

A Longitudinal Assessment of the Stability of  
Self-Schematic Processing and Negative Thought  
Patterns Among Depressed Outpatients

by

D. Noreen Ek

A Thesis

Submitted to the Faculty of Graduate Studies  
in Partial Fulfillment of the Requirements  
for the Degree of

Doctor of Philosophy

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ISBN 0-315-63363-8

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AMONG DEPRESSED OUTPATIENTS

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D. NOREEN EK

A thesis submitted to the Faculty of Graduate Studies of  
the University of Manitoba in partial fulfillment of the requirements  
of the degree of

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### Acknowledgements

Without the assistance of many people this project may not have been completed. It is with great appreciation I make mention of their roles in this endeavor.

First and foremost, to my advisor Dr. Dennis Dyck. I have been privileged to have an advisor who has possessed the much appreciated qualities of patience, warmth, and support, in combination with a wide breadth of knowledge in this field which guided my efforts. His editorial work, done at times with a "strain to his eyes" and his "running around" for me due to my distance from campus were all "beyond the call of duty" and will forever be remembered. I hope only to meet your expectations of me, thank-you Dennis.

I thank Dr. Steve Holborn and his wife Pam for their hospitality (from accomodation and gourmet meals to emergency courier service). You couldn't find better friends! I thank also, Lawrence Erdile, who assisted me out of many statistical nightmares. I recommend you heartily to others who follow me. I will also remember the companionship offered by fellow students, Heather, Linda, Rayleen, Laural Lee, Pam, Tim and Lawrence.

My thanks as well to Dr. Ken Daniels, my undergraduate supervisor, who encouraged me to go further in this field. Additionally, Brandon University Computer Science Department deserves a bouquet for assisting with occasional Winnipeg-Brandon computer communication problems, (never at good hour of course) hour, of course) and for not complaining about this "U. of Mb." student.

To Brandon Mental Health Centre's Executive Director, Mr. Mike Kufflick and Personnel Director, Mr. Tony Dalal who supported my requests for an educational leave of absence and the conduction of the research project within the hospital, my thanks. Also, if it were not for the encouragement of Dr. Ron Richert (then, Psychology Department Head) regarding the juggling of work, subjects and study this endeavor would have been near impossible. Thank-you Ron. A thanks as well to Doug Crookshanks for continuing Ron's supportive approach.

To all of you who cared enough about my life to ask "Are You Done Yet?" my thanks. You encouraged me to keep going, to keep focused and to look forward to the party after! Thank-you Lis, Patti, Pat, Karen, Barb, Lynda, Kevin, (the Psychology, Nursing & O.T.A.S Departments). There are simply too many of you to name, but I will not forget your encouragement and support.

To my family, who wondered if this part of my life would ever be over. Yes! I am finally finished and yes I will visit without a briefcase full of materials. Thanks for your support over the years.

Finally, but not the least in any way, my thanks to my partner Bryan who initially encouraged me in my transition from nursing to psychology; who supported me in my studies (although he didn't know it would take so long) and who made me aware of many aspects of the world I may not have explored without him. My love and my thanks.

I reserve a special place for my daughter, Nissa, who as she begins her university education, she sees her mother coming to the close of hers. As mother and daughter enter new worlds I hope our communication reaches new levels and I wish her every success. If I can help her in her endeavors I only hope to match the assistance she has given me over my years of study. From the little girl who accompanied me to the "rat lab" to the young woman who has helped me proof my doctoral work herein. My love and thanks, Mom.



### Abstract

Using a longitudinal design and multiple measures of schematic processing, (self versus other-referent endorsement and recall task; a behavioral examples and self-prediction of behavior task), and cognitive patterns (automatic thoughts, dysfunctional attitudes and irrational beliefs), the hypotheses that depressive schemas have important etiological and maintenance functions in depression were tested. Clinically depressed outpatients (n=26), nondepressed psychiatric outpatients (n=23) and normal controls (n=26) were assessed within 2 weeks of first contact (Time A) and then again 3 months later (Time B). With increasing levels of depression negative self-referent effects were observed. While an adjusted recall measure failed to distinguish the groups, a more sensitive ratio recall measure indicated that depressed participants recalled higher numbers of depressed content and a lower numbers of nondepressed content than the controls. Further, the depressed group endorsed more dysfunctional attitudes and negative automatic thoughts than did controls and they anticipated greater discomfort and a lower probability of response in assertive situations. Overall, negative self-schematic processing among depressed subjects decreased at Time B with remitted depressed subjects returning to normal levels of endorsement and recall for depressed self-referent content. On the other hand, remitted depressives continued to evidence dysfunctional attitudes which remained at levels comparable to the stable depressives. The results are discussed in relation to recent theoretical and empirical evidence which has questioned the stability of cognitive factors in depression.

**A Longitudinal Assessment of the Stability of  
Self Schematic Processing and Negative Thought  
Patterns Among Depressed Outpatients**

Depression is a common psychiatric disorder characterized by symptoms of loss of appetite, fatigue, difficulty in concentrating, sleep disturbance and thoughts of death and suicide. Etiological models of depression include both biological and psychological with the latter being the primary focus of this paper. Psychological research in depression has been greatly influenced by cognitive-behavioral theoretical models (e.g. Beck, 1967; Lewinsohn, Biglan, & Zeiss 1976; Rehm, 1977; Seligman, Abramson, Semmel & von Baeyer 1979). One of the most influential of the above models is Beck's (1967, 1976) cognitive model of depression. Within this model, three specific concepts are postulated to play an important role in the development and maintenance of depression: a negative cognitive triad, (a negative view of the self, world and future) depressive schema, (stable cognitive patterns) and cognitive errors, (negative automatic thoughts) are proposed to explain the psychological substrate of depression Beck, Rush, Shaw, & Emery (1979). The concept of schema is integral to Beck's cognitive model of depression and is defined as a stable cognitive structure utilized for the screening, coding or evaluation of stimuli that impinge on an individual (Beck, 1967, 1976). Researchers following Beck have defined schema in two ways: 1) as stored generalizations about the self (self-schemata) and 2) as rules which specify conditions for happiness (e.g., dysfunctional attitudes, perfectionism, etc.). Self-schemata have been assessed

through tasks such as self-referent endorsement and recall patterns Kuiper & Derry (1982) and behavioral predictions and examples procedures (Markus, 1977). Dysfunctional attitudes and general beliefs have been assessed using self-report inventories (e.g., Dysfunctional Attitude Scale, Weissman & Beck, 1978).

#### **A. Parameters of Depressive Self-Schema Responding:**

The depressive self-schema centers around themes of personal deficiency, self-blame, and negative expectations and is assumed to be associated with the development of the negative cognitive triad (i.e., a negative view of the self, the world, and the future). Further, depressive schemata are assumed to lead to cognitive distortions such as selective abstractions, catastrophization, and overgeneralization (see Beck et al. (1979) p. 14). The negative cognitive triad then, results from the activation of maladaptive schemata, which are latent in the nondepressed state, and which bias the interpretation of experience when activated. This maladaptive cognitive organization is maintained by the depressed individual's negative self-schema, biasing attention and information processing in a negative direction. The model implies that depressive schemas are stable cognitive structures which are, in principle, measurable in the nondepressed state.

A distinction between vulnerability and depressive self-schemata has been proposed by Kuiper, Olinger and MacDonald (1988). According to this proposal, both of these concepts involve organizational features which influence the perception and evaluation of the environment but which are distinguished from each other in the following manner. Depressive schemata refer only to maladaptive

cognitive structures which have become activated after the onset of depression whereas vulnerability schemata refer to cognitive styles which influence information processing and which are activated prior to the onset of depression. Depressive schemata, thus, are presumed to play a role in the maintenance of depression and vulnerability schemata are proposed to have an etiological or causal role in predisposing individuals to depressive episodes Kuiper et al., (1988).

It is further proposed that the content of depressive schemata may be largely negative, evaluative, and self-referential in nature while the content of vulnerability schemata may be more abstract and include general beliefs, assumptions, and rigid and unrealistic rules for happiness (dysfunctional attitudes). Preliminary evidence by Kuiper et al. suggests that depressive self-schemas may represent a correlate of depression (concomitant depressive cognitive structures) while dysfunctional attitudes reflecting stored rules for happiness, more general social knowledge, and beliefs about the world may be more associated with vulnerability schemata. Research focusing on self-referent processing is most often typical of depressive schema research, while research focusing on dysfunctional attitudes and irrational beliefs are more typical of research addressing the issue of vulnerability schemata.

Prior to discussing the empirical background literature relevant to this research project, a brief summary of the critical conceptual issues will be presented. The evidence for the cognitive model of depression has been criticized in the past (Coyne & Gotlib, 1983) and more recently (Coyne & Gotlib, 1986; Barnett & Gotlib, 1988a). In

particular, concerns have been voiced about the adequacy of research measures, methods and strategies, in determining the causal role of cognitions in depression. For example, Coyne and Gotlib (1983) criticized the frequent use of correlational methodologies that have been used as a basis for causal inferences. A subsequent review by Barnett and Gotlib (1988a) concluded that cognitive vulnerability to depression, at best appears to wax and wane with the onset and remission of depression with little support found for a causal relationship between dysfunctional attitudes and the onset of depression. The failure to observe cognitive vulnerability factors (dysfunctional attitudes and depressive self-schema effects) at remission questions the stability of depressive schemata and ultimately the view that cognitive structure is etiologically linked to the onset of depression.

In previous reviews, Coyne and Gotlib (1983, 1986) have argued that there has been an uncritical reliance on the Dysfunctional Attitude Scale (DAS) as evidence of depressogenic schemata. According to this argument, the DAS is both a measure of depressive cognitions and a symptom of depression. Due to this overlap, the DAS is not an unambiguous measure of cognitive vulnerability.<sup>n/1</sup> As Hammen, Marks, deMayo and Mayol (1985) note, not only may dysfunctional attitudes and trait adjectives be strongly related themselves to depression, but questionnaire measures such as the DAS may be susceptible to self-presentational aims rather than being direct measures of inner processes. The use of measures that do not overlap with depressive symptoms that can be shown to be stable apart from mood state is recommended.

While mixed results regarding the stability of dysfunctional attitudes have been reported, so few studies have utilized longitudinal designs that the evidence is far from confirming or disconfirming of the cognitive model of depression. The longitudinal study of remitted depressives offers a more powerful approach to the study of affect-cognition relations posited by the cognitive model (Segal, 1988) and with further longitudinal studies with multiple measures of schema functioning and cognitive patterns a more adequate assessment of the cognitive model of depression may occur.

In defense of the cognitive model of depression, Segal and Shaw (1986a) have argued that researchers have had to contend with the impact of the severity of the subjects' disorder on measures taken. Indeed the equivocal findings amongst studies can be linked to significant differences in subject populations. The use of undergraduates as a subject population has been criticized as well by Coyne and Gotlib (1983). They note this is one reason why there is difficulty in drawing conclusions and subsequently integrating research findings. The difference between mildly and clinically depressed individuals has been noted by these authors as well. They cite a different pattern of responses on the BDI and a limited duration of BDI elevation in the mildly depressed individual as potential differences between the mildly and the clinically depressed individual. With differences in population groups under study, equivocal findings are sure to arise.

In addition, Segal and Shaw (1986a) note that experimental tasks vary markedly within studies and researchers have failed to utilize

tasks which were relevant to subjects' interpersonal relations. Further, the issue of whether negative expectancies and self-evaluations are particular to the depressed or are a feature of general psychopathology is unclear due the absence of psychiatric control groups. In general, Segal and Shaw (1986a, b) have argued that the criticisms levied by Coyne and Gotlib (1983, 1986) have been overly harsh and many of the criticisms raised are equally appropriate to other models of depression. The studies which are reviewed in the following section are those that have attempted to evaluate the distinctive self-schematic processing and cognitive patterns in depression. The following review covers first self-referent schema measurement issues and research findings as well as the consistency and consolidation of such effects. Following this is a review of findings related to questionnaire methods of schema assessment, in particular, the measurement of dysfunctional attitudes. Finally, studies focusing on remission of depressive symptoms and resulting effects on the self-schema as measured by the self-referent tasks and dysfunctional attitudes are discussed, as are studies related to the prediction of subsequent depressive symptom level.

1. **Measurement of Schematic Processing:** The role of the self in information processing is built on Craik and Lockhart's (1972) initial investigations on levels of processing. They suggested that a memory trace was dependent on the number and qualitative nature of perceptual analyses carried out on the stimulus item. The durability of the memory trace was proposed to be a function of the depth of processing and it was assumed that stimuli attended to and analyzed on a deep

level would be encoded more deeply and hence would have a more lasting trace. To reveal the impact of levels of processing on incidental recall, the effects of different orienting tasks presumed to engage different levels were studied. These studies demonstrated that words processed semantically were better recalled than words subjected to acoustic or structural processing (e.g., Craik & Lockhart, 1972; Craik & Tulving, 1975).

The degree to which the self was implicated in processing personal information using the incidental recall paradigm was first investigated by Rogers, Kuiper, and Kirker (1977) who varied structural, phonemic, and self-referent dimensions of an adjective evaluation task. They assumed that self-referent encoding would be more deeply processed than other types of processing. Therefore they provided subjects with orienting instructions which were designed to influence subject's encoding and compared these to various control tasks. They found adjectives rated under a self-referent task (describes me?) relative to those processed with other orienting tasks were recalled significantly more often indicating that self-reference may be a rich and powerful encoding factor.

In addition to self-referent recall, schemata have been measured by assessing responses across various tasks (Markus, 1977). Markus has argued that if a person has a well developed schema, then processing of information pertaining to the self, retrieval of related behavioral evidence, prediction of his/her own behavior, and resistance of counterschematic information should occur with relative ease. Schematic consistency is inferred on the basis of congruent



response patterns, most often for similarly valenced content across time and/or tasks. Schema consistency has been assessed by measuring the similarity of endorsement patterns at two or more given time points (Kuiper & Olinger, 1986). The latter authors have argued that a well integrated and cohesive self-schema would result in more efficient and more consistent processing of personal information.

2. Content-specific Schemata: Initial studies utilizing the incidental recall paradigm (Davis, 1979a, Derry & Kuiper, 1981; Kuiper & Derry, 1982) indicated that the method has utility in the investigation of the role of negative self-schemas in depression. Davis (1979a) found that normals and depressives were not significantly differentiated at more shallow levels of processing, (e.g., structural & phonemic) however, on the self-referent task depressives recalled significantly fewer words than did the nondepressed counterparts. Duration of depression accounted for a significant proportion of the variance suggesting that schema for depression developed over time. Davis concluded from these results that depressives have a less integrated self-schema than do nondepressives as reflected by their reduced ability to process self-referent information.

Derry and Kuiper (1981) criticized this conclusion, arguing that Davis' results may have been a function of the positive adjectives which characterized their word lists. According to the Derry and Kuiper (1981) analysis, Davis' results would be expected, since the depressed subjects had minimal exposure to schematically congruent information (negative adjectives) and therefore self-referent

processing had little facilitatory effects on recall. Nondepressed subjects however, would presumably find the predominantly positive words consistent with their self-schema and therefore would be expected to display a stronger self-reference recall effect.

To account for these effects a content-specific view of schematic processing was proposed by Derry and Kuiper (1981). According to this view, depressed individuals should exhibit a higher level of processing of negative material and nondepressed subjects should display enhanced processing of positive material. Replicating Davis' (1979a) procedures but controlling for adjective content (half negative and half positive), a self-referent incidental recall task was presented to clinically depressed; nondepressed and psychiatric control groups. Frequency and latency of "yes" or "no" ratings on self-referent, semantic and structural tasks were obtained. A content specificity hypothesis predicted that the depressed subjects would evidence greater recall of depressed content adjectives while nondepressives would display facilitated recall of nondepressed (positive content adjectives). It was assumed that if clinical depressives employ a well developed self-schema for negative content, their overall rating times for negative items in the self-referent task should not be significantly shorter than the rating times for depressed items.

Consistent with the content-specificity hypothesis, nondepressed and nondepressed psychiatric control subjects endorsed nondepressed content adjectives more frequently, while depressives tended to endorse both depressed and nondepressed content adjectives. Self-

referent recall measures indicated that the depressed subjects recalled more depressed content in contrast to the nondepressed who recalled more positive content adjectives. For words rated as self-descriptive the depressed recalled a greater proportion of depressed content adjectives than did nondepressives. This suggested a differential pattern of recall, with depressives recalling more depressed content adjectives. Reaction time was faster for negative content by depressives and for positive content by nondepressed individuals.

These results were further corroborated in a subsequent study by Kuiper and Derry (1982) and by Kuiper and MacDonald (1982). Mildly depressed subjects made two types of ratings (semantic or self-referent) on depressed and nondepressed content adjectives. Recall measures indicated normals had superior recall for self-referent nondepressed content relative to mildly depressed who had enhanced self-referent recall for both types of content. The overall pattern of results was seen to be consistent with the hypothesis that mildly depressed individuals have a schema that incorporates both positive and negative content.

Bowers (1985) examined the self-schema in major depression and two other psychiatric control groups (schizophrenia and alcohol dependence) 75 male patients were assessed on the self-referent endorsement and recall task as developed by Kuiper and Derry (1982). Using the adjusted recall score as the primary dependent variable, Bowers (1985) obtained recall effects however, the measure did not differentiate groups. The failure of the recall task to be sensitive

to group differences has been a problem for other researchers investigating the self-referent recall effect (Myers, Lynch & Bakal, 1989; Dobson & Shaw, 1987; Clifford & Helmsley, 1987).

Clifford and Helmsley (1987) and Myers et al. (1989) both report failing to find the depressive self-referent recall effect for their depressed groups. They found that relative to nondepressed subjects, the depressed recalled essentially the same numbers of dysthymic adjectives whether the depressed symptoms were present or had remitted. In this study there was evidence that the depressed had lowered recall of hypomanic adjectives when depressed and that there was a significant increase in recall of these adjectives when this group's symptoms remitted. Similarly, Dobson & Shaw, (1987) using dysthymic stimuli developed by Myers (1980) failed to find differences in recall among depressed psychiatric patients, nondepressed psychiatric controls, and nonpsychiatric medical patients. There were no differences in recall in a group of depressives with and without acute depressive symptomology. That content-specific self-referent recall failed to distinguish groups reliably in the above studies calls into question the utility of this popular measurement approach.

Procedural differences may account for some of the inconsistencies in the pattern of results between these more recent studies and Derry and Kuiper's (1981) study. A difference in stimulus materials is one source of variance between studies. Dysthymic and hypomanic adjectives (as developed by Myers, 1980) were used by Myers et al. (1989) and Dobson and Shaw (1986). Clifford and Helmsley (1987) generated their own list of 24 adjectives. All of these

studies had far fewer adjectives than did Derry and Kuiper (1981), and it is possible that the content-specific memory effects are less likely to occur under low memory load conditions.

The nature of the recall task varied as well in that Myers et. al., (1989) first informed subjects that they would be required to recall the adjectives and then used an interference task prior to the recall test. Clifford and Helmsley (1987) verbally presented material and had the subjects wait for a visual signal from the experimenter prior to being allowed to endorse the word as self-descriptive and then proceeded with the recall procedure. Subject responses may have been influenced in a socially desired direction by observation of subject responses.

Dobson and Shaw's (1987) study most closely resembles the recall procedure of Derry and Kuiper (1982). In this study, however, there appears to have been a potential confound introduced by the fact that the depressed group recalled far more adjectives generally than either control group, a result which is at variance with much of the depression literature (e.g., Weingartner, Cohen, Murphy, Martello & Gerdt, 1981). They report a significant group effect for recall which they felt was attributable to the depressed participants having superior recall. In reviewing mean scores, however, one can see a pattern where the nonpsychiatric group had the lowest recall overall for depressed and nondepressed content. The nondepressed psychiatric group and the depressed group were equivalent for proportion of nondepressed content words recalled whereas the depressed were the only subjects who recalled any depressed content material at all.

These results suggest that memory may indeed have been a factor but in addition because procedurally this study is closest to Derry and Kuipers', suspicion about the equivalency of the word list is strengthened.

It is not only difficult to compare studies due to stimulus item disparities but additionally, recall measures have not always been the same. The three studies (i.e., Myers et al., 1986; Clifford & Helmsley, 1987; Dobson & Shaw, 1987) differ from Kuiper and Derry (1982) in that they did not use adjusted recall scores which represent the ratio of endorsed adjectives in a given category recalled divided by the total number of adjectives endorsed in that category. This means that endorsement of an adjective as self-descriptive was not factored into their analysis of recall of adjectives. The failure to find content-specific self-referent recall effects in these studies then, may have been due to differences in stimulus materials, procedural variants and nonequivalent recall measures. Further research is thus warranted to clarify whether the differences in findings (between the above noted studies and Kuiper and colleagues) is due to the measurement or procedure variations. Using comparable subject to Myers et al., (1989), Clifford & Helmsley, (1987), and Dobson and Shaw (1987) and comparable procedures to Derry and Kuiper (1981) this study was designed to provide further evidence on the phenomenon of content-specific self-referent recall in a clinical sample. A focus on self versus other-referent processing was included to determine whether negative biasing effects would be confined to the self.

The extent to which the content-specificity effect is unique to the self has also been investigated (Kuiper & Derry, 1982; Kuiper & Cole, 1983; Kuiper & McCabe 1985, (cf. Kuiper et al., 1988)). By asking subjects whether or not adjectives (of depressed and nondepressed content) described a well known and familiar figure (e.g., Pierre Trudeau) or themselves a self versus other referent task was developed. Mildly depressed subjects were found to have enhanced self-referent recall, relative to "other-referent" recall only for depressed content adjectives. Normals evidenced superior recall only for self-referenced nondepressed adjectives. The data did not indicate significant differences in relation to nondepressed adjectives and the self and other-referencing conditions. Thus evidence supported the view that the depressed would not extend their negative biasing to "others".

Further evidence (Pietromonaco & Markus, 1985; Pyszczynski, Holt & Greenburg, 1987; Bargh & Tota 1988) continues to support the above findings that negative thought patterns of the depressed are confined to the self and are not extended to others. Using three cognitive tasks (imaging, recall and inference) Pietromonaco and Markus found evidence supporting this premise with an undergraduate population serving as subjects. Subjects were asked to undertake these tasks regarding a variety of events while thinking about themselves or another person. The results suggested that the negative thoughts which accompany depression were restricted to the self. This was evident in the subjects mental imagery, predictions and interpretation of events. Results were consistent with previous findings (e.g.,

Kuiper and Derry 1982) which indicated that depressives have a negative cognitive schema.

Also using an undergraduate population, Pyszczynski et al. (1987) found that nondepressed subjects rated positive events as more likely to happen to them than negative. In comparison, mildly depressed subjects rated positive events as less likely to occur to them and as more likely to occur to others. Self-focus appeared to maintain depressive pessimistic tendencies and the results generally suggest that focusing attention away from the self can deactivate the influence of the self-schema, thus decreasing the influence of a depressive state on one's judgements. The findings suggest that attentional focus may play a role in the maintenance of depressive symptoms however, the above results require replication on a clinical sample of subjects.

Bargh and Tota (1988) also investigated differences between depressed and nondepressed subjects (using introductory psychology students) in regards to their immediate perceptions of themselves and others. Results suggested an automatic, unintentional component in the depressed person's use of negative social constructs in self but not other perceptions. Depressed content became activated automatically in the self-referential processing of depressed subjects whereas nondepressed content was processed automatically in the self-referential thinking of the nondepressed. The authors conclude that the content and accessibility of the conception of other people are about the same, however the self-concept evidences significant differences in terms of accessibility. This suggests that perhaps at



greater levels of severity of depression results would have been enhanced.

Evidence of depressive negative biasing pertaining to the self but not other referent conditions within clinical populations has been reported less often (Bradley & Mathews, 1983; Moretti, 1987 (cf. Segal, 1988)). Using a clinical sample, Bradley and Mathews (1983) found this effect occurred under self-referent conditions however, under other-referent conditions, positive recall was evident. In this study the negative recall bias did not increase with more prolonged or severe depression. Moretti (1987) found that depressives most clearly distinguished themselves from nondepressives by less efficient processing of positive information. In the other-referent condition, the depressed processed positive information more efficiently. This study focused primarily on replicating the self versus other referent effects previously documented by Kuiper and Derry (1982) in the clinically depressed and examined the stability of these effects across time.

3. **Schema Consolidation:** A well integrated schema should reflect qualities of efficiency and consistency (Kuiper & Olinger, 1986). A poorly consolidated self-schema would display the opposite pattern (inefficiency and inconsistency). The aforementioned authors argued severity of depression is a critical factor in determining both self-schema content and degree of consolidation. A consolidated schema is evident in both normals (for positive content), for the clinically depressed (for negative content), and for mild depression (both positive and negative content present). In the latter case schematic

confusion is created. Research related to processing efficiency (Kuiper, et al., 1988; Kuiper & Olinger 1986) and consistency (Kuiper & MacDonald, 1982; MacDonald & Kuiper, 1984) found evidence supporting the presence of both factors.

As efficiency relates to the consolidation of the self-schema it was felt necessary to touch briefly on this issue even though direct measures of efficiency (i.e., latency ratings) were not being utilized in this current study. Initial studies had indicated that clinical depressives were no less efficient than their normal control counterparts in their speed of processing schematically consistent information (Derry & Kuiper, 1981). Subsequent research demonstrated that mild depressives, (with a mixture of endorsements of positive and negative adjectives) evidence a longer reaction time thought due to schematic confusion and slower processing (Kuiper & MacDonald, 1982). At more severe levels of depression, however, the depressed display efficient schematic processing with the clinically depressed processing negative content material more quickly than positive content material (MacDonald & Kuiper, 1984). This result was replicated by Bradley and Mathews (1983) who also found that a clinically depressed group, compared to a nondepressed psychiatric control group recalled more negative than positive self-referent adjectives without differences in decision speed.

Having a history of previous episodes of depression has been implicated in the development and consistency of depressive schemata (Davis 1979a, 1979b) and with the crystallization of the depressive schema (Hammen, Miklowitz & Dyck, 1986). Davis (1979a, 1979b) argued

for a developmental approach to the self-schema on the basis of his research which indicated that only subjects with a history of depression evidenced the depressive self-referencing effect. Hammen et al. (1986) examined the disorganized schematic processing of mild depressives in relation to the severity of their depression and duration of prior depression experiences. Results indicated efficient schematic processing for positive content for the nondepressed subjects; and relatively less efficient schema-congruent recall among the mildly to moderately depressed. It was proposed that in the latter case schematic confusion may have occurred which would hinder efficient recall. Depressive schematic responding was less evident when the individuals did not report a prior history of depression (unstable depression). Hammen et al. (1986) found the unstably depressed were similar in their performance to the nondepressed. While efficiency is not a focus of this particular study, as noted previously, the degree of schema consistency or consolidation is of interest.

The degree of schema consolidation as revealed by consistency of self-referent ratings and reaction time is proposed to be curvilinearly related to level or severity of depression (Kuiper & Olinger 1986). In normals and clinically depressed persons, there is a higher level of consistency for positive and negative self-referent material respectively. On the other hand, as previously noted, mildly depressed persons display confusion and uncertainty as they process both positive and negative self-referent material. Based on a study by MacDonald and Kuiper (1984), Kuiper and Olinger (1986) report that

clinical depressives display significantly fewer inconsistencies for depressed adjectives given a previous yes decision (schema congruent responding), compared to their ratings for depressed adjectives given a previous no decision (schema incongruent responding). Normal and nondepressed individuals displayed the opposite pattern. In this case decision inconsistency was higher for depressed adjectives given a prior yes rating, relative to the amount of decision inconsistency for the same type of adjective given a no decision. There was less decision inconsistency for yes rated depressed adjectives for the depressed subjects than for either psychiatric or normal controls. The latter group showed less decision inconsistency for no rated depressed content than did depressed patients.

In the above studies, the degree of consolidation is measured in terms of efficiency via rating times for self-referent judgements and by consistency by calculating the percentage of agreement between two sets of self-referent judgements (Kuiper & Olinger, 1986). Schema consolidation can also be measured by the degree of schematically consistent responding across varied tasks. Individuals who have a generalized depressive self-schema would be expected to display a "depressive schemata" across varied tasks. For example, since assertive behavior is frequently lacking among depressives (Wiessman & Paykel, 1974; Kuiper & Olinger, 1986, Lewinsohn, Larson & Munoz, 1982), it would be expected that individuals showing a negative self-referent recall effect would also score low on measures of assertiveness.

Kuiper and Olinger (1986) note the conceptual similarity between the difficulties the depressed have with assertion (wanting to be liked by everyone; perfectionism; self-criticism; unrealistic expectations and excessive criticism of others) and the cognitive patterns displayed by those with dysfunctional attitudes. Kuiper and Olinger (1985) (cf., Kuiper & Olinger; 1986) have suggested that assertion difficulties may contribute in an etiological and maintenance role to depressive episodes. The relationship between nonassertion, dysfunctional attitudes and mild levels of depression was investigated within an undergraduate population (Olinger, Shaw & Kuiper 1987, Olinger, Kuiper & Shaw, 1987). With an increase in depression, Olinger et al., (1987) found there was a corresponding increase in assertion difficulties. Dysfunctional attitudes were reported as accounting for the increase in the latter (subjects scoring high on the DAS had greater difficulty with problem resolution compared to others scoring low on the DAS). This adds to the evidence which suggested that dysfunctional attitudes and lack of assertive responding may have a combined effect on increasing cognitive vulnerability to depression (Olinger et al., 1987).

Subsequently (Olinger et al., 1987) found that individuals scoring high on the DAS experienced greater difficulty with interpersonal conflict resolution, and more discomfort within assertive situations. Thus increased level of depression was associated with greater subjective levels of discomfort with assertion. Dysfunctional attitudes were proposed to be a factor accounting for such effects. For the present study unassertiveness

was a useful behavioral correlate which could be assessed in a manner similar to Markus (1977). The depressed would be responding in a schematically congruent manner if they rated themselves as experiencing greater discomfort with assertion or rated themselves as behaving less assertively compared to normals.

Few studies using depressed samples have attempted such a multi-method approach to self-schema assessment. In a study with a nondepressed sample, however, Markus (1977) found that individuals who evidenced a schema (e.g., for dependence or independence) were able to provide significantly more examples of such behavior than did aschematics Markus (1977). Further, using a prediction of the likelihood of future behavior task, Markus also found individuals with a self-schema on an independence-dependence dimension assigned either relatively higher or lower probabilities to independent and dependent behaviors than did individuals who did not have a self-schema for these behavior patterns. Aschematics were more uncertain about what types of behaviors may be characteristic of them in particular settings/situations.

Using procedures outlined by Markus (1977), depressed and nondepressed subjects were asked, by Hammen, et al., (1986) to provide written examples of their behavior at two separate occasions as one of a multiple number of schema measures. They found that the subjects who remained depressed at the second occasion provided more negative examples of their behavior than did nondepressed and unstable depressives (depressed at Time A and nondepressed at Time B). The use of multiple measures in this study was useful in two ways. It allowed

both for replication of effects within an experiment and for enhancing construct validity which increased confidence in experimental effects. The behavioral examples procedure (Markus, 1977; Hammen et al., 1986) and the prediction of behavior task (Markus, 1977) was used in the current study as a means of assessing schema congruency and/or consolidation and, in addition, to provide a means of extending confidence in the measurement of the self-schema as per Hammen et al., (1986).

**4. Dysfunctional Attitudes:** Beck's (1967,1976) model of depression suggests a person's vulnerability to depression is determined by dysfunctional attitudes which reflect rigid rules for happiness. These dysfunctional attitudes are thought to be activated by "stressors" which take the form of violating the person's rules or conditions for happiness. The Dysfunctional Attitude Scale (DAS) was developed by Weissman and Beck (1978) to measure such attitudes.

Elevated DAS scores have been found both in mildly depressed students (Gotlib, 1984; Olinger, et al., 1987; Wiessman & Beck, 1978; and Wiessman, 1980) and in clinically depressed inpatients (Hollon & Kendall, 1980; Dobson & Shaw, 1986; Reda, Carpiniello, Secchiaroli & Blanco, 1985; Eaves & Rush, 1984; Hamilton & Abramson, 1983; Silverman, Silverman & Eardley, 1984; Simons, Garfield & Murphy, 1984) as reviewed by Barnett & Gotlib (1988b). Dysfunctional attitudes have been found to be higher in depressed samples over normal controls but the depressed do not always have dysfunctional attitudes which are significantly higher than psychiatric control groups (Zimmerman, Coryell, Corenthal & Wilson, 1986; Hamilton & Abramson, 1983). In

addition, depressed samples have suggested that not all depressed subjects evidence high levels of cognitive distortion (Norman, Miller & Dow, 1988). The interaction of dysfunctional attitudes and life events has been investigated with mixed findings to date (Olinger, et al., 1987; Wise & Barnes, 1986; Barnett & Gotlib, 1988b and Kuiper, Olinger & Air, 1989). Finally, the stability of cognitive distortion has been found by some (Eaves & Rush, 1984; Dobson & Shaw, 1986; Reda et al., 1985) but not by others (Hamilton & Abramson, 1983; Simons, Garfield & Murphy, 1984; Persons & Rao, 1985; Silverman, Silverman & Eardley, 1984).

Whether elevated DAS scores are particular to depression has been evaluated in at least two studies (Hamilton & Abramson, 1983; Zimmerman et al., 1986). Hamilton & Abramson (1983), using a longitudinal design, found that the cognitive patterns evidenced by the depressed group were not a general feature of psychopathology, however, the nondepressed psychiatric control group scored significantly higher than did the normal controls suggesting that psychiatric patients may display some dysfunctional attitudes, with the depressed remaining at the most extreme level. Similarly, significant differences were found between normals and depressed subjects, with schizophrenics differing from normal controls but not the depressed on the DAS (Zimmerman, et al., 1986). Further evidence in this area suggesting that dysfunctional attitudes are elevated in psychiatric controls has been found by Hollon, Kendall, Lumry, (1986) and Silverman et al., (1984). As indicated by Barnett & Gotlib, (1988a), dysfunctional attitudes are found primarily in more severe



forms of psychopathology. Hollon et al., (1986) report that the nonspecificity on the DAS was evidenced by schizophrenic patients in a nondepressed psychiatric control group, consistent with Zimmerman et al., (1986). The results of these studies point to the necessity of including psychiatric control groups where possible to assist in the delineation of those factors particular and unique to depression.

There is some evidence that clinically depressed subjects may not always display high levels of cognitive distortion since only 40-55% of depressives when acutely symptomatic have been found to have elevated levels of dysfunctional cognitions (Norman, et al., 1988). Examining depressed inpatients, Norman et al., (1988) found that subjects with elevated dysfunctional cognitions evidenced greater severity of depression, hopelessness and negative automatic thought scores than did low dysfunctional subjects. The former also evidenced less social support and overall poorer social adjustment. In this study there was no difference with respect to DSM-III diagnoses or response on the dexamethasone suppression test (DST). The authors recommend that researchers interested in the role of cognitions in depression should be wary of the nonhomogenous nature of many depressed samples.

Inconsistent with this finding of no differences with respect to diagnoses and DST results is Zimmerman and Coryell's (1986) report that dysfunctional attitudes are less pervasive in endogenous relative to nonendogenous depression. They found that scores on the DAS were lower for a clinical group of depressed subjects who had positive DST results. In most nondepressed persons, dexamethasone inhibits the

secretion of cortisol, during the 24 hours following administration. Patients with normal DST results are called suppressors (postdexamethasone cortisol levels are low). Abnormal results are indicative of persons who are nonsuppressors (see Zimmerman & Coryell, 1986, pg. 342 for more detail). The purpose of the DST is to identify those who should respond to antidepressant medications in contrast to those who would not. The failure to find an association between dysfunctional attitudes and the defined characteristics of endogenous subtyping is, as Zimmerman & Coryell (1986) note, a potential problem of inadequate criteria. They suggest the consistent failure to find an association between endogenous subtyping and the DAS may be because the criteria for diagnosis require further research regarding their validity.

Investigators have attempted to delineate the role of dysfunctional attitudes as a mediating variable between life stress and depression. Using a variety of assessment instruments, research methods and subject populations, researchers have reported that the depressed experience a greater number of negative life events than nondepressed controls Olinger, Kuiper and Shaw (1987) note however that negative life events by themselves cannot fully account for depressive symptoms. Olinger et al. (1987) attempted to delineate the conceptual links between stressful life events and depression through the development of the Dysfunctional Attitude Scale-Contractual Conditions self-report measure. This scale was designed to measure life stress, the specific life events that might impinge on a persons cognitive vulnerability to depression. The situational component for

each dysfunctional attitude (on the DAS) became the basis for the DAS-CC. The items on the DAS are written (e.g. "If you don't have other people to lean on you are bound to be sad.") whereas on the DAS-CC they are written in the first tense (e.g. "I don't have other people to lean on") in order to assess the individuals current life situation (see Olinger et al., 1987 pgs., 27-28).

Individuals displaying dysfunctional attitudes are considered vulnerable to depression whereas an absence of dysfunctional attitudes would be indicative of nonvulnerability. With each failed attempt to meet self-worth contingencies there is a proposed increase in depressive responding within varied domains (e.g., cognition, affect, behavior and physiology). Vulnerable individuals begin to interact in a manner which elicits the rejection they expect and these changes overall are proposed to facilitate the maintenance of the depressive episode.

Using both the DAS and DAS-CC one can determine a vulnerability level (based on the DAS) and the presence or absence of impinging life events (based on the DAS-CC). Olinger et al. (1987) argued that vulnerable individuals would exhibit depressive symptomology only if they were also currently experiencing a large number of specific life events impinging on their dysfunctional attitudes. Consistent with the interactive model, the authors found that the combination of high DAS and high DAS-CC scores successfully predicted high depression scores. Additionally, those individuals scoring high on the DAS displayed more frequent thoughts about past, present or future life difficulties than those scoring low on this measure.

Wise and Barnes (1986) also examined the role of depressed attitudes as a moderator variable in the relationship between negative life events and depression. In a sample of normal and clinical college students, the normals evidenced a significant interaction between dysfunctional attitudes and negative life stress. For the clinical sample, both influenced mood. Low dysfunctional thinkers were relatively unaffected by negative life experiences whereas high dysfunctional thinkers were more depressed if they had been exposed to high levels of negative change. While dysfunctional attitudes may have a role in moderating the effects of stressors, Barnett and Gotlib (1988a) report that they were unable to replicate the significant interaction effects between dysfunctional attitudes and life stress reported by both Olinger et al. (1987a) and Wise and Barnes (1986).

Using undergraduates and a three month interval between test sessions, Barnett and Gotlib (1988b) investigated the interactive effects of dysfunctional attitudes, stressful life events and social support on measures of depression and dysfunctional attitudes. They did not find any significant interactions between dysfunctional attitudes and stressful life events. In contrast, Kuiper and Olinger and Air (1989) found that vulnerable subjects exhibited significantly increased depressive symptoms when stressful events impinged on their dysfunctional contingencies for self-worth. Coping styles were aberrant in vulnerable subjects when they were dealing with personally stressful life events. An increase in self-isolative behavior as a coping strategy was especially prominent. Both studies used undergraduate student populations and replication within clinical

samples is desired. The longitudinal study by Kuiper et al., (1989) which focused on resolved versus unresolved nature of stressful events which impact on an individuals' self-worth contingencies appears a promising direction with which to investigate vulnerability to depression.

5. **Schema and Remission of Depressive Symptoms**: Few studies have employed the self-referent endorsement and recall task using a longitudinal design to determine stability of this effect, with a few exceptions (Dobson & Shaw, 1987; Hammen, et al., 1985; Hammen et al., 1986; Myers et al., 1989). Hammen et al. (1986) found that efficient schematic processing for particular word content among university students was related to both severity of symptoms and duration of recent depression. Depressive schema responding appeared highly mood congruent and did not persist in the absence of depression. When depression abated level of endorsement was found to be equal or approximately equal to that of normal controls (Hammen, et al., 1986; Dobson & Shaw, 1987). In stable depressives (depressed at two time points), recall of negative content was greater than normals however, when depression remitted, recall patterns returned to those patterns evidenced by normals.

This effect was also found by Hammen et al., (1985) who examined the role of depressive self-schemas as a vulnerability factor using a longitudinal design. Depressed and nondepressed, were classed as schematics and aschematics on the basis of the ratio of negative and positive adjusted recall scores (e.g., Derry & Kuiper, 1981; Kuiper & Derry, 1982). Hammen et al., (1985) then followed these groups for

four months with self-report and clinical interview measures. Risk for depression was related to initial mood and depressive self-schemas were not found to exert an ongoing influence on everyday information processing. Remitted depressed subjects resembled nondepressed subjects, thus stable schematic processing was not found, rather retrieval of self-relevant information was found to be mood congruent.

The depressive self-schema, as measured by the self-referent endorsement and recall task, has been found sensitive to mood variations (Sutton, Teasdale, & Broadbent 1988). Using undergraduates as subjects, that were exposed to depressed or neutral moods they found that recall patterns were similar to depressed patients (Derry & Kuiper, 1982) when depressed moods were induced. This suggested that at least some of the effects observed may be due to transient mood states. This effect occurred independent of vulnerability to depression.

The shifting nature of the schema seems to indicate that as depression abates, remitted depressed subjects are less likely to endorse depressed content adjectives and, additionally, are not entirely like "normals" in that nondepressed content is not endorsed to the same level (Dobson & Shaw, 1987). The authors note that an assessment device must be able to demonstrate relevant reliability and validity data to confirm its assessment properties. They argue that if the SRET (self-referent endorsement task) was designed to assess the stable attributes of the depressive self-schema then it fails as a viable measure. If however, it is a measure of depressogenic self-schemata then it would be expected to show variability with the onset

and remission of depressive symptoms. Replication of their study will have important implications in the future direction of the research involving this measurement tool. Due to the limited number of longitudinal studies with clinical samples using the self-referent encoding and recall tasks, it is premature to draw firm conclusions. Clearly more research is warranted to determine whether self-referent recall provides a valid and reliable assessment of schema and whether such effects are more likely to be observed in high risk samples not currently depressed.

Cognitive theory would predict that dysfunctional attitudes should represent a stable characteristic of the depressed. A number of studies report that dysfunctional attitudes reduce but do not return to normal levels (Eaves & Rush, 1984; Dobson & Shaw, 1986; Reda, et al. 1985). Samples are relatively equivalent across these studies, all being drawn from psychiatric facilities with normal control groups being used. In addition, size of samples, while varied, averaged around 12-15 subjects per group with the exception of Reda et al., who had a larger initial sample of 60 subjects (30 depressed and 30 nondepressed). Time intervals varied from two weeks (Dobson & Shaw, 1986) to 60 days (Eaves & Rush, 1984) to 1 year (Reda et al., 1985). Eaves & Rush defined remission of depression as occurring when subjects scored low on the Hamilton Rating Scale for depression for two consecutive weeks whereas reassessment at prescribed intervals occurred (Dobson & Shaw, 1986; Reda et al., 1985). With remission, dysfunctional patterns of cognition persisted in both endogenous and nonendogenous depressives (Eaves & Rush, 1984).

Persistence of a subset of dysfunctional belief patterns was found by Reda et al. (1985) across a one year time period. Dobson and Shaw (1986) found remitted depressives evidenced changes in cognition, for only a small number of measures. Subsequently, in a reanalysis of data (Dobson & Shaw, 1986) by Barnett and Gotlib (1988b) it was found that between group differences involving remitted depressives assessed at Time 2 did not differ significantly from those of either the normal or the psychiatric control group assessed at Time 1 ( $t(30)=1.04$ ,  $p.>0.05$ ,  $t(20) <1$ , respectively). Consistent with Reda et al., (1985) Norman et al. (1988) report a nine month follow up study by Miller and Norman who found persistent elevations of depressive cognitions after remission in those subjects who had initial elevated dysfunctional cognitions. Consistent with these findings is Miranda and Persons (1988) report that subjects who reported previous episodes of depression evidenced higher levels of endorsement of dysfunctional attitudes than did subjects without such a history.

Other research however has found that expression of irrational beliefs and dysfunctional attitudes appears to covary with the presence of depressive symptoms (Hamilton & Abramson, 1983; Simons, Garfield & Murphy, 1984; Persons & Rao 1985; Silverman, Silverman & Eardley, 1984a) with DAS scores returning to normal levels once depression abates. Clinical samples were used with time intervals ranging from 17 days (Hamilton & Abramson, 1983) to 7 months (Persons & Rao, 1985). For these two studies, remission was defined as at the point of discharge (Hamilton & Abramson, 1983) and at a point seven months later (Persons & Rao, 1985). Results were consistent between



the two studies with patients reporting symptoms endorsing irrational beliefs and dysfunctional attitudes, however, in the absence of symptoms irrational beliefs were absent. Simons, et al., (1984) also found evidence of this nature.

Similarly, Silverman et al. (1984) administered the DAS to psychiatric outpatients when depressed and when asymptomatic. Dysfunctional attitudes were more prevalent when symptoms were active. When DAS scores for remitted depressives were compared with scores for other stabilized psychiatric patients and normals, Silverman et al. found asymptomatic bipolar patients evidenced the least dysfunctional patterns of thinking. Equivocal findings between these two groups of studies may be a function of the length of time prior to retesting and the failure to adopt uniform criteria regarding the definition of remission of depression (Segal & Shaw 1986).

**6. Prediction of Depression:** Using self-referent adjusted mean recall scores Hammen et al., (1986) found that depressive self-schema responding did not predict maintenance of depressive symptoms at one week and one month. This effect had been previously found by Hammen et al., (1985) which indicated an absence of premorbid differences between cases and controls on negative self-schemata. From these studies then, a negative self-schema alone appears insufficient to predict Time 2 symptoms (Hammen et al., 1985; 1986).

Dysfunctional attitudes have been found to be inconsistent predictors of subsequent depressive level. For example, Hewitt and Dyck (1986) found that perfectionistic attitudes over a time interval

of two months did not predict Time 2 depressive symptoms. Dysfunctional attitudes have not always been successful in the prediction of postpartum symptoms over a time interval of 6 to 20 weeks, O'Hara, Rehm and Campbell (1982). Irrational beliefs have been unable to predict depression in a 1 year prospective study (Lewinsohn, Steinmetz, Larson & Franklin 1981). In a study of a large community sample, (Lewinsohn, et al., 1981) found that depression-related cognitions arose concomitantly with an episode of depression. Individuals who subsequently became depressed within the course of the study were not found to differ significantly from those who did not on the measures of cognition used. Importantly, depression-related cognitions did not predict future depression although they did predict improvement (depressed subjects with higher levels of negative cognitions were less likely to be improved at follow-up). Unfortunately, Lewinsohn et al. (1981) used cognitive measures which have not subsequently been used frequently in the area, thus while the study continues to be a landmark study, it is not one with which measures can be easily compared.

Similar to Lewinsohn et al. (1981), failure to improve over a follow-up period was associated with high levels of initial depression and, independently, with high scores on measures of negative thinking (Dent & Teasdale, 1988). These authors, who reassessed a group of women solicited from medical health centres, five months following initial assessment, revealed that women with more global self-devaluative thinking recovered more slowly from their depressive episode. Dysfunctional attitudes have been found predictive of Time 2

depression by Rush, Weissenberger & Levine (1986) and by Olinger et al. (1987). Rush, Wiessenburger and Eaves (1986) have found evidence that persistent dysfunctional attitudes during recent clinical remission were predictive of subsequent vulnerability to repeated depressive episodes. DAS scores accounted for approximately 25% of the variance in measures of depression (BDI and the Hamilton Rating scale) at a third test point. Additional measures (Automatic Thoughts Questionnaire, Attributional Style Questionnaire) did not add to the predictive power provided by the DAS alone. These findings are consistent with Beck's cognitive model of depression, however the data is based on a small sample size and replication was recommended. Dysfunctional attitudes have also been found able to predict relapse of depressive symptoms at a 1 yr. follow-up by Simons, Murphy and Levine (1984) in a group of depressed outpatients. They found that dysfunctional attitudes along with social adjustment best predicted relapse within this time frame.

### **B. The Present Study**

This study was designed to assess the stability of self-schemata and negative thought patterns in the clinically depressed. Clients attending an outpatient clinic were assessed on three schematic processing measures, a self-referent recall task based on the incidental recall paradigm used by Rogers et al. (1977), a behavioral predictions procedure based on Gambrill & Ritchey's (1975) assertion inventory and a behavioral examples procedure based on Markus (1977). The selection of three different measures of schematic responding provided a multi-method assessment thereby evaluating the consistency

of depressive schematic processing effects (Markus, 1977; Hammen et al., 1985).

Cognitive patterns were assessed through the administration of varied self-report indices (Dysfunctional Attitude Scales; Automatic Thoughts Questionnaires and a Rational Beliefs Inventory) where repeated assessments separated by a 3 month interval provided an assessment of the stability of patterns among a group of stable and remitted depressives.

As the cognitive model suggests that vulnerability schemata are stable and enduring features associated with onset of depression, then the clinically depressed should continue to evidence such features upon the remission their depressive episode. By following individuals across time the study hoped to ascertain if such factors guide and influence the persons' perceptions beyond that accounted for by their acute symptomology.

The use of a clinical population within this study addressed the need for research to move beyond the analog level to the measurement of proposed relationships at more severe levels of psychopathology.

### **C. Hypotheses**

The following hypotheses were tested:

#### **1. Endorsement and Recall Patterns:**

a) Relative to a psychiatric and normal control group, the depressed group was expected to evidence higher levels of self-

referent endorsement of depressed content adjectives and lower levels of nondepressed content. On the assumption that negative self-schemas are associated not just with depression, but also with other types of psychopathology, the psychiatric controls were expected to be intermediate to the depressed and normal controls on all measures of self-schematic function. For all groups it was expected that for other-referent content adjectives there would be higher ratings for nondepressed content as opposed to depressed content adjectives.

b) Based on studies by Kuiper and colleagues a content-specific effect, as revealed by enhanced recall for self-referenced but not other-referenced depressed content, was expected for individuals in the depressed group. In contrast, it was hypothesized that nondepressed controls would exhibit enhanced recall for self-referenced positive content.

c) Since the depressive schema is assumed to be a stable cognitive structure, (Beck, 1967,1979), theoretical considerations would predict that self-referent endorsement and recall would remain elevated for depressed content beyond that of the normal controls even with the reduction of depressive symptomology at the second test point. On the other hand, recent empirical evidence suggests that self-referent processing may be less stable than previously assumed (Dobson & Shaw, 1987; Clifford & Helmsley, 1987; Myers et al. 1989).

## 2. Cognitive Patterns:

a) Based on Beck's cognitive model, cognitions reflecting dysfunctional attitudes were expected to evidence stability from initial assessment to follow-up approximately three months later. Other cognitive measures (e.g., The Automatic Thoughts Questionnaire) were expected to evidence greater change than dysfunctional attitudes over the course of the study. This reflects the relatively time-limited duration of automatic thoughts and their association with severity of depression, as opposed to stable patterns of thinking, as represented by dysfunctional attitudes which should be relatively consistent over a short period of time.

## 3. Schema Consistency and Consolidation:

a) Greater consistency would be predicted for content already represented in a person's self-schemata (Kuiper et al., 1988). Ratings conducted at two time points then should yield higher consistency levels for schema congruent personal information. The depressed subjects were expected to display greater decision consistency for "yes"-rated depressive adjectives than either psychiatric or normal controls. In contrast, both normals and the psychiatric controls were expected to display greater decision consistency for "yes"-rated nondepressed content.

b) The depressed were expected to give greater numbers of behavioral examples for a sample of negative content adjectives rated as self-descriptive and fewer numbers of examples to positive content adjectives rated as self-descriptive. The opposite pattern was

expected for the normal control group where more examples for nondepressed adjectives were predicted.

c) Since assertiveness is a commonly reported social skills deficit in depression, the depressed participants were expected to evidence greater discomfort in assertive situations than either control group and were expected to perceive themselves as less able to respond assertively. Based on a schema model (Beck 1967; 1979) this effect was expected to be stable across time.

#### 4. Supplementary Hypotheses:

a) In keeping with the cognitive model (Beck, 1967, 1979) and the content-specificity model (Derry & Kuiper, 1981) a supplementary prediction was that negative cognitive patterns and the self-referent effects should be unique to the depressed group.

b) Since dysfunctional attitudes are viewed as being associated with the onset of depressive symptoms (an etiological role) and depressive self-referent effects are thought to become activated after the onset of depression (a maintenance role) Kuiper et al., (1988), it was predicted that subsequent depression level (assessed at the final test session on the Beck Depression Inventory) would be more readily predicted by previous cognitive belief patterns (assessed at the initial testing session by the Dysfunctional Attitude Scale) than by the self-referent recall task.

## METHOD

### Subjects:

Psychiatric outpatients from Brandon Mental Health Centre's (BMHC) Adult Outpatient Department were voluntary participants. Brandon Mental Health Centre provides a full spectrum of services to the city of Brandon and Western Manitoba, a population of approximately 210,000. The centre has approximately 300-400 inpatients and provides services on an outpatient basis to approximately 2000 adults per year. Diagnoses at BMHC are based upon DSM III-R criteria with information regarding the patient's emotional, psychological, social and vocational functioning being presented by the primary therapist to a multidisciplinary team. Diagnostic categories eligible for this research project were based on Feighner's research criteria (Feighner, Robins, Guze, Woodruff, Winokur and Munoz 1972) and DSM III-R criteria.

Both the depressed and psychiatric control groups were selected on the basis of the following inclusionary criteria: a) no evidence of organicity or toxic involvement, (e.g., alcoholism) b) no other medical condition diagnosed as a primary problem, c) no electroconvulsive therapy received as part of the individuals' therapy, d) voluntary participation, e) an age range between 18-65, f) a minimum of grade 8 education, g) an opportunity to pretest and run the first assessment phase of the study within 14 days of first contact and h) residents of the local Brandon area (a center of approximately 45,000) in order to make follow-up most feasible. The



normal control group was solicited from the staff at BMHC through requests to various hospital departments (e.g., first year nursing students, housekeeping and dietary departments). All groups were solicited in a similar manner with no group receiving additional information pertaining to hypotheses or purpose of the study.

Subjects in the depressed group (n=26) had Beck Depression Inventory (BDI) scores of 16 or more; the psychiatric control group (n=23) had diagnoses clearly differentiated from depression and BDI scores of 15 or less; the normal control group (n=26) had to have BDI scores of 9 or less. These cutoff scores have been used previously in a longitudinal study (e.g., Hamilton & Abramson 1983) and represent effort to (a) obtain a clinical level of depression in the depressed group, (b) to allow the psychiatric control group to endorse a mild level of depressive symptomology, and (c) to ensure that the normal control group was clearly in the nondepressed category on the basis of their BDI scores. A group of remitted depressives were identified three months after the initial testing (n=8). Their scores were compared to participants who remained depressed (i.e., stable depressives, n=12) to examine self-referent endorsement and recall patterns and cognitive stability factors. If the second Beck Depression score was 10 or less the individual was categorized as remitted.

### **Procedures:**

At the initial contact, the participants were assessed on initial screening procedures, given the BDI, tested on the self versus other

referent rating and recall task, and given the self-report inventories to complete. Three months later subjects were again tested with the same instruments with the exception of the screening measures. Following completion of the study, the subjects were debriefed (see Appendix E). An outline of the experimental schedule is provided in Appendix A.

### 1. Screening Measures:

a) Tests of Memory and Vocabulary: The Weschler Memory Scale (paragraph 1) was administered (see Appendix C) to measure potential memory deficits which might confound the interpretation of the recall results. In addition, because subjects completed a number of self-report inventories, the Wide Range Achievement Test (reading subtest) was administered and subjects were required to have a Grade 8 reading level. Subjects who failed to achieve a grade 8 reading level were excluded from the study. Only one subject (from the normal control group) was excluded due to such difficulties. The above tests were administered according to standardized instructions. The subjects scores on these two subtests were tabulated at the first session and subjects failing to meet the criteria were thanked for their involvement and were debriefed at this time.

### 2. Test Instruments:

a) Beck Depression Inventory: (BDI; Beck, Ward, Mendleson, Mock & Erbaugh, 1961) This is a 21 item self-report instrument which assesses various components of depression, including affective, cognitive, behavioral, and somatic features. The BDI is used to

assess the severity of a depressive episode and is used by many clinicians as a diagnostic aid. It has been shown to correlate highly with psychiatrist ratings of severity of depression (Bumberry, Oliver & McClure; 1978) and has demonstrated reasonably high internal consistency (.68) Tanaka-Matsumi and Kameoka (1986). Alpha coefficients for the BDI are reported by Schaefer, Brown, Watson, Plemel, DeMotts, Howard, Petrik, Balleweg and Anderson, (1985) for psychiatric ward patients (.94) and chemical dependency ward patients (.88). The BDI was administered at both test points (see Appendix C).

b) **Automatic Thoughts Questionnaire:** (ATQ; Hollon & Kendall 1980)  
This is a 30-item inventory that has been used to identify cognitions associated with mild-moderate depression. Subjects are requested to read each thought listed and to indicate on a scale of 1-5 how frequently, if at all, they have had that thought occur to them over the last week. The total score ranges from 30-150 with higher scores being associated with greater severity of depression. The scale has been found to discriminate significantly between depressed and nondepressed individuals with a nonsignificant effect for sex. Mean ATQ scores in the initial study, for depressed subjects was 79.4 (SD 22.29) compared to a mean of 48.57 (SD 10.89) for the nondepressed. Two major factors were found in the test a) Personal Maladjustment; b) Negative Self-Concept and two minor factors of a) Low Self-Esteem and b) Giving Up/Helplessness. The instrument is reported by Dobson and Breiter (1983) to have good internal reliability as assessed by Cronbachs Alpha (.95) with significant concurrent reliability also being reported. The ATQ correlates significantly with therapist

ratings of depression, the MMPI-D, and BDI, and appears to be a valid and reliable measure of depression-related cognitions in clinical and nonclinical populations (Harrel & Ryon, 1983). This inventory was administered at both test points (see Appendix C).

c) **Dysfunctional Attitude Scale (Form 1)**: (DAS; Wiessman & Beck, 1978) This is a 40-item scale designed to measure the degree to which an individual endorses various dysfunctional attitudes (see Appendix C). Subjects are asked to rate the degree to which they agree or disagree with the statements on a 7-point scale. Scores range from 40-280 with higher scores indicating greater agreement with dysfunctional attitudes. Internal coefficients for the DAS range from .79 to .93; with test-retest reliabilities across a two or three month period ranging from .79 to .81 as reported by MacDonald, Kuiper and Olinger (1988). They note also that the DAS has been found to have high construct validity and acts as a significant predictor of subsequent depressive level. The DAS is reported by Hamilton and Abramson (1983) to be internally consistent and within a normal population subjects scores were reliable over a two month period with a test-retest correlation of 0.71. A classification of attitudinal vulnerability is made for scores above the median (a score of 123) and of attitudinal nonvulnerability for scores below the median. Two primary factors have been shown to account for approximately 61% of the variance and these have been labelled Performance Evaluation and Approval by Others (Cane, Olinger, Gotlib & Kuiper 1986).

d) **Barnes-Vulcano Rationality Test**: (BVRT; Barnes & Vulcano, 1982). This 44-item test is designed to measure irrational beliefs as

proposed by Ellis and Harper (1961). Reliability ( $\alpha = .86$ ) and adequate convergent and discriminant validity are reported by the authors. Scores range from 44-220 with high scores indicating rationality. High scores on the rationality test are associated with low scores on depression, neuroticism, external locus of control and fear.

### **3. Procedural Tasks:**

Schematic processing was assessed with three separate procedures that have been previously used, (a self-referent rating and recall task, a behavioral examples procedure and a prediction of the likelihood of future behavior task). These tasks are described as follows:

a) **Self- versus Other-referent Recall Task:** Adopting the procedure from Derry and Kuiper (1982) and Hammen et al., (1986) a series of 60 adjectives (30 depressed and 30 nondpressed) were presented via audio tape recording with five second pauses between adjective presentations. Four additional adjectives were used at the beginning and end of the list to control for primacy and recency effects. The words were rated on the basis of one of two questions (e.g., "Does the word describe you?", the next word is presented with "Does the word describe a friend?" being asked). An equal number of depressed and nondepressed content adjectives (15 in each case) were assigned to the self versus other rating dimensions. In each case the subjects made a yes/no referent rating. Subjects were instructed to select a friend for the "other-referent" condition whom they have known for less than

four months, who would not be described as a "best" friend. Previous research (Keenan & Baillet 1980; Kuiper & Rogers, 1979; Pietromonaco & Markus; 1985) indicates that familiarity of a target influences processing about oneself and others. As the target becomes more familiar, the differences in processing of information about oneself and others decreases. After subjects had completed their ratings they were unexpectedly asked to recall as many of the words as possible within a 5 minute time limit. The task was administered at both Time A and Time B. The approximate duration of the task was 30 minutes.

b) **The Behavioral Examples Task**: Adopting the procedure utilized by Markus, (1977) and Hammen et al., (1986), subjects were presented with a list of fourteen adjectives and they were instructed to decide, for each word, whether or not it described them (they were asked to check off those which were self-descriptive). When this was completed they were then asked to cite examples from their past which would support their endorsement of a particular adjective as self-descriptive. They were allowed as much time as they needed to complete this task and were not given any criteria in terms of number of examples required. The 14 adjectives (7 negative, 7 positive) were selected from the words used in the self-reference task administered at Time A which the individual had endorsed as being characteristic of them. If a subject failed to endorse the required number of positive or negative adjectives at Time A then a sufficient number were randomly selected from the word list by the experimenter for the behavioral examples task. The number of self-descriptive behavioral examples each participant gave for each type of word content was the primary

variable of interest. The approximate duration of this task was 30 minutes.

c) Predicting the Likelihood of Behavior Task: This task utilized a series of specific behavioral descriptions for a particular situation. The participant was asked to indicate how likely, or how probable, it was that they would behave or react in a particular manner. The situations were derived from Gambrill and Richey's Assertion Inventory (1975) which requires individuals to rate the degree of anxiety or discomfort pertaining to each situation and then rate the degree of probability of themselves actually displaying the behavior in question. This task was selected on the assumption that negative self-schema would be reflected by reduced assertiveness and hence generate a measure of self-predicted behavior. This procedure was administered at both test points with the approximate duration of this task being about 20 minutes. The inventory is contained in Appendix D.

## RESULTS

The results are divided into five sections: 1) sample characteristics and symptom severity; 2) endorsement and recall patterns; 3) cognitive patterns; 4) schema congruency and consistency patterns and 5) supplementary measures (analyses related to prediction of Time B depression). Effects unique to depression are addressed in conjunction with the above sections. Analysis of variance (ANOVA) and multivariate procedures with alpha set at ( $p < .05$ ) were conducted with SPSS-X programs. Significant ANOVAS effects were followed by post hoc comparisons using Tukey's HSD (honestly significant differences procedure (Kirk, 1968)).

1) Sample Characteristics and Symptom Severity:

Table I presents the sample characteristics for each of the three groups normal control (NC), nondepressed psychiatric control (NDPC), and depressed (D), according to marital status, age, education and sex. The three groups were essentially equivalent with no demographic differences being found (see Appendix F for F values).

Initial symptom severity scores are presented in Table 2 for all groups on screening measures of cognitive function (reading, mental status, & memory performance) and depression level as measured by the Beck Depression Inventory (BDI). The sample was equivalent on measures of cognitive function and memory (see Appendix F for F values). This equivalence is important in that it permits a straightforward interpretation of the results of the self-referent recall task uncontaminated by global differences in cognitive functioning.

A supplementary analysis indicated that the depressed group had higher levels of depressive symptomology as measured by the BDI, than both control groups,  $F(2,72)=72.60$  at the first test point. This rather unremarkable result is supported by post hoc comparisons using Tukey's HSD procedure and indicates simply that the categorization method produced groups with distinctly different levels of depression. The two control groups also differed from each other in a significant manner however, the magnitude of difference was more modest between these groups. While the depressed group was comprised of only individuals diagnosed with Major Depressive Disorders, the psychiatric



control group was group with mixed diagnoses (11 Anxiety Based Disorders, 1 Somatoform, 1 Post Traumatic Stress, 1 Schizophrenic-undifferentiated, 9 Other Life Circumstance and 5 Marital Discord v-codes and 1 no diagnosis).

**Table 1: Sample Characteristics for Normal Controls,  
Nondepressed Psychiatric Controls and Depressed  
Groups**

Variable	NC	NDPC	D
<b>Marital Status</b>			
% Married	38.5%	52.2%	38.5%
% Single	42.3%	13.0%	26.9%
% Divorced	19.2%	34.8%	30.8%
% Common-Law	0%	0%	3.8%
<b>AGE</b>			
% 18-30	69.2%	43.5%	38.5%
% 31-45	30.8%	52.2%	53.8%
% 46-65	0%	4.3%	7.7%
<b>EDUCATION</b>			
% 12 or less	11.5%	8.7%	19.2%
% 12 or more	46.2%	60.9%	23.1%
% Post secondary	38.5%	21.7%	46.2%
% Degrees	3.8%	4.3%	11.5%
% Missing	0%	4.3%	0%
<b>SEX</b>			
% MALES	26.9%	30.4%	15.4%
% FEMALES	73.1%	69.6%	84.6%
	n=26	n=23	n=26

NOTE: NC=Normal Controls, NDPC=Nondepressed Psychiatric Controls, D=Depressed

**Table 2: Screening Measures and Symptom Severity  
Means(M) and Standard Deviations(SD)**

Variable	NC		NDPC		D	
	M	SD	M	SD	M	SD
Screening Measures:						
WRAT	14.11 <sup>a</sup> (2.38)		14.15 <sup>a</sup> (3.01)		13.34 <sup>a</sup> (3.27)	
MMS	11.69 <sup>a</sup> (1.12)		11.52 <sup>a</sup> (0.67)		11.46 <sup>a</sup> (1.06)	
MEM	14.26 <sup>a</sup> (3.62)		15.52 <sup>a</sup> (2.98)		15.31 <sup>a</sup> (3.11)	
Symptom Severity:						
BDI(A)	3.77 <sup>b</sup> (3.01)		10.87 <sup>b</sup> (5.70)		22.04 <sup>b</sup> (7.05)	
BDI(B)	2.35 <sup>a</sup> (2.73)		5.70 <sup>a</sup> (6.09)		13.31 <sup>b</sup> (8.13)	
n=	26		23		26	
NOTE: WRAT=Wide Range Achievement Test (reading subtest); MMS=Mini Mental Status; MEM=Wechsler Memory Score BDI=Beck Depression Inventory; NC=Normal Controls; NDPC=Nondepressed Psychiatric Controls; D=Depressed						
a=no differences between groups b=groups differ						
Relevant F Values are in Appendix F.						

## 2) Endorsement and Recall Patterns:

The main variables of interest in this section are the dependent measures of the self-referent encoding task (SRET) and include a) endorsement scores; b) adjusted recall scores and c) ratio recall scores. Endorsement scores refer to the number of depressed and nondepressed adjectives endorsed as being descriptive of the self (e.g., rated "yes") versus a significant other "friend". Adjusted recall scores represent the ratio of endorsed adjectives in a given category which were recalled divided by the total number of endorsed adjectives in that category. This measure was initially developed by Derry and Kuiper (1981) and controls for the effects of rating frequency, within a given content and rating category. A second ratio recall score, was developed for the present study. The ratio recall score represents the ratio of the number of endorsed and recalled words (content and rating) in a given category divided by the total number of all recalled adjectives (depressed and nondepressed) in that rating category. The recall ratio of depressed words (Dre) can be expressed as  $Dre / (Dre + NDre)$ , where Dre refers to the recall of endorsed depressed words and NDre the recall of endorsed nondepressed words. This latter measure is a meaningful measure of content-specific self-referent processing but does not as clearly separate self-referent rating from self-referent recall as does the proportion score.

The above measure is similar to one proposed by the States-of-Mind model (Schwartz & Garamoni, 1986; Schwartz & Michelson, 1987).

Schwartz and Garamoni's (1986) conceptualization of information-processing of positive and negative cognitions (the States-of-Mind model) postulates that an optimal balance of positive and negative cognitions characterizes effective psychological functioning (see Schwartz and Michelson, 1987 for a more detailed outline). The relationship of positive and negative cognition to total cognitions becomes the primary variable of concern and ranges between 0 and 1. Briefly the model proposes the adaptive person has an internal dialogue which is characterized by positive cognitions, with a healthy level of negative thought, enough to be realistically cautious. Mildly depressed individuals have an internal dialogue of conflict characterized by a ratio set point of .500 (of positive to total cognitions); severely depressed individuals would have ratios of .382 or less; extremely positive (manic, with an absence of cautious negative cognitions) would have ratios exceeding the optimum balance of .618.

The ratio recall measure then provides a means of comparing positive and negative cognitions relative to each other in a meaningful manner. Tables 3, 4 and 5 contain means and standard deviations for each of the above noted categories.

The above data were analyzed using mixed design ANOVAS with Groups (normals, psychiatric controls & depressed) as a between subject variable and word content (depressed and nondepressed adjectives) and referent dimension (self versus other) as within subject factors. Data were analyzed separately, in two sets for Time A and Time B (on repeated measures). Additional analyses were

conducted at Time B to evaluate the stability of self-referent encoding and recall patterns, among stable depressives, remitted depressives and normal controls. Stable depressives were those with BDI scores over 16 at both Time A and Time B (n=12), whereas remitted depressives were those with BDI scores of over 16 at Time A with BDI scores of 10 or less at Time B (n=8).

**a) Endorsement Patterns:** Table 3 presents the means and standard deviations for Endorsement Patterns according to content, referent dimensions and time. At Time A, the highest order interaction, namely group by content by referent dimension interaction was significant  $F(2,72)=19.07$ . Consistent with predictions, post hoc comparisons revealed that endorsement for self-referent depressed content increased as a function of increasing pathology (normals versus psychiatric controls,  $p<.05$ ) and depression (psychiatric controls versus depressives  $p<.05$ ). Similarly, for self-referent nondepressed content, the differences between the means were significant on all three comparisons with the normal controls endorsing positive content to a greater degree than the psychiatric controls and with the depressed endorsing the least number of nondepressed content adjectives. Psychiatric controls were not differentiated from the depressed on this measure. No significant differences emerged on the other-referent condition for either depressed or nondepressed content.

At Time B, differences in self-referent endorsement continued to be evident between the depressed and the control groups as revealed by the significant triple interaction (group by content by referent

dimension)  $F(2,72)=26.44$ . While differences between groups had attenuated somewhat, depressed subjects continued to endorse a significantly greater number of depressed content adjectives than either of the control groups ( $p<.05$ ), which did not differ from each other. For nondepressed adjectives, groups continued to be significantly different in their endorsement patterns on all comparisons with the normal controls endorsing the greater number of nondepressed adjectives, followed by the psychiatric and depressed groups respectively ( $p<.05$ ). Differences emerged between the normal controls and the two clinical groups in regards to endorsement of other-referent nondepressed content with the normal controls evaluating their "friend" selected for the other-referent ratings more positively ( $p<.05$ ). Comparisons regarding depressed content adjectives for the other-referent condition were nonsignificant.

Comparisons of remitted depressives, stable depressives and normal controls on the endorsement frequencies for depressed content revealed a significant Group by Content interaction  $F(2,42)=3.44$ . A breakdown of this interaction revealed that the stable depressives had significantly higher endorsement frequencies for depressed content than the normal controls, with remitted depressives differentiated from the stable depressed but not the normal controls. Endorsement of nondepressed content by both stable and remitted depressives was significantly lower than that of normal controls. The remitted depressed group then, remained similar to the stable depressed group in regards to lowered levels of nondepressed schematic representation,

**Table 3: Means(M) and Standard Deviations(SD) for Schema Endorsement Patterns**

VARIABLE	NC		NDPC		D	
	M	SD	M	SD	M	SD
DEPRESSED ADJECTIVES:						
TIME A						
SELF	2.65 <sup>b</sup>	(2.58)	5.78 <sup>ab</sup>	(4.03)	9.15 <sup>ab</sup>	(3.25)
OTHER	1.89 <sup>a</sup>	(2.39)	2.26 <sup>a</sup>	(2.56)	1.77 <sup>a</sup>	(1.95)
TIME B						
SELF	2.23 <sup>a</sup>	(2.16)	3.91 <sup>ab</sup>	(3.20)	7.54 <sup>b</sup>	(3.644)
OTHER	1.69 <sup>a</sup>	(2.38)	1.52 <sup>a</sup>	(2.54)	2.26 <sup>a</sup>	(2.91)
NONDEPRESSED ADJECTIVES:						
TIME A						
SELF	11.42 <sup>b</sup>	(2.77)	8.65 <sup>ab</sup>	(2.93)	6.15 <sup>ab</sup>	(3.61)
OTHER	11.92 <sup>a</sup>	(2.08)	10.13 <sup>a</sup>	(3.21)	10.69 <sup>a</sup>	(2.21)
TIME B						
SELF	12.23 <sup>b</sup>	(2.25)	9.65 <sup>b</sup>	(2.85)	5.65 <sup>b</sup>	(2.77)
OTHER	12.73 <sup>b</sup>	(2.77)	10.35 <sup>a</sup>	(2.93)	10.42 <sup>a</sup>	(3.16)
		n=26	n=23		n=26	
VARIABLE	Normals		Remitted		Stable	
	M	SD	M	SD	M	SD
TIME B (Self)						
D	2.40 <sup>ab</sup>	(2.36)	5.13 <sup>ab</sup>	(3.09)	10.00 <sup>b</sup>	(3.02)
ND	12.00 <sup>b</sup>	(2.35)	6.50 <sup>ab</sup>	(2.88)	4.17 <sup>ab</sup>	(2.55)
		n=25	n=8		n=12	
NOTE: NC=Normal Controls; NDPC=Nondepressed Psychiatric Controls; D=Depressed						
a=no differences between groups						
b=groups differ						
Relevant F Values are in Appendix F.						



though they had become more like normal controls with respect to lowered endorsement of depressed content. Inspection of other-referent adjectives revealed almost complete overlap between groups and hence these results were not analyzed in the analysis of remitted depressives.

b) Recall Patterns: Tables 4 and 5 depict the means and standard deviations for the adjusted and ratio recall scores, respectively, according to content, referent condition and time.

i) Adjusted Recall Scores: An analysis of this data revealed no significant effect. Most notably, the group by content by referent interactions  $F(2,72)=2.13$  and  $0.46$ , respectively, at Time A and Time B were not significant and therefore further analyses were not conducted.

ii) Ratio Recall Scores: For Time A data, the group by content by referent dimension interaction  $F(1,72)=12.40$  was significant. Post hoc comparisons revealed significant differences on the interaction between the means of the normal control group and the depressed for negative self-referenced material, with the depressed subjects recalling a higher ratio of depressed content adjectives. The psychiatric controls were intermediate in recall and not different from either the normal controls or the depressed. For nondepressed self-referent recall, the depressed group recalled a lower ratio of such material than did the normal control group but once again the depressed did not differ from the nondepressed psychiatric control group. The psychiatric and normal control groups did not differ in

regards to this measure. For other-referent nondepressed and depressed content, no significant differences were observed.

Time B data revealed a similar pattern of results to Time A with a significant group by content by referent interaction  $F(2,72)=8.45$  being again observed. Recall of depressed self-referent material was highest for the depressed subjects who were differentiated from both control groups on the basis of post hoc comparisons (all  $p$ 's, .05). Recall of nondepressed self-referent material was significantly higher for both control groups than for the depressed group. Further, the psychiatric control group recalled significantly more nondepressed other-referent material than did the depressed group. The two control groups were nondifferentiated in regards to this measure with the depressed and normal controls being nondifferentiated. For depressed other-referent material, there were no significant group differences.

When stable and remitted depressives were compared to normal controls on Time B ratio recall scores, a significant group by content interaction was found  $F(2,42)=8.76$ . Post hoc comparisons revealed that the remitted depressed group were not different from the normal controls for recall of depressed and nondepressed content. The stable depressives continued to recall significantly more depressed content than the normal controls, and significantly less nondepressed content than both normals and remitted depressives.

Table 4: Means(M) and Standard Deviations(SD) for Schema  
(Adjusted Recall Scores)

VARIABLE	NC		NDPC		D	
	M	SD	M	SD	M	SD
DEPRESSED ADJECTIVES						
TIME A						
SELF	0.08	(0.23)	0.13	(0.23)	0.21	(0.22)
OTHER	0.13	(0.29)	0.05	(0.15)	0.14	(0.29)
TIME B						
SELF	0.14	(0.25)	0.14	(0.23)	0.23	(0.24)
OTHER	0.23	(0.39)	0.11	(0.30)	0.09	(0.24)
NONDEPRESSED ADJECTIVES						
TIME A						
SELF	0.17	(0.12)	0.12	(0.10)	0.14	(0.20)
OTHER	0.13	(0.12)	0.10	(0.10)	0.08	(0.09)
TIME B						
SELF	0.18	(0.14)	0.22	(0.16)	0.23	(0.21)
OTHER	0.16	(0.14)	0.14	(0.13)	0.14	(0.21)
	n=26		n=23		n=26	

NOTE: NC=Normal Controls; NDPC=Nondepressed Psychiatric Controls; D=Depressed

As nonsignificant differences were found post hoc comparisons were not conducted.

Relevant F Values are in Appendix F.

**Table 5: Means(M) and Standard Deviations(SD) for Schema  
(Ratio Recall Scores)**

VARIABLE	NC		NDPC		D	
	M	SD	M	SD	M	SD
DEPRESSED ADJECTIVES						
TIME A						
SELF	0.04	(0.11)	0.30	(0.37)	0.49	(0.39)
OTHER	0.13	(0.26)	0.10	(0.25)	0.22	(0.37)
TIME B						
SELF	0.09	(0.17)	0.21	(0.29)	0.49	(0.36)
OTHER	0.22	(0.34)	0.09	(0.24)	0.19	(0.36)
NONDEPRESSED ADJECTIVES						
TIME A						
SELF	0.73	(0.42)	0.53	(0.43)	0.32	(0.34)
OTHER	0.71	(0.40)	0.47	(0.48)	0.51	(0.47)
TIME B						
SELF	0.68	(0.41)	0.79	(0.29)	0.43	(0.35)
OTHER	0.74	(0.37)	0.82	(0.35)	0.54	(0.47)
		n=26	n=23		n=26	
VARIABLE	Normals		Remitted		Stable	
	M	SD	M	SD	M	SD
TIME B (Self)						
D	0.11	(0.18)	0.37	(0.25)	0.52	(0.43)
ND	0.69	(0.39)	0.62	(0.25)	0.31	(0.38)
		n=25	n=8		n=12	
NOTE: NC=Normal Controls; NDPC=Nondepressed Psychiatric Controls; D=Depressed Psychiatric Controls; D=Depressed.						
a=no differences between groups						
b=groups differ						
Relevant F Values are in Appendix F.						

3) **Cognitive Patterns:** Table 6 presents means and standard deviations for the cognitive measures at both Time A and Time B. Analysis of the Time A results revealed a group main effect with the BDI  $F(2,72)=72.60$ , the ATQ  $F(2,72)=36.74$ , the BVRTA  $F(2,72)=26.61$  and the DAS  $F(2,72)=19.42$  at Time A. These results indicate that the depressed group had higher BDI scores and subscribed to more automatic thoughts, irrational and dysfunctional thoughts than did the two control groups. The control groups were not differentiated on the DAS, however the depressed subjects endorsed significantly more dysfunctional attitudes than either control group ( $p<0.05$ ).

At Time B differences continued to be evident between groups on the BDI,  $F(2,72)=22.15$ , the ATQ,  $F(2,72)=15.79$ , the DAS,  $F(2,72)=17.48$  and the BVRTB  $F(2,72)=12.94$ . Post hoc analyses continued to show significant differences between the depressed and the control groups on the BDI, ( $p,<.05$ ) with the initial differences between the control groups on this measure having attenuated markedly to the point of nonsignificance. Similarly, differences on the ATQ and the DAS reflected attenuation but continued to significantly differentiate the depressed from the two control groups ( $p,<.05$ ). The BVRT comparisons also revealed continued differences between the normal control group and the two clinical groups ( $p,<.05$ ), however, differences between the depressed and the nondepressed psychiatric controls were no longer observed.

In the analysis of change across testing occasion, Group by Time interactions were significant for the BDI, and the ATQ  $F(1,72)=13.06$ , 8.57 respectively. The DAS and BVRT did not evidence significant

Group x Time effects  $F$ 's(1,72)=1.24, 0.58 respectively. Post hoc comparisons were thus not conducted on these latter three measures. Comparisons on the BDI and the ATQ revealed that the normal control group remained stable on both of these measures, however, both clinical groups exhibited a general reduction of reported dysfunctional attitudes and negative automatic thoughts. The depressed were uniquely characterized by the degree of dysfunctional attitudes and the automatic nature of their negative thought patterns.

When stable and remitted depressives were compared to normal controls significant group effects emerged on the ATQ  $F(2,42)=22.49$ , on the DAS  $F(2,42)=12.59$  and on the BVRT  $F(2,42)=13.34$ . Post hoc comparisons revealed that the remitted depressives were not different from normal controls with regards to their ATQ scores and were significantly differentiated from the stable depressives ( $p<.05$ ). The DAS scores of the remitted depressed group however, were elevated relative to the normal controls and different from the stable depressives. Similarly, the remitted depressed subjects had not changed significantly from the stable depressed in regards to their level of rational thought and continued to be significantly differentiated from the normal controls on the BVRT. Thus both the DAS and the BVRT evidence more stability than did the automatic thoughts questionnaire and suggest that these measures are tapping into a more enduring process.

**Table 6: Means(M) and Standard Deviations(SD) for Schema  
(Cognitive Patterns)**

VARIABLE	NC		NDPC		D	
	M	SD	M	SD	M	SD
ATQ-A	45.85	(11.70)	61.48	(19.78)	86.81	(19.70)
ATQ-B	44.96	(14.81)	49.70	(12.78)	69.04	(20.21)
DAS-A	103.08	(28.18)	116.74	(32.03)	158.15	(38.15)
DAS-B	101.58	(30.12)	104.44	(28.30)	146.73	(32.89)
BVRT A	158.42	(16.34)	138.49	(16.02)	125.38	(16.74)
BVRT B	159.08	(18.82)	143.96	(22.20)	130.89	(19.08)
	n=26		n=23		n=26	
VARIABLE	Normals		Remitted		Stable	
	M	SD	M	SD	M	SD
ATQ-B	44.56	(13.29)	55.00	(13.91)	81.25	(20.48)
DAS-B	98.16	(27.05)	141.75	(27.48)	147.42	(40.84)
BVRT-B	159.48	(17.79)	140.00	(27.08)	125.67	(15.40)
	n=25		n=8		n=12	

Note: ATQ=Automatic Thoughts Questionnaire; DAS=Dysfunctional Attitude Scale; BVRT=Barnes-Vulcano Rationality Test (a low score indicates irrationality); A=Time A; B=Time B; NC=Normal Controls; NDPC=Nondepressed Psychiatric Controls; D=Depressed

a=no differences between groups  
b=groups differ

Relevant F Values are in Appendix F.

#### 4) Schema Consistency and Consolidation Patterns:

a) Schema Consistency: This measure was determined by calculating the number of adjectives endorsed "yes ratings" at both time points in all word content categories. Alternately, the number of adjectives which were not endorsed (i.e., "no" ratings) at either time within each word category was also calculated. Table 7 presents the means and standard deviations for this measure labelled schema consistency. Significant group effects emerged for consistency of endorsement ("yes" ratings) of depressed content adjectives  $F(2,72)=16.59$ , nondepressed content adjectives  $F(2,72)=33.13$ , and for nonendorsement (i.e., "no" ratings) of depressed content adjectives  $F(2,72)=36.02$  and nondepressed adjectives  $F(2,72)=34.29$  for the self-referent dimension. For other-referent adjectives no significant group effects were observed for endorsement and nonendorsement of depressed content adjectives  $F(2,72)=0.52$  and  $0.44$  respectively. Such effects did emerge however, for other-referent nondepressed content in terms of consistency of endorsement and nonendorsement patterns,  $F(2,72)=3.77$  and  $6.35$  respectively.

Post hoc comparisons revealed greater consistency of yes-rated depressed adjectives for the depressed group relative to the normal control group but not the nondepressed psychiatric control group. The depressed group consistently endorsed fewer positive adjectives as self-descriptive relative to both control groups  $F(2,72)=33.13$ . Further, the depressed group gave fewer depressed adjectives consistent "no" ratings relative to both control groups. Alternately a greater number of nondepressed adjectives consistently received "no"



ratings by the depressed subjects in comparison to both control groups. In the other-referent dimension, post hoc comparisons revealed significant differences between the normal controls and the psychiatric control group in regards to nonendorsement or "no" ratings of nondepressed material. The psychiatric control group were more likely to consistently rate a positive adjective as nondescriptive of their friend ( $p < 0.05$ ).

**Table 7: Means(M) and Standard Deviations(SD) for Schema  
Consistency of Endorsed Content**

VARIABLE	NC		NDPC		D	
	MEAN	SD	MEAN	SD	MEAN	SD
DEPRESSED-S	1.27	(1.40)	4.04	(3.61)	5.92	(3.36)
NONDEPRESSED-S	10.58	(3.09)	7.45	(3.30)	3.69	(2.78)
NONDEPRESSED-O	10.62	(2.68)	8.87	(3.55)	8.46	(2.73)
DEPRESSED-O	.62	(1.27)	.87	(1.84)	.46	(1.03)
	n=26		n=23		n=26	

NOTE: Depressed=Depressed Content; Nondepressed=Nondepressed Content; NC=Normal Controls; NDPC=Nondepressed Psychiatric Controls; D=Depressed; S=self; O=others

a=no differences between groups  
b=groups differ

Relevant F Values are in Appendix F.

b) Self-Predicted Behavior: The analysis of the behavioral predictions results (based on the Assertiveness Inventory) revealed that at Time A significant differences occurred between groups on the level of discomfort (AID) in assertive situations  $F(2,72)=7.63$  and on the probability of making an assertive response  $F(2,72)=7.13$ . That is, depressed individuals anticipated the greatest discomfort and the lowest probability of making assertive responses, relative to psychiatric and normal controls respectively. At Time B these effects continued to be evident for discomfort,  $F(2,72)=5.77$  and probability measures,  $F(2,72)=4.91$  respectively. Post hoc comparisons revealed that the depressed subjects evidenced the greatest discomfort in assertiveness and rated themselves as least likely to make an assertive response in comparison to the normal control group. The nondepressed psychiatric control group was differentiated from the normal control group ( $p < .05$ ) but not from the depressed at Time B.

Analyzing change from Time A to Time B for discomfort with assertiveness revealed little change across time with the exception that the probability of making an assertive response was improved for the psychiatric control group. The normal controls and the depressed group maintained their level of estimation of making an assertive response. the probability of making an assertive response increased significantly over time  $F(2,72)=25.11$ , however the group by time interaction failed to reach significance  $F(2,72)=1.55$ .

Table 8: Means(M) and Standard Deviations(SD) for Schema  
Consolidation (Assertiveness)

VARIABLE	NC		NDPC		D	
	MEAN	SD	MEAN	SD	MEAN	SD
DISCOMFORT(A)	92.65	(23.18)	105.00	(19.48)	116.00	(21.26)
DISCOMFORT(B)	89.69	(22.21)	98.70	(23.69)	110.54	(20.74)
PROBABILITY(A)	102.65	(19.45)	115.09	(15.64)	120.62	(17.08)
PROBABILITY(B)	98.54	(20.13)	104.83	(14.45)	113.81	(17.56)
	n=26		n=23		n=26	

NOTE:A=TIME A; B=TIME B; NC=Normal Controls; NDPC=Nondepressed Psychiatric Controls; D=Depressed.

a=no differences between groups  
b=groups differ

Relevant F Values are in Appendix F.

c) **Behavioral Examples**: A sample of nondepressed and depressed adjectives, which were endorsed as self-descriptive at Time A were employed in the behavioral examples procedure. Subjects were asked to give personal examples of adjectives endorsed as self-descriptive with the number of behavioral examples for depressed and nondepressed content adjectives serving as the primary measure of interest. Means and standard deviations for this measure are presented in Table 9. The number of behavioral examples provided for depressed  $F(2,72) = 16.25$  and nondepressed  $F(2,72)=9.56$  content adjectives by the different groups was significant. Post hoc comparisons revealed significant differences between depressed and the two control groups (normal and psychiatric) in the number of behavioral examples provided for positive content. For depressed content, an increasing number of behavioral examples was associated with increasing psychopathology and depression (each mean was significantly greater than the former with regards to normal controls, nondepressed psychiatric controls and the depressed respectively).

Table 9: Means(M) and Standard Deviations(SD) for Schema Consolidation (Behavioral Examples Task)

VARIABLE	NC		NDPC		D	
	MEAN	SD	MEAN	SD	MEAN	SD
POSITIVE (ND)	11.77	(4.81)	8.87	(5.79)	5.73	(4.34)
NEGATIVE (D)	1.58	(2.67)	4.00	(2.52)	6.46	(3.83)
	n=26		n=23		n=26	

NOTE:(D)=Depressed Content; (ND)=Nondepressed Content

NC=Normal Controls; NDPC=Nondepressed Psychiatric Controls;

D=Depressed.

a=no differences between groups

b=groups differ

Relevant F Values are in Appendix F.

5) Supplementary Measures:

a) Prediction of Time B Depression by Time A Schema Scores:

Based on correlations at Time A, and Time B, and test-retest correlations (see Appendix F, Tables XIV & XV) a number of variables were considered as potential predictors of subsequent depression. When all variables of interest were entered (BDIA, ATQA, DASA, BVRT, Ratio Recall depressed-self (RDS)) the BDIA overshadowed all other variables with the exception of the ATQA (see Table 10). Depression at Time A accounted for a significant portion of the variance in Time B depression  $R^2 = .60$ ,  $F(1,73) = 111.75$ ,  $p < .000$ . With the addition of ATQA there was a significant increment in  $R^2$  (.05) with  $F$  change 10.36, significant at  $p < .01$ . The ATQA, a measure which is highly correlated with depressive symptom severity ( $r = .83$  with BDIA and  $r = .72$  with BDIB) and the BDIA were removed from further analyses due to the manner in which they overshadowed other variables in the analyses. When this was done DAS accounted for a significant portion of the variance (see part 2 Table 10) with  $R^2 = .30$ ,  $F = 31.82$ ,  $p < .01$  with RDS entered second over the BVRT. The change in  $R^2$  (.10) was significant  $F = 12.26$ ,  $p = .008$ . This analyses relates to the hypothesized differences between vulnerability and depressive schemata and suggests that while there is support for the relationship between dysfunctional attitudes (vulnerability schemata) and later depression, the self-reference recall score for depressed words (depressive schemata) also contributed significantly to the prediction of subsequent depression.

In order to determine the ability of the two tests of attitudinal factors (the BVRT and the DAS) to predict subsequent depression one additional regression analysis was run. In this case the DAS accounted a greater level of the variability in Time B,  $R^2=.30$ ,  $F=31.82$ ,  $p<.01$ , with BVRT also adding significantly, to the power to predict subsequent depressive level,  $R^2$  change=.04, with  $F$  change=12.26,  $p<.05$ .



Table 10: Regression Analyses

Variable	Mult. R	<sup>2</sup> R	<sup>2</sup> Rc	Fc	Sig.	Beta	T	Sig.
1.								
BDIA	.77	.60	.60	111.75	.000	.77	10.57	.00
ATQA	.80	.65	.05	10.36	.001	.40	3.21	.01
RDSA	not entered					.03	.46	.64
DSEA	not entered					.09	-.97	.33
DASA	not entered					-.01	-.11	.91
BVRTA	not entered					.17	1.71	.09
2.								
DASA	.55	.30	.30	31.82	.000	.55	5.61	.00
RDSA	.63	.40	.10	12.26	.008	.32	3.50	.008
BVRT	-.16	not entered				-.16	-1.34	.18
3.								
DASA	.55	.30	.30	31.82	.000	.55	5.61	.00
BVRTA	.58	.34	.04	4.07	.04	.26	-2.02	.05

Note: Mult. R=Multiple R  
Rc=Change in R squared  
Fc=Change in F  
Sig.=Level of significance  
T=T statistic

1. Regression Analyses: BDIA, ATQA, DASA, BVRTA, RDSA, DSEA  
2. Regression Analyses: DASA, BVRTA, RDSA  
3. Regression Analyses: DASA, BVRTA

## DISCUSSION

This study repeatedly assessed various parameters and measures of self-schema processing of depression in a clinical sample. Various measures of information processing and self-report were administered on separate occasions to evaluate the stability of various schema measures. The detection of negative schematic processing outside of the depressed state is necessary for such variables to be considered as potential vulnerability factors. The discussion which follows will examine the effects observed with each of the schema measures with a particular focus on the issue of stability. Issues raised by the present results for the self-schema model and for the prediction of future depression are presented. Finally, consideration of alternate accounts of the present findings and directions for future research are discussed.

### 1. Endorsement and Recall Patterns:

The endorsement of negative content by depressed subjects supported the hypothesis of a depressive self-referent information processing bias. Thus, consistent with the conclusions of previous researchers (Kuiper & Derry, 1982, Derry & Kuiper, 1981; Dobson & Shaw, 1986), the depressed subjects endorsed significantly more depressed content adjectives and significantly fewer nondepressed adjectives as self-descriptive than did psychiatric controls and normals. It was also found that the endorsement of nondepressed content adjectives by depressed subjects was higher under "other-

referent" conditions relative to "self-referent" conditions. This result is consistent with a number of studies supporting the hypothesis that the negative bias in depression is confined to the self (Kuiper & Derry, 1982; Kuiper & Cole, 1983; Kuiper & McCabe, 1985; Bargh & Tatro, 1988).

The results related to the content specificity of self-referent recall were mixed. On the one hand, the adjusted recall measure failed to differentiate groups. This study can thus be added to other recent studies (Dobson & Shaw, 1987; Clifford & Helmsley, 1987; Myers et al., 1989) which have encountered difficulties in replicating the original recall effect reported by Derry & Kuiper (1982). When analyses were conducted, however, with a more sensitive ratio recall measure, a content specific recall effect was observed. Specifically, the depressed participants recalled a higher ratio of depressed content adjectives and a lower ratio of positive content adjectives relative to the normal controls. The psychiatric controls however, were not significantly different from either the depressed participants or from the normal controls, raising the question that in part, the content specific recall effects seen in depression may reflect only increasing levels of psychopathology.

It should be noted that the use of the adjusted recall score, developed by Derry and Kuiper (1981) controls for the effects of rating frequency whereas the ratio recall score developed in this study does not as clearly separate self-referent rating from self-referent recall. Additionally, the studies by Myers et al., 1989; Dobson & Shaw, 1987 did not indicate clearly the nature of their proportion scores, thus results may not be comparable.

Through use of a longitudinal design, it was observed that there was a notable shifting of endorsement and recall patterns towards normalacy from Time A to Time B. Remitted depressives were undifferentiated from normal controls in their pattern of endorsement of depressed content adjectives and yet remained like the stable depressives in their low level of endorsement of nondepressed content adjectives. This finding was also observed by Dobson and Shaw (1987). Thus the remitted depressives are not "entirely like normals" (Dobson and Shaw, 1987). This suggests that as depression abates, the effects on self-referential changes are first observed as a reduction of endorsement of negative content. However, the endorsement of positive content is comparatively slower to increase.

In addition to changes in their endorsement patterns, remitted depressives evidenced change in their recall patterns across time with a decrease in recall of negative content and an increase in recall of positive content. While recall of negative content by remitted depressives, lay in between the levels obtained for normal controls and the stably depressed, recall of positive content by remitted depressives returned to levels exhibited by normal controls. The observed pattern of shifting endorsement and recall patterns as a function of remission from depression has been previously observed by Myers et al., (1989) who found improved recall of hypomanic adjectives. On the basis of these results Myers (1989) suggested that recovery from depression is associated with improved recall of positive, nondepressed content due to a lessening of inhibition of positive experiences. As Myers et al., (1989) note, the question

becomes, in severe depression, whether conditions controlling the episode reflect the lessening of inhibition of processes controlling positive experiences as opposed to processes controlling negative experiences. Dobson & Shaw (1987) have also noted the shifting nature of self-referent recall during the process of remission. This study saw the psychiatric controls move closer to a nondepressed recall pattern, amplifying differences between this group (the psychiatric controls) and the depressed.

The nature of the differences between endorsement and recall patterns by remitted depressives for positive content is interesting. It seems that although remitted depressives are willing to discard negative content as no longer highly self descriptive, they are not yet willing to endorse positive content as self-descriptive. At the same time, possibly due to the absence of dysphoric mood, positive content may be more salient and thus more accessible for recall. This analysis provides one interpretation of the endorsement and recall differences for positive content and requires further research.

## 2. Cognitive Patterns:

Depressed subjects exhibited elevated scores on measures of automatic thoughts, irrational beliefs and dysfunctional attitudes. This is in keeping with a substantial literature (e.g., Gotlib, 1984; Olinger et al., 1987; Wiessman & Beck; 1987, Dobson & Shaw, 1986). Similarly, the findings that measures of automatic thinking reflected high negativity among depressed participants is consistent with other research findings (Hollon & Kendall, 1980; Hamilton & Abramson, 1983;

Dobson & Shaw, 1986). While the above findings confirm the hypotheses that depression is associated with elevated dysfunctional cognitions and automatic negative thinking, the more important question concerns the stability of such patterns.

Findings suggested that the most stable of these measures was the DAS. Essentially it was found that the DAS scores remained elevated at Time B even among formerly depressed participants whose symptoms had remitted. These results thus supported the hypothesis that measures of cognitions reflecting dysfunctional attitudes would evidence greater stability from initial assessment to follow-up. Although dysfunctional attitudes may reflect a stable characteristic of depression, the existing literature is mixed concerning this generalization. Some studies support such a conclusion (Eaves & Rush, 1984; Dobson & Shaw, 1986, Reda et al., 1985; Miller & Norman 1986), other studies do not (Hamilton & Abramson, 1983; Simons et al, 1984; Persons & Rao, 1985 and Silverman et al., 1984). These latter studies have found that cognitions reflective of maladaptive beliefs and assumptions are reduced in magnitude at follow-up.

An additional measure, the BVRT, which also measures dysfunctional thinking in the form of rational versus irrational thought also provided support for the hypothesis that such attitudes would evidence more stability across time. While the depressed continued to evidence less rational thought than did the normal controls, they improved the direction of their thinking more significantly than did the stable depressed. This suggests that both scales, the DAS and the BVRT are tapping into a more enduring thought pattern.

The mixed data concerning the stability of the DAS may be attributed to procedural differences, most notably in the intervals selected for longitudinal studies and differing definitions of remission. Firstly, the time intervals used in longitudinal studies often varies substantially ranging from a number of weeks to periods up to 1 year. A fairly common duration is three months (see review by Barnett and Gotlib, 1988a). Second, procedural problems which contribute to the mixed stability of data reported for the DAS has to do with the operational definition of remission. The definition of remission is often unclear and differs across studies (Belsher & Costello, 1988). In the present study the criterion for remission was a depression score of 10 or less at Time B. Since only 8 subjects met this criterion, it may be inferred that the criterion was fairly stringent. Thus, if stability of dysfunctional attitudes is to be taken as support for the underlying schema of the depressed, evidence is perhaps only as good as the temporal criteria as well as those used to define remission. Not only do depressive symptoms have to reduce to levels below that which we use as a criteria for defining depression onset, but they must remain at this subthreshold level of symptomology for a specified period of time (Belsher & Costello, 1988). The latter specification is often not adhered to (see Eaves & Rush, 1984, for an exception) as was the case in the current study.

### **3. Consistency and Consolidation:**

The multimethod assessment of schematic processing provided additional evidence of depressive self-schema responding. These measures in combination provided confirmation of a depressive response

style where the depressed participants were characterized by a negative bias in their self-referent and self-evaluative information processing. First there were replicative effects in regards to endorsement and recall patterns (using the ratio recall measure); consistency effects, replicating MacDonald & Kuiper (1984) and Kuiper & Olinger (1986); the behavioral examples procedure providing additional support to Hammen's et al. (1986) findings, and the behavioral predictions procedure of Markus (1977).

The above findings support the consolidation component of the self-schema (Kuiper & Olinger, 1987) going beyond the self-referent ratings of adjectives, and supporting findings related to social skills deficits; assertiveness deficits and enhanced accessibility (Bargh & Tota, 1988) to negative schema information. The consolidation of the schemata concerns the degree of integration and/or interrelatedness among negative self-constructs (Kuiper & Olinger, 1986; Segal, 1988) which is presumed highly related to the level of depression severity. Thus, among clinically depressed individuals there is evidence for the operation of a negative self-schemata which spans various areas of functioning. This generalized phenomenon is similar to the manner in which depressed individuals generalize their negative view of the self, to the world and to the future.

An alternate view of how schemas function to confer vulnerability to depression has been proposed by Hammen and colleagues (1985). Hammen et al. (1985) have argued against the utility of postulating a generalized self-schema model in depression, suggesting instead a more



fruitful approach is to identify theme specific schemas (e.g., dependency; self-critical) and to then measure stressful life events which match such theme specific personal vulnerability factors. By classifying individuals into clinically relevant but mood independent subtypes, and following subjects over time, Hammen, et al., (1985) found that individuals were more likely to become depressed when they experienced a schema congruent negative event as opposed to a schema incongruent negative event. By urging this specificity, Hammen and colleagues are arguing as well for a refinement in the measurement of self-schemas, a point also made by Segal (1988) which will be discussed in a following section.

It is possible that an integration of the generalized versus theme specific schema views may be achieved by considering the distinction between vulnerability and depressive schemata as proposed by Kuiper and et al., (1988). Such a distinction would argue that vulnerability schemata measured in the nondepressed state are likely theme-specific structures, whereas depressive schemata, which are measured in the depressed state, are generalized structures. The depressed state may be instrumental in activating a number of affective-cognitive structures (Markus & Nurius, 1986) and thereby producing the generalized effects such as those observed here.

#### **4. Prediction of Time B Depression:**

Through a longitudinal design this study tested the hypothesis that dysfunctional attitudes, would be a predictor of Time B depression. Prediction of future depressive level is a complex

process with the theoretical underpinnings of the predictor variables important to their ultimate success in accounting for variance in the variable of interest (in this case Time B depression level). As was previously found (Hammen et al., 1985) initial depression was the best predictor of subsequent depression. A trend which emerged was that unless the variable was very similar to the BDI (covarying with mood) then its role as a predictor variable was reduced. To clarify, dysfunctional attitudes and irrational thoughts were evaluated separately from the ATQ, and the RDS measures (both of which have been shown to change with remission of depression) in order that their potential as predictor variables be demonstrated.

The prediction of Time B depression in this study is thus clouded somewhat by the relationships amongst the potential predictor variables. Grouping variables according to separate themes may be one manner in which one could reduce the correlations between the predictor variables and thereby more effectively predict Time B depression. A vulnerability factor might then be a composite score of the DAS and the BVRT, while a depressogenic factor, might be comprised of the combined scores of the ATQ and the RDS measure.

An additional manner in which this area could be studied more profitably is exemplified by Hammen et al's., research strategy wherein variables which are mood independent are used to predict the onset of depression. This approach, just discussed in the previous section has evidenced some early success and appears a fruitful approach.

### **5. Potential Limiting Factors:**

Several comments regarding the potential limitations of this study are in order. One limitation concerns the sample size of the present study. Had it been possible to procure a larger sample the power to detect significant differences would have been improved particularly in comparisons of remitted and stable depressives. An additional limitation concerns the time interval of the study which was three months. A longer duration between Time A and Time B assessments may have provided a stronger test of the stability hypotheses. There was also no attempt in this study to control for potential practise effects with regards to recall effects in the design of the study. That the subjects were more familiar with the experimental procedures at Time B may have facilitated recall, and inadvertently biased the study toward inflated estimates of cognitive stability. However, despite this potential bias, the results were clear in their lack of stability and the results were quite comparable to a recent study by Myers et al. (1989) which used an informed recall task in the experimental design. Finally, the present study is limited in that no attempt was made to control for pharmacologic and psychotherapeutic interventions that occurred over the course of the study. Of course, negative self schema responding could have been affected by these uncontrolled factors.

### **6. Clinical Recommendations:**

Perhaps a comment can be made, as well, about the clinical importance of the present results. The data related to endorsement

and recall patterns suggests that cognitive therapists may need to direct efforts not only at reducing dysfunctional attitudes and beliefs but as well should consider encouraging the adoption of positive belief patterns. This research suggests that the amount of evidence required to let go of a negative self-referent belief may be less than that required to adopt a positive belief about the self. Clinically, because it was found that the depressed continued to endorse dysfunctional attitudes when remitted, (acute symptom reduction), therapists should more carefully address such attitudes despite "recovery" of acute symptoms. Since the persistence of dysfunctional attitudes has been found to successfully predict subsequent depression (Rush et al., 1986), therapy directed at the modification of such attitudes may have a preventative role.

#### **7. Concluding Comments:**

This study has produced mixed evidence for the cognitive approach to depression. While the longitudinal design offers a more powerful approach to the study of stability of effects relative to a cross sectional approach (cf. Segal, 1988), there are interpretive problems related to the measurement of the schema construct. Segal (1988) has indicated that to demonstrate existence of a negative self-schema one must look beyond the content of information stored in such a structure to determining the functional relations between individually stored elements. He argues that by looking at content plus structure, the interconnection amongst elements may facilitate the persistence of the individuals negative self-schema beyond the episode of depression and subsequent remission. He distinguishes between the accessibility

model and the negative self-schema accounts of the relationship between depression and self-representation by noting that in the absence of dysphoric mood, accessibility of negative self-constructs is no longer dominant whereas in the latter model it is the interrelatedness among negative self-constructs which remains and is potentially reactive.

The self-referent endorsement and recall task also presented some difficulties because of the absence of effects found with the previously unquestioned adjusted recall proportion score. This empirical replication difficulty raises concerns regarding the measure's reliability and validity which future research will need to address. Clearly, the self-schema indices selected here do not appear to be tapping a stable aspect of information processing. Although results are not inconsistent with Kuiper et al's (1988) distinction between vulnerability and depressive schemata, it is difficult to differentiate the evidence for depressive schemata from an accessibility account of depression. This latter view postulates that the more frequently a construct is used, the greater likelihood that it will be used in the future (Segal, 1988; Bargh & Tota, 1988). Depressed and nondepressed individuals may possess similar types of schema constructs for instance, but differ in terms of ease with which they come to mind and are used in information processing because of differential frequencies of past use of these constructs (Bargh & Tota, 1988; Segal, 1988). Within this view, this study could be considered as confounded. Specifically, cognitive priming may have occurred as a result of having subjects complete the Beck Depression

Inventory prior to the self-referent endorsement and recall task. This priming experience may have thus influenced the subjects negative cognitive set as they responded to this latter task.

There are also problems interpreting the implications of the DAS results. For a schema model (cf. Segal, 1988) the DAS is used both as a measure of depressive symptoms and as a marker of vulnerability to depression, a problem noted by others (e.g., Hammen et al., 1986; Coyne & Gotlib, 1983, 1986). Such paper and pencil tests may not be capable of providing the type of evidence necessary for demonstrating the cognitive structure of schema (Segal, 1988). In addition, the lack of specificity found in this as well as other studies (Hollon et al, 1986; Silverman et al., 1984 and Zimmerman, 1986) suggest that the DAS is not tapping cognitions unique to depression (Segal, 1988), as the nondepressed psychiatric control group also evidenced elevated levels of dysfunctional cognitions.

Thus a critical evaluation of the schema construct is in order especially as it pertains to how we as researchers operationally define this construct (Segal, 1988). Enhancement of our measurement indices will also aid in the refinement of our theories and the reliability of related findings. The schema by event model of vulnerability to depression (Hammen et al, 1985, 1985) may provide a more profitable manner in which to test the association between cognitive vulnerability and life events as they relate to the onset of depression.

The strategy of studying remitted depressives may provide us with an enhanced understanding of the onset of depressive episodes and enduring features of depressive information processing. Clearly, the strategy of focusing on remitted depressives is one avenue to evaluate the cognitive model of depression and has been the focus of several recent investigations (Hammen, Ellicott, & Gitlin, 1989; Segal, Shaw, Vella, 1989). This strategy however is not without limitations. For example, while useful for predicting relapse, it cannot be assumed that the variables which lead to relapse are the similar or identical to those responsible for the initial episode. The best predictor of depression continues to be previous depression. Further prospective and longitudinal studies are needed of "at risk" populations, (i.e., individuals who have never been depressed, perhaps selected on the basis of parental loss, separation, or parental depression). In such investigations, it will be important to refine measures (see Segal, 1988) of schematic processing, perhaps by focusing on theme-specific schemas (e.g., dependency versus self-critical) and including measures of stressful life events as discussed above (see Hammen, et al., 1985).

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## Appendices

- A: Experimental Schedule
- B: Consent Form
- C: Self-report Measures
- D: Procedural Tasks
- E: Debriefing
- F: Statistical Tables

## Appendix A: Experimental Schedule

	Time 1	Time 2
Test:		
Beck Depression Inventory	X	X
Automatic Thoughts Questionnaire	X	X
Dysfunctional Attitude Scale	X	X
Barnes-Vulcano Rationality Test	X	X
Weschler Memory Scale	X	
Vocabulary Test (WRAT-R)	X	
Tasks:		
Self-referent Recall	X	X
Behavior Examples		X
Prediction of Behavior	X	X

## Appendix B: Forms

## Consent Form

I hereby volunteer to participate in a research study which will take about 2 hours over the next week and about the same amount of time 3 months later.

I understand that the study will assess my emotions and the manner in which I process information.

I understand that I will be fully debriefed on the study. Information obtained will be treated confidentially in a professional manner for research purposes and the design of new therapeutic interventions.

I understand that had I declined to participate the quality of care received at Brandon Mental Health Centre would not have been affected.

I agree/don't agree that the results of the assessment may be forwarded to my primary therapist for his/her use in my treatment. (please circle choice)

Date \_\_\_\_\_

Signature \_\_\_\_\_

Appendix C:  
Self-Report Measures

The Beck Depression Inventory

On this questionnaire are groups of statements. For each group pick out the one statement which best describes the way you feel today, that is, right now.

- A I do not feel sad.  
B I feel sad.  
C I am sad all the time and I can't snap out of it.  
D I am so sad or unhappy that I can't stand it.
- A I am not particularly pessimistic or discouraged about the future.  
B I feel discouraged about the future.  
C I feel I have nothing to look forward to.  
D I feel that the future is hopeless and that things cannot improve
- A I do not feel like a failure.  
B I feel I have failed more than the average person.  
C As I look back on my life all I see is a lot of failures.  
D I feel I am a complete failure as a person.
- A I get as much satisfaction out of things as I used to.  
B I don't enjoy things the way I used to.  
C I don't get satisfaction out of anything any more.  
D I am dissatisfied or bored with everything.
- A I don't feel particularly guilty.  
B I feel guilty a good part of the time.  
C I feel guilty most of the time.  
D I feel guilty all of the time.
- A I don't feel I am being punished.  
B I feel I may be punished.  
C I expected to be punished.  
D I feel I am being punished.
- A I don't feel disappointed in myself.  
B I am disappointed in myself.  
C I am disgusted with myself.  
D I hate myself.
- A I don't feel I am any worse than anybody else.  
B I am critical of myself for my weaknesses or mistakes.  
C I blame myself all the time for my faults.  
D I blame myself for everything bad that happens.
- A I don't have any thoughts of killing myself.  
B I have thoughts of killing myself, but I would not carry them out.  
C I would like to kill myself.  
D I would kill myself if I had a chance.



- A I don't cry any more than usual.  
B I cry more now than I used to.  
C I cry all the time now.  
D I used to be able to cry, but now I can't cry even though I want to.
- A I am no more irritated now than I ever am.  
B I get annoyed or irritated more easily than I used to.  
C I feel irritated all the time.  
D I don't get irritated at all at the thing that used to irritate me.
- A I have not lost interest in other people.  
B I am less interested in other people than I used to be.  
C I have lost most of my interest in other people.  
D I have lost all my interest in other people.
- A I make decisions about as well as I ever could.  
B I put off making decisions more than I used to.  
C I have greater difficulty in making decisions than before.  
D I can't make any decisions at all any more.
- A I don't feel I look any worse than I use to.  
B I am worried that I am looking old or unattractive.  
C I feel that there are permanent changes in my appearance and they make me look unattractive.  
D I believe I look ugly.
- A I can work about as well as before.  
B It takes an extra effort to get started at doing something.  
C I have to push myself very hard to do anything.  
D I can't do any work at all.
- A I can sleep as well as usual.  
B I don't sleep as well as I use to.  
C I wake up 1 - 2 hours earlier than usual and find it hard to get back to sleep.  
D I wake up several hours earlier than I used to and cannot get back to sleep.
- A I don't get more tired than usual.  
B I get tired more easily than I used to.  
C I get tired from doing almost anything.  
D I get too tired to do anything.
- A My appetite is no worse than usual.  
B My appetite is not as good as it used to be.  
C My appetite is much worse now.  
D I have no appetite at all any more.

- A I haven't lost much weight, if any, lately.
  - B I have lost more than 5 pounds.
  - C I have lost more than 10 pounds.
  - D I have lost more than 15 pounds.
- 
- A I am no more worried about my health than usual.
  - B I am worried about physical problems such as aches and pains; or upset stomach; or constipation.
  - C I am very worried about physical problems and it's hard to think of much else.
  - D I am so worried about my physical problems, that I cannot think about anything else.
- 
- A I have not noticed any recent change in my interest in sex.
  - B I am less interested in sex than I use to be.
  - C I am much less interested in sex now.
  - D I have lost interest in sex completely.

### The Automatic Thoughts Questionnaire

Listed below are a variety of thoughts. Please read each item carefully and check the appropriate line.

- 1 = not at all
- 2 = sometimes
- 3 = moderately often
- 4 = often
- 5 = all the time

	1	2	3	4	5
1) I feel like I'm up against the world.	—	—	—	—	—
2) I'm no good.	—	—	—	—	—
3) Why can't I ever succeed.	—	—	—	—	—
4) No one understands me.	—	—	—	—	—
5) I've let people down.	—	—	—	—	—
6) I don't think I can go on.	—	—	—	—	—
7) I wish I were a better person.	—	—	—	—	—
8) I'm so weak.	—	—	—	—	—
9) My life's not going the way I want it to.	—	—	—	—	—
10) I'm so dissappointed in myself.	—	—	—	—	—
11) Nothing feels good anymore.	—	—	—	—	—
12) I can't stand this anymore.	—	—	—	—	—
13) I can't get started.	—	—	—	—	—
14) What's wrong with me?	—	—	—	—	—
15) I wish I were somewhere else.	—	—	—	—	—
16) I can't get things together.	—	—	—	—	—
17) I hate myself.	—	—	—	—	—
18) I'm worthless.	—	—	—	—	—
19) Wish I could just disappear.	—	—	—	—	—
20) What's the matter with me.	—	—	—	—	—
21) I'm a loser.	—	—	—	—	—

- 22) My life is a mess.                    \_\_\_\_\_
- 23) I'm a failure.                        \_\_\_\_\_
- 24) I'd never make it.                    \_\_\_\_\_
- 25) I feel so helpless.                    \_\_\_\_\_
- 26) Something has to change.             \_\_\_\_\_
- 27) There must be something wrong with me.   \_\_\_\_\_
- 28) My future is bleak.                    \_\_\_\_\_
- 29) It's just not worth it.                \_\_\_\_\_
- 30) I can't finish anything.             \_\_\_\_\_



- 13.If someone disagrees with me, it probably indicates he does not like me. \_\_\_\_\_
- 14.If I fail partly, it is as bad as being a complete failure. \_\_\_\_\_
- 15.If other people know what you are really like, they will think less of you. \_\_\_\_\_
- 16.I am nothing if a person I love doesn't love me. \_\_\_\_\_
- 17.One can get pleasure from an activity regardless of the end result. \_\_\_\_\_
- 18.People should have a reasonable likelihood of success before undertaking anything. \_\_\_\_\_
- 19.My value as a person depends greatly on what others think of me. \_\_\_\_\_
- 20.If I don't set the highest standards for myself, I am likely to end up a second-rate person. \_\_\_\_\_
- 21.If I am to be a worthwhile person, I must be truly outstanding in at least one major respect. \_\_\_\_\_
- 22.People who have good ideas are more worthy than those who do not. \_\_\_\_\_
- 23.I should be upset if I make a mistake. \_\_\_\_\_
- 24.My own opinions of myself are more important than other's opinions of me. \_\_\_\_\_
- 25.To be a good, moral, worthwhile person, I must help everyone who needs it. \_\_\_\_\_
- 26.If I ask a question, it makes me look inferior. \_\_\_\_\_
- 27.It is awful to be disapproved of by people important to you. \_\_\_\_\_
- 28.If you don't have other people to lean on, you are bound to be sad. \_\_\_\_\_
- 29.I can reach important goals without slavedriving myself. \_\_\_\_\_
- 30.It is possible for a person to be scolded and not get upset. \_\_\_\_\_

31.I cannot trust other people because they might be cruel to me.

\_\_\_\_\_

32.If others dislike you, you cannot be happy.

\_\_\_\_\_

33.It is best to give up your own interests in order to please other people.

\_\_\_\_\_

34.My happiness depends more on other people than it does on me.

\_\_\_\_\_

35.I do not need the approval of other people in order to be happy.

\_\_\_\_\_

36.If a person avoids problems, the problems tend to go away.

\_\_\_\_\_

37.I can be happy even if I miss out on many of the good things in life.

\_\_\_\_\_

38.What other people think about me is very important.

\_\_\_\_\_

39.Being isolated from others is bound to lead to unhappiness.

\_\_\_\_\_

40.I can find happiness without being loved by another person.

\_\_\_\_\_

## Barnes-Vulcano Rationality Test

Instructions: For each of the following statements, please indicate the degree to which you tend to either agree or disagree with the statement according to the five point scale.

1	2	3	4	5
agree strongly	agree	neither agree nor disagree	disagree	disagree strongly

Please circle the number of your choice which is beside each statement.

- |   |   |   |   |   |     |  |
|---|---|---|---|---|-----|--|
| 1 | 2 | 3 | 4 | 5 | 1.  | I do not need to feel that everyone I meet likes me.   |
| 1 | 2 | 3 | 4 | 5 | 2.  | I frequently worry about things over which I have no control.  |
| 1 | 2 | 3 | 4 | 5 | 3.  | I find it easy to overcome my irrational fears.  |
| 1 | 2 | 3 | 4 | 5 | 4.  | I can usually shut off thoughts that are causing me to feel anxious.   |
| 1 | 2 | 3 | 4 | 5 | 5.  | Life is a ceaseless battle against irrational worries.   |
| 1 | 2 | 3 | 4 | 5 | 6.  | I frequently worry about death.  |
| 1 | 2 | 3 | 4 | 5 | 7.  | Crowds make me nervous.  |
| 1 | 2 | 3 | 4 | 5 | 8.  | I frequently worry about things before they actually occur.  |
| 1 | 2 | 3 | 4 | 5 | 9.  | I tend to worry about things before they actually occur.   |
| 1 | 2 | 3 | 4 | 5 | 10. | If I were told that someone had a criminal record I would not hire him or her to work for me.                  |
| 1 | 2 | 3 | 4 | 5 | 11. | When I make a mistake I feel worthless and inadequate.   |
| 1 | 2 | 3 | 4 | 5 | 12. | When someone is wrong I sure let them know it.   |
| 1 | 2 | 3 | 4 | 5 | 13. | When I am frustrated the first thing I do is ask myself whether there is anything I can do to change it - now! |
| 1 | 2 | 3 | 4 | 5 | 14. | Whenever something goes wrong I ask myself, "Why did this have to happen to me?"                               |
| 1 | 2 | 3 | 4 | 5 | 15. | Whenever things go wrong I say to myself, "I don't like this, I can't stand it."                               |
| 1 | 2 | 3 | 4 | 5 | 16. | I can usually find a cure for my own unhappiness when it occurs.   |
| 1 | 2 | 3 | 4 | 5 | 17. | Once I am depressed it takes me a long while to recover.   |
| 1 | 2 | 3 | 4 | 5 | 18. | I feel that when I become depressed or unhappy it is caused by other people or the events that happen.         |
| 1 | 2 | 3 | 4 | 5 | 19. | People have little or no ability to control their sorrows or rid themselves of their negative feelings.        |



- 1 2 3 4 5 20. When I become angry I can usually control my anger.
- 1 2 3 4 5 21. I can usually control my appetites for food or alcohol.
- 1 2 3 4 5 22. The value of a human being is directly proportionate to his accomplishments; if he is not thoroughly competent and adequate in achieving he might as well curl up and die.
- 1 2 3 4 5 23. The important part of playing a game is that you succeed.
- 1 2 3 4 5 24. I feel badly when my achievement level is lower than others.
- 1 2 3 4 5 25. I feel that I must succeed at everything I undertake.
- 1 2 3 4 5 26. When I feel doubts about potential success I avoid participating and risking the chance of failure.
- 1 2 3 4 5 27. When I set out to accomplish a task I stick with it to the end.
- 1 2 3 4 5 28. If I find difficulties in life I discipline myself to face them.
- 1 2 3 4 5 29. If I try to do something and encounter problems I give up easily.
- 1 2 3 4 5 30. I find it difficult to work at tasks that have a long range payoff.
- 1 2 3 4 5 31. I usually like to face my problems head on.
- 1 2 3 4 5 32. A person never learns from his/her mistakes.
- 1 2 3 4 5 33. Life is what you make it.
- 1 2 3 4 5 34. Unhappy childhoods inevitably lead to problems in adult life.
- 1 2 3 4 5 35. I try not to brood over past mistakes.
- 1 2 3 4 5 36. People who are selfish make me mad because they really should not be that way.
- 1 2 3 4 5 37. If I had to nag someone to get what I wanted I would not think it worth the trouble.
- 1 2 3 4 5 38. I frequently find that life is boring.
- 1 2 3 4 5 39. I often wish that something new and exciting would happen.
- 1 2 3 4 5 40. I experience life as just the same old thing from day to day.
- 1 2 3 4 5 41. I often wish life were more stimulating.
- 1 2 3 4 5 42. I often feel that everything is tiresome and dull.
- 1 2 3 4 5 43. I wish I could change places with someone who lives and exciting life.
- 1 2 3 4 5 44. I often wish life were different than it is.

Appendix D  
Procedural Tasks

## Word Lists

## Depressed Words

## Self-Referent

Unsuccessful  
 Desperate  
 Exhausted  
 Worthless  
 Powerless  
 Lonesome  
 Hesitant  
 Drained  
 Passive  
 Unloved  
 Dreary  
 Sombre  
 Empty  
 Dull  
 Weak

## Other-Referent

Overwhelmed  
 Unappealing  
 Afflicted  
 Defeated  
 Helpless  
 Insecure  
 Listless  
 Awkward  
 Boring  
 Guilty  
 Dismal  
 Tired  
 Bleak  
 Weary  
 Sick

## Nondepressed words

## Self-Referent

Distinguished  
 Constructive  
 Imaginative  
 Competitive  
 Unselfish  
 Exuberant  
 Skillful  
 Original  
 Curious  
 Relaxed  
 Poised  
 Casual  
 Lively  
 Vital  
 Ready

## Other-Referent

Accomplished  
 Spontaneous  
 Intelligent  
 Influential  
 Persevering  
 Confident  
 Ambitious  
 Decisive  
 Charming  
 Capable  
 Prompt  
 Direct  
 Witty  
 Neat  
 Eager

## Self vs Other-Referent Recall Task

In this task, you are to listen carefully to the words being presented over the tape recorder. You will be asked one of two questions in regards to each word a) does the word describe Y O U or b) does the word describe a F R I E N D. When thinking about a friend, I would like you to think of someone with whom you have been friendly over the past four months, but who you would not describe as a "close" friend.

The following words were presented:

W O R D	DESCRIBES	YES	NO
1. HESITANT	ME	—	—
2. CONFIDENT	A FRIEND	—	—
3. DISTINGUISHED	ME	—	—
4. CAPABLE	A FRIEND	—	—
5. DESPARATE	ME	—	—
6. SICK	A FRIEND	—	—
7. WORTHLESS	ME	—	—
8. INTELLIGENT	A FRIEND	—	—
9. LONESOME	ME	—	—
10. EAGER	A FRIEND	—	—
11. UNLOVED	ME	—	—
12. INFLUENTIAL	A FRIEND	—	—
13. WEAK	ME	—	—
14. DEFEATED	A FRIEND	—	—
15. EXHUBERANT	ME	—	—
16. DECISIVE	A FRIEND	—	—
17. RELAXED	ME	—	—
18. LISTLESS	A FRIEND	—	—
19. READY	ME	—	—
20. BLEAK	A FRIEND	—	—
21. SOMBRE	ME	—	—
22. ACCOMPLISHED	A FRIEND	—	—
23. COMPETITIVE	ME	—	—
24. BORING	A FRIEND	—	—
25. CONSTRUCTIVE	ME	—	—
26. HELPLESS	A FRIEND	—	—
27. DULL	ME	—	—
28. AMBITIOUS	A FRIEND	—	—
29. EMPTY	ME	—	—
30. UNAPPEALING	A FRIEND	—	—
31. EXHAUSTED	ME	—	—
32. PROMPT	A FRIEND	—	—
33. CURIOUS	ME	—	—
34. TIRED	A FRIEND	—	—
35. PASSIVE	ME	—	—
36. DIRECT	A FRIEND	—	—
37. LIVELY	ME	—	—
38. CHARMING	A FRIEND	—	—
39. DREARY	ME	—	—
40. GUILTY	A FRIEND	—	—
41. POWERLESS	ME	—	—
42. NEAT	A FRIEND	—	—

43.	POISED	ME	—	—
44.	WEARY	A FRIEND	—	—
45.	DRAINED	ME	—	—
46.	SPONTANEOUS	A FRIEND	—	—
47.	UNSUCCESSFUL	ME	—	—
48.	INSECURE	A FRIEND	—	—
49.	UNSELFISH	ME	—	—
50.	OVERWHELMED	A FRIEND	—	—
51.	ORIGINAL	ME	—	—
52.	WITTY	A FRIEND	—	—
53.	CASUAL	ME	—	—
54.	DISMAL	A FRIEND	—	—
55.	VITAL	ME	—	—
56.	PERSEVERING	A FRIEND	—	—
57.	SKILLFUL	ME	—	—
58.	AWKWARD	A FRIEND	—	—
59.	IMAGINATIVE	ME	—	—
60.	AFFLICTED	A FRIEND	—	—

Four words were presented at the beginning and end of this list to control for primacy and recency effects.

Predicting the Likelihood of Future Behavior Task  
(The Assertiveness Inventory)

Many people experience difficulty in handling interpersonal situations requiring them to assert themselves in some way, for example, turning down a request, asking a favor, giving someone a compliment, expressing disapproval or approval, etc. Please indicate your degree of discomfort or anxiety in the space provided before each situation listed below. Utilize the following scale to indicate degree of discomfort.

- 1 = none
- 2 = a little
- 3 = a fair amount
- 4 = much
- 5 = very much

Then, go over the list a second time and indicate after each item the probability or the likelihood of your displaying the behavior if actually presented with the situation.\* For example, if you rarely apologize when you are at fault, you would mark a "4" after that item. Utilize the following scale to indicate response probability.

- 1 = always do it
- 2 = usually do it
- 3 = do it about half the time
- 4 = rarely do it
- 5 = never do it

Note: It is important to cover your discomfort ratings (located in front of the items) while indicating response probability. Otherwise, one rating may contaminate the other and a realistic assessment of your behavior is unlikely. To correct for this place a piece of paper over your discomfort ratings while responding to the situation a second time for response probability.

Degree of Response Discomfort	Situation	Degree of Response Probability
_____	1. Turn down a request to borrow your car.	_____
_____	2. Compliment a friend.	_____
_____	3. Ask a favor of someone.	_____
_____	4. Resist sales pressure.	_____
_____	5. Apologize when you are at fault.	_____

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Degree of Response Discomfort	Situation	Degree of Response Probability
_____	6. Turn down a request for a meeting or date.	_____
_____	7. Admit fear and request consideration.	_____
_____	8. Tell a person you are intimately involved with he/she says or does something that bothers you.	_____
_____	9. Ask for a raise.	_____
_____	10. Admit ignorance in some area.	_____
_____	11. Turn down a request to borrow money.	_____
_____	12. Ask personal questions.	_____
_____	13. Turn off a talkative friend.	_____
_____	14. Ask for constructive criticism.	_____
_____	15. Initiate a conversation with a stranger.	_____
_____	16. Compliment a person you are romantically involved with or interested in.	_____
_____	17. Request a meeting or a date with a person.	_____
_____	18. Your initial request for a meeting is turned down and you ask the person again at a later time.	_____
_____	19. Admit confusion about a point under discussion and ask for clarification.	_____
_____	20. Apply for a job.	_____
_____	21. Ask whether you have offended someone.	_____
_____	22. Tell someone that you like them.	_____
_____	23. Request expected service when such is not forth- coming, e.g., in a restaurant.	_____
_____	24. Discuss openly with the person his/her criticism of your behavior.	_____

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Degree of Response Discomfort	Situation	Degree of Response Probability
_____	25. Return defective items, to a store or restaurant.	_____
_____	26. Express an opinion that differs from that of the person you are talking to.	_____
_____	27. Resist sexual overtures when you are not interested.	_____
_____	28. Tell the person when you feel he/she has done something that is unfair to you.	_____
_____	29. Accept a date.	_____
_____	30. Tell someone good news about yourself.	_____
_____	31. Resist pressure to drink.	_____
_____	32. Resist a significant person's unfair demand.	_____
_____	33. Quit a job.	_____
_____	34. Resist pressure to "turn on".	_____
_____	35. Discuss openly with the person his/her criticism of your work.	_____
_____	36. Request the return of borrowed items.	_____
_____	37. Receive compliments.	_____
_____	38. Continue to converse with someone who disagrees with you.	_____
_____	39. Tell a friend or someone with whom you work when he/she says or does something that bothers you.	_____
_____	40. Ask a person who is annoying you in a public situation to stop.	_____

Lastly, please indicate the situations you would like to handle more assertively by placing a circle around the item number.



Appendix E:  
Debriefing

Your involvement in this study has been appreciated. This study was designed to assess how people process information about themselves, when they are depressed in comparison to nondepressed people. The study also attempted to gain further understanding of the effects of time on such information processing. The recall task you were exposed to presented an equal number of depressed, or negative content adjectives, and nondepressed, positive content adjectives which you had to decide whether or not described yourself or a friend. Research has typically found that when individuals are in a depressed mood they endorse more negative content as being descriptive of themselves. By retesting you over time on this same task, I was able to determine how stable this effect is. Also, this effect is one which has been found to be restricted to the self and does not reflect how the depressed individual perceives others.

When you had to give me examples of why a given adjective described you, you were providing me with an additional measure of this effect. This procedure contained words which at Time A you had endorsed as being descriptive of you giving us a measure of the consistency with which people view themselves.

The third task gave us an indication of how you would predict your own behavioral response in varied situations. The effect of the passage of time and changes in mood on your estimations

of discomfort and response probability were determined.

What a person thinks about has been considered a possible cause of depression. If a person thinks negatively, about themselves, the world or their future they are considered to be depressed and/or vulnerable to an episode of depression as this type of thinking increases in severity. I have assessed your mood and cognitions over time to determine their stability.

It has been important for research to contribute to therapeutic approaches and the results from this study will have many contributions to make.

**Appendix F:**  
**Statistical Tables**

Table 1: SCREENING MEASURES

	SS	df	MSerror	F RATIO	F PROB.
Sex					
Between	.31	2	.16	.84	.44
Within	13.37	72	.19		
Total	13.68	74			
Education					
Between	.63	2	.31	.22	.80
Within	104.04	72	1.45		
Total	104.67	74			
Marital Status					
Between	2.76	2	1.38	2.30	.11
Within	43.18	72	.60		
Total	45.95	74			
Mini Mental Status					
Between	.74	2	.37	.38	.68
Within	69.74	72	.97		
Total	70.48	74			
Reading Level					
Between	10.53	2	5.26	.62	.54
Within	609.49	72	8.47		
Total	620.02	74			
Memory					
Between	22.59	2	11.30	1.06	.35
Within	766.39	72	10.64		
Total	788.99	74			

Table II: Endorsement Patterns  
 Normals, Psychiatric Controls and Depressed Groups

TIME A	SS	df	MSerror	F RATIO	F PROB
Within	407.64	72	5.66		
Constant	14122.55	1	14125.55	2492.92	.00
Group	4.04	2	2.02	.36	.70
Within	261.86	72	3.64		
Content	55.26	1	55.26	15.19	.00
G X C	22.52	2	11.26	3.10	.51
Within	623.74	72	8.66		
Referent	687.20	1	687.20	79.33	.00
G X R	379.05	2	189.52	21.88	.00
Within	1038.58	72	14.42		
C X R	2612.33	1	2612.22	181.10	.00
G X C X R	550.09	2	275.04	19.07	.00
TIME B	SS	df	MSerror	F RATIO	F PROB
Within	402.24	72	5.59		
Constant	13356.75	1	13356.75	2390.83	.00
Group	44.41	2	22.20	3.97	.02
Within	247.08	72	3.43		
Content	10.36	1	10.36	3.02	.09
G X C	8.80	2	4.40	1.28	.28
Within	676.44	72	9.39		
Referent	416.56	1	416.56	44.34	.00
G X R	287.21	2	143.60	15.29	.00
Within	969.93	72	13.47		
C X R	3640.62	1	3640.62	270.25	.00
G X C X R	712.23	2	356.12	26.44	.00

Table III: Endorsement Patterns  
 Comparing Stable, Remitted Depressed and Normal Controls

TIME A	SS	df	MSerror	F RATIO	F PROB
Within	147.77	42	3.52		
Constant	3252.49	1	3252.49	924.42	.00
Group	24.18	2	12.09	3.44	.04
Within	414.77	42	9.88		
Content	53.23	1	53.23	5.39	.03
G X C	999.72	2	499.86	50.62	.00

Table IV: Adjusted Recall Scores  
Normals, Psychiatric Controls and Depressed Groups

TIME A	SS	df	MSerror	F RATIO	F PROB
Within	2.46	72	.03		
Constant	4.55	1	4.55	133.04	.00
Group	.09	2	.05	.05	.27
Within	3.07	72	.04		
Content	.11	1	.11	2.58	.11
G X C	.06	2	.03	.66	.52
Within	2.41	72	.03		
Referent	.00	1	.00	.07	.79
G X R	.07	2	.03	1.04	.36
Within	2.74	72	.04		
C X R	.00	1	.00	.01	.93
G X C X R	.16	2	.08	2.13	.13
TIME B	SS	df	MSerror	F RATIO	F PROB
Within	4.05	72	.06		
Constant	8.53	1	8.53	151.80	.00
Group	.03	2	.02	.28	.75
Within	3.56	72	.05		
Content	.14	1	.14	2.86	.10
G X C	.28	2	.14	2.84	.07
Within	3.61	72	.05		
Referent	.02	1	.02	.50	.48
G X R	.09	2	.04	.87	.42
Within	4.29	72	.06		
C X R	.04	1	.04	.70	.41
G X C X R	.05	2	.03	.46	.63

Table V: Ratio Recall Scores  
 Normals, Psychiatric Controls and Depressed Groups

TIME A	SS	df	MSerror	F RATIO	F PROB
Within	6.40	72	.08		
Constant	42.79	1	42.79	512.33	.00
Group	.16	2	.08	.95	.39
Within	7.02	72	.10		
Content	.14	1	.14	1.43	.24
G X C	.34	2	.17	1.75	.18
Within	14.21	72	.20		
Referent	.48	1	.48	2.41	.13
G X R	1.11	2	.56	2.82	.07
Within	12.46	72	.17		
C X R	8.29	1	8.29	47.89	.00
G X C X R	4.29	2	.08	12.40	.00
TIME B	SS	df	MSerror	F RATIO	F PROB
Within	4.20	72	.06		
Constant	58.18	1	58.18	997.95	.00
Group	.21	2	.11	1.84	.17
Within	2.97	72	.04		
Content	.02	1	.02	.38	.54
G X C	.51	2	.25	6.16	.00
Within	11.33	72	.16		
Referent	.49	1	.49	3.14	.08
G X R	.75	2	.38	2.39	.09
Within	15.35	72	.21		
C X R	15.32	1	15.32	71.84	.00
G X C X R	3.60	2	1.80	8.45	.00



Table VI: Ratio Recall Scores  
 Comparing Stable, Remitted Depressives and Normal Controls

TIME A	SS	df	MSerror	F RATIO	F PROB
Within	2.83	42	.07		
Constant	13.93	1	13.93	206.55	.00
Group	.12	2	.06	.88	.42
Within	6.16	42	.15		
Content	.78	1	.78	5.30	.03
G X C	2.57	2	1.28	8.76	.00

Table VII: Cognitive Patterns  
 Normals, Psychiatric Controls and Depressed Groups

TIME A	SS	df	MSerror	F RATIO	F PROB
BDI					
Between	4404.93	2	2202.47	72.60	.00
Within	2184.19	72	30.34		
Total	6589.12	74			
ATQ					
Between	22186.92	2	11093.46	36.74	.00
Within	21737.16	72	301.91		
Total	43924.08	74			
DAS					
Between	42505.61	2	21252.81	19.42	.00
Within	78813.67	72	1094.63		
Total	121319.28	74			
BVRT					
Between	14283.84	2	7141.92	26.61	.00
Within	19324.24	72	268.39		
Total	33608.08	74			
TIME B	SS	df	MSerror	F RATIO	F PROB
BDI					
Between	1634.45	2	817.23	22.15	.00
Within	2656.29	72	36.89		
Total	4290.75	74			
ATQ					
Between	8386.89	2	4193.44	15.79	.00
Within	19118.79	72	265.54		
Total	27505.68	74			
DAS					
Between	32706.03	2	16353.02	17.48	.00
Within	67341.11	72	935.29		
Total	100047.15	74			
BVRT					
Between	10349.21	2	5174.61	12.94	.00
Within	28785.46	72	268.39		
Total	39134.67	74			

Table VIII: Cognitive Patterns  
 Comparing Stable, Remitted Depressives and Normal Controls

TIME A	SS	df	MSerror	F RATIO	F PROB
ATQ					
Within	10204.41	42	242.96		
Group	10928.78	2	5464.40	22.49	.00
DAS					
Within	41189.78	42	980.71		
Group	24688.13	2	12344.07	12.59	.00
BVRT					
Within	15342.91	42	365.31		
Group	9747.09	2	4873.55	13.34	.00

Table IX: Cognitive Patterns Across Time  
 Comparing Normals, Psychiatric Controls and Depressed

	SS	df	MSerror	F RATIO	F PROB
<hr/>					
BDI A-B					
Within	957.38	72	13.30		
Time	975.65	1	975.65	73.37	.00
G X T	347.19	2	173.60	13.06	.00
<hr/>					
ATQ A-B					
Within	7982.59	72	110.87		
Time	3847.04	1	3847.04	34.70	.00
G X T	1901.17	2	950.58	8.57	.00
<hr/>					
DAS A-B					
Within	26386.86	72	366.48		
Time	2642.92	1	2642.92	7.12	.00
G X T	912.24	2	456.12	1.24	.29
<hr/>					
BVRT A-B					
Within	10504.06	72	145.89		
Time	469.44	1	469.44	3.22	.08
G X T	168.31	2	84.16	.58	.58
<hr/>					

Table X: Consistency Patterns  
 Normals, Psychiatric Controls and Depressed Groups

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SELF-REFERENT DIMENSION:

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A. CONSISTENCY ENDORSED (Depressed content)						
	SS	df	MSerror	F RATIO	F PROB	
Between	284.75	2	142.37	16.59	0.00	
WITHIN	617.92	72	8.58			
TIME	902.67	74				

---

B. CONSISTENCY ENDORSED (Nondepressed content)						
	SS	df	MSerror	F RATIO	F PROB	
Between	618.06	2	309.03	33.13	0.00	
Within	671.62	72	9.53			
TIME	1289.68	74				

---

OTHER-REFERENT:

---

A. CONSISTENCY ENDORSED (Depressed content)						
	SS	df	MSerror	F RATIO	F PROB	
Between	2.06	2	1.03	.52	0.59	
Within	141.22	72	1.96			
Time	143.28	74				

---

B. CONSISTENCY ENDORSED (Nondepressed content)						
	SS	df	MSerror	F RATIO	F PROB	
Between	67.44	2	33.72	3.77	0.03	
Within	643.22	72	8.93			
Time	710.67	74				

---

Table XI: Behavioral Examples  
 Normals, Psychiatric Controls and Depressed Groups

	SS	df	MSerror	F RATIO	F PROB
BETWEEN	474.25	2	237.12	9.56	.00
WITHIN	1786.34	72	24.81		
TOTAL	2260.59				
BETWEEN	310.18	2	155.09	16.26	.00
WITHIN	686.81	72	9.54		
TOTAL	996.99				

Table XII: Self-predicted Behavior  
 Normals, Psychiatric Controls and Depressed Groups

TIME A					
	SS	DF	error	F RATIO	F PROB
AID					
BETWEEN	7092.78	2	3546.39	7.63	0.00
WITHIN	33073.88	72	459.36	0.72	0.00
TOTAL	40166.67	1			
AIP					
BETWEEN	4384.08	2	2192.04	7.13	0.00
WITHIN	22127.86	72	307.33		
TOTAL	26511.94	1			
TIME B					
AID					
BETWEEN	5681.45	2	2840.73	5.77	0.00
WITHIN	35432.87	72	492.12		
TOTAL	41114.32	72			
AIP					
BETWEEN	3059.86	2	1529.94	4.91	0.00
WITHIN	22437.80	72	311.64		
TOTAL	25497.684	1			

Table XIII: Self-predicted Behavior across Time  
 Normals, Psychiatric Controls and Depressed Groups

	SS	DF	error	F RATIO	F PROB
AID A - B:					
WITHIN	8503.15	72	118.10		
TIME	900.73	2	900.73	7.63	0.07
G X T	75.55	1	37.77	.32	0.73
AIP A - B:					
WITHIN	5343.56	72	74.22		
TIME	1863.60	1	1863.60	25.11	0.00
G X T	230.77	2	115.38	1.55	0.21



TABLE XIV  
CORRELATIONS: TIME A (includes all groups combined)

	BDIA	ATQA	DASA	AIDA	AIPA	BVRTA	RDSA	RNDSA
BDIA	1.00	.83***	.65***	.48***	.31**	-.71***	.51***	-.41***
ATQA		1.00	.67***	.56***	.35**	-.59***	.44***	-.28**
DASA			1.00	.51***	.44***	-.56***	.22**	-.20*
AIDA				1.00	.55***	-.60***	.30**	-.25***
AIPA					1.00	-.49***	.21*	-.20*
BVRTA						1.00	.32**	-.37**
RDSA							1.00	-.50***
RNDSA								1.00

CORRELATIONS: TIME B (includes all groups combined)

	BDIB	ATQB	DASB	AIDB	AIPB	BVRTB	RDSB	RNDSB
BDIB	1.00	.72***	.49***	.25**	.18	-.54***	.39***	-.32***
ATQB		1.00	.64***	.37***	.53**	-.62***	.47***	-.46***
DASB			1.00	.46***	.38***	-.62***	.42**	-.45***
AIDB				1.00	.58***	-.56***	.47***	-.38***
AIPA					1.00	-.44***	.32**	-.18
BVRTB						1.00	.42***	-.29**
RDSB							1.00	-.62***
RNDSB								1.00

\*p<.05, \*\*p<.01, \*\*\*p<.000

Note: BDI=BECK DEPRESSION INVENTORY  
 ATQ=AUTOMATIC THOUGHTS QUESTIONNAIRE  
 DAS=DYSFUNCTIONAL ATTITUDE SCALE  
 AID=ASSERTIVENESS INVENTORY (DISCOMFORT)  
 AIP=ASSERTIVENESS INVENTORY (PROBABILITY)  
 BVRT=BARNES VULCANO RATIONALITY TEST  
 RDS=RATIO RECALL DEPRESSED, SELF-REFERENT  
 RNDS=RATIO RECALL NONDEPRESSED, SELF-REFERENT

TABLE XV

TEST-RETEST CORRELATIONS: (includes all groups combined)

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	BDIA	ATQA	DASA	AIDA	AIPA	BVRTA	RDSA	RNSA
BDIB	. <u>78</u> ***	.77***	.55***	.44***	.22*	-.51***	.43***	-.33**
ATQB	.66***	. <u>74</u> ***	.60***	.49***	.31**	-.49***	.32**	-.34**
DASB	.54***	.62***	. <u>77</u> ***	.51***	.36**	-.54***	.34**	-.27**
AIDB	.39***	.38***	.43***	. <u>79</u> ***	.60***	-.58***	.26**	-.27***
AIPB	.19*	.20*	.38***	.46***	. <u>79</u> ***	-.38**	.20*	-.25**
BVRTB	-.58***	-.59***	-.51***	-.56***	-.42***	. <u>71</u> ***	-.32*	.40***
RDSB	.54***	.46***	.43***	.40***	.33**	-.47***	. <u>37</u> **	-.40***
RNSB	-.40***	-.35**	-.36**	-.27**	-.12	-.30**	-.16	-. <u>32</u> ***

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\*p&lt;.05, \*\*p&lt;.01, \*\*\*p&lt;.000

Note: BDI=BECK DEPRESSION INVENTORY  
 ATQ=AUTOMATIC THOUGHTS QUESTIONNAIRE  
 DAS=DYSFUNCTIONAL ATTITUDE SCALE  
 AID=ASSERTIVENESS INVENTORY (DISCOMFORT)  
 AIP=ASSERTIVENESS INVENTORY (PROBABILITY)  
 BVRT=BARNES VULCANO RATIONALITY TEST  
 RDS=RATIO RECALL DEPRESSED, SELF-REFERENT  
 RNS=RATIO RECALL NONDEPRESSED, SELF-REFERENT