SADS interview, on IDD scores, and on BDI scores of 15 or less. Moreover, these subjects did not have a history of major depression, mania, or schizophrenia, as assessed by the modified version of the SADS-lifetime.

Subjects from all three groups were matched case by case on sex, on age within 5 years, and on education level in the following categories -- some high school, grade 12, some college, B. A. or equivalent, some graduate training.

Measures

In order to assess all subjects' history and present level of depression, they were first given the structured SADS interview. Subjects who were classified as currently depressed based on the SADS interview then passed the HRSD, a test administered by the experimenter and designed to assess level of depression in individuals already diagnosed as
depressed. Subjects then answered questionnaires in the following order -- the IDD to assess level of depression, the STAI to assess level of state anxiety, and the BDI to assess level of depression. The IDD and BDI served to confirm psychiatrists' categorization of subjects as either currently depressed, remitted depressed, or normal control. In the course of the study, the test results of four subjects did not confirm their initial diagnosis and these subjects were excluded from the study: two subjects initially categorized by the psychiatrist as currently depressed, one subject initially categorized by the psychiatrist as remitted, and one normal control.

Once subjects' group status was established, they were given a memory task designed to examine if individuals vulnerable to depression would process information in such a way that they would recall information related to self-criticism and dependency better than other types of information. Subjects listened to the taped story of a person's day. The memory task consisted of three components - first, a free recall task, second, a recognition task, and third, an impression task.

The next task was the Stroop task, which was composed of four types of Stroop cards -- self-critical, dependent, mood-congruent, and neutral cards. The Stroop task was primarily designed to examine subjects' information processing on automatic tasks; it examined whether individuals vulnerable to depression are more prone to demonstrate interference due to self-critical and dependent words compared to normal controls.

Subjects were asked to answer on two occasions the Mehrabian-Russell Semantic Differential which assesses state levels of pleasure and arousal. The first administration was before the memory task, the second after the Stroop task. Because a negative mood could hypothetically be induced by simply listening to the story of a self-critical and dependent person, and consequently influence later information processing, the above procedure assessed
if in fact any mood change occurred during the memory and Stroop tasks.

The final part of the study consisted of assessing the subjects' level of dependency and self-criticism by administering the DEQ and IDI.

The instruments used in the study will first be reviewed, followed by a detailed account of the construction and administration of the memory and Stroop tasks. The chapter will end with a description of the procedure.

**Questionnaires used in the Study**

**Assessment of Depression**

**Schedule for Affective Disorders and Schizophrenia.** The Schedule for Affective Disorders and Schizophrenia (SADS; Endicott & Spitzer, 1978; see Appendices B & C) is a structured interview designed to provide diagnostic decisions on a wide variety of psychiatric disorders. It was developed to provide investigators with a standard clinical procedure in order to increase reliability of diagnostic and descriptive evaluations of subjects. Although the original intent of the SADS was to provide diagnoses according to Research Diagnostic Criteria, it has been adapted to provide DSM-III-R diagnoses. Three versions of the SADS are available: the regular version, the lifetime version, and the change version. The present study used a modified lifetime version to assess lifetime incidence of depression, thought disorder, and mania.

Modifications consisted of adding the following questions to the interview to assess language spoken and substance abuse:

- What language do you speak at home? at work? for how long?
- Have you ever had problems with alcohol or drug use?
- If yes, how much time did you spend consuming or trying to get drugs/alcohol?
Did it affect your work or your relationships with your family and friends?
Did you need drugs/alcohol in order to function "normally"?
The following questions were added for persons having had depressive episodes:
How long did each of your episodes of depression last?
When was the last time you were depressed?

The SADS demonstrates good psychometric properties. In particular, the SADS is highly reliable: based on 150 interviews, Endicott and Spitzer (1978) reported inter-rater reliability coefficients of .95 or more. With respect to reliability of depression diagnoses made on the basis of SADS interviews, Spitzer et al. (1978) reported Kappa coefficients of .90 and .81 for diagnoses of major depressive disorder and minor depressive disorder, respectively. In terms of concurrent validity, the SADS correlates moderately with other scales of depression, such as the depression scales of the Katz Adjustment Scale (Katz & Lyerly, 1963) (r = .42), and the Symptom Checklist (Derogatis, Lipman, & Covi, 1973) (r = .68). The reliability of the 6 questions added to the present study's SADS was not assessed; however, the medical charts were examined prior to meeting the patients to gather information on substance abuse and length of each depressive episodes. There was no indication of major contradictions between the patients' report and the medical chart.

Inventory to Diagnose Depression. The Inventory to Diagnose Depression (IDD; Zimmerman, 1983; Zimmerman et al., 1986a; Zimmerman & Coryell, 1987; see Appendix D), a self-report inventory, consists of 22 groups of five statements. In each group of statements, one depressive symptom is assessed and the statements are arranged in order of symptom severity. The IDD appears useful for the purpose of the present study because it was designed to diagnose Major Depressive Disorder according to the criteria of the DSM-III.
The IDD demonstrates sound psychometric properties. Two studies have reported excellent reliability for the IDD. With a psychiatric inpatient sample (Zimmerman et al., 1986a) and a nonpatient sample (Zimmerman & Coryell, 1987), the Spearman-Brown split-half reliability coefficients were reported as .93 and .91 respectively. Both samples had a Cronbach's alpha of .92 and a test-retest reliability coefficient of .98. The item scale correlations ranged from .15 to .84, all of which were statistically significant. In terms of validity, the IDD correlates highly with other measures, such as the Hamilton Rating Scale for Depression (r = .80), the Beck Depression Inventory (r = .87), and with the Carroll Rating Scale (r = .81) (Zimmerman et al., 1986a).

The IDD demonstrates satisfactory diagnostic performance. Using the DSM-III diagnoses generated by the Schedule for Affective Disorders and Schizophrenia interviews as the criterion, the IDD's overall rate of correct classification ranged from 78.1% to 81.7% and the Kappa coefficients ranged from .58 to .66 (Zimmerman et al., 1986a). Similarly, Zimmerman and Coryell (1987) found good concordance between IDD diagnoses and those obtained with interviews using the Diagnostic Interview Scale. There was an overall agreement of 97.2% with a Kappa of .51 and a Yule's Y statistic (a statistic independent of prevalence rate) of .79. In addition, the median Kappa between the IDD and the clinicians' ratings of individual symptoms was .62 (Zimmerman, Coryell, Wilson, & Corenthal, 1986b).

**Hamilton Rating Scale for Depression.** The Hamilton Rating Scale for Depression (HRSD; Hamilton, 1960; 1967; see Appendix E) is the most common interview measure of depression. The original version (Hamilton, 1960) included twenty-one items of which four items (diurnal variation, depersonalization, paranoia, obsessive-compulsiveness) were not scored because they were considered to be unrelated to the severity of depression or were too infrequent. The present study only asked and scored the 17 scorable items, based on the 1967
The HRSD is typically scored based on information gathered in a clinical interview. It provides an index of severity of depression for individuals already diagnosed as depressed and is not intended as a diagnostic instrument. Using the 17 scoreable items, the total range of scores is from 0 to 52 where higher scores indicate greater severity of depression. Guidelines for interpreting HRSD scores are provided by Shaw, Vallis, and McCabe (1985): HRSD scores of 6 or less are considered to reflect nondepressed functioning, scores of 7 to 17 reflect mild levels of depression, scores of 18 to 24 reflect moderate levels of depression, and scores greater than 25 reflect severe levels of depression.

Inter-rater reliability data on the HRSD are considered to be excellent. In a survey of research reports on the HRSD from 1967 to 1979, Hedlund and Vieweg (1979) cited nine studies reporting inter-rater reliability coefficients of .84 or more. Although Hamilton states that the instrument is most effectively used by experienced clinicians (Hamilton, 1986), the HRSD can be used by novice raters with minimal training. In fact, after five hours of training, three undergraduate research assistants reached inter-rater reliabilities of .76 and their ratings correlated with the mean ratings of four expert judges at a level of at least .82 (Cheung, 1988).

Internal consistency of the HRSD is not well established. Schwab, Bialow, and Holzer (1967) reported item-total correlations ranging from .45 to .78 for medical patients, suggesting moderate to strong homogeneity. Yet, Bech, Bolwig, Kramp, and Rafaelsen (1979) reported item-total correlations ranging from -.02 to .81.

The HRSD demonstrates moderate associations with other measures of depression. Based on a survey of a wide variety of studies, Hedlund and Vieweg (1979) reported median correlations of the HRSD with the Beck Depression Inventory of .58, with the Zung Self-Rating
Depression Scale of .45, and with the Minnesota Multiphasic Personality Inventory - Depression Scale of .44.

**Beck Depression Inventory.** The Beck Depression Inventory (BDI; Beck, Steer, & Garbin, 1988; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961; see Appendix F) is the most frequently used self-report inventory to assess severity of depression. The BDI provides a comprehensive survey of depressive symptomatology without reflecting any particular theory of etiology of depression. It asks the respondent to describe his or her current level of depression. This scale contains 21 items where each item consists of four self-evaluative statements of increasing severity. Each item is scored from 0 to 3, yielding a full scale score ranging from 0 to 63. General guidelines for interpreting BDI scores are the following: 0 to 9 reflect nondepressed levels of functioning, 10 to 15 reflect mild levels of depression, 16 to 23 reflect moderate levels of depression, and 24 to 63 reflect severe levels of depression (Shaw, Vallis, & McCabe, 1985).

The BDI demonstrates satisfactory internal consistency. Split-half reliability estimates have been reported in the range of .31 to .93 (Beck, 1972; Beck & Beamesderfer, 1974; Gallagher, Nies, & Thompson, 1982; Reynolds & Gould, 1981; Strober, Green, & Carlson, 1981) and item-total correlations in the range of .31 to .68 (Beck, 1972). Oliver and Burkham (1979) reported a test-retest reliability coefficient of .78 over a period of three weeks.

In terms of concurrent validity, the BDI shows moderate to good correlations with the Hamilton Rating Scale for Depression (ranges from .56 to .80), the Minnesota Multiphasic Personality Inventory - Depression Scale (.67 for females and .74 for males), the Zung Self-Rating Scale (.76 for both sexes), the Costello-Comrey scales-trait version (.75 for females and .70 for males) and the Multiple Affect Adjective Checklist (.68 for females and .82
for males) (Dobson, 1985b). In addition, the BDI correlates at a level ranging from .62 to .77 with clinicians' global ratings of depression (Blumberg, Oliver, & McClure, 1978; Metcalfe & Goldman, 1965; Nussbaum, Wittig, Haneon, & Kurland, 1963; Salking, 1969; Strober et al., 1981).

**State-Trait Anxiety Inventory.** The state version of the State-Trait Anxiety Inventory (STAI; Spielberger, Gorsuch, & Lushene, 1970; see Appendix G) was used to assess state anxiety level. The STAI-state consists of 20 statements asking individuals how they feel "right now, that is, at this moment". The scale has a potential range of scores of 20 to 80 with higher scores suggestive of more intense anxiety.

Psychometric properties of the STAI are considered to be good. The state subscale has a high degree of internal consistency demonstrated by Kruder-Richardson-20 coefficients ranging from .83 to .92 (Spielberger et al., 1970). Additionally, the STAI trait subscale which is a measure of general anxiety, correlates significantly with the IPAT (Institute for Personality and Ability Testing) Anxiety Scale (Cattell & Sheier, 1963), the Taylor Manifest Anxiety Scale (Taylor, 1953), the Zuckerman Affect Adjective Checklist (Spielberger et al., 1970), and with the BDI (Dobson, 1985b).

**Mehrabian-Russell Semantic Differential.** The Semantic Differential scale developed by Mehrabian and Russell (1974, see Appendix H) assesses mood according to two orthogonal factors: pleasure and arousal. The scale's structure has been confirmed by factor analysis (Russell, Ward, & Pratt, 1981). Pleasure-displeasure and arousal-sleepiness dimensions are believed to capture many aspects of affect in general (Russell, Weiss, & Mendelsohn, 1989). High scores on the Pleasure dimension indicate high unpleasant mood, high scores on the Arousal dimension indicate low levels of arousal -- thus, there is an inverse relationship between scores and what they measure.
Assessment of Self-criticism and Interpersonal Dependency

In order to assess self-criticism and dependency, two self-report questionnaires were given -- the Depressive Experience Questionnaire (DEQ) and the Interpersonal Dependency Inventory (IDI). The instruments are reviewed next.

The Depressive Experience Questionnaire. The DEQ (Blatt et al., 1976; see Appendix I) consists of 66 items scored on a 7-point scale by the subject. These items were administered to 500 female and 160 male Yale college undergraduates, and subjected to a principal components factor analysis, which yielded three factors.

The first factor, "Dependency", involves items related to interpersonal relations, and reflects concerns about fear of abandonment and rejection, feelings of loneliness and helplessness, desires to be close to and dependent upon others. Concerns about hurting people and having difficulty managing aggression are also present.

The second factor, "Self-criticism", involves items which reflect concerns about failure, where a person is critical of him/herself, may feel guilty, unsatisfied, and is fearful of failing to meet expectations. Concerns about inability to assume responsibility, ambivalence towards self and others, and a tendency to assume blame are also present.

The third factor, "Efficacy", involves items reflecting a sense of confidence about one's resources and capacities. Themes of high standards and personal goals, responsibility, and of inner strength are found, as well as feelings of independence, satisfaction, and pride in one's accomplishments.

The temporal stability of the DEQ has been found to be high over a 13 week period, .81 for Dependency and .75 for Self-criticism, both significant at a .001 level (Zuroff, Moskowitz, Wielgus, Powers, & Franko, 1983). In terms of split-half reliability for the Dependency, Self-criticism, and Efficacy scores, coefficients were found to be .81, .86, and
.72 respectively (Welkowitz, Lish, & Bond, 1985).

In terms of concurrent validity, the DEQ shows significant correlations ranging between .48 and .60 with the BDI (Welkowitz et al., 1985). The Dependency factor correlates significantly with the hostility guilt scale of the Mosher Guilt Scale (Mosher, 1966). The Self-criticism factor also shows significant correlations with the O'Brien-Epstein self-esteem scale (O'Brien & Epstein, 1974), and both scales correlate significantly with Mosher's moral guilt scale (Zuroff et al., 1983). In another validation study (Zuroff & Mongrain, 1987), dependent students showed an increase in depression scores measured by the Multiple Affect Adjective Checklist, following a rejection experience; self-critical students showed a similar increase in depression level following both a rejection and failure experience. Finally, Blatt et al. (1982) showed that clinical judges using independent written clinical case records were able to differentiate to a significant degree (p<.001) depressed patients who were high on either DEQ Dependency, Self-criticism, on both, or on neither.

The Interpersonal Dependency Inventory. The Interpersonal Dependency Inventory (IDI; Hirschfeld, Klerman, Gough, Barrett, Korchin, & Chodoff, 1977; see Appendix J) consists of a 48 item questionnaire which can be divided in three factors. The first factor, Emotional Reliance, reflects notions of attachment and dependency; the second factor, Lack of Social Self-Confidence, reflects wishes for help in decision making, in social situations, and in taking initiative; the third factor, Assertion of Autonomy, contains themes of preferences for being alone, and for independent behavior, as well as conviction that the subject's self-esteem does not depend on the approval of others.

Split-half reliability coefficients for factors I, II, and III, are .87, .78, and .72 respectively. Factors I and II are correlated .43; factors I and III are correlated -.23; and factors II and III are correlated -.08 (Hirschfeld et al., 1977).
Validation studies show that the IDI's factors Emotional Reliance and Social Self-Confidence significantly discriminate between a depressed patient population and a normal sample, but that the Assertion for Autonomy factor does not differentiate a depressed population from a normal population (Hirschfeld et al., 1977). Moreover, remitted depressed patients' scores were found to be significantly higher than normals' on the first two factors (Hirschfeld et al., 1977; Hirschfeld et al., 1984; Pilowsky & Katsikitis, 1983; Reich et al., 1987). The first two factors were found to be significantly correlated with the anxiety and the depression subscales of the Symptom Checklist (SCL-90; Derogatis, Lipman, & Covi, 1973); the interpersonal sensitivity of the latter scale significantly correlated with all factors of the IDI, but to a much lesser degree with the Assertion of Autonomy factor ($r = .17, p<.05$).

**Memory Task**

The purpose of the task was to examine whether personal schemata influence the recall of an integrated narrative body of information -- a description of a series of behaviors performed by someone else. Based on previous research (Bargh, 1984; Bargh, 1987; Bargh et al., 1986; Bargh & Thein, 1985; Higgins et al., 1982), it was hypothesized that information related to personal schemata would be better remembered. Thus, subjects' recall of the narrative was hypothesized to give an indication of whether or not self-criticism and dependency are chronic personal schemata for them.

Subjects heard a taped story about a hypothetical person's day (see Appendices K & L for transcripts) in which the person performed six behaviors reflecting self-criticism, six behaviors reflecting dependency, six behaviors reflecting aggressivity, and six behaviors reflecting boringness, in a random order. The latter two adjectives were chosen on the basis of a study (Higgins et al., 1982) where 32 subjects generated their own accessible personal schemata (first trait that comes to mind when describing another person). The two traits of
"boring" and "aggressive" were found to be in the middle-order of the frequency distribution of the traits, that is, they were mentioned by 9% of the subjects. Moreover, they were chosen since, similarly to "self-critical" and "dependent", they can be considered to be moderately negative traits. The sex of the hypothetical person was randomly varied. The story was read by a male person at a normal speed and lasted 6 minutes.

After listening to the story, the subjects completed a free recall task, an impression formation task and a recognition task.

**Free recall**

After hearing the story and doing a filler task (Raven's Progressive Matrices; Raven, 1960; see Appendix M) for 5 minutes, subjects were asked to tell the experimenter, word for word, what they could remember of the story. They were audiotaped. The experimenter did not say anything during the free recall, until subjects said they had finished telling the story or apparently reached the end of the story and stopped. At that point, the experimenter would say: "Is there anything else you can remember?" Dependent measures included number of traits recalled in each trait category - self-critical, dependent, boring, aggressive.

**Impression formation task**

Subjects were asked to write at least 12 words or short sentences describing their general impression of the target person, or "what that person is like" (see Appendix N). If they had difficulty finding 12 words, they were encouraged by the experimenter to continue by saying: "Is there anything else you think of that could describe what kind of person Janet/Steven is? How do you think he/she would be if you met him/her?" Dependent measures were the number of self-critical, dependent, boring and aggressive attributes chosen as descriptive of the target person.
**Recognition task**

Finally, subjects completed a recognition task (Appendices O & P) consisting of 24 multiple-choice items. Six items were used to examine recognition of each of the four traits -- self-critical, dependent, boring, and aggressive. For each item, the beginning of a sentence was provided followed by four possible endings of the sentence. Subjects were asked to choose the ending they had heard in the story. Dependent measures for this task were the number of incorrect choices made on the 24 dependent, self-critical, aggressive and boring items.

**Stroop Task**

A modification of the original Stroop test (Stroop, 1935) was used to examine automatic processing of material related to self-criticism and dependency. More specifically, its purpose was to assess if current and remitted depressives would experience more interference on self-critical and dependent words than on control words. It was also used to assess if currently depressed individuals would experience more interference on negative mood-congruent words than remitted depressives and normal controls.

**Construction of the modified Stroop task**

Some pilot research was necessary in order to find the words corresponding to the four Stroop categories: self-critical, dependent, control, and depressive mood-congruent. The words used for this task were taken from a list of words which had already been rated on several dimensions (Myers, 1980). Based on these ratings and on what is known from the current literature on self-criticism and dependency, words were chosen by the experimenter and rated by 101 subjects on self-criticism and dependency.

The 400 adjectives in Myers' study (1980) consisted of 148 adjectives that were used in prior experiments (Rogers et al., 1977), and 252 additional adjectives that various others have used to describe manics and depressives (Beck, 1967, 1976; Lubin, 1967;
McNair, Lorr, & Droppleman, 1971; Reich, Clayton, & Winokur, 1969; Shopsin, 1979).

University of Calgary students had provided a minimum of 31 ratings per adjective including degree of social desirability (Messick & Jackson, 1961), pleasantness, self-relevancy (Rogers, 1974), and emotionality (Rapaport, 1950; Dutta & Kanongo, 1975). Psychiatric personnel from Alberta and Montana governmental and city hospitals had provided a minimum of 26 ratings per adjective on "the degree to which you think depressives and manics would endorse this adjective as reflecting an important aspect of themselves" (Myers, 1980). All ratings had been conducted with nine-point rating scales. Bipolar scales had been used for emotionality, with scale endpoints defined in the general format of (1) Extremely low (name of variable), and (9) Extremely high (name of variable). Specifically defined points on rating scales for the other variable followed the general format of (1) Extremely not (name of variable), (5) Neutral, and (9) Extremely (name of variable).

The mood-congruent words used in the present study were chosen on the basis of Myers' results (Myers, 1980). Twelve adjectives were chosen which, on a scale from 1 to 9, showed depressive ratings over 8.00 and manic ratings under 3.00.

From the 400 adjectives, 23 adjectives describing self-criticism and 23 adjectives describing dependency were chosen by the main experimenter, based on descriptions and theory found in the existing literature. Also from Myers' list, 26 control words were chosen which showed average ratings between 4 and 5 on the social desirability dimension, and average ratings below 5 on the depression dimension. The 46 self-critical and dependent adjectives were interspersed among the 26 control words, and 101 subjects (62 females and 39 males) were asked to rate them on self-criticism and dependency on a Guttman 7-point scale (see Appendix Q). More precisely, subjects were given a description of a self-critical and a dependent person and were asked how much each adjective described how such a person
would think or feel about themselves. Subjects' mean age was of 25.49 and the average education level was of some college years. Subjects also answered to the DEQ.

Results pointed to the independence of the self-criticism and dependency scales, in that the correlation between the two was not significant ($r=.11$, ns). The mean self-criticism and dependency rating for each word was plotted (Appendix R) and adjectives which best discriminated between self-criticism and dependency were chosen. Fourteen dependent words and 12 self-critical words were chosen. The empirical ratings for all adjectives chosen matched the category to which they had been previously assigned by the main investigator.

Correlations of the DEQ scales of self-criticism and dependency with the average ratings for each group of chosen words were not significant, indicating that the subjects' personal degree of self-criticism and dependency did not influence their judgement of how a dependent or self-critical person would view themselves. In order to investigate the discriminant validity of the chosen self-critical and dependent words, six $t$-tests analyses were done (see Appendix S). Dependency ratings were compared in chosen and non-chosen dependent words. Self-criticism ratings were compared in chosen and non-chosen self-critical words. Dependency ratings were compared in chosen self-critical and chosen dependent words. Self-criticism ratings were compared in chosen self-critical and chosen dependent words. Self-criticism and dependency ratings were compared in chosen dependent words. Self-criticism and dependency ratings were compared in chosen self-critical words. All $t$-tests of the six analyses were statistically significant ($p<.001$). Each chosen word was then correlated with the average self-criticism rating for the theoretically derived self-critical words and with the dependency rating for the dependent words (see Appendix T and U). There were a few significant correlations between words of one category and the average rating for the other category, indicating that the two concepts may overlap and not be entirely pure.
However, when one considers individually the correlations between self-criticism and dependency ratings for each chosen word (see Appendix V), statistically significant correlations arise for 3 of the 14 dependent words, and for 4 of the 12 self-critical words, which suggests a slight conceptual overlap between the two word lists. Overall, there was evidence for adequate discriminant validity of the self-critical and dependent words chosen.

To keep the number of words in each group even, two chosen dependent words were eliminated -- "shy" and "lost" -- based on their position in the plot. Thus, the pilot research yielded 12 self-critical and 12 dependent words to be used in the present study's task.

Control words were also chosen on the basis of plotting the average rating for each word (Appendix R), and again the empirical ratings matched the theoretically derived categories. Twelve control adjectives were selected and included in the final Stroop task. Two adjectives -- "powerful and dominant" -- were not retained since their extremely low ratings on both categories suggested that they in fact were self-relevant to a self-critical or dependent person in a negative fashion.

One-way between-groups ANOVAs were conducted to examine if the four word categories -- self-critical, dependent, mood-congruent, and control -- were significantly different in terms of rated emotionality and word frequency (Kucera & Francis, 1967). There were no differences in word frequency ($E(3,45)=1.62$, ns) or in emotionality ($E(3,45)=2.54$, ns). It should be noted that the control for emotionality inevitably resulted in control words which were emotional rather than neutral. The control words were used as a control for mood-congruent, self-critical, and dependent constructs.

The present study's modified Stroop task

The Stroop task consisted of 6 pages (see Appendix W). Page 1 consisted of 48 words --"RED", "GREEN", and "BLUE"-- arranged randomly and printed in black ink on a white 8
1/2 X 11" sheet of paper. No word followed itself within a column. The time taken to read this page was recorded.

Page 2 consisted of 48 items, all written as "XXXX" printed in either red, green, or blue ink. No color followed itself in a column. The time taken to name the color of the ink of the X's on this page was recorded. Performance on the first and second pages were used to obtain baserates of reading and color-naming speed. Pages 3, 4, 5, 6, were given in a random order to subjects. One page consisted of the 48 self-criticism words (the 12 words written four times), another page showed the 48 dependency words, a third page showed the 48 control words, and a fourth page showed the 48 depressive mood-congruent words. All words were written in either red, green, or blue, colors used in the original Stroop test. They were written in 12-pica capitalized letters and a color photocopying machine was used to obtain bright colors. Dependent variables were reading times for the self-critical, dependent, mood-congruent, and control cards.

In order to avoid unnecessary distractibility, for each page the upcoming columns were masked by a blank piece of paper which the experimenter moved as the subject read through the page. As in many previous studies (Mathews & MacLeod, 1986; Watts, McKenna, Sharock, & Trezise, 1986; Williams & Broadbent, 1986; Williams & Nulty, 1986), for each page the total time taken to name the color of all the stimulus words was measured with a stopwatch, and errors, where the subject said the incorrect color, were recorded as well. The order of the four cards -- self-critical, dependent, mood-congruent and neutral -- was balanced across groups.

Procedure

A letter explaining the study (see Appendix X) was given or sent by the psychiatrist to the remitted and currently depressed patients. If interested in the study, patients were asked
to contact the experimenter. The control group was recruited with a recruitment notice (see Appendix Y) at local community centers and hospitals.

When subjects called the experimenter to express their wish to participate or obtain more information, they were informed that "this is a study about what makes people more vulnerable to depression" during which they would be asked to perform certain perceptual tasks, memory tasks, and respond to questionnaires. During the last phase of the study which took place in Montreal, subjects from Montreal were offered $10.00 for their participation.

At the beginning of the experiment, subjects were asked to sign a consent form (Appendix 2) and were told again about the purpose of the study and what would be asked of them. They were told that they were free to withdraw from the experiment at any time, and that it would have no effect on their treatment when applicable.

Subjects were given the SADS structured interview, the HRSD if they were depressed, the IDD, the STAI, the BDI, and the Semantic Differential. For the STAI and the Semantic Differential, subjects were told to answer according to "how they were feeling right now, at this moment". For each test, the experimenter and the subject read the instructions together, and the subject was told that there were no right or wrong answers.

The experimenter then asked the subject to do the memory task. (For all verbatim instructions, refer to Appendix AA). The subject was first asked to listen to the story of a person's day, which was taped. Afterwards, subjects were given a 5 minute filler task. The filler task was the Raven's Progressive Matrices (Raven, 1960), an intelligence test, in which the subject has to choose the picture which best completes a series of pictorial matrices. This task was not presented as an intelligence test and was terminated after 5 minutes. The free recall task came right after the filler task, followed by the impression formation task and the
recognition task.

The next task was the modified Stroop test, consisting of a total of 6 cards -- words only, colors only, and the four experimental cards (self-critical, dependent, mood-congruent, control)--, given in an order balanced across groups. Instructions followed the ones found in the most recent Stroop manual (Golden, 1978).

After the Stroop task was finished, subjects were asked to fill out the Semantic Differential a second time. They were then asked to answer the DEQ and the IDI.

Subjects were debriefed concerning the nature of the experiment and any questions they might have had were answered. They were given a debriefing form (see Appendix BB) The whole experiment took one hour.
Summary of Dependent Measures

This list shows all questionnaires and tasks, and the order in which they were given. Also indicated are the dependent measures for each test.

Assessment of depression

1) Beck Depression Inventory
2) State -Trait Anxiety Inventory
3) Mehrabian-Russell Pleasure and Arousal (pretest and posttest)

Memory task

4) Free recall task
   -number of recalled behaviors and adjectives reflecting dependent, self-critical, aggressive, and boring traits
5) Impression formation task
   -number of attributes reflecting dependent, self-critical, aggressive and boring traits
6) Recognition task
   -number of errors made on items reflecting dependent, self-critical, aggressive and boring traits
7) Stroop task
   Reading time for words only card
   Reading time for colors only card
   Reading time for dependent, self-critical, mood-congruent and control cards

Assessment of self-criticism and dependency

8) The Depressive Experience Questionnaire
   -Dependency
- Self-Criticism
- Efficacy

9) The Interpersonal Dependency Inventory

- Emotional Reliance
- Lack of Social Self-confidence
- Assertion of Autonomy
Overview of Results

Before presenting the results relevant to the study's main hypotheses, demographic characteristics of the three subject groups are compared to ensure equality of groups on the following variables -- age, education, marital status, number of children, residence, and languages spoken. Currently depressed and remitted depressed patients are compared on descriptive variables of their episodes of depression, such as number of episodes, duration, and medication status. Finally, the three groups are compared on pretest mood measures.

Following the presentation of the above preliminary analyses, results concerning the DEQ and IDI are presented. DEQ and IDI dependency and self-criticism scores are compared across groups to investigate if remitted and currently depressed individuals retain self-critical and dependent schemata as compared to normal controls.

Results relevant to the performance on memory tasks are outlined later in the chapter. Group X Trait interactions had been predicted. It was expected that currently and remitted depressed individuals would recall more self-critical and dependent traits than boring and aggressive trait when processing the story of a hypothetical character; no such within-group effect was predicted for the normal control group. It was also expected that remitted depressed patients would recall more dependent and self-critical traits as compared to the normal control group; no such effect was predicted for aggressive and boring traits. This section is divided in three parts. First, results for the performance on the free recall task are provided, followed by those for the recognition task and for the impression formation task. The section closes with a description of the effects observed due to the sex of subject and sex of target person in the story.
For the Stroop task performance, results relevant to the predicted Group X Card interactions are found in the next section. It was expected that for currently and remitted depressives, self-critical and dependent words would create more interference than control words, and that depressive mood-congruent words would produce interference only for currently depressed individuals. No such within-group differences were predicted for the control group. Between-groups differences were also predicted; for the self-critical and dependent Stroop cards, current and remitted depressives were expected to show more interference than the control group. On the mood-congruent card, currently depressed patients were expected to show more interference than the remitted and control groups.

The implications of the present study for the scar hypothesis are considered by examining correlations between length/duration of depressive episodes and the dependent variables of the study. Differences between pretest and postest scores of the Mehrabian-Russell pleasure and arousal dimensions are then examined to investigate the possibility of a mood induction in subjects due to experimental procedures.

**Description of Subjects**

**Demographic Variables and Descriptors of Depressive Episodes**

Preliminary analyses included between-groups ANOVAs (Appendix CC) and chi-square analyses of demographic variables to identify or exclude the presence of confounding variables.

Each experimental group was composed of 14 females and 6 males. The mean age for all subjects was 41.6 years old (see Table 2). An ANOVA revealed no significant differences in age between groups ($F(2,57)=.06$, ns). No differences were found between groups on number of children ($F(2,57)=.23$, ns). Fifteen of the depressed patients were hospitalized at the time of testing, while five were not. For the remitted patients, the average time since the
<table>
<thead>
<tr>
<th>Variables</th>
<th>Groups</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Depressed</td>
</tr>
<tr>
<td>Age</td>
<td>41.75</td>
</tr>
<tr>
<td></td>
<td>(12.17)</td>
</tr>
<tr>
<td>Number of children</td>
<td>1.15</td>
</tr>
<tr>
<td></td>
<td>(1.09)</td>
</tr>
<tr>
<td>Number of episodes</td>
<td>2.95</td>
</tr>
<tr>
<td></td>
<td>(1.36)</td>
</tr>
<tr>
<td>Total duration in months</td>
<td>26.50</td>
</tr>
<tr>
<td></td>
<td>(25.09)</td>
</tr>
<tr>
<td>BDI</td>
<td>25.05</td>
</tr>
<tr>
<td></td>
<td>(7.65)</td>
</tr>
<tr>
<td>STAI</td>
<td>53.95</td>
</tr>
<tr>
<td></td>
<td>(11.41)</td>
</tr>
<tr>
<td>HRS</td>
<td>23.45</td>
</tr>
<tr>
<td></td>
<td>(4.26)</td>
</tr>
</tbody>
</table>
end of the last episode of depression was of 9.15 months. Equivalence of the total number and duration of depressive episodes between depressed and remitted groups was examined with t-tests. The number of episodes for depressed and remitted subjects was not found to differ significantly ($t(38) = .10, \text{ns}$). Likewise, the total duration of episodes for depressed and for remitted subjects was not significantly different ($t(38) = -.13, \text{ns}$).

To examine the distribution of certain demographic aspects in the three groups, Chi-square analyses were done for four variables: the four categories of marital status -- married, separated, single, and widowed ($\chi^2(6) = 9.09, \text{ns}$); the five categories of education -- some high school, grade 12, some college education, B.A. or equivalent, some graduate training ($\chi^2(8) = 13.01, \text{ns}$); the two language categories -- unilingual vs multilingual ($\chi^2(2) = 8.67, \ p<.01$); and the location of testing -- Montreal and Vancouver ($\chi^2(2) = 16.86, \ p<.001$). The analyses of the latter two variables indicated that there were more unilinguals and Vancouverites in the depressed group and more multilinguals and Montrealers in the normal control group (see Table 3). A further Chi-square analysis on the distribution of unilingual and multilingual in the two locations revealed that there were more Vancouverites who were unilingual and more Montrealers who were multilingual ($\chi^2(1) = 23.75, \ p<.001$) (see Table 4). Since location and language overlapped so clearly and since language appeared to be the more meaningful of the two, only the effect of language was examined further. For each dependent variable, a regression analysis was done with the group variable entered as the first predictor variable and the language variable entered as the second. In none of these analyses was the contribution of language significant. Thus, the effect of language was not further analyzed.

Concerning medication status, 10 depressives and 12 remitted patients were taking
Table 3

Distribution of Language Status and Location of Testing for the Three Subject Groups

<table>
<thead>
<tr>
<th>Language</th>
<th>Depressed</th>
<th>Remitted</th>
<th>Control</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>English only</td>
<td>16</td>
<td>11</td>
<td>7</td>
<td>34</td>
</tr>
<tr>
<td>Multilingual</td>
<td>4</td>
<td>9</td>
<td>13</td>
<td>26</td>
</tr>
<tr>
<td>Total</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>60</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Location</th>
<th>Depressed</th>
<th>Remitted</th>
<th>Control</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vancouver</td>
<td>15</td>
<td>12</td>
<td>3</td>
<td>30</td>
</tr>
<tr>
<td>Montreal</td>
<td>5</td>
<td>8</td>
<td>17</td>
<td>30</td>
</tr>
<tr>
<td>Total</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>60</td>
</tr>
</tbody>
</table>
Table 4

**Distribution of language status by location**

<table>
<thead>
<tr>
<th>Language</th>
<th>Vancouver</th>
<th>Montreal</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>English only</strong></td>
<td>26</td>
<td>8</td>
<td>34</td>
</tr>
<tr>
<td><strong>Multilingual</strong></td>
<td>4</td>
<td>22</td>
<td>26</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>30</td>
<td>30</td>
<td>60</td>
</tr>
</tbody>
</table>
antidepressants, 6 depressives and 2 remitted patients were taking both antidepressants and anxiolytics, 2 depressives and 2 remitted patients were taking anxiolytics only (the remitted only occasionally), 2 depressives and 4 remitted patients were not taking any medication. A Chi-square analysis on medication taken (no medication, anxiolytics, antidepressants, both anxiolytics and antidepressants) was not significant ($\chi^2 (3) = 2.95$, ns). None of the normal subjects were taking antidepressants or anxiolytics.

**Group Differences on Pretest Measures**

Between-groups ANOVAs (Appendix DD) were performed on pretest measures of mood (see Table 2 for means and standard deviations) and were followed by appropriate multiple comparisons. As for all multiple comparisons in the present study, they consisted of $t$-tests conducted with an alpha level of .05 stepped down according to the Bonferroni method.

On the Beck Depression Inventory (BDI) a significant group effect was found ($F(2,57) = 90.16$, $p < .001$). Multiple comparisons indicated that the depressed group had a significantly higher level of depression than both the remitted group ($t(38) = 8.39$, $p < .001$) or the control group ($t(38) = 12.75$, $p < .001$). The remitted group was also significantly different from the control group ($t(38) = 3.07$, $p < .01$). The Hamilton Rating Scale was given to the depressed individuals only and the mean of 23.45 (s.d. = 4.26) indicated a high level of depression. The correlation between the BDI and Hamilton Rating Scale was significant, $r(18) = 0.41$, $p = .04$.

A between-groups ANOVA showed a significant group effect ($F(2,57) = 44.69$, $p < .001$) on the State-Trait Anxiety Inventory (STAI) scores. Multiple comparisons showed a significantly higher level of anxiety in depressed individuals than in both remitted ($t(38) = 5.96$, $p < .001$) and normal individuals ($t(38) = 8.94$, $p < .001$). The remitted group had higher anxiety levels than the normal group ($t(38) = 2.83$, $p < .01$). Correlation between STAI
and BDI measures was of $r(58)=0.81$, ($p<.001$) for all three groups collapsed. Such a high correlation is not surprising given that anxiety has often been found to correlate with depression (Dobson, 1985a, 1985b), and that they may be "truly coexistent aspects of human functioning" (Dobson, 1985a, p. 319).

**Summary**

To summarize, groups were not found to be significantly different in terms of the demographic variables assessed, apart from language status and location of testing. However, the latter differences do not appear to have affected the results. Remitted and depressed patients were not found to differ on severity measures of past episodes of depression and on medication status. Concerning measures of present mood, the STAI and the BDI indicated that, despite being significantly different from depressed patients, remitted patients were reporting more anxiety and depression than normal subjects.

**Depressive Experience Questionnaire and Interpersonal Dependency Inventory**

It was predicted in hypothesis 1 that currently depressed and remitted depressed patients would obtain higher scores on the dependency and self-criticism measures of the Interpersonal Dependency Inventory (IDI) and the Depressive Experience Questionnaire (DEQ) than the normal control group. Given that the IDI and the DEQ each contain three conceptually different scales, separate between-groups ANOVAs were performed for each scale (Appendix EE) followed by multiple comparisons (see Table 5 for means).

For the IDI, a significant group effect was found for the Emotional Reliance scale ($F(2,57)= 9.82$, $p<.001$). Both depressed ($t(38)= 4.17$, $p<.001$) and remitted groups ($t(38)= 3.37$, $p<.01$) showed more emotional reliance than the control group. No significant difference was present between depressed and remitted individuals ($t(38)= .72$, ns). A group
Table 5

Means (Standard Deviations) of the IDI and the DEQ Measures

<table>
<thead>
<tr>
<th>Variables</th>
<th>Groups</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Depressed</td>
<td>Remitted</td>
<td>Control</td>
<td></td>
</tr>
<tr>
<td>Interpersonal Dependency Inventory</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emotional Reliance</td>
<td>42.85</td>
<td>40.85</td>
<td>31.20</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(8.54)</td>
<td>(8.98)</td>
<td>(9.14)</td>
<td></td>
</tr>
<tr>
<td>Lack of Social Confidence</td>
<td>33.00</td>
<td>31.90</td>
<td>27.95</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(5.66)</td>
<td>(5.05)</td>
<td>(4.32)</td>
<td></td>
</tr>
<tr>
<td>Assertion of Autonomy</td>
<td>28.40</td>
<td>27.45</td>
<td>30.85</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(8.06)</td>
<td>(5.45)</td>
<td>(8.73)</td>
<td></td>
</tr>
<tr>
<td>Depressive Experience Questionnaire</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dependency</td>
<td>95.80</td>
<td>91.15</td>
<td>67.90</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(20.48)</td>
<td>(16.80)</td>
<td>(17.16)</td>
<td></td>
</tr>
<tr>
<td>Self-Criticism</td>
<td>68.25</td>
<td>62.30</td>
<td>39.85</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(18.99)</td>
<td>(16.62)</td>
<td>(17.45)</td>
<td></td>
</tr>
<tr>
<td>Efficacy</td>
<td>34.50</td>
<td>34.70</td>
<td>33.95</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(12.13)</td>
<td>(5.37)</td>
<td>(4.87)</td>
<td></td>
</tr>
</tbody>
</table>
effect was also significant for the Lack of Self-Confidence scale \((E(2,57)= 5.56, p<.01)\),
with the depressed group having higher scores than the control group \((t(38)= 3.17, p<.01)\),
and the remitted group also having higher scores than the control group \((t(38)= 2.66, p<.01)\). However, depressed and remitted patients did not differ significantly \((t(38)= 0.65, ns)\). No group effect was present for the Assertion of Autonomy scale \((E(2,57)= 1.08, ns)\).

For the DEQ, a significant group effect was present for the Dependency scale \((E(2,57)= 13.46, p<.001)\). Both depressed \((t(38)= 4.67, p<.001)\) and remitted groups \((t(38)= 4.33, p<.001)\) demonstrated significantly more dependency than the control group, but no significant difference was found between the depressed and remitted groups \((t(38)= .79, ns)\). Similarly, a group effect was observed for the Self-Criticism scale \((E(2,57)= 14.30, p<.001)\) with depressed \((t(38)= 4.92, p<.001)\) and remitted individuals \((t(38)= 4.17, p<.001)\) showing significantly more self-criticism than the control group, without any difference between depressed and remitted individuals \((t(38)= 1.05, ns)\). For the Efficacy scale, no significant group effect was present \((E(2,57)= .05, ns)\)(see Footnote 1).

1. Because the remitted and normal control groups had significantly different BDI scores,
this difference was a potential confound. Two procedures were used to explore this possibility. First,
an analysis of covariance was used on the DEQ and IDI with the BDI scores covaried out. Secondly, the
five remitted subjects with the highest BDI scores and the five normal controls with the lowest BDI
scores were removed from the groups, and ANOVAs were done with the remaining 15 subjects per
group. Both procedures yielded the same pattern of results as the original ANOVAs with the whole
groups: remitted individuals consistently had significantly higher levels of self-criticism, dependency
lack of social confidence, and emotional reliance than the normal control group, and they did not differ
significantly from the current depressives.
Table 6

**Correlations Between DEQ and IDI Measures**

<table>
<thead>
<tr>
<th></th>
<th>IDI</th>
<th></th>
<th>DEQ</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ER</td>
<td>LSC</td>
<td>AA</td>
</tr>
<tr>
<td>ER</td>
<td>_</td>
<td>0.67***</td>
<td>-0.11</td>
</tr>
<tr>
<td>LSC</td>
<td>_</td>
<td>_</td>
<td>0.16</td>
</tr>
<tr>
<td>AA</td>
<td>_</td>
<td>_</td>
<td>_</td>
</tr>
<tr>
<td>DEP</td>
<td>_</td>
<td>_</td>
<td>_</td>
</tr>
<tr>
<td>SC</td>
<td>_</td>
<td>_</td>
<td>_</td>
</tr>
<tr>
<td>E</td>
<td>_</td>
<td>_</td>
<td>_</td>
</tr>
</tbody>
</table>

**p<.003, ***p<.001**
Correlations between the DEQ and IDI measures (see Table 6) were evaluated by stepping down the alpha level to .003, according to the Bonferroni method. The matrix showed statistically significant correlations between Emotional Reliance-IDI and Lack of Self-Confidence-IDI, Dependency-DEQ, and Self-Criticism-DEQ. Lack of Self-Confidence correlated with Dependency and with Self-Criticism. Finally, Dependency correlated with Self-Criticism.

**Summary**

The results obtained for both the DEQ and the IDI show a consistent pattern with depressed and remitted subjects reporting more dependency and self-criticism than normal subjects. More importantly the two groups of depressives do not differ in their levels of dependency and self-criticism. For both the DEQ and IDI, no group effect was found on the scales of Assertion of Autonomy (IDI) and Efficacy (DEQ). Finally, the scales of dependency and self-criticism of both tests were highly correlated.

**Memory Task Performance**

Subjects listened to the story of either Janet or Steven, in which adjectives and behaviors exemplified self-critical, dependent, boring, and aggressive traits. The four traits were evenly balanced. Six examples of each of the four traits were found in the story. Subjects were then asked to verbally recall the story as best as they could, a procedure which is referred to as the free recall task. They were then asked to write down their impression of the target person with twelve adjectives or short sentences, thus completing the impression formation task. Finally, they were given a recognition task where they had to recognize the exact wording used in the story for each of the examples of the four traits.

Interaction effects were predicted. On free recall, recognition, and impression formation tasks, current and remitted depressives were predicted to process more efficiently
and therefore demonstrate better recall of self-critical and dependent traits than of boring and aggressive traits. No such within-group effect was expected for the normal control group. It was also expected that, for self-critical and dependent traits, remitted depressives would show better recall than the normal control group.

The hypotheses were analyzed with between-within ANOVAs, with groups as the between factor and traits as the within factor. Separate ANOVAs were conducted if necessary, followed by appropriate multiple comparisons. Correlations among all measures of performance on the three memory tasks can be found in Appendix FF. Correlations between performance on memory tasks and IDI/DEQ are also available (Appendix GG). The results of the performance on three memory tasks are now presented in the following order: free recall, recognition task, and impression formation task.

Free Recall Performance

The free recall performance of subjects was audiotaped and transcribed verbatim. A content analysis of the free recall performance was done following Gottshalk's principles and instructions (Gottshalk & Hoigaard-Martin, 1986). The number of behaviors and adjectives of each trait category -- self-critical, dependent, boring, and aggressive -- was computed. The content analysis of the free recall performance consisted of scoring the presence of four traits: self-critical, dependent, boring, and aggressive.

Two analyses had been planned -- one using very stringent criteria, the other using less strict criteria. The first analysis examined subjects' recall by counting only the same self-critical/dependent/boring/aggressive words used in the initial taped story (see Appendix HH for instructions). However, the accuracy of all subjects was so poor that after scoring 1/3 of the data, this analysis was abandoned (see Appendix II).

The second analysis involved counting behaviors and adjectives of the four trait
categories that were actually present in the story or confabulated (see Appendix JJ for instructions). In this analysis, the presence of the four traits was scored regardless of the resemblance to the original story. Therefore, if a subject verbally recalled that "Janet always put herself down", although this sentence was not present in the initial story, it was coded as one self-critical trait. Synonyms and repetitions of the same attribute were also counted. After preliminary training on pilot data, two independent and blind judges rated the presence of boring, aggressive, dependent, and self-critical traits in a random sample of 1/3 of the experimental data -- 6 subjects from each group. Interjudge reliability collapsing across the four content categories was computed using the Kappa coefficient and yielded good reliability (Kappa=.90).

A between-groups ANOVA (Appendix KK) found a significant group effect for the number of words contained in each subject's output ($F(2,57)= 3.22, p<.05$); however, no significant differences were found with a multiple comparison procedure (see Footnote 2). Performance varied between 0 and 9 recalled words for one category.

The free recall scores were subjected to a 3 X 4 between-within ANOVA (Appendix LL), where the three subject groups were treated as the between-subjects factor and the four dependent measures as the within-subject factor (see Table 7). The analysis revealed a

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2. In view of the difference in number of words recalled across groups, all raw scores were converted into corrected scores which take into account the number of words in the total output.

The corrected scores is: $CS = (\text{raw scores} \times CF) + \frac{1}{2} CF$  (formula 1)

$CS$ is the corrected score

$CF$ is 100 over the total number of words

Using the corrected scores, statistical analyses either mimicked results found with the raw scores or were not sensitive to predicted effects. Since they did not provide further information than the raw scores, these analyses are not reported.
Table 7

**Mean (Standard Deviation) of Free Recall Scores for Each Subject Group**

<table>
<thead>
<tr>
<th>Groups</th>
<th>Dependent</th>
<th>Self-critical</th>
<th>Boring</th>
<th>Aggressive</th>
<th>Number of words</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depressed</td>
<td>2.05(^{ab})</td>
<td>3.25</td>
<td>2.55</td>
<td>2.95(^b)</td>
<td>428.40</td>
</tr>
<tr>
<td></td>
<td>(1.24)</td>
<td>(2.07)</td>
<td>(1.73)</td>
<td>(2.13)</td>
<td>(154.15)</td>
</tr>
<tr>
<td>Remitted</td>
<td>2.85 (^a)</td>
<td>6.25(^{ab})</td>
<td>3.25(^b)</td>
<td>4.50 123</td>
<td>548.40</td>
</tr>
<tr>
<td></td>
<td>(1.46)</td>
<td>(3.55)</td>
<td>(2.73)</td>
<td>(2.87)</td>
<td>(231.88)</td>
</tr>
<tr>
<td>Normal</td>
<td>3.05 (^{ab})</td>
<td>5.10 (^a)</td>
<td>4.20</td>
<td>5.40 (^b)</td>
<td>586.95</td>
</tr>
<tr>
<td></td>
<td>(1.35)</td>
<td>(2.71)</td>
<td>(3.19)</td>
<td>(2.56)</td>
<td>(223.26)</td>
</tr>
</tbody>
</table>

All statistically significant within-group differences (p<.008) are indicated by the means having a common letter. Trends are indicated by common numbers.
Figure 1.

Group X Trait interaction for Free Recall

For remitted: SC > AG > BOR = DEP
For normals: SC = AG > DEP
significant Group X Trait interaction ($E(6,171)= 2.36, p<.05$) (see Figure 1), a significant group effect ($E(2,57)= 5.52, p<.01$), and a significant trait effect ($E(3,171)= 16.90, p<.001$).

Oneway between-groups ANOVAs for each dependent variable (Appendix MM) revealed no group differences for the boring traits ($E(2,57)= 1.99, ns$) and for the dependent traits ($E(2,57)= 3.05, ns$), however significant group differences were present for the aggressive traits ($E(2,57)= 4.75, p<.05$) and for the self-critical traits ($E(2,57)= 5.66, p<.01$). The latter two differences were further examined with $t$-tests with an alpha level of .017. Normal subjects recalled significantly more aggressive traits than depressed subjects ($t(38)=-3.28, p<.01$). Depressed subjects recalled significantly fewer self-critical traits than both the remitted group ($t(38)=-3.26, p<.01$) and the normal group ($t(38)=-2.42, p=.02$). A $t$-test comparing total scores of free recall of depressed and control subjects was significant ($t(38)= 2.45, p<.01$), where depressives recalled less of the four traits than the normal group. This set of data indicates that depressives recalled fewer traits than the two other subject groups, more particularly so for aggressive and self-critical traits.

Within-group effects were investigated with oneway repeated measures ANOVAs for each subject group (see Appendix NN). No significant effect was found for the currently depressed group ($E(3,57)=1.84, ns$). Significant within-group effects were found for the remitted group ($E(3,57)= 12.32, p<.001$) and for the normal control group ($E(3,57)= 6.19, p<.001$).

Multiple comparisons followed with an alpha level of .008 (see Figure 1). The remitted group recalled more self-critical traits than boring traits ($t(19)=-4.46, p<.001$) and dependent traits ($t(19)=-5.29, p<.001$); a trend was present for them to remember
more self-critical traits than aggressive ones ($t(19)=-2.36$, $p=.03$). Trends were found for remitted subjects to recall more aggressive traits than dependent ones ($t(19)=2.86$, $p=.01$) and boring ones ($t(19)=-2.60$, $p=.02$). For the normal control group, aggressive traits ($t(19)=5.38$, $p<.001$) and self-critical traits ($t(19)=-3.83$, $p<.001$) were better recalled than dependent ones.

Overall, the remitted individuals showed a pattern of remembering about the target person more self-critical traits than other traits and, to a lesser degree, more aggressive traits. The control group reflected the same pattern to a smaller degree; by contrast, the depressives did not demonstrate any evidence of a biased recall for any of the traits.

**Recognition Task Performance**

On the recognition task, each of the four traits in the story -- boring, aggressive, self-critical and dependent -- was represented by six items comprising a choice of 4 ends of sentences. Subjects had to choose the end of the sentence heard in the story. Number of errors in recognition was computed for each trait. Maximum performance possible was of 0 errors, and minimum performance was of 6 errors. No subject made 6 errors on any category, while 22 subjects made 0 errors on at least one of the four categories.

A 3 X 4 between-within ANOVA (Appendix O0) revealed no significant group effect ($F(2,57)=1.55$, ns), no significant Group X Trait interaction ($F(6,171)=1.34$, ns), and a significant trait effect ($F(3,171)=8.40$, $p<.001$) (see Table 8). To investigate the trait effect, $t$-tests were performed with the alpha level stepped down to .008. When all groups were considered together, significantly fewer errors were made on the aggressive items than on boring ones ($t(59)=4.87$, $p<.001$) or on dependent ones ($t(59)=3.36$, $p<.001$).
### Table 8
Means (Standard Deviations) of Recognition Scores for Each Subject Group

<table>
<thead>
<tr>
<th>Groups</th>
<th>Dependent</th>
<th>Self-critical</th>
<th>Boring</th>
<th>Aggressive</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depressed</td>
<td>2.00</td>
<td>1.65</td>
<td>2.70</td>
<td>1.95</td>
</tr>
<tr>
<td></td>
<td>(1.29)</td>
<td>(0.99)</td>
<td>(1.30)</td>
<td>(1.10)</td>
</tr>
<tr>
<td>Remitted</td>
<td>2.15</td>
<td>2.05</td>
<td>2.45</td>
<td>1.35</td>
</tr>
<tr>
<td></td>
<td>(0.99)</td>
<td>(1.61)</td>
<td>(1.54)</td>
<td>(1.18)</td>
</tr>
<tr>
<td>Normal</td>
<td>2.00</td>
<td>1.60</td>
<td>1.95</td>
<td>0.95</td>
</tr>
<tr>
<td></td>
<td>(1.21)</td>
<td>(1.39)</td>
<td>(1.39)</td>
<td>(1.15)</td>
</tr>
</tbody>
</table>
Significantly fewer errors were also made on the self-critical items than on the boring items ($t(59)= 2.93, p<.008$).

Overall, these results suggest that no predicted recognition bias occurred for any of the subject groups. The recognition pattern of better recall of self-critical and aggressive traits reflects the one previously found in the free recall task.

**Impression Formation Task Performance**

Subjects were required to generate 12 adjectives or short sentences describing their impression of the target person. The experimenter evaluated if the impression contained themes of self-criticism, dependency, boredom, and aggressivity, and in what proportion (see Appendix PP for instructions). Interrater reliability collapsed over all categories was computed using the Kappa statistics and yielded good reliability ($Kappa=.96$).

A 3 X 4 between-within ANOVA (Appendix QQ) was done treating groups as a between-subject factor and the four traits as the within-subject factor (see Table 9 for means and standard deviations). There were no significant group effects ($F(2,57)= 1.52, ns$) and no significant interaction effects ($F(6,171)=1.05, ns$); however, the trait effect was significant ($F(3,171)= 10.28, p<.001$).

T-tests for the three groups collapsed together showed that self-critical attributes were significantly more frequent in subjects' impression of the target person than the other types of attributes: dependent ($t(59)= 4.93, p<.001$), aggressive ($t(59)= 3.94, p<.001$), and boring attributes ($t(59)= 3.40, p<.001$).

The results of the impression formation task performance suggest that the self-critical trait was salient in the memory script. The predicted Group X Trait interaction effect was not found.
Table 9

Means (Standard Deviations) of the Attributes of the Impression Task for Each Subject

<table>
<thead>
<tr>
<th>Group</th>
<th>Attributes</th>
<th>Dependent</th>
<th>Sc</th>
<th>Boring</th>
<th>Agg</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Depressed</td>
<td></td>
<td>1.15</td>
<td>1.95</td>
<td>0.75</td>
<td>1.10</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.93)</td>
<td>(1.47)</td>
<td>(0.91)</td>
<td>(1.17)</td>
</tr>
<tr>
<td>Remitted</td>
<td></td>
<td>0.70</td>
<td>2.40</td>
<td>1.30</td>
<td>1.05</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.80)</td>
<td>(1.23)</td>
<td>(1.17)</td>
<td>(1.10)</td>
</tr>
<tr>
<td>Normal</td>
<td></td>
<td>1.10</td>
<td>2.00</td>
<td>1.55</td>
<td>1.25</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.97)</td>
<td>(1.52)</td>
<td>(1.28)</td>
<td>(1.12)</td>
</tr>
</tbody>
</table>

Sc: self-critical
Agg: aggressive
Summary

Although results of performance on the three memory tasks were expected to converge towards the same pattern, the obtained results offered a less consistent picture than predicted. For the free recall task, part of the predicted interactive effect was obtained: Remitted depressives showed higher recall of self-critical and aggressive traits than of boring and dependent traits. Contrary to predictions, this effect was present to a smaller degree in the normal control group, and no within-group differences were found in the currently depressed individuals. Performance on the recognition and impression tasks indicated that self-critical traits and, to a lesser degree, aggressive traits, were particularly salient for all groups. However, on these two tasks, the predicted bias for the depressed and remitted subjects did not occur. It should be noted that performance on none of the memory tasks supported hypotheses made about materials reflecting dependent traits.

Sex X Target Effects

To explore any bias due to sex of subjects or sex of target on the three memory tasks, a 2 X 2 ANOVA was performed for each memory variable of the free recall task, the recognition task, and the impression formation task.

A Sex X Target interaction was found to be significant for the dependent variable of the recognition task ($F(1,56)= 4.68, p<.05$) (see Appendix RR). A closer look at this interaction (see Figure 2) shows that while female subjects made slightly fewer errors with female targets than with male targets ($t(28)= -0.67, ns$), male subjects had a significantly higher number of errors for female targets than for male targets ($t(16)= 2.18, p<.05$) and they had a significantly lower number of errors for male targets than females had for the same target ($t(28)= 2.44, p<.05$). For female targets, no significant difference was found between
Figure 2.

**SEX x TARGET INTERACTIONS**

Dependent Errors in Recognition Task

![Graph showing the number of errors for Janet and Steven, with separate lines for males and females.]

**Self-Critical Attributes**

![Graph showing the number of self-critical attributes for Janet and Steven, with separate lines for males and females.]

**Boring Attributes**

![Graph showing the number of boring attributes for Janet and Steven, with separate lines for males and females.]
female and male subjects ($t(40) = -0.19$, ns).

For the impression task, significant Sex X Target interactions were found for two variables -- self-critical attributes ($F(1,56) = 5.47, p<.05$) and boring attributes ($F(1,59) = 4.19, p<.05$) (see Appendix RR). For the self-critical attributes, male and female subjects did not have a different impression of the female target ($t(28) = -0.85$, ns) but offered significantly different impressions of the male target ($t(28) = 2.57, p<.05$) (see Figure 2). While female subjects' impression of the two targets were not significantly different ($t(40) = -0.56$, ns), males gave the female target significantly more self-critical attributes than the male target ($t(16) = 3.92, p<.001$).

For the boring attributes of the impression task, females did not have significantly different impressions of the two targets ($t(40) = 0.35$, ns) but males gave the male target significantly more boring attributes than to the female target ($t(16) = -2.26, p<.05$). For the female target, female subjects had impressions involving significantly more boring attributes than males ($t(28) = 1.69, p<.029$). There were no differences between male and female subjects' descriptions of the male target ($t(28) = -1.21$, ns).

In recent years, sex role and gender research has found it more useful to examine observers' biases not in terms of their gender but rather in terms of their degree of gender-schematicity (whether they describe themselves as stereotypically masculine or feminine in accord with their gender) and of androgyny (Bem, 1981). In the present study, no assessment of the subjects' gender-schematicity was made rendering it difficult to analyze the exact cause of the Sex X Target effects. Given that all subject groups were balanced for sex of subjects and sex of target, the observed sex and target effects do not present a serious threat to the internal validity of the present study.
Stroop Task Performance

Group X Card interaction effects were predicted on Stroop task performance:
Currently and remitted depressives would show more interference on self-critical and
dependent Stroop cards than on control cards, but no such within-group effect was predicted
for the control group. It was also expected that currently depressed individuals would
demonstrate more interference on the mood-congruent card than on the control card. It was
further predicted that currently and remitted depressives would show more interference on
self-critical and dependent Stroop cards than normal controls, and that currently depressed
individuals would demonstrate more interference on mood-congruent cards than both normal
control and remitted depressives groups. No such between-group differences were expected on
the control card.

Traditionally, researchers using the Stroop paradigm in the study of
psychopathology have compared the time taken to name experimental Stroop cards and control
cards (Mathews & MacLeod, 1985, 1986; Watts, McKenna, Sharrock, & Trezise, 1986;
Williams & Broadbent, 1986; Williams & Nulty, 1986) rather than using interference
scores, that compensate for differences in baserates of reading and color-naming speed. The
present study tackled the problem of different baserates for different groups in two ways.
Firstly, within-group differences were considered. Secondly, one of the various interference
scores was used, the one suggested by the original procedure of Stroop (1935). The latter
score consists of adding the time taken for colors-only and words-only and subtracting the
time taken for experimental cards.

In this study, both raw scores and interference scores for the dependent,
self-critical, mood-congruent and control cards are considered, thus yielding eight scores to
be considered (see Table 10). Raw scores are used in order to make comparisons with
Table 10

Means (Standard Deviations) of Raw Stroop Scores and of Interference Stroop Indices

<table>
<thead>
<tr>
<th>Variables</th>
<th>Depressed</th>
<th>Remitted</th>
<th>Normal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Raw scores</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dependent</td>
<td>38.10</td>
<td>33.85</td>
<td>32.35</td>
</tr>
<tr>
<td></td>
<td>(11.18)</td>
<td>(6.05)</td>
<td>(6.63)</td>
</tr>
<tr>
<td>Self-critical</td>
<td>37.45</td>
<td>34.10</td>
<td>32.45</td>
</tr>
<tr>
<td></td>
<td>(7.12)</td>
<td>(6.54)</td>
<td>(6.16)</td>
</tr>
<tr>
<td>Mood-congruent</td>
<td>39.60</td>
<td>33.55</td>
<td>33.101</td>
</tr>
<tr>
<td></td>
<td>(13.13)</td>
<td>(4.61)</td>
<td>(5.80)</td>
</tr>
<tr>
<td>Control</td>
<td>36.35</td>
<td>32.35</td>
<td>32.15</td>
</tr>
<tr>
<td></td>
<td>(8.14)</td>
<td>(4.98)</td>
<td>(6.05)</td>
</tr>
<tr>
<td>Color</td>
<td>28.90</td>
<td>27.85</td>
<td>28.00</td>
</tr>
<tr>
<td></td>
<td>(5.45)</td>
<td>(3.63)</td>
<td>(6.35)</td>
</tr>
<tr>
<td>Words</td>
<td>20.30</td>
<td>19.50</td>
<td>19.30</td>
</tr>
<tr>
<td></td>
<td>(4.05)</td>
<td>(2.56)</td>
<td>(3.42)</td>
</tr>
</tbody>
</table>

Statistical differences (p<.008) are indicated by two means having a common letter.

Trends are indicated by a common number.
Means (Standard Deviations) of Raw Stroop Scores and Interference Stroop Indices (continued)

<table>
<thead>
<tr>
<th>Variables</th>
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<th>Remitted</th>
<th>Normal</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Interference scores</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dependent</td>
<td>11.10</td>
<td>13.50</td>
<td>14.95</td>
</tr>
<tr>
<td></td>
<td>(7.54)</td>
<td>(3.20)</td>
<td>(5.12)</td>
</tr>
<tr>
<td>Self-critical</td>
<td>11.75</td>
<td>13.25</td>
<td>14.85</td>
</tr>
<tr>
<td></td>
<td>(5.64)</td>
<td>(3.60)</td>
<td>(4.23)</td>
</tr>
<tr>
<td>Mood-congruent</td>
<td>9.60</td>
<td>13.80</td>
<td>14.20</td>
</tr>
<tr>
<td></td>
<td>(9.36)</td>
<td>(4.15)</td>
<td>(5.24)</td>
</tr>
<tr>
<td>Control</td>
<td>12.95</td>
<td>15.00</td>
<td>15.15</td>
</tr>
<tr>
<td></td>
<td>(6.12)</td>
<td>(4.27)</td>
<td>(4.49)</td>
</tr>
</tbody>
</table>

Statistical differences (p<.008) are indicated by two means having a common letter.

Trends are indicated by a common number.
other studies, while interference scores are used to reflect the original procedure of Stroop which aims at eliminating the sources of variation of each subject's individual speed for naming colors and words.

Oneway between-groups ANOVAs were conducted on time taken to name items on the words-only card, on time to name items on the color-only card (Appendix SS), and on number of errors made on each experimental card (Appendix TT), to identify or exclude the presence of confounding variables. Errors were defined as the occurrence of an incorrect response or the absence of a response. No significant differences were found for words ($E(2,57)=0.48$, ns) or for color ($E(2,57)=0.21$, ns) (see Table 10). Number of errors made on each card was also compiled and no significant group differences were found for word ($E(2,57)=1.00$, ns), for color ($E(2,57)=0.63$, ns), for the dependent card ($E(2,57)=0.45$, ns), for the self-critical card ($E(2,57)=3.07$, ns), for the mood-congruent card ($E(2,57)=0.20$, ns) and for the control card ($E(2,57)=1.37$, ns). Correlations between Stroop performance measures and DEQ/IDI measures can be found in Appendix UU.

Analysis of the raw scores of the Stroop task performance are first presented, followed by the analysis on the interference scores.

**Raw Stroop Scores**

The 3 X 4 between-within ANOVA on the 4 Stroop cards (Appendix VV) yielded a significant group effect ($E(2,57)=3.57$, $p<.05$), a significant Group X Card interaction ($E(6,171)=2.21$, $p<.05$), and a trend for a card effect ($E(3,171)=2.40$, $p=.06$) (see Figure 3). Three oneway repeated measures ANOVAs were used to examine within-group effects for each group (Appendix WW): These analyses were all nonsignificant: for the depressed group ($E(3,57)=1.23$, ns), for the remitted group ($E(3,57)=2.20$, ns), and for the control
FIGURE 3.  Stroop Raw Scores of the Three Subject Groups

Cards
D - Dependent card
SC - Self-critical card
MC - Mood-congruent card
N - Normal card
Four oneway between-group ANOVAs (Appendix XX) were done for each card score. No significant group effects were found: for the dependent card ($F(2,57) = 2.59, \text{ns}$), for the self-critical card ($F(2,57) = 2.96, \text{ns}$), or for the control card ($F(2,57) = 2.51, \text{ns}$). For the mood-congruent card, the oneway between-group ANOVA yielded a significant group effect ($F(2,57) = 3.48, p < .05$). Multiple comparisons revealed a trend for the depressed group to have longer latencies than the normal group ($t(38) = 2.02, p = .05$) on the mood-congruent card.

**Interference Scores**

A between-within 3 X 4 ANOVA (Appendix YY) yielded a significant group effect ($F(2,57) = 3.20, p < .05$), a trend for a card effect ($F(3,171) = 2.48, p = .063$), and no significant Group X Trait interaction effect ($F(6,171) = 0.71, \text{ns}$) (see Table 10). In order to allow a comparison of results obtained with raw scores and interference scores, analyses done for raw scores were also done for interference scores.

Three oneway repeated measures ANOVAs were used to examine within-group effects for each subject group (Appendix ZZ). Results were nonsignificant for the depressed group ($F(3,57) = 1.23, \text{ns}$), for the remitted group ($F(3,57) = 2.20, \text{ns}$), and for the control group ($F(3,57) = 0.70, \text{ns}$).

Four oneway between-groups ANOVAs (Appendix AAA) were done for each Stroop interference score to verify predicted group differences. There were no group effects on the self-critical ($F(2,57) = 2.30, \text{ns}$), the dependent ($F(2,57) = 2.43, \text{ns}$), and the control ($F(2,57) = 1.20, \text{ns}$) cards. A trend was found for the mood-congruent card ($F(2,57) = 2.94, p = .06$) but no multiple comparisons were significant (see Table 10).

In sum, the interference scores did not yield any significant effects and appear...
to be a more conservative test than the raw Stroop scores.

**Correlations of Stroop Dependent Measures with BDI and STAI**

Correlations of anxiety measures (STAI) and depression measures (BDI) of all subjects were significant for all raw Stroop scores as well as for the dependent, self-critical, and mood-congruent interference indices (see Table 11). Hence, it appears that heightened levels of anxiety and depression are related to more interference on self-critical, dependent and mood-congruent Stroop cards. To investigate the relative importance of mood and subject group status in the prediction of Stroop scores, a stepwise regression analysis was conducted using BDI, STAI and group status as predictor variables, and Stroop scores as dependent variables - both raw and interference (see Table 12). Despite little variance explained in the dependent measures of the Stroop, the best predictor variables were the BDI or the STAI, except for the Mood-Congruent interference index. For the latter, the best predictor was group status.

To gain a better understanding of what mediates the mood-congruent card effect for the depressives, the STAI and the BDI scores of this group were correlated with their interference scores on the mood-congruent card. No significant correlation was found either for the BDI ($r(18)=.12$, ns) or for the STAI ($r(18)=.08$, ns). The absence of significant correlations can be attributed to a very narrow range of STAI and BDI scores for the depressives.

**Summary**

With the raw Stroop scores, a trend for a group difference was found with the currently depressed group showing slower reading of words on the mood-congruent card compared to the control group. No predicted Group X Card interaction for the self-critical and dependent cards were found. No significant effects were found when using the
Table 11

Correlations of State-Trait Anxiety (STAI) and Beck Depression Inventory (BDI) with Raw Stroop Scores and Interference Indices

<table>
<thead>
<tr>
<th></th>
<th>Raw Stroop scores</th>
<th></th>
<th>Interference indices</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Dependent</td>
<td>Self-critical</td>
<td>Mood-congruent</td>
<td>Neutral</td>
</tr>
<tr>
<td><strong>STAI</strong></td>
<td>0.36**</td>
<td>0.39***</td>
<td>0.35**</td>
<td>0.31**</td>
</tr>
<tr>
<td><strong>BDI</strong></td>
<td>0.38***</td>
<td>0.38***</td>
<td>0.32**</td>
<td>0.33**</td>
</tr>
<tr>
<td><strong>STAI</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>BDI</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*p < .05, **p < .01, ***p < .001
Table 12

Summary of regression analysis

<table>
<thead>
<tr>
<th>Predictor variables</th>
<th>Group</th>
<th>BDI</th>
<th>STAI</th>
<th>Multiple R²</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Raw Stroop scores</strong></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Dependent</td>
<td></td>
<td>.38**</td>
<td>.15</td>
<td></td>
</tr>
<tr>
<td>Self-critical</td>
<td></td>
<td>.39**</td>
<td>.15</td>
<td></td>
</tr>
<tr>
<td>Mood-congruent</td>
<td></td>
<td>.35**</td>
<td>.12</td>
<td></td>
</tr>
<tr>
<td>Control</td>
<td></td>
<td>.32*</td>
<td>.11</td>
<td></td>
</tr>
<tr>
<td><strong>Interference indices</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dependent</td>
<td></td>
<td>-.33**</td>
<td>.11</td>
<td></td>
</tr>
<tr>
<td>Self-critical</td>
<td></td>
<td>-.28*</td>
<td>.08</td>
<td></td>
</tr>
<tr>
<td>Mood-congruent</td>
<td></td>
<td>.27*</td>
<td>.08</td>
<td></td>
</tr>
<tr>
<td>Control</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*p<.05, **p<.01, ***p<.001
Correlational results were interesting since it appears that the STAI and BDI levels mediate Stroop effects for all groups collapsed together.

Correlations Related to the Scar Hypothesis

The scar hypothesis proposes that both duration and number of past depressive episodes may play a role in individuals' vulnerability to depression. In order to investigate if results of the present study support the scar hypothesis, correlations were done for dependent variables with number of past depressive episodes and total duration of all episodes for both patient groups (see Table 13).

For the depressed and the remitted groups combined, correlations were used to examine the relationship of number and duration of depressive episodes with all dependent variables (alpha of .01). No significant correlations were found between the number and duration of depressive episodes and any of the mood measures (BDI, STAI, M-R Pleasure and Arousal), or any of the IDI and DEQ measures. However, for the recognition task, number of depressive episodes correlated with errors made in recognition of aggressive and self-critical items (see table 13). For performance on the impression and free recall tasks, no significant correlations were found with number and duration of depressive episodes. Finally, both duration and number of depressive episodes correlated with interference on the dependent card of the Stroop task, and duration only correlated with interference on the mood-congruent card. Overall, duration and number of past depressive episodes appear to be somewhat related in the predicted direction with performance on the recognition and Stroop tasks of the study.

Arousal and Pleasure

Due to the nature of the tasks involved in the study where subjects
Table 13

Correlations of Total Duration and Number of Depressive Episodes with Free Recall, Recognition Errors, Impression Attributes, and Stroop Interference Indices

<table>
<thead>
<tr>
<th></th>
<th>Free recall scores</th>
<th>Recognition errors</th>
<th>Impression task</th>
<th>Stroop interference</th>
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<tbody>
<tr>
<td></td>
<td>Boring</td>
<td>Aggressive</td>
<td>Dependent</td>
<td>Self-critical</td>
</tr>
<tr>
<td>Number of episodes</td>
<td>-0.20</td>
<td>-0.16</td>
<td>0.16</td>
<td>0.25</td>
</tr>
<tr>
<td>Duration of episodes</td>
<td>-0.25</td>
<td>0.01</td>
<td>0.22</td>
<td>0.04</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recognition errors</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Boring</td>
<td>0.06</td>
<td>0.35*</td>
<td>-0.06</td>
<td>0.33*</td>
</tr>
<tr>
<td>Number of episodes</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Duration of episodes</td>
<td>-0.10</td>
<td>0.13</td>
<td>0.14</td>
<td>0.23</td>
</tr>
<tr>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Impression task</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-critical</td>
<td>0.27</td>
<td>0.11</td>
<td>-0.21</td>
<td>-0.14</td>
</tr>
<tr>
<td>Number of episodes</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Duration</td>
<td>0.14</td>
<td>-0.05</td>
<td>-0.06</td>
<td>-0.30</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stroop interference</td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>Self-critical</td>
<td>-0.20</td>
<td>-0.53***</td>
<td>-0.28</td>
<td>-0.22</td>
</tr>
<tr>
<td>Number of episodes</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Duration of episodes</td>
<td>-0.22</td>
<td>-0.43*</td>
<td>-0.44**</td>
<td>-0.15</td>
</tr>
</tbody>
</table>

*p<.01, **p<.002, ***p<.001
had to answer questions related to depressive symptomatology, evaluate their self-critical and
dependent attitudes, and hear the story of a seemingly depressed target person, it was
considered possible that some subjects' mood could be negatively affected by doing the study.
This possibility was of most concern for the remitted group who could have undergone an
unexpected "mood induction".

To examine any possible mood changes, the Mehrabian-Russell scale was given both
at pretest -- after the SADS, BDI, IDD, and STAI --, and at posttest -- after the Stroop task
and before answering the IDI and DEQ questionnaires (see Table 14). One Group X Prepost
ANOVA was performed for each pleasure and arousal measure (Appendix BBB), as these
measures are orthogonal. For arousal, a group effect was significant ($E(2,57)= 3.19,
p<.05$), as well as a prepost effect ($E(1,57)= 23.00, p<.001$) and a Group X Prepost
interaction ($E(2,57)= 3.67, p< .05$). For the pleasure dimension, a group effect was
significant ($E(2,57)= 40.60, p<.001$), however the prepost effect ($E(1,57)= 1.11, \text{ns}$) and
the Group X Prepost interaction effect ($E(2,57)= 3.02, \text{ns}$) were not significant.

Between-group ANOVAs for each pretest measures (Appendix CCC) showed a
significant group effect for arousal ($E(2,57)= 6.21, p<.01$) and for pleasure ($E(2,57)=
44.87, p<.001$). Multiple comparisons indicated that depressives reported significantly less
pleasure than remitted ($t(19)= 6.55, p<.001$) and normal ($t(19)= 9.35, p<.001$)
subjects. For the pretest arousal scores, the depressives had significantly lower levels of
arousal than normal subjects ($t(38)= 3.34, p<.001$).

Between-groups ANOVAs for the posttest measures (Appendix DDD) showed a
significant group effect for pleasure ($E(2,57)= .26.00, p<.001$), where the depressed group
had significantly lower levels of pleasure than the remitted group ($t(19)= 5.16, p<.001$) and
Table 14

Means (Standard Deviations) of the Mehrabian-Russell Dimensions of Arousal and Pleasure at Pretest and Posttest

<table>
<thead>
<tr>
<th>Variables</th>
<th>Depressed</th>
<th>Remitted</th>
<th>Normal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pleasure-pretest</td>
<td>36.55</td>
<td>18.55</td>
<td>14.75</td>
</tr>
<tr>
<td></td>
<td>(8.85)</td>
<td>(8.52)</td>
<td>(5.51)</td>
</tr>
<tr>
<td>Pleasure-posttest</td>
<td>34.70</td>
<td>20.20</td>
<td>17.45</td>
</tr>
<tr>
<td></td>
<td>(9.62)</td>
<td>(8.08)</td>
<td>(6.35)</td>
</tr>
<tr>
<td>Arousal-pretest</td>
<td>34.55</td>
<td>29.35</td>
<td>27.00</td>
</tr>
<tr>
<td></td>
<td>(8.07)</td>
<td>(6.28)</td>
<td>(5.61)</td>
</tr>
<tr>
<td>Arousal-posttest</td>
<td>27.50</td>
<td>25.60</td>
<td>25.65</td>
</tr>
<tr>
<td></td>
<td>(8.02)</td>
<td>(7.24)</td>
<td>(5.01)</td>
</tr>
</tbody>
</table>
the control group ($t(19)= 6.69, p<.001$). No significant between-groups effect was found on the posttest arousal scores ($F(2,57)= .50, ns$).

To investigate the Prepost X Group interaction of the arousal dimension, prepost $t$-tests were done for each subject group. Both depressed ($t(19)= 3.66, p<.01$) and remitted subjects ($t(19)= 2.79, p= .012$) reported a significant increase of arousal at posttest, but no significant difference was present for normal subjects ($t(19)= 1.43, ns$).

To summarize, normal and remitted subjects reported being in a more pleasurable state than depressives throughout the experiment, which invalidates the possibility of a negative mood induction (Eich & Metcalfe, 1989). Concerning the arousal measure, both depressed and remitted subjects experienced significant increases in arousal which nullified at posttest the pretest group differences. It appears that remitted and depressed subjects were stimulated by the experiment, possibly by the interpersonal contact. The majority of depressed patients were hospitalized and often welcomed the opportunity to talk to someone, whereas the remitted subjects were often eager to "tell their story".
Chapter 8

GENERAL DISCUSSION

Overview

In this chapter, the major findings of the study are reviewed. The results are discussed to determine if they support each of the nine hypotheses guiding the study. The final section of this chapter discusses the study's theoretical and clinical implications, its limitations, and directions for future research.

Main Findings

DEQ and IDI measures yielded clear and consistent results: current and remitted depressives showed higher levels of self-criticism and of interpersonal dependency than the normal control group.

Results from the three memory tasks were more ambiguous. For the free recall task, an interaction effect was found: The remitted depressives recalled more self-critical traits than other traits. However, contrary to predictions, the control group also recalled more self-critical traits than dependent ones, while the currently depressed group did not show the predicted bias. For the recognition and impression formation tasks, there was no evidence of a bias predicted by hypotheses.

For the Stroop scores, there were no within group differences. However, an interaction was found in that the currently depressed group had longer latency times than the control group for the mood-congruent card. The same attentional bias had been predicted for the remitted group and was not supported by results. No group differences occurred on any other card.

The three components of the study -- the questionnaires, the memory tasks, and the Stroop task -- elicited three different patterns of results. The DEQ and the IDI confirmed that
depressives and remitted individuals report self-critical and dependent attitudes, which indicates the presence of the two schemata. The memory tasks offered very weak support for the hypothesis that remitted depressives process information according to a self-critical schema, whereas no evidence was obtained for the dependent schema. The Stroop task provided no evidence that depressives or remitted individuals show any self-critical or dependent attentional bias for schematic materials.

Self-report of Dependency and Self-criticism

Hypothesis 1

It was hypothesized that currently depressed and remitted patients would demonstrate higher levels of dependency and self-criticism than the normal control group on the DEQ and IDI scales.

Results support Hypothesis 1 as depressed and remitted patients had higher scores of dependency than the normal control subjects on both the IDI and the DEQ, higher scores of self-criticism than normal controls on the DEQ and higher scores of Lack of Social Self-Confidence on the IDI. Moreover, depressed and remitted groups did not differ in levels of dependency and self-criticism. Finally, all three subject groups reported equivalent levels of autonomy on the IDI and of efficacy on the DEQ.

The results of the present study replicate those obtained in other studies comparing remitted depressives with normal controls on the IDI (Hirschfield et al., 1983; Hirschfield et al., 1984; Reich et al., 1987). However, for the DEQ, results of the present study represent the first comparison of remitted depressives and normal controls.

The present results cannot be explained in terms of mood congruence as the analyses of covariances on the DEQ and IDI demonstrated. Furthermore, the results do not likely reflect an unintended mood induction effect produced by being exposed to "depressing" materials. The
remitted depressives were not significantly different from the normal control group on positive affect levels as indicated by the Mehrabian-Russell Pleasure dimension. On the Mehrabian-Russell Arousal dimension, remitted and depressed subjects experienced an increase of arousal during the experiment rather than a decrease, while the normal control remained at the same level. Hence, none of the indices of depressive mood point to a mood congruence explanation.

The consistency found in the results of the IDI and the DEQ, combined with the confidence one has in eliminating the mood congruence explanation, leads to the conclusion that depressives may have dependent and self-critical schemata. More importantly, the results indicate that the schemata may persist during remissions and are not mere episode markers.

A further question addressed by the present study concerns the relationship between dependent and self-critical schemata, which were found to be highly correlated. Two types of relationship are possible: 1) the two schemata may in fact be one and the same construct, 2) they may be independent schemata which at times co-occur in the same individual.

The first proposition of a unique self-critical/dependent schema is supported by the finding of high correlations between measures of dependency and self-criticism in other studies. High correlations among the two DEQ subscales have been reported for a group of inpatients which included 60% depressives (Brown & Sliberschatz, 1989) and for a group of college students (Brewin & Furnham, 1987). The idea that self-criticism and dependency could be part of the same factor is conceptualized in the following manner: persons with low self-esteem may increase their self-esteem with approval from and interactions with other people (Chodoff, 1972), and thus, be both self-critical and interpersonally dependent. This proposition should be evaluated in future studies.

The second proposition raises the possibility of an independent relationship between
self-critical and dependent schemata. Past studies (Hammen et al., 1985; Zuroff & Mongrain, 1987) have found subjects differing in self-critical and dependent attitudes, but not in their affective reactions to failure and rejection. While persons reporting dependency schemata experienced negative mood to dependency related events only, persons with self-critical schemata did not reflect the same specificity for self-criticism related events; they experienced negative mood in both rejection and failure situations. To explain the above results, Zuroff and Mongrain (1987) suggested that self-critical persons interpret personal rejection as failure, therefore reacting negatively to it. In their study, self-critical subjects reacted to rejection with more self-blame, self-criticism and guilt than normal controls. Thus, guided by two different cognitive schemata, two persons may interpret the same event according to their own personal schema of dependency or self-criticism and perceive it either as a failure or as a rejection. These findings suggest that, although the self-critical and dependent schemata may be cognitively independent, they may lead to the same depressive reaction in a given situation. Future studies would benefit from examining not only the affective reactions of individuals but also their cognitive interpretations of an event in order to clarify the specificity of schemata.

The foregoing studies (Hammen et al., 1985; Zuroff & Mongrain, 1987) were conducted using college student subjects, and thus, their findings must be interpreted cautiously. It is possible that in clinical populations like those used in the present study, dependent and self-critical schemata are both present in the depressed individual. In fact, it may very well be the case that in order to become severely depressed one has to have both vulnerability factors of dependency and self-criticism. Dependent individuals may interpret many of their social contacts negatively, but find some comfort in their achievements at work, and therefore avoid the "depressive spiral". However individuals who are both dependent and self-critical interpret negatively both interpersonal and performance-related events. As a
consequence they have very few "fall-back" positions and find themselves vulnerable in two important and encompassing aspects of life - love and work, which are taken in their broadest sense.

Performance on Memory Tasks

Three tasks -- free recall, recognition, and impression formation -- were designed to examine subjects' processing of an integrated body of information. Performance on the three memory tasks is considered jointly.

Hypotheses 2 and 3: Performance on Free Recall, Recognition, and Impression Formation Tasks

Hypothesis 2 stated that currently and remitted depressed subjects would recall more self-critical and dependent traits from the story than aggressive and boring traits; it was further hypothesized that they would make fewer errors in the recognition task for self-critical and dependent items than for aggressive and boring items. Normal controls would show no such within-group effects on the free recall and recognition tasks. Hypothesis 3 stated that currently depressed and remitted subjects would report more dependent and self-critical traits than aggressive and boring traits, in their impressions of the target person. No such within-group effect was predicted for the normal control group.

Results from the recognition task did not offer any support for hypothesis 2, as no Group X Trait interaction was found. Similarly, performance on the impression formation task did not support hypothesis 3. Performance on the free recall task was mixed: the predicted within-group effects were found for the remitted group for self-critical traits, whereas the same predicted bias was not present for the currently depressed. Results from the normal control group indicate that traits were not equally salient in the memory script. Indeed, for the control group, the aggressive and self-critical traits were more frequently given on the free recall task than the dependent trait. The greater saliency of aggressive and self-critical traits is
further demonstrated by results concerning performance on recognition and impression formation tasks.

Two possible explanations can be offered for the above differences in the performance on the free recall task of the control group. First, it is possible that although the numbers of examplars of each trait were equivalent in the script, the prototypicality of the examplars was not the same for all traits, which would affect how well they would be remembered (Rosch, 1978). Second, it has been found that behaviors that do not "fit" with a coherent set of other behaviors presented, or behaviors that are not predictable given these other behaviors, are more accurately remembered than the coherent set of behaviors (Bargh & Thein, 1985). In the present study the one behavior that may not fit with the others is aggression, since a boring and dependent person appears to be less liable to become aggressive. Thus, the aggressive trait may have been more salient in the memory script when compared to the other traits and, therefore, was more accurately remembered by all subjects.

The saliency of the aggressive trait found in the control group should be kept in mind when one proceeds to the analysis of the remitted group. Results from the free recall task of the remitted subjects show trends for the aggressive traits to be more easily recalled than boring and dependent traits. The latter finding can be attributed to the saliency of the aggressive traits inherent in the memory script.

The most interesting set of findings concerns the remitted subjects' performance on free recall. In support of hypothesis 2, two significant multiple comparisons (Self-Critical > Boring, Self-Critical > Dependent) suggest that remitted depressives demonstrated higher recall for information related to self-criticism. Moreover, a trend was found for remitted depressives to have higher recall of self-critical traits than aggressive traits. These findings are the only results related to performance on memory tasks that support the main proposition
of the present study; namely, that remitted depressives retain a self-critical schema that guides their processing of information and provides them with a better access to information related to self-criticism. The fact that dependent traits were recalled very poorly by the three groups contradicts hypothesis 2. However, given that poor recall was also true for the control group for this trait, this finding suggests that the script itself may have been weak in presenting the target person as dependent.

For the depressed group, no significant differences were found in performance on neither of the three memory tasks. Two explanations are possible. First, the absence of any effect can be attributed to this group's well-known impoverished memory (Wright & Simon, 1990): Depressed subjects recalled fewer aggressive traits than the control group and fewer self-critical traits than remitted and control groups. The recall of depressives for the four traits considered together was also significantly poorer than the normal controls'. Thus, any effects attributable to processing of the script guided by personal schemata may have been eliminated by the depressives' impoverished memory. The second explanation for the absence of a memory bias in the currently depressed individuals is more problematic. The negative findings raise the question of whether the self-critical and dependent traits of the target person were indeed likely to be better processed by depressed individuals than the boring and aggressive traits. The implications of the latter interpretation of results will be considered in a later section on both the memory and Stroop tasks.

Taken together, the results of performance on the free recall task offer very weak evidence that the information processing of remitted subjects is guided by a self-critical schema when they are in a nondepressed mood. The fact that this effect was not found in performance on recognition and impression formation tasks suggests that it is possibly due to a Type-I error. The absence of a memory bias in the current depressives also raise the
possibility that the tasks were not sensitive to the effects of depressogenic schemata on information processing. No results supported the existence of a dependent schema in any of the three subject groups.

Performance on the Modified Stroop Task

Hypotheses 4 to 7

The four hypotheses related to the Stroop task are first described. Implications of the results for the hypotheses are then discussed.

Hypothesis 4 predicted a Group X Card interaction: currently depressed and remitted patients were expected to show more interference on the Stroop cards related to self-criticism and dependency than on the control Stroop card, but there would be no such within-group effects for the control group. Currently depressed patients would show more interference on the depressed mood-congruent card than on the control card, but no such within-group difference would be found for remitted or control subjects (hypothesis 6). A further Group X Trait interaction was predicted: interference on the self-critical and dependent cards would be higher for the currently depressed and remitted patients than for the normal control group (hypothesis 5), but no such between-group difference was predicted for the control card. Interference on the depressed mood-congruent card would be higher for currently depressed patients than for both the normal control and the remitted depressed groups (hypothesis 7).

Only hypothesis 7 received some support as a trend was found for the currently depressed group to have longer reading times than the normal group on the mood-congruent card. No predictions were sustainable concerning a hypothesized attentional bias for self-critical and dependent materials for the remitted and depressed groups.

Two questions need to be addressed in the light of the failure to support the
hypotheses. First, how can one explain that depressives only showed a trend of interference on the mood-congruent card? Second, what are the implications of the results obtained for the effect of content specificity of the Stroop effect?

Concerning the first question, it should be underscored that the finding of a between-group attentional bias for depressives on a mood-congruent Stroop card has proven to be very robust in the past (Gotlib & Cane, 1987; Gotlib & McCann, 1984). It is therefore important to consider the possibility that the group difference, in the present study, did not reach significance due to a type-II error. In fact, the power of the design was of .35, with an effect size of .66. We will first examine aspects of the study which are not in favor of a type-II error, followed by those which are.

Some novel aspects of the present study suggest that negative results may not be attributed necessarily to a type-II error. The present study controlled for the rated emotionality of the words composing each card, a control that none of the past studies included (Gotlib & Cane, 1987; Gotlib & McCann, 1984; Williams & Broadbent, 1986; Williams & Nulty, 1986). Therefore, it is possible that the usual attentional bias effect observed in depressives in past studies may have been in fact due to mood-congruent cards being higher in emotionality than control cards. A recent study has found the latter emotionality effect to be true for a group of generalized anxiety patients (Martin, Williams, & Clark, 1988): The anxious patients displayed more interference on anxious and positive words matched on emotionality than neutral words, while controls exhibited equal interference on anxious, positive and neutral words. Further research is certainly warranted to clarify the possibility of an emotionality confound.

In favor of a type-II error is the fact that the only trend present in all multiple comparisons was for depressives to have more interference than controls on the
mood-congruent card, as indicated by raw scores. The past robustness of the effect also gives support to the idea that we may be facing a type-II error. The significant correlations of anxiety measures (STAI) and depression measures (BDI) with the Stroop are also in favor of a type-II error. These correlations reveal that, when looking at Stroop interference indices, heightened levels of anxiety and depression are related to more interference in self-critical, dependent and mood-congruent Stroop cards. In addition, a regression analysis with Stroop scores as dependent variables, present the BDI and the STAI as the best predictor variables compared to group status. The only exception was for mood-congruent interference for which the best predictor variable was the group status. These findings suggest a mood-congruent explanation for the Stroop effect, where interference is mediated by depression and anxiety.

Concerning the second question of a specificity of words effect, interference indices offered no sign of any specificity for self-critical and dependent cards, neither for the depressives nor for the remitted. It has been suggested that only by using idiographic adjectives provided by the subjects themselves will the schemata of subjects be sufficiently activated to create any specificity of content effect (Segal, 1988).

Considered jointly, the results suggest that depressives' attentional bias for mood-congruent material can be attributed to a mood congruence effect, and that remitted individuals do not show an attentional bias for dependent or self-critical material. Thus, depressive mood-congruent attentional bias may not be more than an episode marker of depression.

Automatic Tasks - Memory and Attentional biases for Currently and Remitted Depressives

The three types of methodology used in this study - questionnaires, memory tasks and the Stroop task - do not converge toward the same patterns of results. Although the responses to the questionnaires clearly support the existence of dependent and self-critical
interpersonal schemata in currently and remitted depressives, the results of performance on
the free recall task give weak support for the existence of a self-critical schematic processing,
but not for a dependent one. The recognition and impression formation tasks do not support the
predictions made about information processing in remitted and current depressives. Similarly,
the Stroop task does not confirm the predicted self-critical and dependent attentional biases for
currently and remitted depressives, but a trend is found supporting a mood congruent
attentional bias for the currently depressed as compared to normals.

The Daigleish and Watts' Model

The results of the memory and Stroop tasks contradict the theoretical propositions
of a recent model (Daigleish & Watts, 1990; Williams, Watts, MacLeod, & Mathews, 1988),
that states that people suffering from anxiety disorders demonstrate an attentional bias for
material related to danger or threat, whereas people suffering from depression present a
memory bias for mood-congruent material. Furthermore, according to this model, depressed
individuals are expected to show a memory bias but no attentional bias (see Footnote 3). The
present study did not corroborate their view in that little evidence suggested that depressives
demonstrate a memory bias. Instead, evidence was stronger for the presence of an attentional

3. Williams and his colleagues have suggested that anxiety's effects in anxious individuals occurs at an
earlier stage in processing than the effect of depression in depressives, by automatically priming the
given construct (e.g. danger). Given the phenomenology of anxiety, it makes sense that anxious patients
would demonstrate a hypervigilance for threat cues. The effect of depression takes place at a later stage
in processing; namely, the stage of elaboration (Graf & Mandler, 1984) which consists of "the activation
of a representation in relation to other associated representations to form new relationships between
them and to activate old relationships" (Williams et al., 1988, p. 170). The greater elaboration of
mood-congruent/schema-congruent material results in a better memory for this material at recall, as the
reactivation of old and new pathways will render the material more retrievable.
bias for mood-congruent material, but not for self-critical and dependent material.

Daigleish and Watts (1990) argue that past studies finding Stroop effects for depressives did not measure anxiety levels and thus failed to observe that the Stroop effect may have been due to anxiety rather than depression. Results of the present study show that Stroop effects were present on the mood-congruent card and were mediated by anxiety and/or by depression. Results prohibit a conclusion concerning whether the mood-congruent attentional bias observed in depressives was mediated by anxiety or whether such a bias was due to a depressive mood congruence effect.

The Effect of Mood Congruency in Depressed Individuals

Contrary to Daigleish and Watts’ proposition, a memory bias was not found for the current depressives. Such negative results may be attributed to the construction of the memory script. In the three memory tasks, it is possible that, contrary to predictions, boring, aggressive, dependent, and self-critical traits were recalled equally well by the currently depressed individuals because these traits were equal in their degree of general negativity. In order to eliminate the mood congruence explanation, the traits had been chosen to be different in terms of the schemata they reflected, but to be the same in terms of their general negativity. Such a strategy was not successful in demonstrating information processing biases due to schemata associated with vulnerability to depression. The findings suggest that a memory bias may be observed only with mood-congruent material. However, to test this proposition, the present study would have had to include mood-congruent traits in the memory tasks.

The Stroop task, which did include mood-congruent material, lends support to the above proposition. It is possible that, in current depressives, an attentional bias is observed for the mood-congruent card but not for the self-critical and dependent cards because the former
was more "purely" negative than the latter two cards.

One could further speculate about the existence of a gradient of general negativity where the more negative the material, the better recalled it would be and the more preattentive processing it would receive from depressed individuals. Such a proposition would be based on the assumption that schemata cannot be dissociated from mood, an assumption that has not been directly evaluated. In fact, the debate continues concerning the schematic status of mood (Bower, 1981; Bower & Cohen, 1982; Singer & Salovey, 1988).

The Effect of Mood Induction in Remitted Depressives

In the present study, evidence was found for the activation of the self-critical and dependent schemata in subjects' responding to the DEQ and IDI questionnaires, but not in the memory and Stroop tasks. Such findings suggest that self-critical and dependent schemata are available but not always activated in remitted depressives, and that they are neither available nor activated in normal controls. The implication of the study for the automatic processing tasks is the following: It appears that schemata are not always automatically activated, a conclusion that challenges the notion of uncontrollability of the schemata's effects in automatic tasks.

Two interpretations for the instability of the activation of self-critical and dependent schemata in remitted depressives can be offered. First, although the schemata were not active in the other-focused memory and Stroop tasks, their effect was observed in the self-report questionnaires, which are more self-focused. It is possible that tasks using internal sources of information, such as the questionnaires, are more guided by personal schemata than other-focused tasks.

The second interpretation for the conflicting findings is that schemata need to be primed by the mood associated with the schemata in order to become activated. It has been suggested that a transient depressed mood will increase the effects of trait depression and of
dominant schemata on information processing (Dalgleish and Watts, 1990). Two studies support this concept. Remitted depressives under a negative mood induction did recall more negative self-descriptive negative words than positive words -- a pattern neither found in the normal control group (Teasdale & Dent, 1987) nor reported for remitted depressives in normal mood (Dobson & Shaw, 1987; Kuiper, Olinger, & MacDonald, 1988). Another study (Miranda, Persons, & Byers, 1990) assessed dysfunctional thinking (DAS) and mood (BDI) in remitted and normal college students and found that for the remitted, the lower their mood was the more dysfunctional was their thinking. A comparable relationship was not found for normals. Many determinants of activation of schemata have already been studied, such as expectations, salience, and task instructions (Higgings & King, 1981). In the case of affectively valenced schemata, affect may be the most important determinant of activation.

The above studies (Miranda et al., 1990; Teasdale & Dent, 1987) suggest that remitted depressives retain some depressogenic schemata which become activated when they are exposed to a situation that elicits a depressive mood. In contrast, when persons with no history of depression experience a transient depressive mood state, they may not have the depressogenic schemata available for activation. For remitted depressives, if the schemata perpetuate the feelings of depression, such as dependent or self-critical schemata, they could be conceptualized as vulnerability factors to depression since they maintain the depressive state.

Summary

To summarize, the present study did not support Daigleish and Watts' model (1990) as a mood-congruent attentional bias was found in currently depressed individuals and little support was obtained for a memory bias in this population. The overall pattern of performance in both present and previous studies on the memory and Stroop tasks suggest that preattentive processing biases, and possibly memory biases, could be observed for
mood-congruent material in depressed individuals. That is, the effect would be attributed to the mood-congruence of the material, rather than to its schema-congruence. For remitted individuals, two studies (Miranda et al., 1990; Teasdale & Dent, 1987) suggest that memory biases due to depressogenic schemata can be potentiated by a negative mood induction.

Theoretical and Clinical Implications of Self-criticism and Dependency as Vulnerability Factors for Depression

The present study provides some support for the existence of the self-report of self-critical and dependent schemata in depressives and remitted depressives. The study does not endorse their schematic effect in memory tasks in remitted and depressive patients. Results provide evidence for a mood-congruent attentional bias. Given the mixed nature of the study's findings, one has to consider the possibility that self-criticism and dependency are not stable vulnerability factors to depression. The relationship observed between these two factors and a history of depression could be attributed to the effects of an unknown third variable. The present design prevents any affirmation about causal factors for depression. At best, self-criticism and dependence are maintaining or contributing factors to depression; at worse, they are not related to vulnerability for depression.

In favor of self-criticism and dependency as stable vulnerability factors are the DEQ and the IDI's consistent findings. They provide strong support for the study's hypothesis as they are considered to be reliable and valid measures. By contrast, the memory and Stroop tasks were of a more exploratory nature. Furthermore, the memory tasks shared a number of methodological limitations outlined in the next section. In light of the ambiguous status of self-criticism and dependency schemata, the search for vulnerability factors of any source has to continue as the only certain vulnerability factor remaining is the presence of a past episode of depression.
The present study's findings have some theoretical and clinical implications which will now be reviewed. The scar theory (Lewinsohn et al., 1981), which predicts the consolidation of the vulnerability to depression with each episode of depression, did not receive support from the results obtained. In the two patient groups, correlations between severity measures (length and number) of depressive episodes and self-criticism/dependency as measured by the DEQ/IDI were for the most part negative; they did not support the scar theory.

A second issue raised by the present study is the relationship between self-criticism and dependency. High correlations between DEQ and IDI self-criticism and dependency suggest that these schemata may be one and the same. If, on the other hand, both schemata are strongly linked, it is possible that a self-critical person may derive self-esteem from feedback of other people and thus be interpersonally dependent. The latter idea is speculative and should be evaluated in future studies.

One clinical implication is that, even when symptom-free, remitted depressives may retain personal schemata that may render them more vulnerable to depression; however, it may only be when they experience a transient depressive mood state that these schemata begin to have an active influence on information processing. While treating depression with antidepressants has its "mood-lifting" benefits, such treatment does not address the issues of dependency and self-criticism and may leave patients still vulnerable to depression. The present study makes a stronger case for providing cognitive therapy to depressed patients that specifically addresses themes of dependency and self-criticism during and after an episode of depression to prevent future relapse.

Limitations of the Study

As for any research endeavor studying human beings, there are limitations to the present study that prevents one from drawing categorical conclusions.
One limitation of the study, which limits conclusions about vulnerability, has to do with the nature and sensitivity of the instruments that were used in the memory tasks. Results for the control group suggest that the narrative was not evenly balanced in the saliency of the four traits. More specifically, self-critical and aggressive traits appeared to be more salient than dependent and boring traits. Furthermore, the absence of a memory bias in currently depressed individuals suggests that the four traits were not processed differentially by the depressives, and that the memory tasks were not sensitive to the effects of depressogenic schemata. These negative results seriously put in question the sensitivity of the memory tasks to the influence of depressogenic schemata.

The second limitation of the study is its cross-sectional design. Finding evidence for more self-critical and dependent schemata in remitted depressives compared to normal controls, does not evaluate when these schemata were developed, and whether they were present before the first episode of depression. Are they onset vulnerability factors, relapse vulnerability factors, or consequences of depressive episodes? The ideal design would be a prospective design looking at young individuals who have never been depressed, and which would reassess them periodically to measure the antecedents and consequences of episodes of depression. Such a design only, could answer questions about the existence and nature of onset vulnerability factors. The present study can be only discussed in terms of vulnerability factors for potential future relapse.

A third problematic aspect of the study is that the design does not permit to differentiate between a negative self-schema -- or negative view of the self, and a negative view of the world. It remains possible that depressive individuals have a negative view of the world (Beck, 1967) that subsumes a negative self-schema. Similarly, it is also possible that depressives' negative bias does not limit itself to self-critical and dependent material, but
extends to a wider variety of categories of negative content. These issues deserve further
consideration in studies attempting to disentangle the self-schema from perception of the world,
and the various negative components.

A fourth limitation, shared by all similar studies, is possible confound introduced
by medication. Most of the depressives and remitted individuals who participated in the study
were taking antidepressant and/or anxiolytic medication, whereas the subjects in the normal
group were not on any medication. It is possible that drug intake was partially or fully
responsible for the group differences that were found in the present study. Interpretation of the
findings is made even more difficult due to the fact that the two groups of patients were on
different types of antidepressants and/or anxiolytics. Specifically, twenty-one different types
of drugs were taken by the two groups of depressives, and the drug that was used most commonly
was taken by only 5 individuals. A systematic study of the medication's side-effects was not
possible.

An additional limitation of the present study may be the relatively small n's that
were used. However, the sample size of 20 compares favorably with other studies in this domain
of research. Previous work shows that samples of this size are large enough to provide a degree
of power equal to most research done in psychology (Sedlmeir & Gegerenzer, 1989).
Nevertheless, a larger sample size might have raised power to a more desirable level of .80
(Cohen, 1965).

Future Research Directions

The present study introduces new research questions. Among them are the questions
of the relationship between self-criticism and dependency, the specificity of these schemata to
depression, and the use of mood induction with remitted depressives. Each of these questions will
now be considered.
As discussed previously, more research is warranted to clarify whether or not dependency and self-criticism are independent schemata. In addition to measuring the schemata with the IDI and the DEQ, an examination of their activation in other information processing tasks would generate information on the external validity of the constructs. Such tasks could include tasks that require conceptually-driven processing such as the free generation of autobiographical memories (Hammen et al., 1985). Moreover, the two schemata should be assessed and correlated in normal and depressed populations to determine if vulnerability to depression depends on their coexistence, rather than on the presence of one or the other.

Future research endeavours would benefit from including psychiatric control groups to examine the specificity of the two interpersonal schemata to depression. Only one study has done so (Hammen et al., 1989) and it supported the specificity of the two vulnerability factors to unipolar depressed patients compared to bipolar patients. Although the theoretical foundations of self-criticism and dependency are quite strongly established in introjective and anaclitic depression (Blatt, 1974), it remains to be seen if other psychopathological groups will be found to be consistently more self-critical and/or dependent than normal controls both during and between episodes of their illness.

Finally, while the present study found dependent and self-critical schemata available, their activation evidenced in information processing tasks was not convincing. As mentioned previously, consistent and robust effects on information processing may be apparent only when subjects experience depressive mood. An ideal modification of the present study would include a mood induction procedure to activate the remitted depressives' depressogenic schemata. It would also use idiographic content for the Stroop task rather than nomothetic content. Finally, conceptually-driven memory tasks could be sensitive to the effect of remitted and current depressives' schemata on information processing. Future research examining
information processing of remitted depressives after a negative mood induction should be very promising, and may offer an insight into how recurrent episodes of depression are triggered.
REFERENCES


Zimmerman, M. (1983). *The inventory to Diagnose Depression*. Iowa City, Department of Psychiatry, University of Iowa.


APPENDIX A

DSM-III-R Criteria for Major Depressive Episode and Dysthymia

Major Depressive Episode:
A. At least five of the following symptoms were present during the same two-week period and represent a change from previous functioning; at least one of the symptoms was either (1) depressed mood, or (2) loss of interest or pleasure.

1. depressed mood
2. diminished interest or pleasure in all, or almost all, activities most of the day, nearly all day
3. significant weight loss or weight gain when not dieting
4. insomnia or hyposomnia nearly every day
5. psychomotor retardation or agitation nearly every day
6. fatigue or loss of energy nearly every day
7. feelings of worthlessness or excessive or inappropriate guilt
8. diminished ability to think or concentrate, or indecisiveness, nearly every day

B. 1. not due to an organic factor
2. not a normal reaction to the death of a loved one

C. Absence of delusions or hallucinations

D. Not superimposed on schizophrenia, schizophreniform disorder, delusional disorder, or psychotic disorder


Dysthymia
A. Depressed mood for most of the day, for at least two years.
B. Presence, while depressed, of at least two of the following:
   1. poor appetite or overeating
   2. insomnia or hypersomnia
   3. low energy or fatigue
   4. low self-esteem
   5. poor concentration or difficulty making decisions
   6. feelings of hopelessness

C. During a two-year period of the disturbance, never without the symptoms in A for more than two months at a time.

D. No evidence of Major Depressive Episode during the first two years of the disturbance.

E. Absence of Manic Episode or Hypomania Episode.

F. Not superimposed on a chronic psychotic disorder, such as schizophrenia or Delusional Disorder.

G. Not due to an organic cause.

Schedule for Affective Disorders and Schizophrenia (patient version)

Interview (for currently depressed and remitted patients)

Subject number ________
Date ________
Interviewer ________

I. Assessment of demographic information.

Now I would like to ask you some general questions about yourself.

1. How old are you?
2. Are you working at present? What do you do?
   (or) Have you ever worked? What did you used to do?
3. Are you married or living with somebody?
4. Do you have any children?
5. How far did you get in school?
   Did you receive any special training?
6. What language do you speak at home? at work? for how long?

Now I am going to ask you a standard set of questions. The questions will cover some of the kinds of problems or difficulties that many people have at some time during their lives. Some of the questions may not be applicable but it is important to ask them of everybody.

II. Assessment of current depression.

Now I am going to ask you how you are feeling at present. (Administer Hamilton)

III. Assessment of psychiatric history

1. I know that you have seen someone for your problem with depression, but have you ever seen anyone for any other emotional problems?
   If yes, whom did you see?
   What kinds of problems were you having then?
IV. Assessment of history of depression

How I am going to ask you about your history of depression. Sometimes people find this difficult to do, but just try your best.

When did you notice when you were first depressed? How long did it last? Did you see anybody for this?

How about the next time that you were depressed? How old were you then? How long did the depression last? Did you see anybody for this?

How long did each of your episodes of depression last?

How about your current episode of depression? How long have you been depressed?

When was the last time you were depressed?

V. Assessment for episodes of mania.

1. Did you ever have a period when you felt extremely good or high - clearly different from your normal self? Did friends or your family think than this was more than just feeling good? Did it last at least one week?

   Were these things under the influence of drugs or alcohol? (Do not include if apparently under the influence of drugs or alcohol intoxication)

2. (At least three symptoms present to meet DSM-IIIR criteria.)

   During the most severe period …..

   Were you more active than usual -either socially, at work, sexually, or physically active?

   Were you more talkative than usual or felt a pressure to keep on talking?

   Did your thoughts race or did you talk so fast that it was difficult for people to follow what you were saying?

   Did you feel you were a very important person, had
special plans, powers, talents, or abilities?
did you need less sleep than usual?
did you have trouble concentrating on what was going on because your attention kept jumping to unimportant things about you?
did you do anything foolish that could have gotten you into a lot of trouble, like buying things, business investments, sexual indiscretions, reckless driving?

3. (Symptoms were so severe that meaningful conversation was impossible, there was serious impairment in functioning, or he was hospitalized.)

Were you hospitalized? Were you so excited that it was almost impossible to hold a conversation with you? Did it cause troubles with people, with your family, your work, or other usual activities?

VI: Determining any evidence of a thought disorder.

Has there been a time when you heard voices or other sounds that other people couldn't hear?

Have you ever had visions or see things that were not visible to other people?

What about strange smells or strange feelings in your body?

Has there been a time when you had beliefs or ideas that you later found out were not true like people being out to get you, or talking about you behind your back?

Have you ever called attention to yourself - like dressing in some odd way or doing something strange?

Have people ever had trouble understanding what you were saying because your speech was mixed up, or because you didn't make sense in the way you were talking?

Inquiring for possible organic cause:

During that time -
were you drinking a lot or had just stopped?
were you taking any drugs - like LSD, speed?
were you physically ill then?

Have you ever had problems with alcohol or drug use?

If yes, how much time did you spend consuming or trying to get drugs/alcohol?

Did it affect your work or your relationships with family and friends?

Did you need the substance in order to function "normally"?
Schedule for Affective disorders and Schizophrenia

**Interview** (for normal controls)

<table>
<thead>
<tr>
<th>Subject number</th>
<th>Date</th>
<th>Interviewer</th>
</tr>
</thead>
</table>

I. **Assessment of demographic information.**

Now I would like to ask you some general questions about yourself.

1. How old are you?
2. Are you working at present? What do you do?
   (or) Have you ever worked? What did you used to do?
3. Are you married or living with somebody?
4. Do you have any children?
5. How far did you get in school?
   Did you receive any special training?
6. What language do you speak at home? at work? for how long?

Now I am going to ask you a standard set of questions. The questions will cover some of the kinds of problems or difficulties that many people have at some time during their lives. Some of the questions may not be applicable but it is important to ask them of everybody.

II. **Assessment of current depression.**

Now I am going to ask you how you are feeling at present.  
(Administer Hamilton)

III. **Assessment of psychiatric history**

Fine. Now I would like to ask you some questions about your past. As before, these questions are a standard set of questions that I ask everybody. The questions will cover some of the kinds of problems or difficulties that many people have at some time during their lives. Some of the questions may not be applicable but it is important to ask them of everybody.

1. Were you ever a patient in a psychiatric hospital or ward?
   If yes,  
   Whom did you see?  
   What kinds of problems were you having then?
3. Were there any times when you or someone else felt that you needed help because of your feelings, your nerves, or the way you were acting?

If yes, What kinds of problems were you having then?

IV. Assessment of history of depression

Now, think of the worst week of your life, the lowest point in your life.

Have you got a week in mind?

During this most severe period,

1. Were you bothered by feeling depressed, sad, blue, hopeless, or down in the dumps? Did those feelings last more than one week? How about more than two weeks?

During that period, were you bothered by feelings that you didn't care anymore, or didn't enjoy anything? Did those feelings last more than one week? How about more than two weeks?

What about feeling irritable or easily annoyed?

2. During that time did you seek help from anyone like a doctor, or minister, or even a friend, or did anyone suggest that you seek help?

Did you take any medication?

Did you act differently with people, your family, at work, or at school?

3. During the most severe period were you bothered by ....

poor appetite or weight loss, or increased appetite or weight gain?

trouble sleeping or sleeping too much?

loss of energy, easily fatigued, or feeling tired?
loss of interest or pleasure in your usual activities or in sex?

feeling guilty or down on yourself?

trouble concentrating, thinking, or making decision?

thinking about death or suicide? (Did you attempt suicide?)

being unable to sit still and have to keep moving or the opposite — feeling slowed down and have trouble moving?

4. Did anything cause the depression?
   (Do not include if due to uncomplicated bereavement.
   Guidelines for defining "uncomplicated bereavement":
   - the depressive syndrome did not last more than six months
   - there was no suicide attempt nor great suicidal preoccupation or talk (some ideation is common)
   - no hospitalization
   - no marked retardation
   - no morbid preoccupation with guilt or self-worth

5. How long did the depression last?

6. How many episode like this have you had?

   If unable to give exact number: Would you say that you have had at least ..... different episodes like that?

V. Assessment for episodes of mania.

1. Did you ever have a period when you felt extremely good or high — clearly different from your normal self? Did friends or your family think this was more than just feeling good? Did it last at least one week?

   Were these things under the influence of drugs or alcohol? (Do not include if apparently under the influence of drugs or alcohol intoxication)

2. (At least three symptoms present to meet DSM-III-R criteria.)

   During the most severe period ..... was you more active than usual — either socially, at work, sexually, or physically active?

   were you more talkative than usual or felt a preasure
to keep on talking?

did your thoughts race or did you talk so fast that it was difficult for people to follow what you were saying?

did you feel you were a very important person, had special plans, powers, talents, or abilities?

did you need less sleep than usual?

did you have trouble concentrating on what was going on because your attention kept jumping to unimportant things about you?

did you do anything foolish that could have gotten you into a lot of trouble, like buying things, business investments, sexual indiscretions, reckless driving?

3. (Symptoms were so severe that meaningful conversation was impossible, there was serious impairment in functioning, or he was hospitalized.)

Were you hospitalized? Were you so excited that it was almost impossible to hold a conversation with you? Did it cause troubles with people, with your family, your work, or other usual activities?

VI: Determining any evidence of a thought disorder.

Has there been a time when you heard voices or other sounds that other people couldn't hear?

Have you ever had visions or see things that were not visible to other people?

What about strange smells or strange feelings in your body?

Has there been a time when you had beliefs or ideas that you later found out were not true like people being out to get you, or talking about you behind your back?

Have you ever call attention to yourself - like dressing in some odd way or doing something strange?

Have people ever had trouble understanding what you were saying because your speech was mixed up, or because you didn't make sense in the way you were talking?

Inquiring for possible organic cause:

During that time -
were you drinking a lot or had just stopped?
were you taking any drugs - like LSD, speed?
were you physically ill then?

Have you ever had problems with alcohol or drug use?

If yes, how much time did you spend consuming or trying to get drugs/alcohol?

Did it affect your work or your relationships with family and friends?

Did you need the substance in order to function "normally"?
Inventory to Diagnose Depression

INSTRUCTIONS

1. On this questionnaire are groups of 5 statements.
2. Read each group of statements carefully. Then pick out the one statement in each group that best describes the way you have been feeling the PAST WEEK.
3. The statements are numbered from 0 to 4. Circle the number next to the statement you picked. Try to choose only one statement per group, but if several seem to apply equally well circle each one.

1) 0 I do not feel sad or depressed.
   1 I occasionally feel sad or down.
   2 I feel sad most of the time, but I can snap out of it.
   3 I feel sad all the time, and I can't snap out of it.
   4 I am so sad or unhappy that I can't stand it.

2) 0 My energy level is normal.
   1 My energy level is occasionally a little lower than normal.
   2 I get tired more easily or have less energy than usual.
   3 I get tired from doing almost anything.
   4 I feel tired or exhausted almost all of the time.

3) 0 I have not been feeling more restless and fidgety than usual.
   1 I feel a little more restless or fidgety than usual.
   2 I have been very fidgety, and I have some difficulty sitting still in a chair.
   3 I have been extremely fidgety, and I have been pacing a little bit almost every day.
   4 I have been pacing more than an hour per day, and I can't sit still.

4) 0 I have not been talking or moving more slowly than usual.
   1 I am talking a little slower than usual.
   2 I am speaking slower than usual, and it takes me longer to respond to questions, but I can still carry on a normal conversation.
   3 Normal conversations are difficult because it is hard to start talking.
   4 I feel extremely slowed down physically, like I am stuck in mud.
5) 0 I have not lost interest in my usual activities.
   1 I am a little less interested in 1 or 2 of my usual activities.
   2 I get less pleasure from several of my usual activities.
   3 I have lost most of my interest in almost all of my usual activities.
   4 I have lost all interest in all of my usual activities.

6) 0 I get as much pleasure out of my usual activities as usual.
   1 I get a little less pleasure from 1 or 2 of my usual activities.
   2 I get less pleasure from several of my usual activities.
   3 I get almost no pleasure from most of the activities which I usually enjoy.
   4 I get no pleasure from any of the activities which I usually enjoy.

7) 0 I have not noticed any recent change in my interest in sex.
   1 I am only slightly less interested in sex than usual.
   2 There is a noticeable decrease in my interest in sex.
   3 I am much less interested in sex now.
   4 I have lost all interest in sex.

8) 0 I have not been feeling guilty.
   1 I occasionally feel a little guilty.
   2 I often feel guilty.
   3 I feel quite guilty most of the time.
   4 I feel extremely guilty most of the time.

9) 0 I do not feel like a failure.
   1 My opinion of myself is occasionally a little low.
   2 I feel I am inferior to most people.
   3 I feel like a failure.
   4 I feel I am a totally worthless person.

10) 0 I haven't had any thoughts of death or suicide.
    1 I occasionally think life is not worth living.
    2 I frequently think of dying in passive ways (such as going to sleep and not waking up), or that I'd be better off dead.
    3 I have frequent thoughts of killing myself, but I would not carry them out.
    4 I would kill myself if I had the chance.

11) 0 I can concentrate as well as usual.
    1 My ability to concentrate is slightly worse than usual.
    2 My attention span is not as good as usual and I am having difficulty collecting my thoughts, but this hasn't caused any problems.
    3 My ability to read or hold a conversation is not as good as it usually is.
    4 I cannot read, watch TV, or have a conversation without great difficulty.
12) O [ ] I make decisions as well as I usually do.
    1 Decision making is slightly more difficult than usual.
    2 It is harder and takes longer to make decisions, but I do
      make them.
    3 I am unable to make some decisions.
    4 I can't make any decisions at all.

13) O [ ] My appetite is not less than normal.
    1 My appetite is slightly worse than usual.
    2 My appetite is clearly not as good as usual, but I still
      eat.
    3 My appetite is much worse now.
    4 I have no appetite at all, and I have to force myself to eat
      even a little.

14) O [ ] I haven't lost any weight in the past week.
    1 I've maybe lost 1-2 pounds in the last week.
    2 I've lost 3-5 pounds in the last week.
    3 I've lost between 5-10 pounds in the past week.
    4 I've lost more than 10 pounds in the last week.

** If you circled 0, 1, 2, 3 or 4: Have you been dieting and
     deliberately trying to lose weight? Y or N

15) O [ ] My appetite is not greater than normal.
    1 My appetite is slightly greater than usual.
    2 My appetite is clearly greater than usual.
    3 My appetite is much greater than usual.
    4 I feel hungry all the time.

16) O [ ] I haven't gained any weight in the last week.
    1 I've maybe gained 1-2 pounds in the last week.
    2 I've gained between 3-5 pounds in the last week.
    3 I've gained between 5-10 pounds in the last week.
    4 I've gained more than 10 pounds in the last week.

** If you circled 0, 1, 2, 3 or 4: Have you gained weight because you
     eat more than usual when you are depressed? Y or N

17) O [ ] I am not sleeping less than normal.
    1 I occasionally have slight difficulty sleeping.
    2 I clearly don't sleep as well as usual.
    3 I frequently sleep at least 2 hours more than usual.
    4 I sleep less than 2 hours per night.

18) O [ ] I am not sleeping more than normal.
    1 I occasionally sleep more than usual.
    2 I frequently sleep at least 1 hour more than usual.
    3 I frequently sleep at least 2 hours more than usual.
    4 I frequently sleep at least 3 hours more than usual.
19) 0 I do not feel anxious, nervous or tense.
1 I occasionally feel a little anxious.
2 I often feel anxious.
3 I feel very anxious most of the time.
4 I feel terrified and near panic.

20) 0 I do not feel discouraged about the future.
1 I occasionally feel a little discouraged about the future.
2 I often feel discouraged about the future.
3 I feel very discouraged about the future most of the time.
4 I feel that the future is hopeless and that things will never improve.

21) 0 I do not feel irritated or annoyed.
1 I occasionally get a little more irritated than usual.
2 I get irritated or annoyed by things that usually don't bother me.
3 I feel irritated or annoyed almost all the time.
4 I feel so depressed that I don’t get irritated at all by things that used to bother me.

22) 0 I am not worried about my physical health.
1 I am occasionally concerned about bodily aches and pains.
2 I am worried about my physical health.
3 I am very worried about my physical health.
4 I am so worried about my physical health that I cannot think about anything else.
HAMilton Psychiatric Rating Scale FOR DEPRESSION

Subject Number ___________________________ Score ________________

Date ________________________________

Interviewer ________________________________

1. DEPRESSED MOOD: Sadness, hopeless, helpless, worthless
   0 Absent
   1 These feeling states indicated only on questioning
   2 These feeling states spontaneously reported verbally
   3 Communicates feeling states non-verbally - i.e., through facial expression, posture, voice, and tendency to weep
   4 Patient reports VIRTUALLY ONLY these feeling states in his spontaneous verbal and non-verbal communication

2. FEELINGS OF GUILT
   0 Absent
   1 Self-reproach, feels he has let people down
   2 Ideas of guilt or rumination over past errors or sinful deeds.
   3 Present illness is a punishment. Delusions of guilt
   4 Hears accusatory or denunciatory voices and/or experiences threatening visual hallucinations

3. SUICIDE
   0 Absent
   1 Feels life is not worth living
   2 Wishes he were dead or any thoughts of possible death to self
   3 Suicide ideas or gesture
   4 Attempts at suicide (any serious attempt rates 4)

4. INSOMNIA EARLY
   0 No difficulty falling asleep
   1 Complains of occasional difficulty falling asleep - i.e., more than 1/2 hour
   2 Complains of nightly difficulty falling asleep
5. **INSOMNIA MIDDLE**

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<tbody>
<tr>
<td>0</td>
<td>No difficulty</td>
</tr>
<tr>
<td>1</td>
<td>Patient complains of being restless and disturbed during the night</td>
</tr>
<tr>
<td>2</td>
<td>Waking during the night — any getting out of bed rates 2 (except for purposes of voiding)</td>
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6. **INSOMNIA LATE**

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<tbody>
<tr>
<td>0</td>
<td>No difficulty</td>
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<tr>
<td>1</td>
<td>Waking in early hours of the morning but goes back to sleep</td>
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<tr>
<td>2</td>
<td>Unable to fall asleep again if gets out of bed</td>
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7. **WORK AND ACTIVITIES**

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<tr>
<td>0</td>
<td>No difficulty</td>
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<tr>
<td>1</td>
<td>Thoughts and feelings of incapacity, fatigue or weakness related to activities, work or hobbies</td>
</tr>
<tr>
<td>2</td>
<td>Loss of interest in activity, hobbies or work — either directly reported by patient, or indirect in listlessness, indecision and vacillation (feels he has to push self to work or activities)</td>
</tr>
<tr>
<td>3</td>
<td>Decrease in actual time spent in activities or decrease in productivity. In hospital, rate 3 if patient does not spend at least three hours a day in activities (hospital job or hobbies) exclusive of ward chores</td>
</tr>
<tr>
<td>4</td>
<td>Stopped working because of present illness. In hospital, rate 4 if patient engages in no activities except ward chores, or if patient fails to perform ward chores unassisted</td>
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8. **RETARDATION**: slowness of thought and speech; impaired ability to concentrate; decreased motor activity

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<tbody>
<tr>
<td>0</td>
<td>Normal speech and thought</td>
</tr>
<tr>
<td>1</td>
<td>Slight retardation at interview</td>
</tr>
<tr>
<td>2</td>
<td>Obvious retardation at interview</td>
</tr>
<tr>
<td>3</td>
<td>Interview difficult</td>
</tr>
<tr>
<td>4</td>
<td>Complete stupor</td>
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9. **AGITATION**

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<td>None</td>
</tr>
<tr>
<td>1</td>
<td>&quot;Playing with&quot; hands, hair, etc.</td>
</tr>
<tr>
<td>2</td>
<td>Hand-wringing, nail-biting, hair-pulling, biting of lips</td>
</tr>
</tbody>
</table>
10. ANXIETY PSYCHIC

0  No difficulty
1  Subjective tension and irritability
2  Worrying about minor matters
3  Apprehensive attitude apparent in face or speech
4  Fears expressed without questioning

11. ANXIETY SOMATIC
Physiological concomitants of anxiety, such as:
Gastro-intestinal—dry mouth, wind, indigestion, diarrhea, cramps, belching
Cardio-vascular—palpitations, headaches
Respiratory—hyperventilation, sighing
Urinary frequency
Sweating

0  Absent
1  Mild
2  Moderate
3  Severe
4  Incapacitating

12. SOMATIC SYMPTOMS GASTRO-INTESTINAL

0  None
1  Loss of appetite but eating without staff encouragement. Heavy feelings in abdomen
2  Difficulty eating without staff urging. Requests or requires laxatives or medication for bowels or medication for G.I. symptoms.

13. SOMATIC SYMPTOMS GENERAL

0  None
1  Heaviness in limbs, back or head. Backaches, headache, muscle aches. Loss of energy and fatiguability
2  Any clear-cut symptom rates 2

14. GENITAL SYMPTOMS
Symptoms such as loss of libido
menstrual disturbances

0  Absent
1  Mild
2  Severe
3  Not ascertained
15. HYPOCHONDRIASIS
0 Not present
1 Self-absorption (bodily)
2 Preoccupation with health
3 Frequent complaints, requests for help, etc.
4 Hypochondrical delusions

16. LOSS OF WEIGHT
Rate either A or B
A. WHEN RATING BY HISTORY:
0 No weight loss
1 Probable weight loss associated with present illness
2 Definite (according to patient) weight loss
B. ON WEEKLY RATINGS BY WARD PSYCHIATRIST, WHEN ACTUAL WEIGHT CHANGES ARE MEASURED:
0 Less than 1 lb. weight loss in week
1 Greater than 1 lb. weight loss in week
2 Greater than 2 lb. weight loss in week

17. INSIGHT
0 Acknowledges being depressed and ill
1 Acknowledges illness but attributes cause to bad food, climate, overwork, virus, need for rest, etc.
2 Denies being ill at all

18. DIURNAL VARIATION
Rate both A and B, but add I6B only into total score
A. Note whether symptoms are worse in morning or evening. If NO diurnal variation, mark none.
0 No variation
1 Worse in a.m.
2 Worse in p.m.
B. When present, mark the severity of the variation. Mark "none" if NO variation.
0 None
1 Mild
2 Severe
19. DEPERSONALIZATION AND DEREALIZATION:
   Such as: Feelings of unreality
   Nihilistic ideas

   0 Absent
   1 Mild
   2 Moderate
   3 Severe
   4 Incapacitating

20. PARANOID SYMPTOMS

   0 None
   1 Suspicious (doubtful or trivial)
   2 More severe suspiciousness (e.g. others wish him harm)
   3 Ideas of reference
   4 Delusions of reference and persecution

21. OBSESSIONAL AND COMPULSIVE SYMPTOMS

   0 Absent
   1 Mild
   2 Severe

22. HELPLESSNESS

   0 Not present
   1 Subjective feelings which are elicited only by inquiry
   2 Patient volunteers his helpless feelings
   3 REQUIRES urging, guidance and reassurance to accomplish ward chores or personal hygiene
   4 Requires physical assistance for dress, grooming, eating, bedside tasks or personal hygiene

23. HOPELESSNESS

   0 Not present
   1 Intermittently doubts that "things will improve" but can be reassured
   2 Consistently feels "hopeless" but accepts reassurances
   3 Expresses feelings of discouragement, despair, pessimism about future, which cannot be dispelled
   4 Spontaneously and inappropriately perseverates, "I'll never get well" or its equivalent
24. WORTHLESSNESS: Ranges from mild loss of esteem, feelings of inferiority, self-depreciation to delusional notions of worthlessness

0  Not present
1  Indicates feelings of worthlessness (loss of self-esteem) only on questioning
2  Spontaneously indicates feelings of worthlessness (loss of self-esteem)
3  Different from 2 by degree: Patient volunteers that he is "no good", "inferior", etc.
4  Delusional notions of worthlessness - i.e., "I am a heap of garbage" or its equivalent
Beck Inventory

On this questionnaire are groups of statements. Please read each group of statements carefully. Then pick out the one statement in each group which best describes the way you have been feeling the PAST WEEK, INCLUDING TODAY: Circle the number beside the statement you picked. If several statements in the group seem to apply equally well, circle each one. Be sure to read all the statements in each group before making your choice.

1. 0 I do not feel sad.
    1 I feel sad.
    2 I am sad all the time and I can't snap out of it.
    3 I am so sad or unhappy that I can't stand it.

2. 0 I am not particularly discouraged about the future.
    1 I feel discouraged about the future.
    2 I feel I have nothing to look forward to.
    3 I feel that the future is hopeless and that things cannot improve.

3. 0 I do not feel like a failure.
    1 I feel I have failed more than the average person.
    2 As I look back on my life, all I can see is a lot of failures.
    3 I feel I am a complete failure as a person.

4. 0 I get as much satisfaction out of things as I used to.
    1 I don't enjoy things the way I used to.
    2 I don't get real satisfaction out of anything anymore.
    3 I am dissatisfied or bored with everything.

5. 0 I don't feel particularly guilty.
    1 I feel guilty a good part of the time.
    2 I feel quite guilty most of the time.
    3 I feel guilty all of the time.

6. 0 I don't feel I am being punished.
    1 I feel I may be punished.
    2 I expect to be punished.
    3 I feel I am being punished.

7. 0 I don't feel disappointed in myself.
    1 I am disappointed in myself.
    2 I am disgusted with myself.
    3 I hate myself.

8. 0 I don't feel I am any worse than anybody else.
    1 I am critical of myself for my weaknesses or mistakes.
    2 I blame myself all the time for my faults.
    3 I blame myself for everything bad that happens.

9. 0 I don't have any thoughts of killing myself.
    1 I have thoughts of killing myself, but I would not carry them out.
    2 I would like to kill myself.
    3 I would kill myself if I had the chance.

10. 0 I don't cry anymore than usual.
    1 I cry more now than I used to.
    2 I cry all the time now.
    3 I used to be able to cry, but now I can't cry even though I want to.
11. 0 I am no more irritated now than I ever am.
   1 I get annoyed or irritated more easily than I used to.
   2 I feel irritated all the time now.
   3 I don't get irritated at all by the things that used to irritate me.

12. 0 I have not lost interest in other people.
   1 I am less interested in other people than I used to be.
   2 I have lost most of my interest in other people.
   3 I have lost all of my interest in other people.

13. 0 I make decisions about as well as I ever could.
   1 I put off making decisions more than I used to.
   2 I have greater difficulty in making decisions than before.
   3 I can't make decisions at all anymore.

14. 0 I don't feel I look any worse than I used to.
   1 I am worried that I am looking old or unattractive.
   2 I feel that there are permanent changes in my appearance that make
      me look unattractive.
   3 I believe that I look ugly.

15. 0 I can work about as well as before.
   1 It takes an extra effort to get started at doing something.
   2 I have to push myself very hard to do anything.
   3 I can't do any work at all.

16. 0 I can sleep as well as usual.
   1 I don't sleep as well as I used to.
   2 I wake up 1-2 hours earlier than usual and find it hard to get back to sleep.
   3 I wake up several hours earlier than I used to and cannot get back to sleep.

17. 0 I don't get more tired than usual.
   1 I get tired more easily than I used to.
   2 I get tired from doing almost anything.
   3 I am too tired to do anything.

18. 0 My appetite is no worse than usual.
   1 My appetite is not as good as it used to be.
   2 My appetite is much worse now.
   3 I have no appetite at all anymore.

19. 0 I haven't lost much weight, if any lately.
   1 I have lost more than 5 pounds. I am purposely trying to
   2 I have lost more than 10 pounds. lose weight by eating less.
   3 I have lost more than 15 pounds. Yes____ No____

20. 0 I am no more worried about my health than usual.
   1 I am worried about physical problems such as aches and pains; or upset
      stomach; or constipation.
   2 I am very worried about physical problems and it's hard to think of much
      else.
   3 I am so worried about my physical problems, that I cannot think about
      anything else.

21. 0 I have not noticed any recent change in my interest in sex.
   1 I am less interested in sex than I used to be.
   2 I am much less interested in sex now.
   3 I have lost interest in sex completely.
APPENDIX G

SELF-EVALUATION QUESTIONNAIRE
Developed by C. D. Spielberger, R. L. Gorsuch and R. Lushene

STAI FORM X-1

NAME ______________ DATE ______________

DIRECTIONS: A number of statements which people have used to describe themselves are given below. Read each statement and then blacken in the appropriate circle to the right of the statement to indicate how you feel right now, that is, at this moment. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe your present feelings best.

1. I feel calm ........................................... 0 2 4 6

2. I feel secure ........................................... 0 2 4 6

3. I am tense ........................................... 0 2 4 6

4. I am regretful ....................................... 0 2 4 6

5. I feel at ease ........................................ 0 2 4 6

6. I feel upset ......................................... 0 2 4 6

7. I am presently worrying over possible misfortunes ........................................ 0 2 4 6

8. I feel rested ........................................ 0 2 4 6

9. I feel anxious ...................................... 0 2 4 6

10. I feel comfortable ................................ 0 2 4 6

11. I feel self-confident ............................. 0 2 4 6

12. I feel nervous ..................................... 0 2 4 6

13. I am jittery ........................................ 0 2 4 6

14. I feel "high strung" ............................... 0 2 4 6

15. I am relaxed ....................................... 0 2 4 6

16. I feel content ..................................... 0 2 4 6

17. I am worried ...................................... 0 2 4 6

18. I feel over-excited and "rattled" ............... 0 2 4 6

19. I feel joyful ...................................... 0 2 4 6

20. I feel pleasant .................................... 0 2 4 6
How do you feel right now? Select a word or phrase that best describe your emotional state (or mood) at this point in time ________________.

Now please use the following scales to also describe your feelings now. Some of the word pairs may seem unusual, but you'll probably feel more one way than another. So, for each pair below, put a checkmark (Example : __: __: __: __: __)

When you have finished, please be sure that there is one check on each line.

<table>
<thead>
<tr>
<th>Unhappy</th>
<th>Relaxed</th>
<th>Pleased</th>
<th>Excited</th>
<th>Unsatisfied</th>
<th>Sluggish</th>
<th>Contented</th>
<th>Jittery</th>
<th>Despairing</th>
<th>Sleepy</th>
<th>Relaxed</th>
<th>Aroused</th>
</tr>
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<td></td>
</tr>
</tbody>
</table>

Happy
Stimulated
Annoyed
Calm
Satisfied
Frenzied
Melancholic
Dull
Hopeful
Wide awake
Bored
Unaroused
Depressive Experience Questionnaire

Listed below are a number of statements concerning personal characteristics and traits. Read each item and decide whether you agree or disagree and to what extent. If you **strongly agree**, circle 7; if you **strongly disagree**, circle 1; if you feel somewhere in between, circle any one of the numbers between 1 and 7. The midpoint, if you are neutral or undecided, is 4.

<table>
<thead>
<tr>
<th></th>
<th>Strongly Disagree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>I set my personal goals and standards as high as possible.</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>2.</td>
<td>Without support from others who are close to me, I would be helpless.</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>3.</td>
<td>I tend to be satisfied with my current plans and goals, rather than striving for higher goals.</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>4.</td>
<td>Sometimes I feel very big, and other times I feel very small.</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>5.</td>
<td>When I am closeIy involved with someone, I never feel jealous.</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>6.</td>
<td>I urgently need things that only other people can provide.</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>7.</td>
<td>I often find that I don't live up to my own standards or ideals.</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>8.</td>
<td>I feel I am always making full use of my potential abilities.</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>9.</td>
<td>The lack of permanence in human relationships doesn't bother me.</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>10.</td>
<td>If I fail to live up to expectations, I feel unworthy.</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>11.</td>
<td>Many times I feel helpless.</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>12.</td>
<td>I seldom worry about being criticized for things I have said or done.</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>13.</td>
<td>There is a considerable difference between how I am now and how I would like to be.</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>14.</td>
<td>I enjoy sharp competition with others.</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>15.</td>
<td>I feel I have many responsibilities that I must meet.</td>
<td>1 2 3 4 5 6 7</td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th></th>
<th></th>
<th>Strongly Disagree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>16.</td>
<td>There are times when I feel &quot;empty&quot; inside.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>17.</td>
<td>I tend not to be satisfied with what I have.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>18.</td>
<td>I don't care whether or not I live up to what other people expect of me.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>19.</td>
<td>I become frightened when I feel alone.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>20.</td>
<td>I would feel like I'd be losing an important part of myself if I lost a very close friend.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>21.</td>
<td>People will accept me no matter how many mistakes I have made.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>22.</td>
<td>I have difficulty breaking off a relationship that is making me unhappy.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>23.</td>
<td>I often think about the danger of losing someone who is close to me.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>24.</td>
<td>Other people have high expectations of me.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>25.</td>
<td>When I am with others, I tend to devalue or &quot;undersell&quot; myself.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>26.</td>
<td>I am not very concerned with how other people respond to me.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>27.</td>
<td>No matter how close a relationship between two people is, there is always a large amount of uncertainty and conflict.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>28.</td>
<td>I am very sensitive to others for signs of rejection.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>29.</td>
<td>It's important for my family that I succeed.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>30.</td>
<td>Often, I feel I have disappointed others.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>31.</td>
<td>If someone makes me angry, I let him (her) know how I feel.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>32.</td>
<td>I constantly try, and very often go out of my way, to please or help people I am close to.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>33.</td>
<td>I have many inner resources (abilities, strengths).</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>34.</td>
<td>I find it very difficult to say &quot;No&quot; to the requests of friends.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>35.</td>
<td>I never really feel secure in a close relationship.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td></td>
<td>The way I feel about myself frequently varies: there are times when I feel extremely good about myself and other times when I see only the bad in me and feel like a total failure.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>---</td>
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<td></td>
</tr>
<tr>
<td>36.</td>
<td>Often, I feel threatened by change.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>37.</td>
<td>Even if the person who is closest to me were to leave, I could still &quot;go it alone.&quot;</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>38.</td>
<td>One must continually work to gain love from another person: that is, love has to be earned.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>39.</td>
<td>I am very sensitive to the effects my words or actions have on the feelings of other people.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>40.</td>
<td>I often blame myself for things I have done or said to someone.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>41.</td>
<td>I am a very independent person.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>42.</td>
<td>I often feel guilty.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>43.</td>
<td>I think of myself as a very complex person, one who has &quot;many sides.&quot;</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>44.</td>
<td>I worry a lot about offending or hurting someone who is close to me.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>45.</td>
<td>Anger frightens me.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>46.</td>
<td>It is not &quot;who you are,&quot; but &quot;what you have accomplished&quot; that counts.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>47.</td>
<td>I feel good about myself whether I succeed or fail.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>48.</td>
<td>I can easily put my own feelings and problems aside, and devote my complete attention to the feelings and problems of someone else.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>49.</td>
<td>If someone I cared about became angry with me, I would feel threatened that he (she) might leave me.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>50.</td>
<td>I feel uncomfortable when I am given important responsibilities.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>51.</td>
<td>After a fight with a friend, I must make amends as soon as possible.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>52.</td>
<td>I have a difficult time accepting weaknesses in myself.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>54.</td>
<td><strong>Strongly</strong></td>
<td><strong>Disagree</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Xtla agree</strong></td>
<td>it is more important that I enjoy my work than it is for me to have my work approved.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>55.</td>
<td><strong>Strongly</strong></td>
<td><strong>Disagree</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Xtla agree</strong></td>
<td>After an argument, I feel very lonely.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>56.</td>
<td><strong>Strongly</strong></td>
<td><strong>Disagree</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Xtla agree</strong></td>
<td>In my relationships with others, I am very concerned about what they can give to me.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>57.</td>
<td><strong>Strongly</strong></td>
<td><strong>Disagree</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Xtla agree</strong></td>
<td>I rarely think about my family.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>58.</td>
<td><strong>Strongly</strong></td>
<td><strong>Disagree</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Xtla agree</strong></td>
<td>Very frequently, my feelings toward someone close to me vary: there are times when I feel completely angry and other times when I feel all-loving towards that person.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>59.</td>
<td><strong>Strongly</strong></td>
<td><strong>Disagree</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Xtla agree</strong></td>
<td>What I do and say has a very strong impact on those around me.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>60.</td>
<td><strong>Strongly</strong></td>
<td><strong>Disagree</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Xtla agree</strong></td>
<td>I sometimes feel that I am &quot;special.&quot;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>61.</td>
<td><strong>Strongly</strong></td>
<td><strong>Disagree</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Xtla agree</strong></td>
<td>I grew up in an extremely close family.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>62.</td>
<td><strong>Strongly</strong></td>
<td><strong>Disagree</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Xtla agree</strong></td>
<td>I am very satisfied with myself and my accomplishments.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>63.</td>
<td><strong>Strongly</strong></td>
<td><strong>Disagree</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Xtla agree</strong></td>
<td>I want many things from someone I am close to.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>64.</td>
<td><strong>Strongly</strong></td>
<td><strong>Disagree</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Xtla agree</strong></td>
<td>I tend to be very critical of myself.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>65.</td>
<td><strong>Strongly</strong></td>
<td><strong>Disagree</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Xtla agree</strong></td>
<td>Being alone doesn't bother me at all.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>66.</td>
<td><strong>Strongly</strong></td>
<td><strong>Disagree</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Xtla agree</strong></td>
<td>I very frequently compare myself to standards or goals.</td>
<td></td>
</tr>
</tbody>
</table>
APPENDIX J

Interpersonal Dependency Inventory

subject #

Listed below are a variety of thoughts, beliefs, feelings, and behaviors experienced in interpersonal relationships. Please read each one and indicate how characteristic each item is of you in your relationships with others.

1 - not characteristic of me
2 - somewhat characteristic of me
3 - quite characteristic of me
4 - very characteristic of me

Example

How characteristic of you is the following statement?

00. My future plans include many of my friends. 1 2 3 4
<table>
<thead>
<tr>
<th></th>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>I prefer to be by myself.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>When I have a decision to make, I always ask for advice.</td>
<td></td>
<td></td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>3.</td>
<td>I do my best work when I know it will be appreciated.</td>
<td></td>
<td></td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>4.</td>
<td>I can't stand being fussed over when I am sick.</td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>5.</td>
<td>I would rather be a follower than a leader.</td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>6.</td>
<td>I believe people could do a lot more for me if they wanted to.</td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>7.</td>
<td>As a child, pleasing my parents was very important to me.</td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>8.</td>
<td>I don't need other people to make me feel good.</td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>9.</td>
<td>Disapproval by someone I care about is very painful to me.</td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>10.</td>
<td>I feel confident of my ability to deal with most of the personal problems I am likely to meet in life.</td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>11.</td>
<td>I'm the only person I want to please.</td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>12.</td>
<td>The idea of losing a close friend is terrifying to me.</td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>13.</td>
<td>I am quick to agree with the opinions expressed by others.</td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>
14. I rely only on myself. 1 2 3 4

15. I would be completely lost if I didn't have someone special. 1 2 3 4

16. I get upset when someone discovers a mistake I've made. 1 2 3 4

17. It is hard for me to ask someone for a favor. 1 2 3 4

18. I hate it when people offer me sympathy. 1 2 3 4

19. I easily get discouraged when I don't get what I need from others. 1 2 3 4

20. In an argument, I give in easily. 1 2 3 4

21. I don't need much from people. 1 2 3 4

22. I must have one person who is very special to me. 1 2 3 4

23. When I go to a party, I expect that the other people will like me. 1 2 3 4

24. When I am sick, I prefer that my friends leave me alone. 1 2 3 4

25. I'm never happier than when people say I've done a good job. 1 2 3 4

26. It is hard for me to make up my mind about a TV show or movie until I know what other people think. 1 2 3 4
27. I am willing to disregard other people's feelings in order to accomplish something that's important to me.
   1 2 3 4

28. I need to have one person who puts me above all others. 1
   2 3 4

29. In social situations I tend to be very self-conscious.
   1 2 3 4

30. I don't need anyone.
   1 2 3 4

31. I have a lot of trouble making decisions by myself.
   1 2 3 4

32. I tend to imagine the worst if a loved one doesn't arrive when expected.
   1 2 3 4

33. Even when things go wrong I can get along without asking for help from my friends.
   1 2 3 4

34. I tend to expect too much from others.
   1 2 3 4

35. I don't like to buy clothes by myself.
   1 2 3 4

36. I tend to be a loner.
   1 2 3 4

37. When I meet new people, I'm afraid that I won't do the right thing.
   1 2 3 4

38. Even if most people turned against me, I could still go on if someone I love stood by me.
   1 2 3 4

39. I would rather stay free from involvement with others than to risk disappointments.
   1 2 3 4
40. What people think of me doesn't affect how I feel.

41. I think that most people don't realize how easily they can hurt me.

42. I am very confident about my own judgement.

43. I have always had a terrible fear that I will lose the love and support of people I desperately need.

44. I don't have what it takes to be a good leader.

45. I would feel helpless if deserted by someone I love.

46. What other people say doesn't bother me.
APPENDIX K
Memory Stimulus - Female

Janet woke up to hear the sound of her two children laughing in the bedroom. Smiling, she looked at her alarm clock ... she still had ten more minutes to stay in bed. She thought about all she had to do that day - a busy day but no more than usual. Her husband, Steven, was still sound asleep, so she decided to get up and fix breakfast for the kids - he had been quite tired from work these days.

As she was setting the table, Joan, her oldest child, asked if she wanted to attend the school dinner next month. Janet decided not to since she never had anything to say to these people, and wasn't interested in meeting new people anyways. Joan was a bit disappointed but Janet gave her the excuse that she was too busy with work. Steven came down, feeling rested after a good night sleep, and gave Janet a kiss. At that point, Samuel spilled his milk all over the carpet and Janet just blew up at him, for no reason it seemed, and of course Samuel started crying. Despite this little morning trauma, somehow Janet left for work in a good mood. She was rather aggressive in her driving and was actually fortunate not to get a speeding ticket. As she was getting closer to her computer shop, work worries started to bother her. She had been the manager of this shop for 2 years now, and still, there were some technical manuals she still had trouble reading, although she wouldn't admit that to anyone. For instance, she felt pretty guilty about not having even started reading the manual they received last week. When she got to work, she finally got down to it, only to discover that it was very hard reading. Once again, she felt stupid and thought, "I'm never going to get through this, I'm just worthless". It didn't improve the situation when none of her co-workers asked her for lunch; at that point she felt really rejected. However, she did manage to get a terrific price for the new order of a recent model of computer - at least that was good news! She then went to the local library, as she often does, to look at some magazines.

When she came back from lunch, there was a message from her boss asking her to return the call. Janet felt uneasy to call him back, since she was afraid that her boss wasn't satisfied with last month's report - although it was unlikely, maybe her boss was even considering firing her. Janet postponed the call till the end of the afternoon. Finally, she called and it turned out that her boss only wanted to bring to her attention the fact that a
branch manager position was opening up in case Janet would be interested to apply. All this worry for nothing! After work, Janet had a racketball game with Debbie and her style was definitely on the offensive side that day - she wanted to beat her. It was a good challenging game and Janet won. Debbie offered to go and see a play that weekend but Janet didn't really feel like it - she just didn't like making any plans in advance and usually stayed home on weekends with the kids.

On her way home, Janet stopped at the bank. Something that she absolutely hates happened: someone cut into the line-up in front of her and that made her really angry. Still, she didn't say anything. She didn't have a chance to stay angry too long though, since she bumped in an old friend of Steven and her's. They chatted for a while and it was really nice to see this friend again. Afterwards, Janet wondered why they didn't see each other anymore - maybe she got deserted because his friend got tired of her after she and Steven had the children.

While driving home, Janet thought again about the job opportunity. She'd like to apply but won't because she feels she doesn't have what it takes - maybe she'll wait a few years when she knows things around the store perfectly. She got home and asked Steven if he wanted to go shopping for clothes this weekend. He said he was too busy with extra work. But Janet insisted because she hates to go shopping by herself. Steven finally agreed, reluctantly. During dinner, the conversation drifted to the topic of summer vacations. Steven wanted to go down the coast, but Janet doesn't enjoy travelling in the least and she would rather go visit her sister. The argument got more and more heated until Janet put an end to it by walking out of the room and slamming the door.

Janet sat in the living room thinking how much of a failure her marriage was and how it was probably all her own fault. She felt very lonely. Steven came to say a quiet good bye before rushing off to his night class. It crossed her mind that he might be having an affair - how could she be sure that he did in fact have night classes? If he left her, her life would be meaningless, she thought. These thoughts were still there but she had a nice warm time putting the kids to bed - they were pretty cuddly that evening. She watched t.v. since she had nothing better to do. But lately she never felt excited about anything. She did get a bit of a kick out an old movie she had seen a few years ago. Steven then came in and they talked a bit. They were both pretty tired and so they went to sleep.
APPENDIX L

Memory Stimulus - Male

Steven woke up to hear the sound of his two children laughing in the bedroom. Smiling, he looked at his alarm clock ... he still had ten more minutes to stay in bed. He thought about all he had to do that day - a busy day but no more than usual. His wife, Janet, was still sound asleep, so he decided to get up and fix breakfast for the kids - she had been quite tired from work these days.

As he was setting the table, Joan, his oldest child, asked if he wanted to attend the school dinner next month. Steven decided not to since he never had anything to say to these people, and wasn't interested in meeting new people anyways. Joan was a bit disappointed but Steven gave her the excuse that he was too busy with work. Janet came down, feeling rested after a good night sleep, and gave Steven a kiss. At that point, Samuel spilled his milk all over the carpet and Steven just blew up at him, for no reason it seemed, and of course Samuel started crying. Despite this little morning trauma, somehow Steven left for work in a good mood. He was rather aggressive in his driving and was actually fortunate not to get a speeding ticket.

As he was getting closer to his computer shop, work worries started to bother him. He had been the manager of this shop for 2 years now, and still, there were some technical manuals he still had trouble reading, although he wouldn't admit that to anyone. For instance, he felt pretty guilty about not having even started reading the manual they received last week. When he got to work, he finally got down to it, only to discover that it was very hard reading. Once again, he felt stupid and thought, "I'm never going to get through this, I'm just worthless". It didn't improve the situation when none of his co-workers asked him for lunch; at that point he felt really rejected. However, he did manage to get a terrific price for the new order of a recent model of computer - at least that was good news! Steven then went to the local library, as he often does, to look at some magazines.

When he came back from lunch, there was a message from his boss asking him to return the call. Steven felt uneasy to call him back, since he was afraid that his boss wasn't satisfied with last month's report - although it was unlikely, maybe his boss was even considering firing him. Steven postponed the call till the end of the afternoon. Finally, he called and it turned out that his boss only wanted to bring to his attention the fact that a branch manager position was opening up in case Steven would be interested to apply. All this worry for
After work, Steven had a racketball game with Peter and his style was definitely on the offensive side that day - he wanted to beat him. It was a good challenging game and Steven won. Peter offered to go and see a play that weekend but Steven didn’t really feel like it - he just didn’t like making any plans in advance and usually stayed home on weekends with the kids.

On his way home, Steven stopped at the bank. Something that he absolutely hates happened: someone cut into the line-up in front of him and that made him really angry. Still, he didn’t say anything. He didn’t have a chance to stay angry too long though, since he bumped in an old friend of Janet and his. They chatted for a while and it was really nice to see this friend again. Afterwards, Steven wondered why they didn’t see each other anymore - maybe he got deserted because his friend got tired of him after he and Janet had the children.

While driving home, Steven thought again about the job opportunity. He’d like to apply but won’t because he feels he doesn’t have what it takes - maybe he’ll wait a few years when he knows things around the store perfectly.

He got home and asked Janet if she wanted to go shopping for clothes this weekend. She said she was too busy with extra work. But Steven insisted because he hates to go shopping by himself. Janet finally agreed, reluctantly. During dinner, the conversation drifted to the topic of summer vacations. Janet wanted to go down the coast, but Steven doesn’t enjoy travelling in the least and he would rather go visit his brother. The argument got more and more heated until Steven put an end to it by walking out of the room and slamming the door.

Steven sat in the living room thinking how much of a failure his marriage was and how it was probably all his own fault. He felt very lonely. Janet came to say a quiet good bye before rushing off to her night class. It crossed his mind that she might be having an affair - how could he be sure that she did in fact have night classes? If she left him, his life would be meaningless, he thought.

These thoughts were still there but he had a nice warm time putting the kids to bed - they were pretty cuddly that evening. He watched t.v. since he had nothing better to do. But lately he never felt excited about anything. He did get a bit of a kick out an old movie he had seen a few years ago. Janet then came in and they talked a bit. They were both pretty tired and so they went to sleep.
Example of the Raven Progressive Matrices Test
APPENDIX N

Impression formation task - female

Explain with at least 12 attributes or short sentences what is your impression of Janet. What kind of person is she?
Impression formation - male

Explain with at least 12 adjectives or short sentences what is your impression of Steven. What kind of person is he?
APPENDIX O

Recognition Task for the Female Target

FOR EACH STATEMENT, SELECT THE END OF SENTENCE THAT BEST CORRESPONDS TO THE EXACT WORDING USED IN THE STORY THAT WAS READ TO YOU.

1. When she tried to read the new manual, Janet felt
   ___ inadequate
   ___ stupid
   ___ tired
   ___ fed up

2. After her argument with Steven, Janet
   ___ slammed the door
   ___ slammed her fist on the table
   ___ sulked
   ___ clammed up

3. The real reason for which Janet decided not to attend the school dinner
   ___ was because she had made other plans
   ___ was because she didn't feel like it
   ___ was because she wasn't interested in meeting new people
   ___ was because she didn't enjoy these dinners

4. If her husband left her, Janet's life would be
   ___ shattered
   ___ depressing
   ___ meaningless
   ___ empty
5. Janet felt the failure of her marriage was
   ___ due to work overload
   ___ all her husband's fault
   ___ due to having kids
   ___ all her own fault

6. Lately, Janet
   ___ was in a very quiet mood
   ___ never felt excited about anything
   ___ was fed up with everything
   ___ felt bored

7. When someone cut into the bank line-up, Janet
   ___ didn't say anything
   ___ didn't know what to do
   ___ blushed
   ___ stared at the person

8. Janet wanted to go shopping with Steven
   ___ because she has poor taste in clothing
   ___ because she hates to go shopping by herself
   ___ because she can't make up her mind about what to buy
   ___ because she has to buy something special that weekend

9. During her racketball game, Janet
   ___ didn't play as well as usual
   ___ was not satisfied with her playing
   ___ was on the offensive side
   ___ felt very competitive

10. At the bank, Janet felt
    ___ really embarrassed
    ___ really frustrated
    ___ really exasperated
    ___ really angry
11. Janet won't apply for the job
   ___ because she feels insecure in her job
   ___ because she finds she's not competent enough
   ___ because she feels she doesn't have what it takes
   ___ because she thinks her boss doesn't like her

12. That night, Janet watched t.v.
   ___ because she wanted to get her mind on other things
   ___ and dozed off to sleep
   ___ because she had nothing better to do
   ___ because she really wanted to see an old flick

13. After her fight with Steven, Janet felt
   ___ very confused
   ___ very sad
   ___ very discouraged
   ___ very lonely

14. When Samuel spilled her milk all over the carpet, Janet
   ___ scolded him
   ___ blew up at him
   ___ screamed at him
   ___ slapped him

15. When none of her co-workers asked her for lunch, Janet felt
   ___ rejected
   ___ humiliated
   ___ excluded
   ___ abandoned

16. Since she had not read the new technical manual, Janet felt
   ___ guilty
   ___ embarrassed
   ___ lazy
   ___ bad
Net sometimes goes to the library
_ to read about computers
_ to look at some new books
_ to consult some technical magazines
_ to look at some magazines

Net is
_ rather aggressive in her driving
_ careful in her driving
_ a good driver
_ a dangerous driver

Net felt that her friend she met at the bank
_ didn't like her
_ deserted her
_ forgot about her
_ found her boring

Net had a racketball game with Debbie and
_ she really enjoyed her game
_ she really wanted to beat her
_ she was playing very well
_ she was playing better than usual

Net
_ doesn't enjoy travelling
_ likes to visit her family
_ wants to stay home during the holidays
_ feels it's too complicated to travel with the children

On her boss called her, Janet thought that it was because
_ she got a good price of a new order of computers
_ her boss had complaints about her work
_ her boss wasn't satisfied with last month's report
_ her boss wanted to tell her about the new job opportunity
23. Janet
   ___ doesn't like to go out
   ___ has a hard time making a commitment to do something
   ___ doesn't like making any plans in advance
   ___ wants to spend time with her friends

24. Sometimes Janet tells herself
   ___ she should get her act together
   ___ she's useless
   ___ she should take a break from work
   ___ she's worthless
APPENDIX P
Recognition Task for the Male Target

FOR EACH STATEMENT, SELECT THE END OF SENTENCE THAT BEST CORRESPONDS TO THE EXACT WORDING USED IN THE STORY THAT WAS READ TO YOU.

1. When he tried to read the new manual, Steven felt
   ___ inadequate
   ___ stupid
   ___ tired
   ___ fed up

2. After his argument with Janet, Steven
   ___ slammed the door
   ___ slammed his fist on the table
   ___ sulked
   ___ clammed up

3. The real reason for which Steven decided not to attend the school dinner
   ___ was because he had made other plans
   ___ was because he didn't feel like it
   ___ was because he wasn't interested in meeting new people
   ___ was because he didn't enjoy these dinners

4. If his wife left him, Steven's life would be
   ___ shattered
   ___ depressing
   ___ meaningless
   ___ empty

5. Steven felt the failure of his marriage was
   ___ due to work overload
   ___ all his wife's fault
   ___ due to having kids
   ___ all his own fault
6. Lately, Steven
   ___ was in a very quiet mood
   ___ never felt excited about anything
   ___ was fed up with everything
   ___ felt bored

7. When someone cut into the bank line-up, Steven
   ___ didn't say anything
   ___ didn't know what to do
   ___ blushed
   ___ stared at the person

8. Steven wanted to go shopping with Janet
   ___ because he has poor taste in clothing
   ___ because he hates to go shopping by himself
   ___ because he can't make up his mind about what to buy
   ___ because he has to buy something special that weekend

9. During his racketball game, Steven
   ___ didn't play as well as usual
   ___ was not satisfied with his playing
   ___ was on the offensive side
   ___ felt very competitive

10. At the bank, Steven felt
    ___ really embarrassed
    ___ really frustrated
    ___ really exasperated
    ___ really angry

11. Steven won't apply for the job
    ___ because he feels insecure in his job
    ___ because he finds he's not competent enough
    ___ because he feels he doesn't have what it takes
    ___ because he thinks his boss doesn't like him
12. That night, Steven watched t.v.
   ___ because he wanted to get his mind on other things
   ___ and dozed off to sleep
   ___ because he had nothing better to do
   ___ because he really wanted to see an old flick

13. After his fight with Janet, Steven felt
   ___ very confused
   ___ very sad
   ___ very discouraged
   ___ very lonely

14. When Samuel spilled his milk all over the carpet, Steven
   ___ scolded him
   ___ blew up at him
   ___ screamed at him
   ___ slapped him

15. When none of his co-workers asked him for lunch, Steven felt
   ___ rejected
   ___ humiliated
   ___ excluded
   ___ abandoned

16. Since he had not read the new technical manual, Steven felt
   ___ guilty
   ___ embarrassed
   ___ lazy
   ___ bad

17. Steven sometimes goes to the library
   ___ to read about computers
   ___ to look at some new books
   ___ to consult some technical magazines
   ___ to look at some magazines
18. Steven is
___ rather aggressive in his driving
___ careful in his driving
___ a good driver
___ a dangerous driver

19. Steven felt that his friend he met at the bank
___ didn't like him
___ deserted him
___ forgot about him
___ found him boring

20. Steven had a racketball game with Peter and
___ he really enjoyed his game
___ he really wanted to beat him
___ he was playing very well
___ he was playing better than usual

21. Steven
___ doesn't enjoy travelling
___ likes to visit his family
___ wants to stay home during the holidays
___ feels it's too complicated to travel with the children

22. When his boss called him, Steven thought that it was because
___ he got a good price of a new order of computers
___ his boss had complaints about his work
___ his boss wasn't satisfied with last month's report
___ his boss wanted to tell him about the new job opportunity

23. Steven
___ doesn't like to go out
___ has a hard time making a commitment to do something
___ doesn't like making any plans in advance
___ wants to spend time with his friends
24. Sometimes Steven tells himself
    ___ he should get his act together
    ___ he's useless
    ___ he should take a break from work
    ___ he's worthless
APPENDIX Q

Pilot Self-criticism and Dependency Rating Task

Self-criticism and Dependency Rating Task

Please fill out the following items:

Age: ___

Sex: F ___ M ___

Education: High school ___
Some college-level education ___
College degree completed ___
Graduate studies ___
Total years of education ___

We are interested in finding out about how people perceive certain adjectives. We are specifically interested in adjectives related to the concepts of self-criticism and dependency.

The concept of dependency reflects concerns about interpersonal relations where a person is fearful of abandonment and rejection, feels lonely and helpless, and wants to be close to and dependent upon others. There may be concerns about hurting people and having difficulty managing aggression for fear of losing someone.

The concept of self-criticism reflects concerns about failure, where a person is critical of him/herself, may feel guilty, unsatisfied, and is fearful of failing to meet expectations. There may be concerns about inability to assume responsibility and a tendency to assume the blame for failure.

For each of the following adjectives, we would like you to rate on a scale from 1 to 7 how descriptive they are of what a dependent person or a self-critical person would think of or feel about him/herself. For example:

How much does this adjective describe how a dependent person would think of or feel about him/herself?

not at all moderate very
aggressive 1 2 3 4 5 6 7

Please circle the appropriate number.

Thank you for your cooperation.
The concept of dependency reflects concerns about interpersonal relations where a person is fearful of abandonment and rejection, feels lonely and helpless, and wants to be close to and dependent upon others. There may be concerns about hurting people and having difficulty managing aggression for fear of losing someone.

How much does this adjective describe how a dependent person would think of or feel about him/herself?

<table>
<thead>
<tr>
<th>not at all</th>
<th>moderately</th>
<th>very much</th>
</tr>
</thead>
<tbody>
<tr>
<td>alone</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>beaten</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>dominant</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>aimless</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>pitiful</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>seductive</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>oppressed</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
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<td>frisky</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>defeated</td>
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<tr>
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</tr>
<tr>
<td>helpless</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>mischievous</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>sinful</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
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<td>heartsick</td>
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</tr>
<tr>
<td>dramatic</td>
<td>1 2 3 4 5 6 7</td>
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How much does this adjective describe how a self-critical person would think of or feel about him/herself?

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</table>
### APPENDIX R

#### Plotting of Self-criticism and Dependency Ratings

| 1 alone (D) | 2 beaten (SC) | 3 dominant (N) | 4 aimless (SC) | 5 pitiful (D) | 6 seductive (N) | 7 oppressed (D) | 8 frisky (N) | 9 defeated (SC) | 10 disgraced (SC) | 11 helpless (D) | 12 mischievous (N) | 13 sinful (SC) | 14 heartick (D) | 15 lusty (N) | 16 dramatic (N) | 17 defenseless (D) | 18 worthless (SC) | 19 persistent (N) | 37 deserted (D) | 55 inferior (SC) | 20 solitary (D) | 21 argumentative (N) | 22 submissive (D) | 23 useless (D) | 24 weak (SC) | 25 flamboyant (N) | 26 unloved (D) | 27 failing (SC) | 28 unwanted (D) | 29 pretentious (N) | 30 wary (D) | 31 broken (SC) | 32 lonely (D) | 33 excitable (N) | 34 remorseful (SC) | 35 mellow (N) | 36 stupid (SC) | 37 deserted (D) | 38 inquiring (N) | 39 desolate (D) | 40 downcast (SC) | 41 destitute (D) | 42 impetuous (N) | 43 criticized (SC) | 44 forceful (N) | 45 forlorn (D) | 46 incompetent (SC) | 47 materialistic (N) | 48 lonesome (D) | 49 impulsive (N) | 50 fearful (SC) | 51 talkative (N) | 52 forsaken (D) | 53 lousy (SC) | 54 powerful (N) | 55 inferior (SC) | 56 lost (D) | 57 vigilant (N) | 58 guilty (SC) | 59 extravagant (N) | 60 inadequate (SC) | 61 pathetic (D) | 62 deficient (SC) | 63 rejected (D) | 64 persuasive (N) | 65 destroyed (SC) | 66 huddled (N) | 67 discouraged (SC) | 68 abandoned (D) | 69 brisk (N) | 70 shy (D) | 71 racing (N) | 72 demanding (N) |
APPENDIX S

T-tests of Chosen and Not Chosen Words

Chosen dependent words vs not chosen dependent words on dependency ratings:

Chosen dependent words: 5.28 (.785)
Not chosen dependent words: 4.42 (.838)

$t=12.41 (p<.001)$

Chosen self-critical words vs not chosen self-critical words on self-criticism ratings:

Chosen self-critical words: 5.44 (.826)
Not chosen self-critical words: 4.92 (.962)

$t=-8.27 (p<.001)$

Chosen dependent words vs chosen self-critical words on dependency ratings:

Chosen dependent words: 5.28 (.773)
Chosen self-critical words: 4.83 (.832)

$t=8.22 (p<.001)$

Chosen dependent words vs chosen self-critical words on self-criticism ratings:

Chosen dependent words: 4.41 (.963)
Chosen self-critical words: 5.45 (.819)

$t=-12.78 (p<.001)$

Self-criticism ratings vs dependency ratings on chosen dependent words:

Self-criticism ratings: 4.37 (.972)
Dependent ratings: 5.27 (.762)

$t=8.52 (p<.001)$

Self-criticism ratings vs dependency ratings on self-critical words:

Self-criticism ratings: 5.45 (.816)
Dependency ratings: 4.84 (.816)

$t=6.22 (p<.001)$
APPENDIX T

Correlations of Chosen Self-critical Words with the Average Dependency Rating of all Dependent Words and Average Self-criticism Rating of all Self-critical Words

<table>
<thead>
<tr>
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<th>Average dependency rating</th>
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<td>.125 (NS)</td>
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NOTE: correlations are on the left, levels of significance are on the right
APPENDIX U

Correlations of Chosen Dependent Words with the Average Dependency Rating of all Dependent Words and the Average Self-Criticism Rating for all Self-Critical Words

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<th>Average self-criticism rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>alone</td>
<td>0.610 (.001)</td>
<td>0.259 (.005)</td>
</tr>
<tr>
<td>5.</td>
<td>pitiful</td>
<td>0.613 (.001)</td>
<td>0.300 (.002)</td>
</tr>
<tr>
<td>11.</td>
<td>helpless</td>
<td>0.401 (.001)</td>
<td>0.315 (.001)</td>
</tr>
<tr>
<td>14.</td>
<td>heartsick</td>
<td>0.583 (.001)</td>
<td>0.273 (.003)</td>
</tr>
<tr>
<td>17.</td>
<td>defenseless</td>
<td>0.387 (.001)</td>
<td>0.146 (NS)</td>
</tr>
<tr>
<td>22.</td>
<td>submissive</td>
<td>0.302 (.001)</td>
<td>0.241 (.009)</td>
</tr>
<tr>
<td>26.</td>
<td>unloved</td>
<td>0.633 (.001)</td>
<td>0.311 (.001)</td>
</tr>
<tr>
<td>28.</td>
<td>unwanted</td>
<td>0.590 (.001)</td>
<td>0.271 (.004)</td>
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<tr>
<td>32.</td>
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<td>0.631 (.001)</td>
<td>0.321 (.001)</td>
</tr>
<tr>
<td>48.</td>
<td>lonesome</td>
<td>0.674 (.001)</td>
<td>0.296 (.002)</td>
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<tr>
<td>56.</td>
<td>lost</td>
<td>0.766 (.001)</td>
<td>0.195 (.028)</td>
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<td>63.</td>
<td>rejected</td>
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<td>0.379 (.001)</td>
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<tr>
<td>68.</td>
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<td>0.728 (.001)</td>
<td>0.259 (.005)</td>
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<tr>
<td>70.</td>
<td>shy</td>
<td>0.248 (.012)</td>
<td>0.169 (NS)</td>
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</tbody>
</table>

NOTE: correlations are on the left, levels of significance are in brackets on the right
## APPENDIX V

**Correlations Between Self-criticism and Dependency Ratings for Chosen Words**

<table>
<thead>
<tr>
<th>Dependent words</th>
<th>Self-critical words</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. alone:</td>
<td>-0.134 (NS)</td>
</tr>
<tr>
<td>5. pitiful</td>
<td>0.153 (NS)</td>
</tr>
<tr>
<td>11. helpless</td>
<td>0.116 (NS)</td>
</tr>
<tr>
<td>14. heartsick</td>
<td>0.235 (0.009)</td>
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<tr>
<td>17. defenseless</td>
<td>0.076 (NS)</td>
</tr>
<tr>
<td>22. submissive</td>
<td>0.129 (NS)</td>
</tr>
<tr>
<td>26. unloved</td>
<td>0.055 (NS)</td>
</tr>
<tr>
<td>28. unwanted</td>
<td>0.132 (NS)</td>
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<tr>
<td>32. lonely</td>
<td>0.077 (NS)</td>
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<tr>
<td>48. lonesome</td>
<td>0.301 (0.001)</td>
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<tr>
<td>56. lost</td>
<td>0.184 (0.032)</td>
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<td>63. rejected</td>
<td>0.304 (0.005)</td>
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<tr>
<td>68. abandoned</td>
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</tr>
<tr>
<td>70. shy</td>
<td>0.296 (0.001)</td>
</tr>
<tr>
<td>10. disgraced</td>
<td>0.177 (0.038)</td>
</tr>
<tr>
<td>18. worthless</td>
<td>0.104 (NS)</td>
</tr>
<tr>
<td>23. useless</td>
<td>0.061 (NS)</td>
</tr>
<tr>
<td>27. failing</td>
<td>0.071 (NS)</td>
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<tr>
<td>36. stupid</td>
<td>0.227 (0.011)</td>
</tr>
<tr>
<td>43. criticized</td>
<td>0.246 (0.006)</td>
</tr>
<tr>
<td>46. incompetent</td>
<td>0.086 (NS)</td>
</tr>
<tr>
<td>55. inferior</td>
<td>0.115 (NS)</td>
</tr>
<tr>
<td>58. guilty</td>
<td>0.332 (0.001)</td>
</tr>
<tr>
<td>60. inadequate</td>
<td>0.231 (0.010)</td>
</tr>
<tr>
<td>62. deficient</td>
<td>0.361 (0.001)</td>
</tr>
<tr>
<td>67. discouraged</td>
<td>0.345 (0.001)</td>
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</table>
## Stroop Task

### Stroop task: self-critical words

<table>
<thead>
<tr>
<th>DISGRACE</th>
<th>USELESS</th>
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<th>CRITICIZED</th>
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<tbody>
<tr>
<td>WORTHLESS</td>
<td>GUILTY</td>
<td>FAILING</td>
<td>DISGRACE</td>
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<td>INFERIOR</td>
<td>INCOMPETENT</td>
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<tr>
<td>FAILING</td>
<td>INFERIOR</td>
<td>STUPID</td>
<td>INFERIOR</td>
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<td>FAILING</td>
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<td>USELESS</td>
</tr>
<tr>
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<td>INADEQUATE</td>
<td>WORTHLESS</td>
<td>WORTHLESS</td>
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<tr>
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<td>INCOMPETENT</td>
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<td>GUILTY</td>
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<tr>
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<td>DEFICIENT</td>
<td>INADEQUATE</td>
<td>DEFICIENT</td>
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<tr>
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<td>STUPID</td>
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<td>INADEQUATE</td>
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<td>DISCOURAGED</td>
<td>DISGRACE</td>
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<td>DISGRACE</td>
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<td>Stroop task: mood congruent words</td>
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<tr>
<td>----------------------------------</td>
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<td></td>
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<tr>
<td>GLUM</td>
<td>Tired</td>
<td>Gloomy</td>
<td>Awful</td>
</tr>
<tr>
<td>Sorrowful</td>
<td>Doomed</td>
<td>DrearY</td>
<td>Tearful</td>
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<tr>
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<td>Sorrowful</td>
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<td>Dreary</td>
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<td>DrearY</td>
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<td>Sad</td>
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<td>Sad</td>
<td>Depressed</td>
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<tr>
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<td>Hopeless</td>
<td>Doomed</td>
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<tr>
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<td>Gloomy</td>
<td>Blue</td>
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<td>Sorrowful</td>
<td>Doomed</td>
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<tr>
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<td>Sad</td>
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<td>Tired</td>
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Stroop task: Dependent words

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>PITIFUL</td>
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<td>UNLOVED</td>
<td>PITIFUL</td>
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<tr>
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<td>LONESOME</td>
<td>DEFENSELESS</td>
<td>REJECTED</td>
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<td>HEARTSICK</td>
<td>DEFENSELESS</td>
<td>LONELY</td>
<td>UNWANTED</td>
</tr>
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<td>DEFENSELESS</td>
<td>SUBMISSIVE</td>
<td>HELPLESS</td>
<td>HEARTSICK</td>
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<td>SUBMISSIVE</td>
<td>LONELY</td>
<td>UNWANTED</td>
<td>HELPLESS</td>
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<td>PITIFUL</td>
<td>LONESOME</td>
<td>DEFENSELESS</td>
</tr>
<tr>
<td>UNWANTED</td>
<td>ALONE</td>
<td>REJECTED</td>
<td>ABANDONED</td>
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<tr>
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<td>ABANDONED</td>
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<td>LONESOME</td>
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<tr>
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<td>HELPLESS</td>
<td>ALONE</td>
<td>SUBMISSIVE</td>
</tr>
<tr>
<td>ABANDONED</td>
<td>UNWANTED</td>
<td>ABANDONED</td>
<td>ALONE</td>
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<td>REJECTED</td>
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### Stroop task: control words

<table>
<thead>
<tr>
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<th>LUSTY</th>
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<tr>
<td>MISCHIEVOUS</td>
<td>PERSUASIVE</td>
<td>PRETENTIOUS</td>
<td>IMPULSIVE</td>
</tr>
<tr>
<td>EXTRAVAGANT</td>
<td>BRISK</td>
<td>EXTRAVAGANT</td>
<td>PERSUASIVE</td>
</tr>
<tr>
<td>RACING</td>
<td>FLAMBOYANT</td>
<td>RACING</td>
<td>FLAMBOYANT</td>
</tr>
<tr>
<td>SEDUCTIVE</td>
<td>IMPULSIVE</td>
<td>LUSTY</td>
<td>IMPETUOUS</td>
</tr>
<tr>
<td>PERSUASIVE</td>
<td>PRETENTIOUS</td>
<td>IMPETUOUS</td>
<td>MISCHIEVOUS</td>
</tr>
<tr>
<td>FLAMBOYANT</td>
<td>MISCHIEVOUS</td>
<td>MISCHIEVOUS</td>
<td>FRISKY</td>
</tr>
<tr>
<td>PRETENTIOUS</td>
<td>EXTRAVAGANT</td>
<td>BRISK</td>
<td>EXTRAVAGANT</td>
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<tr>
<td>LUSTY</td>
<td>FRISKY</td>
<td>FLAMBOYANT</td>
<td>SEDUCTIVE</td>
</tr>
<tr>
<td>IMPETUOUS</td>
<td>SEDUCTIVE</td>
<td>PERSUASIVE</td>
<td>RACING</td>
</tr>
<tr>
<td>IMPULSIVE</td>
<td>IMPETUOUS</td>
<td>SEDUCTIVE</td>
<td>PRETENTIOUS</td>
</tr>
<tr>
<td>FRISKY</td>
<td>LUSTY</td>
<td>FRISKY</td>
<td>BRISK</td>
</tr>
</tbody>
</table>
APPENDIX AA

Verbatim Instructions to Subjects

When starting the memory task, the experimenter said to the subject:
"Now I'd like you to listen carefully to the story of a person's day. The tape is about 6 minutes long. Later on, I will ask you to recall as best as you can the story, and to try to use the same words as on the tape. Do you have any questions? ....O.K. listen carefully."

Afterwards, subjects were given a 5 minute filler task - the Raven's Progressive Matrices:
"Before I ask you to tell me back the story, I'd like you to do the following task. On every page there is a pattern with part of it left out, all you have to do is point each time to the part which is the right one to complete the pattern. They are simple at the beginning and get harder as you go on. Just point to the piece which completes the pattern. Now carry on at your own pace. There is no need to hurry. Remember each time only one piece is right."

After the filler task, the subject was asked to do the free recall task:
"Now I'd like you to tell me the story that you heard before. Try to remember everything you can, if possible word for word - although I know that is practically impossible ... but do your best. I'll tape you as you recall the story."

When the subject was finished:
"Is there anything else you can remember? ... O.K. that was great."

Before the impression formation task:

"Now I'd like you to write down in no less than 12 adjectives or short sentences your impression of Janet/Steven. What kind of person is he/she? How would you describe her/him?"

Before the recognition task:

"Now, for each statement, select the end of the sentence that best corresponds to the exact wording used in the story that you heard."

The next task was the Stroop task. Subjects were given the following instructions for Page 1 (words only):

"This is a test of how fast you can read the words on this page. After I say begin, you are to read down the columns starting with the first one (point to the leftmost column) until you complete it (run hand down the leftmost column) and then continue without stopping down the remaining columns in order (run your hand down the remaining columns). Remember, do not stop reading and read out loud as quickly as you can. If you make a mistake, I will say "No" to you. Correct your error and continue without stopping. Do you have any questions?"

The instructions for the second page (colors only) were identical, except the first sentence read: "This is a test of how fast you can name the colors on this page." For the next four pages (experimental cards), the instructions were as follows:

"This page is like the page you just finished. I want you to name the color of the ink the words are printed in, ignoring the word that is printed in each item. For example, (point to the first item of the first column), this
is the first item: what would you say?" (If the subject is correct, go on with the instructions. If incorrect, say: "No, that is the word that is spelled there. I want you to say the color of the ink the word is printed in. Now, what would you say to this item?" If correct, proceed; if incorrect repeat above as many times as necessary until the subject understands or it becomes clear that it is impossible to go on.) "Good. You will do this page just like the others, starting with the first column (point) and then going on to the remaining columns (point). Remember, if you make a mistake, just correct it and go on. Do you have any questions? Then begin."

After the Stroop task was finished, subjects were asked to fill out again the semantic differential according to how they were "feeling right now at this moment". They were then asked to answer the DEQ and the IDI:

"I have some more questionnaires for you. Again, there are no right or wrong answers. Don't spend too much time on a single item."
### APPENDIX CC

**ANOVA Summary Table for Age of Subjects**

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>df</th>
<th>MS</th>
<th>F</th>
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</thead>
<tbody>
<tr>
<td>Between groups</td>
<td>2</td>
<td>8.87</td>
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</tr>
<tr>
<td>Error</td>
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<td>154.16</td>
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**ANOVA Summary Table for the Number of Children of Subjects**

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<th>F</th>
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<tbody>
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<td>Between groups</td>
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<td>0.23</td>
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<td>Error</td>
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APPENDIX DD

ANOVA Summary Tables for Pretest BDI AND STAI Scores

**BDI**

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*** p< .001

**STAI**

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<th>F</th>
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<td>Between groups</td>
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<td>3588.62</td>
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*** p<.001
### APPENDIX EE

**ANOVA Summary Table for Interpersonal Dependency Inventory (IDI) and Depressive Experience Questionnaires (DEQ) Scales**

#### IDI-Emotional Reliance

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<tr>
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<th>MS</th>
<th>F</th>
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</thead>
<tbody>
<tr>
<td>Between groups</td>
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*** p < .001

#### IDI- Lack of Social Confidence

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<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between groups</td>
<td>2</td>
<td>141.05</td>
<td>5.56 **</td>
</tr>
<tr>
<td>Error</td>
<td>57</td>
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</table>

** p < .01

#### IDI-Assertion of Autonomy

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</tr>
</thead>
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<tr>
<td>Between groups</td>
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### DEQ-Dependency

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<th>F</th>
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*** p< .001

### DEQ- Self-Criticism

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<th>F</th>
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*** p< .001

### DEQ-Efficacy

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*** p< .001
APPENDIX FF

Correlations Between Recall Scores, Recognition Errors and Impression Scores

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<th>Aggressive</th>
<th>Dependent</th>
<th>Self-critical</th>
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<td>0.11</td>
<td>0.34**</td>
<td>0.09</td>
</tr>
<tr>
<td>Aggressive</td>
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<td>-0.47***</td>
<td>0.25*</td>
<td>0.19</td>
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<tr>
<td>Self-critical</td>
<td>-0.16</td>
<td>0.00</td>
<td>0.22*</td>
<td>0.19</td>
</tr>
<tr>
<td>Dependent</td>
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<td>0.17</td>
<td>0.01</td>
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<table>
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<th>Dependent</th>
<th>Self-critical</th>
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<td>-0.18</td>
<td>-0.23*</td>
<td>0.05</td>
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<tr>
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* p<.05, **p<.005, ***p<.001
APPENDIX FF (continued)

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* p<.05, ** p<.005, *** p<.001
APPENDIX GG

Correlations Between DEQ and IDI Measures with Recall Scores, Recognition Scores, and Impression Scores

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</table>

* p<.05, ** p<.01, *** p<.001
Janet woke up to hear the sound of her two children laughing in the bedroom. Smiling, she looked at her alarm clock ... she still had ten more minutes to stay in bed. She thought about all she had to do that day - a busy day but no more than usual. Her husband, Steven, was still sound asleep, so she decided to get up and fix breakfast for the kids - he had been quite tired from work these days.

As she was setting the table, Joan, her oldest child, asked if she wanted to attend the school dinner next month. Janet decided not to since she never had anything to say to these people, and wasn't interested in meeting new people anyways. Joan was a bit disappointed but Janet gave her the excuse that she was too busy with work. Steven came down, feeling rested after a good night sleep, and gave Janet a kiss. At that point, Samuel spilled his milk all over the carpet and Janet just blew up at him, for no reason it seemed, and of course Samuel started crying. Despite this little morning trauma, somehow Janet left for work in a good mood.

She was rather aggressive in her driving and was actually fortunate not to get a speeding ticket.

As she was getting closer to her computer shop, work worries started to bother her. She had been the manager of this shop for 2 years now, and still, there were some technical manuals she still had trouble reading, although she wouldn't admit that to anyone. For instance, she felt pretty guilty about not having even started reading the manual they received last week. When she got to work, she finally got down to it, only to discover that it was very hard reading. Once again, she felt stupid and thought, "I'm never going to get through this, I'm just worthless." It didn't
improve the situation when none of her co-workers asked her for lunch; at
that point she felt really rejected. However, she did manage to get a
terrific price for the new order of a recent model of computer — at least
that was good news! She then went to the local library, as she often does,
to look at some magazines.

When she came back from lunch, there was a message from her boss
asking her to return the call. Janet felt uneasy to call him back, since
she was afraid that her boss wasn't satisfied with last month’s report
although it was unlikely, maybe her boss was even considering firing her.

Janet postponed the call till the end of the afternoon. Finally, she called
and it turned out that her boss only wanted to bring to her attention the
fact that a branch manager position was opening up in case Janet would be
interested to apply. All this worry for nothing!

After work, Janet had a racketball game with Debbie and her style
was definitely on the offensive side that day — she wanted to beat her. It
was a good challenging game and Janet won. Debbie offered to go and see a
play that weekend but Janet didn't really feel like it - she just didn't like
making any plans in advance and usually stayed home on weekends with the
kids.

On her way home, Janet stopped at the bank. Something that she
absolutely hates happened: someone cut into the line-up in front of her and
that made her really angry. Still, she didn’t say anything. She didn’t have a
chance to stay angry too long though, since she bumped in an old friend of
Steven and her's. They chatted for a while and it was really nice to see
this friend again. Afterwards, Janet wondered why they didn't see each
other anymore - maybe she got deserted because his friend got tired of her
after she and Steven had the children.
While driving home, Janet thought again about the job opportunity. She'd like to apply but won't because she feels she doesn't have what it takes - maybe she'll wait a few years when she knows things around the store perfectly.

She got home and asked Steven if he wanted to go shopping for clothes this weekend. He said he was too busy with extra work. But Janet insisted because she hates to go shopping by herself. Steven finally agreed, reluctantly. During dinner, the conversation drifted to the topic of summer vacations. Steven wanted to go down the coast, but Janet doesn't enjoy travelling in the least and she would rather go visit her sister. The argument got more and more heated until Janet put an end to it by walking out of the room and slamming the door.

Janet sat in the living room thinking how much of a failure her marriage was and how it was probably all her own fault. She felt very lonely. Steven came to say a quiet good bye before rushing off to his night class. It crossed her mind that he might be having an affair - how could she be sure that he did in fact have night classes? If he left her, her life would be meaningless, she thought.

These thoughts were still there but she had a nice warm time putting the kids to bed - they were pretty cuddly that evening. She watched t.v. since she had nothing better to do. But lately she never felt excited about anything. She did get a bit of a kick out of an old movie she had seen a few years ago. Steven then came in and they talked a bit. They were both pretty tired and so they went to sleep.
APPENDIX II

Summary Table for the Accuracy Analysis of 1/3 of Subjects

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APPENDIX JJ

Coding Instructions for the Second Content Analysis

The main character (either Janet or Steven) is coded on four dimensions:
-
-interpersonal dependency
-self-criticism
-aggressivity
-*"boringness"

**Interpersonal dependency:** The concept of dependency reflects concerns about interpersonal relations where a person is fearful of abandonment and rejection, feels lonely and helpless, and wants to be close to and dependent upon others. There are concerns about hurting people and having difficulty asserting oneself for fear of losing someone.

**Self-criticism:** The concept of self-criticism reflects concerns about failure, where a person is critical of him/herself, feels guilty, unsatisfied, and is fearful of failing to meet expectations. There are concerns about inability to assume responsibility and a tendency to assume blame and to put themselves down.

**Aggressivity:** The concept of aggressivity is of a more behavioral nature, where the person shows signs of frustration, of impatience, of hostility, and of anger. These forms of aggressivity are directed towards people and towards their environment.

**Boringness:** The concept of being boring is reflected by a lack of interest in people and in activities, and an absence of excitement. Behaviorally, it is shown by avoidance of social contact, avoidance of stimulating activities, preference of solitary activities, and inactivity.

(See examples on cued recall sheet)

What parts of the text are coded:
Actions: she screamed at her child 
coded as aggressivity

he got fired coded as self-critical as it relates to failure

Feelings: she felt (rejected )and (lonely )when her coworkers didn't ask 
her out for lunch 
coded as dependent, dependent

if his wife left him, his life would be meaningless 
coded as dependent

Thoughts: he found the manual quite difficult to understand and (was 
concerned that he couldn't do his job adequately) 
coded as self-critical

How to write it on the texts:

For each category, use the following abbreviations: 
   B-boring 
   A-aggressive 
   D-dependent 
   S-self-critical

For each clause coded, put brackets around it and indicate the category 
above it
ex. Off she goes to work, driving to work to the computer shop, 
(driving aggressively,) she began...

Indicate the final scores besides the subject number, always in the same 
order:
ex. B-4 
A-3 
D-6
Other considerations:

Disregard obvious confusions in names, for instance if Janet is called "Joan" and it is obvious that it is Janet who is referred to. Or if Janet is called "Joan" consistently throughout the story.

Beware of your own inferences! With "he wondered if his wife was having an affair" you may assume that he is distressed by that but that is your own inference. There is nothing to score if that phrase stands alone. You may score it as self-critical if it is followed by "and he thought his marriage was a failure" or as dependent if it is followed by "and it made him feel lonely".

But you can use the context. With "Her colleagues don't ask her for lunch which makes her worse", you can assume with sufficient reason that she feels rejected and you can score this as dependent.

Look for key words and key concepts.
Self-critical: failure, worthless, guilt, blame, stupid
Dependent: lonely, rejected, helplessness, dependency, abandonment, lack of assertion
Aggressivity: frustration, impatience, anger, defensive, aggressive
Boring: lack of interest, lack of excitement, inactivity
APPENDIX KK

ANOVA Summary Table for Total Number of Words in Free Recall Output

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* p < .05
## APPENDIX LL

**Between-Within ANOVA Summary Table for Recall Scores**

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*p<.05, **p<.01, ***p<.001
APPENDIX MM

ANOVA Summary Table for Recall Scores

**Boring Traits**

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**Dependent Traits**

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ANOVA Summary Table for Recall Scores (continued)

**Aggressive Traits**

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* p< .05

**Self-Critical Traits**

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** p< .01
### APPENDIX NN

**Oneway Repeated Measures ANOVA for Recall Scores for Each Subject Group**

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**Remitted Group**

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**Control Group**

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### Between-Within ANOVA Summary Table for Number of Errors on the Recognition Task

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<td>8.40***</td>
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*** p< .001
APPENDIX PP

Coding Instructions for the Impression Formation Task

**Interpersonal dependency:** The concept of dependency reflects concerns about interpersonal relations where a person is fearful of abandonment and rejection, feels lonely and helpless, and wants to be close to and dependent upon others. There are concerns about hurting people and having difficulty asserting oneself for fear of losing someone.

**Self-criticism:** The concept of self-criticism reflects concerns about failure, where a person is critical of him/herself, feels guilty, unsatisfied, and is fearful of failing to meet expectations. There are concerns about inability to assume responsibility and a tendency to assume blame and to put themselves down.

**Aggressivity:** The concept of aggressivity is of a more behavioral nature, where the person shows signs of frustration, of impatience, of hostility, and of anger. These forms of aggressivity are directed towards people and towards their environment.

**Boringness:** The concept of being boring is reflected by a lack of interest in people and in activities, and an absence of excitement. Behaviorally, it is shown by avoidance of social contact, avoidance of stimulating activities, preference of solitary activities, and inactivity.

**Look for key words and key concepts.**
Self-critical: failure, worthless, guilt, blame, stupid
Dependent: lonely, rejected, helplessness, dependency, abandonment, lack of assertion
Aggressivity: frustration, impatience, anger, defensive, aggressive
Boring: lack of interest, lack of excitement, inactivity

**Codes used:**
SC-self-critical
D- dependent
B- boring
A- aggressive
**APPENDIX QQ**

*Between-Within ANOVA Summary Table for the Impression Categories*

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<td>10.28***</td>
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*** p< .001
APPENDIX RR

Sex X Target ANOVA for Selected Variables

Dependent errors of the recognition task

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** p<.01

Self-critical Category of the Impression Task

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* p<.05
Sex X Target ANOVA for Selected Variables (continued)

**Boring Category of the Impression Task**

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* p<.05
APPENDIX SS

ANOVA Summary Table for the Stroop Word-card and Color-card Scores

### Word-card

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<tr>
<td>Between groups</td>
<td>2</td>
<td>5.60</td>
<td>0.48</td>
</tr>
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### Color-card

<table>
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</tr>
</thead>
<tbody>
<tr>
<td>Between groups</td>
<td>2</td>
<td>6.45</td>
<td>0.21</td>
</tr>
<tr>
<td>Error</td>
<td>57</td>
<td>30.46</td>
<td></td>
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</table>
### Word-card

<table>
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<th>F</th>
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</thead>
<tbody>
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<td>1.00</td>
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<tr>
<td>Error</td>
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<td>0.35</td>
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</tbody>
</table>

### Color-card

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<tr>
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<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between groups</td>
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<td>0.47</td>
<td>0.63</td>
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<tr>
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### Dependent card

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<th>F</th>
</tr>
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<tbody>
<tr>
<td>Between groups</td>
<td>2</td>
<td>0.12</td>
<td>0.45</td>
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<tr>
<td>Error</td>
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</table>
ANOVA Summary Table for Stroop Error Scores (continued)

**Self-critical card**

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**Mood-congruent card**

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<td>0.57</td>
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**Control card**

<table>
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<th>F</th>
</tr>
</thead>
<tbody>
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<td>2</td>
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<td>1.37</td>
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<tr>
<td>Error</td>
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## Correlations Between IDI and DEQ Measures and Stroop Interference Scores

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<th>DEQ</th>
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<tbody>
<tr>
<td></td>
<td>ER</td>
<td>LSC</td>
</tr>
<tr>
<td>Self-criticism</td>
<td>-0.30**</td>
<td>-0.18</td>
</tr>
<tr>
<td>Dependency</td>
<td>-0.29*</td>
<td>-0.27*</td>
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<tr>
<td>Mood-congruent</td>
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<td>-0.23*</td>
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<tr>
<td>Control</td>
<td>-0.13</td>
<td>-0.22*</td>
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</tbody>
</table>

* p<.05, ** p<.01, ***p<.001
### Between-Within ANOVA Summary Table for Raw Stroop Scores

<table>
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<tbody>
<tr>
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<td>101.57</td>
<td></td>
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<tr>
<td>Card</td>
<td>3</td>
<td>49.70</td>
<td>2.40 †</td>
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<tr>
<td>Group X Card</td>
<td>6</td>
<td>45.82</td>
<td>2.21*</td>
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<tr>
<td>Within-subjects error</td>
<td>171</td>
<td>20.71</td>
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</tr>
</tbody>
</table>

* p<.05  ** p<.01  *** p< .001
### APPENDIX WW

**Oneway Repeated Measures ANOVA for Raw Stroop Scores for Each Subject Group**

#### Depressed Group

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<tr>
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<tbody>
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<td>1.23</td>
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#### Remitted Group

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<tbody>
<tr>
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<td>2.20</td>
</tr>
<tr>
<td>Error</td>
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<td>5.45</td>
<td></td>
</tr>
</tbody>
</table>

#### Control Group

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<th>MS</th>
<th>F</th>
</tr>
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<tbody>
<tr>
<td>Card</td>
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<td>0.70</td>
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</tbody>
</table>
APPENDIX XX

ANOVA Summary Table for Raw Stroop Scores

**Dependent card**

<table>
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<th>F</th>
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<tbody>
<tr>
<td>Between groups</td>
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<td>2.59</td>
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**Self-Critical card**

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<th>F</th>
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<tbody>
<tr>
<td>Between groups</td>
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<td>2.96</td>
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<td>Error</td>
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<td>43.78</td>
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ANOVA Summary Table for Stroop Raw Scores (continued)

### Mood-congruent card

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<th>F</th>
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<tbody>
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*p < .05

### Control card

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### APPENDIX YY

**Between-Within ANOVA Summary Table for Stroop Interference Scores**

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</thead>
<tbody>
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<td>79.38</td>
<td></td>
</tr>
<tr>
<td>Card</td>
<td>3</td>
<td>34.65</td>
<td>2.48 †</td>
</tr>
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<td>Group X Card</td>
<td>6</td>
<td>9.85</td>
<td>0.71</td>
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<tr>
<td>Within-subjects error</td>
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<td>13.98</td>
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* p<.05  ** p<.01  *** p< .001
### Depressed Group

<table>
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<td>1.23</td>
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<tr>
<td>Error</td>
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### Remitted Group

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<tbody>
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<td>2.20</td>
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### Control Group

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<td>0.70</td>
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<tr>
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### APPENDIX AAA

ANOVA Summary Table for Stroop Interference Scores

#### Self-critical interference scores

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#### Dependent interference scores

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#### Mood-congruent interference scores

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<tbody>
<tr>
<td>Between groups</td>
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<td>2.94 t</td>
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* t p < .06
APPENDIX AAA (continued)

Control interference scores

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<tbody>
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## APPENDIX BBB

**Group X Prepost ANOVA Summary Table for Mehrabian-Russell Arousal and Pleasure Dimensions**

### Arousal

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</thead>
<tbody>
<tr>
<td>Group</td>
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<td>3.19*</td>
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<tr>
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<td>476.01</td>
<td>23.00***</td>
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<td>Group X Prepost</td>
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<td>76.03</td>
<td>3.67*</td>
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* p<.05  ** p<.01  *** p< .001

### Pleasure

<table>
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<th>F</th>
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<tbody>
<tr>
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<tr>
<td>Prepost</td>
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<td>1.11</td>
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<td>56.76</td>
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*** p< .001
APPENDIX CCC

ANOVA Summary Table for Pretest Dimensions of the Mehrabian-Russell Scale

### Arousal

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<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between groups</td>
<td>2</td>
<td>281.82</td>
<td>6.21**</td>
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<tr>
<td>Error</td>
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<td>45.35</td>
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** p< .01

### Pleasure

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<th>F</th>
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</thead>
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<tr>
<td>Error</td>
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</table>

*** p< .001
APPENDIX DDD

ANOVA Summary Table for Posttest Dimensions of the Mehrabian-Russell Scale

### Arousal

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<tbody>
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<td>0.50</td>
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### Pleasure

<table>
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<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
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<td>2</td>
<td>1717.92</td>
<td>26.00***</td>
</tr>
<tr>
<td>Error</td>
<td>57</td>
<td>66.08</td>
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</tr>
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</table>

*** p< .001