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DEPRESSION AND ANXIETY: DISTINCTIONS AND COMMONALITIES

By

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ABSTRACT

DEPRESSION AND ANXIETY: DISTINCTIONS AND COMMONALITIES

By

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Overlap of symptoms and high comorbidity rates have made it difficult to discriminate anxiety and depression as discrete entities. Self-report instruments which broadly sampled symptoms associated with these two disorders were administered to college students in an attempt to determine whether there are distinct clusters of symptoms which can discriminate between these two constructs. Factor analyses linked somatic symptoms of motor tension and autonomic hyperarousal most specifically to anxiety, and fatigue and hopelessness most specifically to depression, supporting the recent findings by Watson and Clark (1995). Further analyses did not support models in which symptoms of anxiety and depression are viewed as largely expressions of a single factor of "neuroticism" or "negative affectivity;" the analyses pointed to clear and potentially meaningful distinctions between symptoms, in spite of their high correlations. A content analysis of widely used instruments for measuring anxiety and depression suggested that the anxiety scales under consideration are more representative of the relevant syndrome than are the depression scales. This may be due in part to the greater homogeneity in the construct of anxiety.

Dedication:

To my family, who have taught me to value the important things in life:

my parents, who taught me to value Integrity,
my sisters, who taught me of real Friendship,
Bruce, who taught me of Love with no limits,
Devon, who taught me the Joy of the interpersonal world,
Justin, who taught me Faith in the spiritual world,
and Jonathan, who taught me Courage: to believe in myself and those around me.

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I acknowledge with gratitude the efforts of my committee members for their assistance in completing what has been for me both an arduous and affirming process. As I moved through my internship year, and began to make the transition from "student" to "professional" in my clinical work, I was aware of parallels with the dissertation, which felt stalled and unwieldy. Much as in a fairy tale, I moved toward completing this process, hitting barriers which had to be slain or hacked through in order to reach the castle; these barriers were largely my own fears of what lay beyond. It brought to mind a fairy tale I learned from my mother about Diana, who was so swift that no one could catch her. She was challenged to many races, until, finally, an admirer threw golden apples in her path. As she stooped to catch them, and dragged them along in her skirts, she was slowed down. At this point in time, I don't recall whether she won the race; I know that she finished. I have been thrown many "golden apples" in my life, and have found that the heaviest and most difficult to shoulder often contained the most enduring and precious gifts. And so, I would like to express my deep appreciation toward the people who have helped me to shoulder my burdens, and in that process, to believe in myself.

Susan Frank was the first professor at State who really invested her time and energy toward facilitating my growth. Her remarkable intellectual and clinical acuity set a

standard which both drew and intimidated me, and ultimately encouraged me to set my own. Susan opened many doors for me both clinically and academically; she challenged my limits and helped me to find and develop my own unique resources. Most importantly, she provided a receptive and constructively critically ear, helping me to refine and structure the ideas which motivated this dissertation. Her faith and friendship have meant a great deal.

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TABLE OF CONTENTS

Chapter Page

LIST OF TABLES

Table Page

CHAPTER I

INTRODUCTION

Depression and anxiety are each complex syndromes, with diverse symptoms, etiological factors, and treatments. This complexity has made it difficult to understand and treat these disorders. There are two factors in particular which have made it difficult to discriminate anxiety and depressive disorders as discrete entities. These factors have complicated research on the etiology and treatment of these disorders. One factor has to do with the high correlations reported between anxiety and depression. There are several reasons for these high correlations. First, there are overlapping symptoms between the two disorders. Second, because of overlapping symptoms, there are measurement problems in distinguishing these two syndromes. There have also been arguments for common etiological factors underlying these disorders (Merikangas, 1990). High comorbidity rates have been reported for these two disorders (Kashani et. al., 1987a; Kashani et al., 1987b; Weissman et al., 1987); researchers have found that as many as 87.5% of individuals diagnosed with major depression had also had an anxiety disorder at some time (Weissman, Leckman, Merikangas, Gammon, & Prusoff, 1984). There is now strong evidence for a theory that anxiety has a direct effect on depression (van Praag, 1994). In addition, some researchers have proposed that the high correlations are due to a common factor, often called "neuroticism" or "negative affectivity" (Watson & Clark, 1984).

The other major factor which has made it difficult to understand and treat anxiety and depressive disorders is their heterogeneity. There appear to be distinct subtypes within each general category which have different implications for etiology and treatment (van Praag et al., 1988; 1990b). The heterogeneity of depressive and anxiety disorders suggest that it may be important to discriminate between different subtypes in order to make sense of paradoxical and inconsistent empirical findings. Because of this heterogeneity, it may be crucial to focus more specifically at the symptom level in order to understand important distinctions and commonalities between the anxiety and depressive disorders.

The current study examines whether there is a unique cluster of symptoms describing depression that can be distinguished from a unique cluster of symptoms depicting anxiety. One possibility is that there are in fact two distinct clusters. In that case, one can then evaluate whether widely used self-report instruments represent a good sampling of those symptom clusters uniquely associated with the relevant disorder. A second possibility, suggested by many authors, is that there are more than one cluster defined by symptoms of anxiety or depression, or by symptoms of both of these disorders. In that event, one can evaluate whether those patterns correspond to predictions associated with a number of theoretical views to be discussed regarding the heterogeneity within, and overlap between, anxiety and depression.

CHAPTER II

THEORETICAL BACKGROUND

Many reasons have been suggested to account for the strong relationship between anxiety and depressive disorders. First, a subset of the same symptoms are often used to diagnose both of these disorders. As a result, many of the instruments used to assess these disorders lack discriminant validity (Gotlib & Cane, 1989). Second, there appear to be common etiological factors, as suggested by family, genetic, and attachment studies. Third, there is evidence of common underlying physiological substrates. Fourth, research on "learned helplessness" has pointed the way to a theory of anxiety driven depression, in which anxiety causes depression (van Praag, 1994). Fifth, assessment issues have complicated attempts to understand these disorders. Finally, there are claims that both anxiety and depression involve maladaptive cognitive processes (Clark & Beck, 1989; Kendall & Ingram, 1989), or alternatively, a general distress factor, which is postulated as the source of the high correlations (Watson et al, 1995a; 1995b)

Symptoms

Two unipolar depressive disorders are described in the Diagnostic and Statistical Manual of Mental Disorders (DSM-III-R; American Psychiatric Association, 1987): major depression and dysthymia. The essential features of major depression are depressed mood and/or loss of interest or pleasure. Other symptoms include change in weight or

appetite, sleep disturbance, psychomotor retardation or agitation, fatigue, feelings of worthlessness, inappropriate guilt, cognitive deficits such as diminished concentration or indecisiveness, and suicidal ideation. Additional symptoms associated with dysthymia include irritability, low self-esteem, and feelings of hopelessness (American Psychiatric Association, 1987). One essential feature which distinguishes between major depression and dysthymia is duration: in the DSM-III-R, dysthymia is defined as a chronic condition with persistent or intermittent symptoms, of at least two years duration. However, in some ways this last distinction may be somewhat artificial, in light of studies which show high rates of dysthymic-major depressive comorbidity Akiskal & Weise, 1992). Reviews of the relevant literature suggest that dysthymia is both a predisposing factor toward (i.e., a prodromal stage of) and a consequence of major depressive disorder (Akiskal, 1994; Akiskal & Weise, 1992).

Several anxiety disorders are described in DSM-III-R, including panic disorder, phobias, obsessive compulsive disorder, and generalized anxiety disorder. The symptoms associated with generalized anxiety disorder include unrealistic or excessive anxiety or apprehension, such as fear of dying, going crazy, or of doing something uncontrolled. In DSM-III-R, the remaining symptoms are grouped under three categories: motor tension, autonomic hyperactivity, and vigilance and scanning. Motor tension includes such symptoms as trembling, muscle tension, aches, restlessness, and fatigue. Symptoms of autonomic arousal include shortness of breath, dizziness, palpitations, sweating, trouble swallowing, abdominal distress, flushes or chills, and frequent urination. Symptoms

associated with vigilance and scanning include feeling keyed up or on edge, exaggerated startle response, concentration difficulties, difficulty falling or staying asleep, and irritability. The individual may also experience feelings of depersonalization or derealization. Panic disorder adds unpredictable attacks of panic to the preceding, whereas phobic disorders are characterized by persistent and irrational fear associated with avoidance of the dreaded object or situation.

As is evident from the previous descriptions, there is a great deal of overlap among symptoms of depression and generalized anxiety disorder. Both anxiety and depression may be accompanied by irritability, dysphoric mood, feelings of tension, apprehension, worry, concentration difficulties, fatigue, and self-preoccupation (Gotlib & Crane, 1989; Sarason, 1985; Spielberger, 1972). Torgerson (1985) found that irritability and anger are more common in individuals with symptoms of both anxiety and depression than in either group alone. Unfortunately, he did not distinguish between irritability and anger in his study, and so these results may be confounded. Mook, van der Ploog, and Kleijn (1990) found indications that the high correlations between anxiety, anger and depression may be due largely to the high correlations between anxiety and anger, and anxiety and depression, respectively.

There are also important differences between anxiety and depressive disorders. Whereas sadness is most often reported by depressed individuals, fear appears to be the predominant affective experience associated with anxiety (Bartlett & Izard, 1972; Izard, Blumber, & Oyster, 1985; Ollendick & Yule, 1990). In a review of descriptive studies,

Breier, Charney and Heninger (1985) found that, across studies, the symptoms which best discriminated depression from anxiety were depressed mood, early morning awakening, suicidal ideation, and psychomotor retardation. The symptoms which best discriminated anxiety from depression were panic attacks, agoraphobia, and compulsive features (Breier et al., 1985). Loss of interest or pleasure, and pessimism have also been noted to discriminate between these disorders (Clark, 1989). These latter findings are consistent with a recent review of studies with children and adolescents, in which Brady and Kendall (1992) found that symptoms of depression, such as anhedonia and low self-esteem, discriminated depression from anxiety. In contrast, symptoms of anxiety were less useful in discriminating between groups (Brady & Kendall, 1992). This may be due, at least in part, to overlap of items between scales in frequently used inventories for children.

Diathesis of Anxiety and Depressive Disorders

Comorbidity

Clinical studies affirm that the high correlations between anxiety and depression are not merely due to problems with self-report. High comorbidity rates using diagnostic criteria have been interpreted by some to imply a common diathesis for these disorders. The diagnosis of depression is often a secondary diagnosis among patients with anxiety disorders (Barlow, 1985, Kashani et al., 1987). In a cross-sectional study, researchers found strong associations between anxiety and depression (Angst, Vollrath, Merikangas, & Ernst, 1990). They found the strongest association between panic disorder and depression: comorbidity rates were five times higher than would be expected by chance.

Longitudinal findings from the Angst and colleagues (1990) study are consistent with other studies which have suggested that symptoms of anxiety are more likely to precede manifestations of depression in individuals who develop symptoms of both disorders (Schatzberg et al., 1990). Angst and his colleagues (1990) found that 62% of those individuals who were eventually diagnosed with both disorders first manifested symptoms of anxiety, compared to 18% who initially manifested symptoms of depression. Pure depression tended to remain stable across the 7 year follow-up period, whereas individuals initially diagnosed with only anxiety tended to manifest symptoms of depression by follow-up. Although these differences were not statistically significant, they may still be meaningful; the small sample sizes in clinical studies tend to favor statistical Type II errors. In the Angst and colleagues (1990) study, half of the purely anxious subjects developed major depression or recurrent brief depression during the follow-up period. This is consistent with other reports which have shown a greater tendency for individuals with anxiety disorders to develop symptoms of depression than for depressed individuals to develop symptoms of anxiety (Hagnell & Gräsbeck, 1990).

Family Studies

Family studies suggest a common diathesis for anxiety and mood disorders. These disorders tend to co-occur in families as well as in individuals. Panic disorder, but not generalized anxiety disorder, appears to have a high specific family prevalence and genetic transmission (Breier, Charney, & Heninger, 1985; Maier, Buller, & Hallmayer, 1988). However, there have been inconsistent reports in the literature as to the heritability and

etiology of mood and anxiety disorders. This may be due, in part, to the practice in some family studies of employing diagnostic exclusion criteria. Studies which have employed exclusion criteria have not supported a relationship between anxiety disorders and depression (Crowe, Noyes, Pauls, & Slymen, 1983), whereas studies which have ignored diagnostic exclusion criteria have supported a strong relationship between panic disorder and major depression, in particular (Leckman, Weissman, Merikangas, Pauls, & Prusoff, 1983). When rates from previous studies which had employed exclusion criteria were recalculated to include secondary depressive disorders, the relationship between anxiety and depression was again supported (Clark, 1989).

In a review of family and genetic studies of parental depression and child psychopathology, Weissman (1990) reported that children of depressed parents are at increased risk for diagnosis of both mood and anxiety disorders. She found no statistically significant differences in frequencies of depression and anxiety in children of parents who had been diagnosed with a mood or anxiety disorder. No significant differences in transmission of anxiety and depression have been found in children even when diagnosis and comorbidity of parents was taken into account (Weissman, Leckman, Merikangas, Gammon, & Prusoff, 1984). However, the small sample sizes in clinical studies often make it difficult to detect meaningful differences.

Studies which have examined the relatives of children with anxiety and depressive disorders have found high rates of both depression and anxiety disorders. In contrast to the previous studies, these studies do show specificity of transmission. For example, when

Puig-Antich and Rabinovich (1986) examined the rates of major depression in relatives of proband children, they found that 39% of anxious children and 55% of depressed children had relatives with major depression (See Table 1). In another study, looking at rates of disorder in mothers of children diagnosed with anxiety disorders, 77.4% of the mothers were diagnosed with anxiety disorders, whereas 42.2 % of the mothers were diagnosed with major depression (Last, Francis, & Hersen, Kazdin, & Strauss, 1987).

Table 1

Rates of Anxiety and Depressive Disorders in Children and Relatives

CHILD DIAGNOSIS	ADULT DIAGNOSIS	
	ANXIETY	DEPRESSION
ANXIETY	77%	39%
DEPRESSION	42%	55%

In conclusion, the evidence from family studies shows a strong relationship between depression and mixed anxiety and depressive disorders. There are conflicting results regarding the specificity of the transmission of these disorders, which may best be resolved by a thorough meta-analysis of the relevant studies. Generalized anxiety has been linked to particularly high rates (70%) of secondary depression. These findings have been taken to indicate that this disorder may be more highly associated with a "general distress" factor than are more specific anxiety disorders (Dohrenwend, 1990; Noyes, Clarkson,

Crowe, Yates, & McChesney, 1987). However, there are also reports of links between panic disorders and depressive symptoms, which would support a "spectrum" model of the mood disorders, in which anxiety is included as one pole of mood dysregulation, with depressed mood describing the opposite pole (Lopez-Ibor, 1990). "Kindling" models suggest that over time the specificity or severity of stressors becomes less important in producing symptoms (Gold, Goodwin, & Chrousos, 1988).

Twin studies

Twin studies also point to similarities in etiology, and provide a better opportunity to differentiate between genetic and environmental factors implicated in the etiology of anxiety and depressive disorders. Twin studies have suggested that differences between individuals in measures of anxiety and depression can best be explained by differences in genes and individual environmental experiences, rather than shared environmental experiences (Jardine, Martin, & Henderson, 1984). Early studies suggested that there were underlying nonspecific hereditary factors which may lead to a predisposition to both anxiety and depressive disorders (Clifford, Hopper, Fulker, & Murray, 1984; Jardine, Martin, & Henderson, 1984), as well as to neuroticism, more generally (Andrews, Stewart, Allen, & Henderson, 1990). However, recent advances in behavior genetics have provided new methods for testing some of these models. Carey and DiLalla (1994) reanalyzed data from Eaves, Eysenck, and Martin (1989) in an attempt to evaluate causal models regarding neuroticism, anxiety, and depression. Their results did not support a causal link from neuroticism to anxiety or depression, nor did it support the existence of a

common higher order factor linking these three constructs.

In a review of recent twin studies, Torgerson (1990) pointed out that, in addition to the common genetic factors which increase susceptibility to symptoms of both anxiety and depression, there are also genetic factors which are only linked to specific symptoms of anxiety. For example, Martin, Jardine, Andrews, and Heath (1988) found that feelings of panic appear to be shaped by genetic influences which do not affect other symptoms associated with anxiety.

Attachment Perspectives.

Research has shown a correlation between the quality of early interactions between parent and child and later development (Murray & Trevarthen, 1985). These correlations have been taken as causal; however, most of the research fails to control for genetics. According to attachment theorists, the caretaker moderates the young child's experience, keeping the child from becoming overwhelmed by strong affect. Over time, the child takes over more and more of these regulatory functions. Early interpersonal experiences become the framework for understanding both self and other via internal representations or 'working models' which guide expectations and actions (Bretherton, 1985). By the end of the first year of life, the child has begun to develop complex working models of human interaction (Kraemer, Ebert, Schmidt, & McKinney, 1991), which facilitate the development of affective self-regulation and the modulation of impulses (Schwalbe, 1991). These models of relationships are believed by many to have longstanding ramifications for the quality of later experiences as well as the ability to moderate affect in later years, with

particular implications for anxiety and depression (Kobak & Sceery, 1988; Kobak, Sudler, & Gamble, 1992).

Recent advances in neurobiological research suggest that adverse early experiences not only impede the individual's ability to moderate their experiences, they also have structural implications for the developing organism; interactions which are responsive to the child's needs appear to facilitate the normal physiological development of the neural structures which underlie affective modulation and well-being (Schore, 1994). Adverse early experiences may impair the individual's ability to self-regulate affective experiences, leaving the individual more vulnerable to becoming overwhelmed by strong affects such as sadness, shame, or fear. The ability to self-regulate affect efficiently allows the individual to cope with stress with fewer costs (Schmale & Engel, 1975). The underlying structure which appears to be critical in the development, storage, and regulation of internal representations linked to the regulation of affective information appears to be dopaminergic (Joseph, 1988; Schore, 1994). This is consistent with research which links deficits in goal seeking behaviors (Swerdlow & Koob, 1987) and "positive emotionality" (Depue, Luciana, Arbisi, Collins, & Leon, 1994) to the dopaminergic system (Swerdlow & Koob, 1987), suggesting that this monoamine may be particularly important in depressions in which anhedonia or psychomotor retardation is a major symptom (van Praag, 1980b). Chrousos and Gold (1992) have delineated two distinct forms of stress system dysregulation: one associated with hyperarousal, and the other taking the form of hypoarousal. These two responses to acute stress are consistent with the vigilance and

arousal activation associated with anxiety, on the one hand, and the psychomotor retardation, fatigue, and anhedonia linked to depression, on the other.

Physiological Studies

Evidence from epidemiological and animal studies biochemically links anxiety and depression. Findings suggest that indices of noradrenergic and neuroendocrine function may be disturbed in both disorders, albeit somewhat differently (Leckman, Weissman, Merikangas, Pauls, & Prusoff, 1983; van Praag, 1994). Some variants of each disorder respond to monoamine oxidase (MAO) inhibitors and tricyclic antidepressants (Uhde, Roy-Byrne, Vittone, Boulenger, & Post, 1985; Weissman, Leckman, Merikangas, Gammon, & Prusoff, 1984). This is not true, however, of generalized anxiety disorder, which, unlike obsessive compulsive disorder or panic disorder, does not respond to MAO inhibitors or tricyclic antidepressants. There is also evidence which suggests that it may be possible to distinguish between subtypes of depression on the basis of differential neurophysiological underpinnings. For example, Weiss and Simson (1985) suggest that anxiety which occurs in the face of uncontrollable stressors produces an accompanying depressive state. This type of depression has been conceptualized as "anxious depression" (Weiss & Simson, 1985) or "5-HT (serotonin)-related, anxiety-driven depression" (van Praag, 1994).

It is more likely that specific symptoms or clusters of symptoms, rather than complex syndromes such as anxiety or depression, will be linked to specific transmitter systems. For example, van Praag and his colleagues (1990a; 1990b) have connected the

initiation and maintenance of goal directed behaviors to the dopaminergic system, hedonic functions associated with reward coupling to the norepinephrine system, and the affective regulation of aggression and anxiety to the serotonergic system. Viewing symptoms in this way helps to clarify why drugs which affect the serotonergic system have been found to be useful in the treatment of both anxiety and depressive disorders, in both of which the modulation of arousal may be an important component, and may be experienced either as hostility, or anxiety. Van Praag (1994) later noted that serotonin related drugs work poorly with some patients; Katz and his colleagues (1994) noted that about one third of depressed patients do not respond to these drugs.

Clinical studies help point to ways in which symptoms of anxiety and depression are tied together at the neurotransmitter level, but can be more clearly delineated when the components are broken down into discrete symptom clusters. For example, Katz and his colleagues (1994) found that biochemical changes in the serotonergic system were more strongly linked to mood aspects of depression, such as hostility and anxiety, whereas changes in the noradrenergic system were more strongly linked to behavioral aspects of depression associated with psychomotor retardation and arousal, such as anxiety, agitation, and somatic symptoms.

Katz and his colleagues (1994) found very different results when considering unipolar versus bipolar responders to the intervention under study. In unipolar responders lower levels of norepinephrine were associated with lower levels of hostility and smaller decreases of norepinephrine were associated with reductions in psychomotor retardation.

Smaller decreases of a serotonin (5-hydroxyindoleacetic acid (5-HIAA); the major metabolite of serotonin) and dopamine metabolite were associated with decreased anxiety. Interestingly, smaller decreases in the norepinephrine metabolite were associated with more positive outcomes, suggesting that it may be crucial to look at actual neurotransmitter levels rather than increases or decreases per se. Bipolar responders showed a somewhat different pattern: smaller decreases in norepinephrine were also associated with decreased motor retardation. However, lower levels of 5-HIAA were associated with decreased depressed mood, and greater levels of the dopamine metabolite were associated with decreased hostility (Katz et. al., 1994). These results support other studies which have affirmed the importance of considering subtype when looking at mood disorders.

These findings also support earlier suggestions (Katz et. al., 1987) of a stronger link between the serotonergic system and anxiety than with dysphoric mood. There is still controversy whether decreases in 5-HIAA in the cerebrospinal fluid is a reflection of enhanced serotonergic transmission (Ericksson & Humble, 1990; Meltzer, 1990). If this link does exist, it would make sense of differences between unipolars and bipolars in the therapeutic action of serotonergic drugs which have been reported (Katz et al., 1994). For bipolars, greater reductions in a 5-HIAA were associated with reductions in anxiety and depressed mood, whereas for unipolars, smaller reductions in 5-HIAA were associated with reductions in anxiety (Katz et al., 1994). This suggests that the role of the serotonergic system is different in unipolar depression, or else that it is not relevant to the

therapeutic action of the drug. In this context, it is notable that anxiety appears to play a larger role in unipolar than in bipolar depression (Katz, Robins, Croughan, Secunda, & Swann, 1982). Serotonergic drugs tend to be more effective in the treatment of disorders in which anxiety plays a major role, than in those in which psychomotor disturbance is prevalent (Deakin, Guimaraes, Wang, & Hensman, 1991; Insel, 1991). These findings affirm the importance of focusing on symptom clusters when trying to understand important differences between anxiety and depression.

Drug trials support the importance of looking at specific subtypes or symptom clusters of anxiety. Consistent with results from family and genetic studies, drug treatment studies support panic disorder, obsessive compulsive disorder, and generalized anxiety disorder as separate nosological entities (Heninger & Charney, 1988).

The literature exploring the concomitants of learned helplessness extends our understanding of some of the physiological underpinnings of anxiety and depressive symptomatology by looking at the effects of chronic or uncontrollable stress. The behavioral deficits associated with learned helplessness include the anhedonia, helplessness, and despair often associated with depressive disorders (Maier & Seligman, 1976; Schutz, Schutz, Orsingher, & Izquierdo, 1979). Severe stress leads to monoamine dysregulation which includes the dopaminergic and noradrenergic systems.

In an attempt to better delineate the functions of these two monoamines, Dubovsky (1993) linked underlying neurological substrates to specific psychobiological functions, rather than to discrete diagnostic syndromes, and found that the noradrenergic

system is most often associated with arousal, orientation to danger, alerting, learning, memory, and sympathetic nervous system functioning. Symptoms associated with noradrenergic dysregulation include agitation, arousal, fearfulness, vigilance, insomnia, and withdrawal (Dubovsky, 1993). Dubovsky links the dopaminergic system to movement, reward, and motivation. Symptoms associated with dopaminergic dysregulation include the psychomotor retardation, anhedonia, helplessness, and despair often associated with depression (Swerdlow & Koob, 1987). Serotonergic dysfunction has been linked to anxiety, aggression, motivation, memory, skeletal muscle function, as well as to regulatory functions such as mood, sleep, appetite, body temperature, and sexual behaviors (Dubovsky, 1993; Cloninger, 1986; van Praag et al., 1990a) . Associated symptomatology includes impulsivity, aggression, suicidality, sadness, anxiety, as well as sleep and appetite disturbances (Apter et al., 1990; Dubovsky, 1993; Soubrie, 1986; van Praag, 1990b).

"Learned Helplessness" and "Serotonin Driven Depression"

The best defined distinct subtype of unipolar depression is a type called "serotonin driven depression" by van Praag (1994). This form of depression was originally hypothesized from results on experiments called "learned helplessness" experiments. This section reviews that research, which strongly links anxiety and depression. The reader is warned that the label "learned helplessness" is now known to be a very misleading label for "learned helplessness" experiments.

The Label "Learned Helplessness"

The original "learned helplessness" experiments took on the following form. Animals were exposed to uncontrolled and inescapable stress. Following this stress, the animals showed performance deficits in escape learning. For example, consider a situation in which untreated animals easily learn a response to escape shock. Following stress, many of these animals were unable to learn the escape response, or they were very slow in learning it. That is, they acted "helpless" in the face of shock. Researchers early on noted that this is similar to the pattern shown by severely depressed patients (Maier & Seligman, 1976; Schutz, Schutz, Orsingher, & Izquierdo, 1979). The "learned helplessness" experiments have subsequently been used as animal models for depression, although there have also been human studies done within the "learned helplessness" paradigm.

The label "learned helplessness" was coined by certain theorists who had formed a similar theory for depression disorders. This theory claims that depression is caused by feelings of helplessness. These feelings are claimed to be produced by a belief in the lack of contingency between one's actions and potential outcomes (Garber, Miller, & Seaman, 1979). Others (Abramson, Metalsky, & Alloy, 1989) have further claimed that feelings of helplessness are caused by self-blame or "internal" attributions for negative events. These theorists interpret the findings of the "learned helplessness" experiments as showing that people learn helplessness from self-blame attributions for stress.

The problem with the label "learned helplessness" is that it is not learned (c.f. Paul, 1988, p. 15). There are several forms of evidence which show this, including findings on

duration and findings on the induction of learned helplessness by drugs rather than by stress (Weiss & Simson, 1985).

Consider duration: Learning without counterlearning lasts for periods of days, months, and years. The behavior deficits for "learned helplessness" experiments wear off completely in 72 hours and are largely gone in 24 hours. Furthermore, Weiss and his colleagues (1981) have noted that effects past 4 hours are probably due to conditioned anxiety which reproduces the anxiety state, which then reproduces the depressed state.

Consider newer studies on the induction of "learned helplessness" behavior deficits using other drugs: Petty, Kramer, and Moeller (1994) reviewed studies showing that "learned helplessness" can be induced by injections of anxiogenic drugs, such as haloperidol. It can be induced by other anxiety producing drugs, as well, such as benzodiazapine receptor ligands (Drugan, Maier, Skolnick, Paul, & Crawley, 1985). That is, there need be no stress manipulation to get the effects of "learned helplessness."

"Learned Helplessness" findings

The key finding of the "learned helplessness" studies can be restated as this: A state of high anxiety produces a delayed state of high depression, in which the subject feels dysphoria, irritability, and anhedonia. The anhedonia eliminates the emotional effects of reinforcement (Ettenberg, 1989) and thus makes it hard to learn from successful experiences, such as the relief from fear produced by a successful escape experience. Anhedonia also makes it hard to elicit previously learned responses that were rewarded by positive reinforcement.

There have also been many studies done on the brain chemistry of the depression produced in "learned helplessness" experiments. These studies suggest that the serotonin effects produced by anxiety result in depleted norepinephrine in the locus ceruleus area of the brain (Paul, 1988), and that it is this depletion which produces the anhedonia of the depressed state.

Anxiety driven depression

The data in "learned helplessness" studies show that a state of high anxiety will produce a state of high depression (Barlow, 1991). That in itself says nothing about trait anxiety and trait depression. But consider the implications of this finding for people with high state anxiety. A person with high state anxiety often experiences states of intense anxiety. Each such experience produces a state of depression which lasts about 4 hours. Thus, a person who experiences a high rate of intense state anxiety will automatically experience a high rate of associated depression.

Van Praag (1980a) made this inference at an early date in this line of research and concluded from this that there should be a subtype of depression caused by serotonin dysregulation. In later reports, he thought that data had disconfirmed this hypothesis (van Praag et al., 1990a). However, in van Praag (1994), he pulled together all the data and showed strong support for this hypothesis. Depressed patients who show low levels of serotonin metabolites in their cerebral spinal fluid are much more likely to respond positively to antidepressants than patients whose first presenting symptoms are of anxiety. Those whose first and only symptoms are those of depression usually do not respond to

tricyclic antidepressants. Furthermore, there is a temporal progression to the recovery. They first show a reduction in anxiety and then later show a reduction in depression.

The one key difference between the van Praag (1994) theory and the simple anxiety-depression hypothesis is that van Praag noted the importance of hostility and aggression to this theory. Serotonin has an even stronger influence on hostility and aggression than on anxiety. Van Praag noted that in the studies done, hostility was equally a part of the pattern. That is, in the patients who appear to be serotonin driven depressives, hostility was an early presenting factor just as often as anxiety. In addition, hostility - like anxiety - showed early reduction in the patients who responded positively to tricyclics.

The van Praag theory is closely related to the epidemiological findings of an asymmetry in the development of anxiety and depressive disorders. That is, those who first develop anxiety frequently go on to develop either full or partial depressive disorders. Those who first develop depression usually do <u>not</u> go on to develop problems with anxiety. Those who develop depression following anxiety disorders would be the serotonin driven depressives. Those who develop depression first and who do not develop anxiety problems are a second type of depressive: those not likely to respond to serotonin-related antidepressant drugs.

It would be interesting to know if hostility/aggression problems show the same asymmetry in time for aggression as that found for anxiety. The van Praag (1994) theory would predict this. However, the epidemiological studies rarely report on hostility and

aggression problems.

Quantitative Theories of Anxiety and Depression

Quantitative theories of state and trait depression consider comparisons rather than extreme cases. Consider then two people, one of whom is higher than the other in trait anxiety. The person who is higher in trait anxiety will be more likely to experience states of intense anxiety which will produce the accompanying state of depression. Thus, the person who is higher in trait anxiety will also be higher in trait depression.

If all depression were caused by serotonin dysregulation, then there would be a near perfect correlation between trait anxiety and trait depression, even though the two are conceptually distinct entities. However, the studies reviewed by van Praag (1994) also show that there are depressed patients who do not respond well to tricyclics and who show a very different temporal pattern in the development of depression.

The implication for the joint relationship of anxiety and depression is this: The data should show that as anxiety goes up, depression goes up. However, as anxiety goes down, depression need not disappear. Rather, those whose depression is not caused by serotonin dysregulation could show up as people with low anxiety, but high depression. Thus, the contingency table for anxiety and depression would be predicted to show an asymmetry: (a) no cases of high anxiety without high depression, but (b) many cases of high depression without high anxiety.

Assessment

An underlying dilemma in defining depression and anxiety has been the multiple meanings of these terms, ranging from affective experiences, to syndromes, to disorders. Many theorists now view each of these disorders along a continuum extending from common affective experiences to diagnosable disorders (Beck & Clark, 1988). Much of the clinical, family, and psychophysiological literature supports this view (Paul, 1988; van Praag et al., 1988). Quantitative studies find no break in the distribution of anxiety and no break in the distribution of depression.

Self-report instruments.

Most anxiety self-report instruments describe features of generalized anxiety disorder (Gotlib & Cane, 1989). Most depression instruments describe symptoms associated with unipolar depression (Gotlib & Cane, 1989). Many anxiety and depression scales correlate between .70 and .90 with other scales measuring the same construct, which would provide good evidence for convergent validity. Correlations between constructs of between .40 and .60 (with a range between .27 and .94; Clark, Beck, & Stewart, 1990) have been reported. Gotlib and Cane (1989) have interpreted the high correlation between anxiety and depression in self-report instruments as a lack of validity in self-report. As mentioned previously, there is considerable overlap between symptoms. If the high correlation were due to overlapping symptoms in the scales, that high correlation might be interpreted as poor discriminative validity. However, there is also high comorbidity between these two disorders. Thus, it is not clear whether the high

correlation between anxiety and depressive instruments is due to poor discriminant validity or to the high comorbidity rates for these disorders (Regier, Burke, & Burke, 1990).

Mountjoy and Roth (1982) found that depression was more often described as persistent in depressive patients, whereas it was more often described as mild or episodic in patients with a primary diagnosis of anxiety.

There were no significant differences between anxious and depressed patients in their self-reports of tension. Some people have accused depressives of exaggerating reports of level of symptomatology and general distress (Prusoff & Klerman, 1974). Kelly and Walter (1969) found that agitated depressives rated their own anxiety as more severe than did anxious patients whose autonomic arousal levels were higher. Even non-agitated depressed patients rated their anxiety as high as did anxious patients, in spite of physiological evidence to the contrary. However, it should be noted that autonomic arousal is not the same as fear and vigilance; a depressed individual's experience of ruminative anxiety may indeed be more severe to that individual even though there may be a lower level of autonomic arousal.

Common Concomitants

Personality Factors

Another method for understanding the comorbidity of anxiety and depressive disorders is by looking at commonalities and differences in personality characteristics. Cloninger (1987; Cloninger, Martin, Guze, & Clayton, 1990) has delineated three dimensions of personality: novelty seeking, described as impulsive versus constrained;

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harm avoidance, described as apprehensive or cautious versus fearless or uninhibited; and reward dependence, described as sensitive to social cues versus detached. Strong associations have been found between harm avoidance and negative mood states, such as hostility, anxiety, depression, fatigue, and confusion (Svrakic, Przybeck, & Cloninger, 1992). Cloninger (1986) contends that individuals high in harm avoidance and reward dependence, and also low on novelty seeking, are more likely to develop either anxiety or depressive disorders (1986; 1988a). Cloninger (1986) suggests that similarities in personality types account for the high comorbidity of these two disorders (1986; 1988a).

There is evidence that the overlap between these two disorders may be primarily due to secondary features; depression is often a sequelae of chronic psychopathology more generally (Cloninger, Martin, Guze, & Clayton, 1990). There are some indications from family studies that there may be little overlap between primary anxiety and depressive disorders, but rather, individuals with anxiety disorders may be at higher risk for developing secondary depression (Cloninger, Martin, Guze, & Clayton, 1981).

Some theorists have suggested that there is a general subjective distress factor, often termed "neuroticism," which has been defined as "a broad dimension of individual differences in the tendency to experience negative, distressing emotions and to possess behavioral and cognitive traits" (Costa & McCrae, 1987, p. 301). Neuroticism is viewed as an enduring emotional instability, and correlates .59 with anxiety and .51 with depression in trait measures (Eysenck & Eysenck, 1968). These correlations are difficult to interpret. There is no independent way to measure neuroticism; the scales which

purport to do so are largely saturated with anxiety and depression items, along with other associated symptoms, such as hostility.

Recovered anxious and depressed patients have been found to be more neurotic than control subjects (Reich, Noyes, Hirschfield, Coryell, & O'Gorman, 1987). "Neuroticism" is also a strong predictor of chronicity (Hirschfield, Klerman, Andreasen, Clayton, & Keller, 1986). In a high-risk study, Hirschfield and his colleagues (1989) found that factors associated with neuroticism, such as decreased emotional stability and poorer accommodation to stressful situations predicted later depressive episodes. However, the high recidivism rates for depression suggest that these individuals may be moving from major depressive episodes to dysthymia; "recovery" may mean alleviation of acute symptoms (Akiskal & Weise, 1992). Not surprisingly, neuroticism, much like anxiety and depression, appears to be largely genetically determined (Henderson, 1982), and genetic factors also appear to be important in predicting the covariation of neuroticism, depression, and anxiety (Jardine, Martin, & Henderson, 1984; Martin, Jardine, Andrews, & Heath, 1988).

More recently, this purported tendency to experience negative emotional states has been conceptualized as a pervasive mood disposition, and has been termed "negative affectivity" (Watson & Clark, 1984). Negative affectivity is measured by symptoms of negative affective states including nervousness, tension, anger, guilt, and sadness. Individuals high in negative affectivity are those who have a heightened sensitivity to life stressors and a negative self-image (Watson & Clark, 1984). Watson and Clark (1984)

claim that it is positive affectivity, or the disposition to experience positive affective states, which may best discriminate between anxiety and depression. In contrast to Watson and Clark, whose conceptualization of both depression and anxiety includes high negative affectivity, Tellegen (1985) has conceptualized only anxiety as high negativity, positing depression as a deficit in positive affectivity. In this way, Tellegen is viewing depression as anhedonia, one predominant symptom of the disorder. Tellegen's view is consistent with indications from the literature that mild depression is more strongly defined by a lack of positive self-evaluations than with a predominance of negative self-evaluations (Beck & Clark, 1991).

Maladaptive Cognitive Processes

Empirical findings link personality characteristics associated with negative temperament to poor outcomes, such as lower self-esteem (Block & Robins, 1993), anxiety, and depression (Watson & Clark, 1984). This may be due, at least in part, to overlap between items in these scales. There are indications that cognitive states can have important implications for affective experiences. For example, self-focus can intensify affective states (Gibbons, 1991). Depression includes a tendency to perseverate on negative events, increasing the experience of negative, but not positive, affect. Alternatively, there are also indications that the absence of positive focus may be more focal than the presence of a negative focus (Beck & Clark, 1991). The rumination and negative expectations often associated with depression may replace active engagement and constructive problem solving. Cognitive models also provide a means for understanding

how anxiety may lead to depression; Carver and Scheier (1991) suggest that when feelings of anxiety disrupt attention, positive versus negative expectations determine whether or not the activity is resumed. Within this framework, a paucity of favorable expectancies leads to disengagement.

Both anxiety and depression are characterized by maladaptive cognitive processes and irrational beliefs. However, there is evidence that the cognitive content of maladaptive cognitions may differ between depressed and anxious individuals (Beck, Brown, Eidelson, Steer, & Riskind, 1987). In anxiety, maladaptive cognitions tend to have an orientation toward a future in which threat or harm is anticipated, whereas in depression the focus tends to be toward past perceived losses, failures, or degradation. These differences in orientation also appear to have implications for how individuals process information. The anxious individual may be hypervigilant for signs of threat or harm, overestimate the possibility of danger, and tend to recall information which is associated with threat or anxiety. In contrast, the depressive may tend to differentially process and recall information associated with loss and failure. Depressed individuals also tend to discount positive self-referential information (Kendall & Ingram, 1989). These types of irrational beliefs and maladaptive cognitions may also be important in helping us to understand and distinguish between distinct subtypes of depression.

Anaclitic and Introjective Depression

In his original and theoretical work, Blatt (1974) claimed that depressed people can be split into two types: anaclitic and introjective depressives. However, when he

moved into research, there was a subtle shift in theories: a shift from types to "styles." This shift obscured the problems for the original theory. The data seem to contradict the original theory.

This section will present the original theory. The empirical work will be briefly reviewed with an emphasis on the two scales for anaclitic and introjective depression. Selected findings for the scales will be reviewed. This evidence seems to disconfirm the original type theory. The evidence may disconfirm the use of the term "depression" in naming the scales. Finally, some hypotheses for this research will be framed.

Blatt's Theory: Subtypes of Depression

Blatt (1974) hypothesized that there are two types of depressives: anaclitic and introjective depressives. His theory is developmental. Depression can be produced from either of two kinds of experience: (a) helplessness and dependency or (b) feelings of inferiority and resulting self-criticism. He posited two types of depressive. First, the anaclitic depressive is characterized by feelings of helplessness, weakness, and dependency. Second, the introjective depressive, presumed to be developmentally more advanced, is characterized by feelings of inferiority, guilt, and fears relating to perceived failure to live up to standards or expectations. Many authors have focused on this dichotomy in their attempts to understand depression (Arieti & Bemporad, 1980; Blatt & Zuroff, 1992; Grinker, Miller, Sabshin, Nunn, & Nunnally, 1961; Pilkonis, 1988).

Blatt's Research: Styles

Blatt devised an instrument using items which were constructed to reflect experiences often reported by depressed individuals, and were not specifically associated with any particular theoretical orientation (Blatt, D'Afflitti, & Quinlan, 1976a). A factor analysis of these items results in three factors. The anaclitic, or dependent, style was described as externally directed with regard to interpersonal relations. The themes included abandonment, loneliness, helplessness, rejection, dependency, and managing negative affect to avoid the loss of the other. The introjective, or self-critical style, was described as more internally directed. The themes included guilt, emptiness, hopelessness, insecurity, dissatisfaction with self, self-blame, failure to meet standards or expectations, and being threatened by change or responsibility. The third factor was identified as "efficacy," with no recognition of the fact that self-efficacy and self-criticism should be negatively correlated with each other. This third factor consisted of items which indicated a sense of confidence regarding one's inner resources and capacities. The themes included a focus on high standards, personal responsibility, a sense of autonomy, and pride in one's accomplishments.

The key output from this research effort is two scales: one scale to measure anaclitic depression and the second scale to measure introjective depression. However, there is a key element missing from that research: no cutoff scores to identify the two depressive types. It may be that the researchers looked at the distributions of scale scores and saw no natural break in that distribution. Thus, they may have been hesitant to choose

such a point. However, there is also no natural break in the distribution of scores on depression scales either: no break in scores for self-report scales such as the Beck Depression Inventory and no break in scores for psychiatric interview scales such as the Hamilton Depression Scale. Nonetheless, useful cutoff scores have been developed for research and practice in regard to depression.

In discussing research, Blatt and his colleagues frequently make a subtle, but important, shift in language: a shift from the language of types to the heavy use of the word "styles." This seems to be an indirect recognition of a shift from considering types to the consideration of quantitative dimensions. However, when this shift is done implicitly, there can be many errors in logic. Type theories are very different in content from dimension theories.

The Correlation Between Anaclitic and Introjective Depression

Perhaps the most important finding for the Anaclitic and Introjective depression scales is the fact that the two scales are positively correlated. This would seem to contradict the original theory of two types of depression.

In the original theory, there are three types of people:

AD= anaclitic depressives
ID = introjective depressives
ND = non-depressives.

Consider the measurement theory behind the development of the Anaclitic depression scale:

Anaclitic depression scale ranges:

High: AD persons
Low: ID and ND persons

Consider the measurement theory behind the development of the Introjective depression scale:

Introjective depression scale ranges:

High: ID persons
Low: AD and ND persons

In a contingency table for the two scales considered together, we should find the entries depicted in Table 2.

Table 2

Contingency Table for the Anaclitic and Introjective Scales

		Introjective Depression	
Anaclitic Depression		Low	High
	High	AD	..
	Low	ND	ID

The number of people in each cell would depend on the severity of depression used to define the depressed type and it would depend on the population studied. In clinical

terms, the level of severity may be defined by whether "minor" depression should be considered or only major depression ("minor" depression is not minor in terms of either impairment or prognosis as noted by Akiskal and Weise, 1992). Consider the general population. If 10% of the population were considered as suffering from serious depression, and if the two types of depression were equally likely, then the table for 100 people would look like the contingency table presented in Table 3.

Table 3

Proposed Proportions of Anaclitic and Introjective Depression in the General Population per 100 People

		Introjective Depression	
Anaclitic Depression		Low	High
	High	5	..
	Low	90	5

Correlation: $r = -.05$.

That is, in a general population, we would expect a low negative correlation between the scales of about $r = -.05$.

On the other hand, consider a patient population. If we considered only depressed people to begin with, the contingency table for 100 people would be as shown in Table 4.

Table 4

Proposed Proportions of Anaclitic and Introjective Depression in a Patient Population per 100 Depressed People

		Introjective Depression	
Anaclitic Depression		Low	High
	High	50	..
	Low	..	50

Correlation: $\underline{r} = -1.00$

In a population of depressed patients, we would expect a perfect negative correlation between the scales of $\underline{r} = -1.00$.

Many studies are done with less well defined "outpatient" samples. The key question is: how many depressives are in the particular outpatient sample? For example, suppose that in the outpatient population, 40% of the patients are depressives. That is, suppose that in the outpatient population, 83% of the non-depressives are screened out. The contingency table would look like Table 5.

That is, in an outpatient population with 40% depressed patients, we would expect a low negative correlation between the scales of $\underline{r} = -.25$.

Table 5

Proposed Proportions of Anaclitic and Introjective Depression in an Outpatient Population in Which There are 40% Depressives

		Introjective Depression	
Anaclitic Depression		Low	High
	High	20	..
	Low	60	20

Correlation: $\underline{r}$ = -.25

To summarize; in the general population, anaclitic and introjective depression should have a low negative correlation of about $\underline{r}$ = -.05. In a population with only depressed patients, that negative correlation would be a perfect $\underline{r}$ = -1.00. In an outpatient population, the correlation would be somewhere between -.05 and -1.00 depending on the percentage of outpatients that are depressed. For an outpatient population with 40% depressed patients, the correlation should be about $\underline{r}$ = -.25.

Eight studies were located with data on the correlation between the Anaclitic and Introjective style scales. In some studies, the sample was an outpatient sample. In some studies, the sample was a student sample that would be similar to the general population. The Blatt, Quinlan, Chevron, McDonald, & Zuroff (1982) study had both outpatients and students. Those two values are listed separately and will be analyzed as if they were from separate studies. Unfortunately, one of the studies did not fully report the correlations. Zuroff, Moskowitz, Wielgus, Powers, and Franko (1983) computed the correlation for

three samples, but report the value for only one sample (N = 39; r = .30). The other two correlations were merely described as "less than .15," so that study could not be used. The studies and the results that could be used are listed in Table 6.

The values in this table vary considerably from one study to another. This is expected in small sample studies because of the large sampling error in such studies. Meta-analysis was used to obtain estimates of the distribution of population values. Several analyses were done and the results are presented in Table 7.

Table 6

The Correlation Between Anaclitic and Introjective Style Scales as Reported in Various Studies

Authors	Sample Size	Correlation	Subjects
Brown & Silberschatz, 1989	60	.51	outpatients
Klein, Harding, Taylor, & Dickstein, 1988	132	.27	outpatients
Blatt, Quinlan, Chevron, McDonald, & Zuroff, 1982	197	.30	outpatients
	262	.10	students
Smith, O'Keeffe, & Jenkins, 1988	188	.04	students
Fuhr & Shean, 1992	150	.47	students
Shapiro, 1988	111	.26	students
McCranie & Bass, 1984	86	-.13	students

Table 7

Meta-Analysis of Correlations Between Anaclitic and Introjective Style Scales

	Number of Studies	Number of Subjects	Mean rho	SD rho
ALL STUDIES	8	1186	.21	.16
OUTPATIENTS	3	389	.32	.02
STUDENTS	5	797	.15	.16

In contrast to the predicted negative correlation between scales, the empirical studies have found a positive correlation between the two style scales. The meta-analysis across all 8 studies found an average correlation of $\underline{r} = .21$. This finding simply disconfirms the type theory.

There is more variation in the correlations than is explained by sampling error (the standard deviation of population correlations is estimated to be SD = .16). Variation would be predicted by the type theory since the correlation is predicted to be much more highly negative for an outpatient population than for a student population. Separate analyses were done for the two types of populations: outpatients and students. For the outpatient studies, the average correlation is a positive $\underline{r} = .32$ with virtually no variation across studies (estimated SD = .02). For the student samples, the average correlation is a positive $\underline{r} = .15$. That is, the correlation is positive for both populations. The correlation is a relatively low +.15 for students and a much higher +.32 for outpatients. These

findings are completely inconsistent with the type theory.

There was one lone study which did find a negative correlation. McCranie and Bass (1984) report a sample correlation of $\underline{r} = -.13$ for a sample of $\underline{N} = 86$ students. However, this is a very small sample and the sample correlation could be negative by chance. The 95% confidence interval for this study is -.34 to +.08. Since the confidence interval does extend into the positive region, it is possible that the negative value is a fluke. If the negative value for this one study is due to sampling error, then all 8 studies show positive correlations.

To summarize; the type theory of anaclitic and introjective depression predicts a negative correlation between the Anaclitic and Introjective depression scales, a low negative correlation for the general population correlation, and a much larger negative correlation for an outpatient population. The fact is that both correlations are positive. The average correlation for students is a positive +.15, while the average correlation for outpatients is an even higher positive +.32. Thus, there is a massive departure between the scale findings and the implications of the original type theory.

Correlations with Depression

There is another potential problem for the type theory. Suppose the two scales are scored 0 and 1 for "low" and "high," respectively. The two scales considered together should perfectly identify depressives (see Table 8).

Table 8

Predicted Sums of Levels for Identification of Anaclitic and Introjective Depressives

Person Type	Level on Anaclitic	Level on Introjective	Sum of Levels
AD	1	0	1 + 0 = 1
ID	0	1	0 + 1 = 1
ND	0	0	0 + 0 = 0

This table shows that there should be a perfect multiple correlation for depression as predicted from the two scales. While there is evidence of positive correlation between each scale and depression scales, there appears to be no check to see if the correlations are as high as required to have a multiple correlation of 1.00.

Research Objectives

Research is needed to establish the exact relationship between depression and the Anaclitic and Introjective depression scales. Since the two scales are positively correlated, the original type theory cannot be correct. However, there is an alternative theory. Anaclitic style and introjective style might be symptoms of depression. If this were true, it would be consistent with the original anecdotal observations that generated the type theory. However, it would also be true that as symptoms of depression, the two would be expected to be highly correlated with each other. As symptoms rather than types, perfect prediction of depression would no longer be predicted.

Consider anaclitic style and introjective style as symptoms. Existing scales for

depression have given little consideration to these traits. This may be an error of omission. On the other hand, the two scales do not appear to be equally linked to depression. The two most frequently used depression questionnaires may be the Beck Depression Inventory (BDI; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961) and the Zung Depression Scale (Zing, 1972). Both are more highly correlated with the introjective style than with the anaclitic style (Blatt, Quinlan, Chevron, McDonald, & Zuroff, 1982). This could mean that the anaclitic style is not a symptom of depression or it could mean that dependency is a key symptom which has been omitted from current scales.

As it happens, dependency might be a symptom for anxiety rather than depression. The Anaclitic scale is more highly correlated with fearfulness and anxiety than is the Introjective scale (Persons, Burns, Perloff, & Miranda, 1993; Zuroff & Mongrain, 1987). Consistent with this, a dependent, or anaclitic, style has been linked to both depression and anxiety disorders in outpatients, whereas the introjective style was only associated with depression (Bagby et al., 1992).

Differences Between Anxiety Symptoms

Research also suggests that it may be important to distinguish between different types of anxiety. Panic disorder is defined by DSM-II-R as generalized anxiety disorder plus panic attacks. Panic disorder is more highly associated with depression than are generalized anxiety disorders. There are specific symptoms of panic disorder, such as panic attacks, which may facilitate definition. It may be more difficult to distinguish the

psychological symptoms of anxiety disorders versus symptoms of depression.

There are indications that it may be useful to distinguish between cognitive symptoms of anxiety and somatic symptoms of anxiety. Cognitive anxiety is characterized by apprehension and worry associated with specific cues, muscle tension, shyness, fatiguability, and behavioral inhibition, whereas somatic anxiety is linked to somatic complaints, high autonomic arousal, and impulsivity (Cloninger, 1988b). Factor analytic studies have shown these to be relatively distinct clusters of symptoms, with some different risk factors (Cloninger, 1988b). For example, Cloninger (1986) found that criminality is associated with increased susceptibility to somatic anxiety and decreased susceptibility to cognitive anxiety. Autonomic and somatic symptoms appear to be also useful in distinguishing between anxiety and depressive disorders (King, Margraf, Ehlers, & Maddock, 1986).

Summary

One way to understand the conflicting reports regarding consistencies versus inconsistencies between anxiety and depression is to look at the themes and specific symptoms associated with each disorder. Some subtypes of depression may be more highly associated with specific symptoms of anxiety than others. For example, somatic symptoms have been more highly linked to anxiety than to depression (King, Margraf, Ehlers, & Maddock, 1986), and yet they have also been linked to a dependent depressive style (Beck, Epstein, & Harrison, 1983). It is important to remember that the "disorders" under consideration in this study are created, to a large extent, by our attempts to classify,

understand, and treat individuals who present with a diverse array of symptoms. These classification structures have evolved along with our understanding, which is always somewhat arbitrary and limited by our preconceptions and limitations. Persons (1986) noted the importance of first delineating the actual psychological phenomena under study in order to be able to build theories which account for those phenomena. In this study, an attempt is being made to delineate the symptoms, or themes, associated with anxiety and depression in order to better understand their interrelationships.

CHAPTER III

PLAN OF ANALYSIS

In this study I will review symptoms of anxiety and depression described in the DSM-III-R, ICD-9, Diagnostic Interview Survey, Research Diagnostic Criteria, and NEO-PI, along with depictions by theorists, such as Beck (1967; Beck, Epstein, Brown, & Steer, 1988), Blatt (1974), Nurcombe and his colleague (1988), Gotlib & Cane (1989), Spielberger (1972), Izard (Bartlett & Izard, 1972; Izard, Blumberg, & Oyster, 1985), Watson and Clark (1984; Clark, 1989), and Tellegen (1985). I will also compile a list of symptoms from two self-report measures of depression (the Beck Depression Inventory; BDI; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961, and the Symptom Checklist-90; SCL-90; Derogatis, Lipman, & Covy, 1973) and two measures of anxiety (the Beck Anxiety Inventory; BAI; Beck, Epstein, Brown, & Steer, 1988, and the SCL-90) which were specifically chosen because they have been found to have good discriminant validity (Gotlib & Cane, 1989). Symptoms will also be compiled from scales which assess guilt, shame, dependency, self-criticism, interpersonal sensitivity, mastery, self-efficacy, self-esteem, hostility, and negative and positive affectivity (see below for a detailed description of these instruments). These constructs have all been depicted as important aspects of anxiety and/or depression. The symptoms and items will be the data which will be used in subsequent data analyses to determine whether there are unique symptoms

related only to depression versus unique symptoms related only to anxiety, and whether current instruments adequately measure those symptoms.

A careful psychometric analysis of these symptoms and items will make it easier to begin to evaluate the instruments, as well as some of the theories which have been presented. It is possible that I will be able to differentiate groups of symptoms which are uniquely associated with either anxiety or depression. In that event, I will be able to evaluate whether the instruments commonly used to measure those constructs contain only relevant items, and also contain an adequate sampling of relevant items. It is also possible that I will be able to differentiate subgroups of anxiety (or depression) symptoms which relate to anxiety (or depression), but relate less well to each other, supporting the heterogeneity hypothesis. A third possibility is that I will be unable to distinguish meaningful clusters which distinguish symptoms of depression from those of anxiety. This would lend support to those theories which have conceptualized anxiety and depression as a continuum of mood disturbances.

For example, Watson and Clark (1984) have suggested that we can better understand the commonalities and distinguishing features of depression and anxiety by looking at aspects of temperament, such as affective dispositions. They have argued for a model in which one higher order category, "negative affectivity," is used to explain the high correlations between anxiety and depression, and the category "positive affectivity" is used to explain the imperfect correlation between those two syndromes. Other theorists (e.g. Tellegen, 1985) have argued that the general category of trait negative affectivity is

uniquely associated with anxiety, whereas it is low positive affectivity which uniquely characterizes depression.

CHAPTER IV

METHOD

Participants

Participants were 179 male and 187 female students between the ages of 17 and 29 (mean = 19) at a large midwestern university. Most of the students were Caucasian (83%), from middle to upper-middle class families. They were recruited from introductory psychology courses, and received credit toward course grades for participation.

Instruments

Demographic Information

Demographic information was collected from the students, including age, religion, social status, and ethnic background.

Depression and Anxiety

The Beck Depression Inventory (BDI; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961) was used to assess symptoms of depression. This scale consists of 84 self-evaluative statements which are grouped into 21 categories, Within each category, there are four item choices which increase in severity from neutral ("I do not feel sad") to severe ("I'm so sad or unhappy that I can't stand it"). Categories include mood, guilt, irritability, crying spells, and sleep and appetite disturbance. Items are scored from 0 to 3.

Scores of 24-63 reflect a severe level of depression; 16-23 suggest more moderate levels; 10-15 indicates a mild level of depression, and 0-9 indicates no depression (Shaw, Vallis, & McCabe, 1987).

Although good split-half reliabilities have been reported (.86, on the average), factor analyses of the BDI with patients have resulted in three primary factors: sad mood/negative self-image, somatic complaints, and psychomotor retardation (Beck & Beamesderfer, 1974; Vredenburg, Krames, & Flett, 1985). Factor analysis of the current data was roughly consistent with this pattern, although researchers have not consistently found this pattern in nonclinical samples (Golin & Hartz, 1979; Lips & Ng, 1985). The BDI correlates well with both other self-report measures of depression, and clinician's ratings (Schwab, Bialow, & Holzer, 1967).

The Beck Anxiety Inventory (BAI; Beck, Epstein, Brown, & Steer, 1988) was used to measure anxiety. The BAI is a 21 item scale derived from an item pool of anxiety symptoms. The items were selected to reflect a broad range of cognitive ("fear of dying"), somatic ("faint"; "feeling hot"), and affective ("scared"; "nervous") symptoms of anxiety, and to reduce overlap with symptoms of depression. The scale has shown good internal consistency (alpha = .92), and has been found to correlate more highly with other measures of anxiety ($\underline{r}$ = .51) than with measures of depression ($\underline{r}$ = .25) in previous studies (Beck et al., 1988).

The Symptom Checklist-90 (SCL-90; Derogatis, Lipman, & Covy, 1973) is a 90-item instrument designed to measure symptoms of psychological distress. The

individual is asked to rate on a 5-point scale (from 1 = not at all to 5 = extremely) how much that problem has distressed them during the past 7 days. Five of the nine possible clusters were included in the inventory in this study: somatization ("headaches"; "faintness or dizziness"), depression ("blaming yourself for things"; "feeling no interest in things"), anxiety ("feeling tense or keyed up"; "the feeling that something bad is going to happen to you"), hostility ("feeling easily annoyed or irritated"; "having urges to beat, injure, or harm someone"), and interpersonal sensitivity ("your feelings being easily hurt"; "feeling very self-conscious with others"). Although some researchers have suggested that this instrument primarily measures one general dimension of psychopathology (Brophy, Norvell, & Kiluk, 1988; Cyr, McKenna-Foley, & Peacock, 1985), both statistically and substantively meaningful factors have been found (Shutty, DeGood, & Schwartz, 1986). This instrument has been found to have good internal consistency and test-retest reliability over short periods of time (Derogatis et al., 1973), and has been found to correlate strongly with other self-report instruments (Gotlib & Cane, 1989).

Personality Dimensions

The Depressive Experiences Questionnaire (DEQ; Blatt, D'Afflitti, & Quinlan, 1976a) was used to assess differences in depressive dimensions. This instrument does not assess symptoms of depression, but rather was designed to reflect differences in attitudes toward self and others believed to be relevant to depression. This inventory consists of 66 items which are rated on a 7-point scale (from 1 = strongly disagree to 7 = strongly agree). In previous studies, three primary factors have been identified and replicated:

Dependency, Self-Criticism, and Efficacy (Blatt, D'Afflitti, & Quinlan, 1976b). These factors also show strong test-retest stability (Zuroff, Moskowitz, Wielgus, Powers, & Franko, 1983). Construct validity was established in previous studies in which the dependent and self-critical scales predicted anaclitic and introjective depressive states, respectively Zuroff, Igreja, & Mongrain, 1990; Zuroff & Mongrain, 1987). For each of the three factors, those items from the manual with factors loadings of over .40, which did not also load significantly on any of the other two factors, were selected for use in the current study.

The Self-Criticism, or Introjective, scale consists of 12 items reflecting dissatisfaction with self, ambivalence toward others, and failure to meet standards or expectations ("there is a considerable difference between how I am now and how I would like to be"; "very frequently, my feelings toward someone close to me vary. There are times when I feel completely angry, and other times when I feel all-loving toward that person").

The Dependency, or Anaclitic, scale consists of 13 items which reflect fears of being rejected or hurting another person, in which pleasing others is very important and strong negative emotions are experienced as threatening to relationships ("I find it very difficult to say "No" to the requests of friends"; "if someone I cared about became angry with me, I would feel threatened that he (she) might leave me").

The Efficacy scale of the DEQ consists of 6 items which reflect achievement strivings and a sense of personal accomplishment ("I set my goals and standards as high as

possible"; "What I do and say has a very strong impact on those around me").

Affectivity was measured by the General Temperament Survey (GTS; Clark & Watson, 1989). The GTS consists of 3 scales which measure distinct aspects of personality. Items are rated as either true or false. The Negative Temperament scale consists of 28 items reflecting negative mood as well as self-concept. Watson and Clark (1993) report that individuals with high scores on this scale often experience sadness, anxiety, and guilt, as well as other negative affects ("I often feel nervous and 'stressed'"; "I am often troubled by guilt feelings"; "I have days that I'm very irritable"). In addition, they are likely to be pessimistic and to have difficulties adjusting to failure or frustration ("I sometimes get too upset by minor setbacks").

In contrast, the Positive Temperament Scale measures the individual's tendency to experience positive affective states. This scale consists of 12 items reflecting positive affect ("I am usually enthusiastic about the things that I do"; "I often feel lively and cheerful for no particular reason"), 12 items indicative of high energy ("Most days I have a lot of "pep" or vigor"), and 3 additional, nonspecific, positive temperament items ("I am usually alert and attentive"; "I get excited when I think about the future"; "I get pretty excited when I'm starting a new project"). Individuals who score highly on this scale tend to be cheerful and enthusiastic, and report more satisfying social interactions (Watson, 1988; Watson & Clark, in press).

The Disinhibition versus Constraint Scale of the GTS consists of 35 items tapping traits thought to be relevant to the construct of disinhibition. Sample items include "I

rarely, if ever, do anything reckless" (scored negatively); "I really enjoy beating the system"; and "taking care of details is not my strong point". In preliminary investigations, a longer version of this scale correlated highly with scales measuring Impulsivity (.68); Irresponsibility (.63); Risk Taking (.59); (Low) Persistence (.56); Playfulness (.54); Norm Rejection (.49); Danger Seeking (.47); and Disorganization (.40; Watson & Clark, 1993). Individuals who score highly on this scale are likely to be easygoing and somewhat irresponsible; to enjoy spontaneity, change, and excitement; and to have little motivation to conform to rules or to pursue traditional values.

Preliminary investigations suggested that these three scales correlate well with instruments measuring similar constructs. In previous investigations, the Negative Temperament scale correlated .72 with the Negative Emotionality scale of the Multidimensional Personality Questionnaire (MPQ; Tellegen, in press), and .84 with the Neuroticism scale of the Eysenck Personality Questionnaire (EPQ; Eysenck & Eysenck, 1975; (Watson & Clark, 1993; Watson & Clark, in press). Positive Temperament correlated .76 with the Positive Emotionality scale of the MPQ, and .68 with the Neuroticism scale of the EPQ. The preliminary measure of disinhibition correlated -.56 with the Constraint scale of the MPQ, .55 with the Psychoticism scale of the EPQ, and -.61 with the Conscientiousness scale of the NEO Personality Inventory (NEO-PI; Costa & McCrae, 1985) (Watson & Clark, 1992).

Affective Self-Evaluations

Measures of self-evaluations, which have been enumerated as symptoms of depression were included in an Affect Inventory composed of items from four scales. Self-esteem was measured with the Rosenberg Self-Esteem Scale (Rosenberg, 1965). Items are endorsed on a 5-point scale from strongly disagree (1) to strongly agree (5), and include "on the whole, I am satisfied with myself".

Mastery was assessed using the Mastery Scale from the Offer Self-Image Questionnaire (Offer, Ostrov, & Howard, 1989). This scale consists of 10 items which are endorsed on a 5-point scale from strongly disagree (1) to strongly agree (5), and include "If I put my mind to it I can learn almost anything". This scale has shown adequate concurrent validity (Ostrov et al., 1989).

Guilt was measured by the Chang and Hunter Guilt Scale (Chang, 1988). This scale consists of 9 items based on a definition of guilt in terms of perceptions of self as causing harm to others and efforts toward making reparations when harm has been done. Items include "Sometimes I cannot forgive myself for having caused deep pain in those I love or care for". Items are rated on a 5-point scale from strongly disagree (1) to strongly agree (5).

Global shame was measured by items from the Internalized Shame Scale (ISS: Cook, 1985) as selected by Chang and Hunter (Chang, 1988). The revised Shame Scale consists of the 11 items found to measure shame (e.g., "I feel like I am never quite good enough"), eliminating those which Chang found to address other constructs. The items

are negatively worded, and are rated on a 5-point scale ranging from never (1) to almost always (5).

Procedure

The self-report measures described previously were administered to the students in a group setting. Participants were informed that the purpose of the study was to better understand the affective experiences of college students. They were also informed as to their rights as subjects. To ensure anonymity, data were identified only by code numbers. Participants received extra course credit for their participation.

CHAPTER V

RESULTS

Hierarchical Structure of the Data Analysis

The analysis of the data for this dissertation is hierarchical in nature. Since hierarchical analysis is unfamiliar to many readers, this first section of the results section will outline the steps in the hierarchical analysis. The specific steps in the actual analysis will then be presented in detail.

Terminology

The items selected were those which various authors have used to define "anxiety" and "depression". These items can be considered using two different psychological terminologies. The psychiatric orientation focuses on a short term way of thinking, perhaps best captured by the word "symptom". Symptoms are assumed to vary considerably over time depending on environmental stress as well as the underlying status of the individual; the latter may be especially variable in the case of people diagnosed with bipolar disorders. Much of the present data is discussed in these terms.

The second terminology being utilized may best be conceptualized using the language of trait theory. For example, most psychologists would expect shame and self-esteem to be long-term personality traits showing only slight variation over short durations, such as a week or a month. For such items, the natural terminology would be

terms such as "characteristic" or "trait". The terminology used here will vary from one item to another depending on the typical usage pattern in clinical psychology, though at this point there is no attempt to sort the items in terms of etiology or assumed time variation.

The Hierarchical Structure of Symptoms

The single items collected in this study are directed at specific experiences or specific facts. The concept of "symptom" is a higher order concept. A symptom such as "feelings of dependency" could be expressed in a variety of experiences. Thus, we would predict that items would form clusters in which the items within a given cluster all measure the same symptom as expressed by different specific experiences.

The concepts of "anxiety" and "depression" are higher order concepts. For example, depression is thought to be expressed in various symptoms such as anhedonia or dysphoria. There is no established language for this higher level, although the word most often used is "syndrome". In this way, items can be grouped in a hierarchical pattern. At the first level, items can be clustered in terms of the symptoms they measure. At the second level, symptoms can be clustered in terms of the syndrome that is expressed.

Some authors (cf. Watson & Clark, 1992; Watson, Clark, & Carey, 1988) have argued for a still higher order factor. In the case of the symptoms considered in this thesis, the relevant highest order concept is that of "neuroticism" or "negative affectivity". Many current authors (cf. Clark, Watson, & Mineka, 1994) consider both anxiety and depression to be expressions of this higher order trait, along with loneliness, shame, self-

consciousness, and other negative affects. Some authors include hostility in this higher order trait.

The full hierarchical clustering scheme could be considered as a nested classification of the items at the following levels:

Level 1 - items are clustered by symptom

Level 2 - symptoms are clustered by syndrome

Level 3 - syndromes are clustered by major personality factor.

In this thesis I conducted data analyses at all of these levels.

Items and Symptoms or Characteristics

I began with 290 items. However, there was never any consideration of the possibility that there are 290 different symptoms or characteristics to be measured. Rather, it was assumed that items could be clustered into sets in which the items within a set measure the same symptom or characteristic. For simplicity, this section will be written in the language of symptoms, even though characteristics will be also be considered in the analysis.

At the first level of analysis, the items were clustered into symptoms. This was initially done using content analysis. The clusters were then evaluated using confirmatory factor analysis. A major problem revealed by the confirmatory factor analysis was with items using a binary response format. Items using a binary response format suffer from a response set problem that was not anticipated when the study was designed; a key article detailing this problem by Green, Goldman, and Salovey (1993) had not been published

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until after the data were gathered. This issue will be discussed in detail following the presentation of the content analysis. However, due to the problems encountered with the binary items, those items were dropped from the analysis. That is, in spite of regrets over the content lost thereby, the items from the Watson and Clark inventory measuring aspects of negative affectivity, positive affectivity, and disinhibition versus constraint were discarded from this analysis.

Without the Watson and Clark items, there are 200 items that were classified into 29 clusters. That is, the items under analysis cover 29 different symptoms or characteristics identified by the content analysis. On average there are about 4 items measuring each symptom or characteristic. However, there is a great deal of variation in the number of items written to cover each symptom or characteristic. Once the binary items were removed, the confirmatory factor analysis showed good fit for the clustering of the items.

Consider the items in a cluster measuring one symptom, such as "fear" (although the longer word "apprehension" would fit the content more closely). With the binary items discarded, there were 11 items identified in the content analysis as measuring fear. It is thus possible to use these items to define a fear scale. This scale would measure the symptom of fear, although that measurement would be imperfect. The internal consistency of the fear scale was .89, so the measurement is quite good: a correlation of the square root of .89 (.94) between the scale score for fear and the fear construct itself.

Authors differ in the extent to which they have considered various symptoms in

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defining the constructs of anxiety and depression. Some symptoms have been given only slight consideration by any authors. This was very much evident in the present data. For example, the cluster measuring Psychomotor Tension had 10 items and Autonomic Hyperarousal had 17 items; however, there were many symptoms represented by only two items and some symptoms were represented by only single items. The symptoms represented by the latter items were regarded as poorly measured.

Symptoms: Scales and Constructs

The actual symptom of fear is the construct measured by the Fear scale. The scale is only an imperfect measurement of that symptom. If more fear items were used, the reliability would go up and the scale would be a better measure of the symptom.

Using confirmatory factor analysis, it is possible to obtain estimates of the correlations between symptoms rather than the correlations between scales. These correlations are corrected for the attenuation produced by error of measurement in the scales (see Appendix B).

The problem with the estimated correlations between constructs is that many symptoms were measured by only one or two items. The reliability of such scales tend to be very low and thus correction for attenuation requires a large adjustment in the size of the correlation. This greatly exaggerates the problem with sampling error. A large adjustment greatly increases the sampling error in the estimated correlation. In some cases, the sampling error can cause an estimated correlation to be larger than 1.00: an outcome which is primarily troublesome for those not well trained in reliability theory. A

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population correlation cannot be larger than 1.00, but a sample correlation corrected for error of measurement can be larger than 1 because of sampling in the estimation process. Thus, for those symptoms measured by very few items, the corrected correlations must be interpreted with great care.

Symptoms and Syndromes

The key questions in the controversies over the definition of "anxiety" and "depression" can be stated at the next level of the hierarchical analysis; are there separate syndromes for anxiety and depression? If so, which symptoms define each syndrome?

The key statistical analysis for this question starts with the correlations between symptoms. Are there two clusters of symptoms that can be identified as anxiety and depression, respectively? If so, which items belong to each cluster?

One method by which such questions have been considered in the literature has been exploratory factor analysis: sometimes referred to simply as "factor analysis". Advocates for exploratory factor analysis claim that this method will identify the underlying factors and the corresponding clusters of variables that measure each factor. Exploratory factor analysis was done for the symptom correlations: one analysis of the symptom construct correlations (i.e., corrected for attenuation) and another analysis of the symptom scale correlations (i.e., not corrected for attenuation).

There are two fundamental problems with exploratory factor analysis: (a) it assumes uncorrelated basic traits and (b) it ignores causal relations between variables. If these two conditions are not met, then exploratory factor analysis may give very

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misleading results. For highly correlated constructs that are causally related to each other, the only form of factor analysis that gives good estimates of factor correlations is confirmatory factor analysis.

Consider anxiety and depression: By whatever form of measurement, the literature has consistently shown these two syndromes to be very highly correlated. Furthermore, all current theories predict that they should be highly correlated (or "co-morbid" in the case of extreme cases). High anxiety should cause depression because of the neural physiology of the anxiety process. High anxiety causes a depletion of norepinephrine which results in state depression (Weiss & Simson, 1985). On the other hand, people who suffer depression also suffer many impairments of social and work life. This in turn would create stress and accompanying anxiety.

In this way, current theory regarding anxiety and depression predicts that the mathematical factors of exploratory factor analysis will be far removed from the actual syndromes that cause the symptoms. For this reason, the exploratory factor analysis will be considered only as a hypothesis generating device. The real test of the syndrome model will be made using confirmatory factor analysis.

The Structure of the Results Section

The results themselves will be developed in segments. The first segment will consider the process of clustering items to form scales that measure symptoms and characteristics. This section will present the content analysis and briefly discuss the problems caused by the binary item format used in the Watson and Clark inventory. The

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key outcome from this segment is that the 200 non-binary items measure 29 symptoms and other characteristics. The correlations between these symptoms are the basic results to be used to test the various syndrome hypotheses for anxiety and depression.

The second segment presents the results of the analysis of the correlations between symptoms. This will include a discussion of the exploratory factor analysis, even though that analysis was flawed by the high correlations between the basic constructs measured. In addition to the high correlation between anxiety and depression, there were also high correlations between those syndromes and other syndromes and characteristics.

The confirmatory factor analysis shows that the 29 symptoms do indeed define 10 higher order syndromes and traits. Two of these syndromes are tentatively defined as "pure" measures of anxiety and depression while two other syndromes are defined as "mixed" measures of anxiety and depression. There are 6 other syndromes or traits defined by the 29 basic symptoms and characteristics.

The third segment of results will start with the correlations between the 10 syndromes identified by clusters of symptoms. A key fact is the very high correlation of .75 between pure anxiety and pure depression, which matches the high level of co-morbidity found in epidemiological studies. Various causal interpretations of these correlations can be considered.

Some authors have argued that all of the syndromes defined in this thesis can be considered as expressions of one underlying trait called "neuroticism" or "negative affectivity". This hypothesis will be considered and a factor analysis of the 10 syndromes

will be considered in this regard. Much important information is lost if only the higher order factor is considered and the individual syndromes are ignored.

Items and Symptoms

This segment presents 1) reliabilities of the original scales from which the item pool was derived and 2) an analysis of the 290 items into clusters that measure symptoms and other characteristics.

Reliabilities

Depression and anxiety. Internal consistency for the BDI was .90 in the current sample. In the current study, the BDI correlated highly with the SCL-90 depression scale (.72), yet also correlated highly with anxiety scales (.65; .67). This is consistent with other researchers who have found poor discriminant validity between the BDI and measures of anxiety (Mullaney, 1987). The reliability coefficient for the BAI in the current sample was .93. The BAI correlated highly with the other measure of anxiety (r = .82), but did not show good discrimination from the measures of depression (rs = .65; .74). Internal consistency for the scales of the SCL-90 in the current study were .88 (somatization), .87 (anxiety), .91 (depression), .79 (hostility), and .86 (interpersonal sensitivity).

Personality dimensions. Internal consistency findings for the DEQ were .82 for the Introjective scale, .73 for the Anaclitic scale, and .75 for the Efficacy scale. Internal consistency findings for the GTS were .88 for the Negative Temperament scale, .85 for the Positive Temperament, and .79 for the Disinhibition scale.

Affective self-evaluations. Internal consistency for the Rosenberg Self-Esteem Scale was .86 for the present sample. Internal consistency for the Mastery Scale was .71. Internal consistency for the Chang and Hunter Guilt Scale was .77. Internal consistency for the revised Shame Scale was .92.

Items and Symptoms

The first step was a content analysis of all items included in the study (See Appendix A). This was followed by a confirmatory factor analysis to test the content model (See Appendix B).

The confirmatory factor analysis showed three sets of problems. The most severe problem was caused by the binary response format for the General Temperament Survey (GTS) Inventory. These data showed the same response set problem reported by Green, Goldman, and Salovey (1993), who showed how the use of forced-choice format can distort results because of systematic response bias. As a result, several clusters were split into binary and non-binary clusters. For example, an initial "worry" cluster was split between "worry" and "worry-binary". There are ways to statistically reduce the effect of the binary response set, but the GTS inventory does not have the right mix of items to use those methods. So ultimately all clusters measured using the binary format were dropped.

The confirmatory factor analysis also showed problems for two other original clusters. The SCL-90 cluster for "interpersonal sensitivity" was not questioned in the original content analysis. However, the confirmatory factor analysis showed that it is multidimensional and needed further analysis. This ultimately produced two clusters

called "Unliked" and "Self-Conscious." The confirmatory factor analysis also showed problems for the "Worry" cluster.

A Priori Content Analysis

The initial content analysis focused on symptoms associated with anxiety and depression. Exemplars were taken from manuals of clinical diagnostic criteria, such as research diagnostic criteria, and theoretical and empirical papers, with special attention given to the DSM-II-R criteria to ensure that the symptoms under study reflected the dimensions which have been depicted as important in diagnosing these disorders. Special attention was also given to those theorists who have delineated explicit theories about factors associated with depression and/or anxiety, and developed instruments using those factors, such as Beck. These sources were chosen, as mentioned previously, because the instruments in question have been found to have good discriminant validity (Gotlib & Cane, 1989). An attempt was made to sample the relevant literature broadly, across theoretical perspectives, for symptoms which would be accessible through self-report.

The symptoms, or themes, were then divided into 3 groups: those associated with depression only, those associated with anxiety only, and those associated with both depression and anxiety. The symptoms most specifically associated with depression included dysphoria, low self-esteem, indecisiveness, hopelessness, psychomotor retardation, anhedonia, feelings of guilt or worthlessness, and suicidal ideation. Those symptoms most specifically linked to anxiety included feelings of worry, anxiety, disquietude, and irritability; vigilance; fears of dying or being out of control; somatic

symptoms, such as shortness of breath, dizziness, chest pains, aches, flushes, numbness, and an exaggerated startle response; depersonalization or derealization; and shyness. Symptoms which were linked to both anxiety and depression included appetite disturbance and abdominal distress, sleep disturbance, fatiguability, concentration difficulties, and agitation.

A content analysis of the items from all scales was performed, which yielded the following themes: Fear, Motor Tension, Autonomic Hyperarousal, Vigilance, Irritability, Insecure, Upset, Tense, Worry, Dysphoric Mood, Fatigue, Energy, Enthusiasm, Sleep Disturbance, Appetite Disturbance, Cognitive Disturbance, Dependency, Insufficiency, Need for Approval, Self-Critical, Anhedonia, Self-Esteem, Efficacy, Unstable, Guilt, Anger, Hostility, Negative Affectivity, Positive Affectivity, Hopelessness, Suicidality, Interpersonal Sensitivity, Impulsivity, Irresponsible, Playful, Antisocial, Sensation Seeking, Disorganized, and Ambitious. Also included in the analysis were the clusters formed by the Rosenberg Self-Esteem Scale (SE), the Mastery Scale (Mastery), the Cook Shame Scale (Shame), and the Chang-Hunter Guilt Scale, respectively. Each of these scales was homogeneous enough to be included in the analysis as complete clusters. A complete list of items in each cluster is included as Appendix A.

The "Fear" cluster consisted of five items from the Beck Anxiety Inventory (BAI), five items from the Anxiety subscale of the Symptom Checklist (SCL-90), and one item from the Depression subscale of the SCL-90: "feelings of being caught or trapped." The items within this cluster depicted general feelings of fearfulness and apprehension, such as

"the thought that something bad is going to happen to you," as well as specific fears, such as "fear of dying" and "fear of losing control."

The "Motor Tension" cluster consisted of four items from the Somatization subscale of the SCL-90, three items from the Anxiety subscale of the SCL-90, and three items from the BAI. The items depicted many of the types of motor tension symptoms often associated with anxiety, such as aches, pains, shakiness, and trembling.

The third cluster, "Autonomic Hyperarousal," consisted of 11 items from the BAI, five items from the Somatization subscale of the SCL-90, and one item from the Anxiety subscale of the SCL-90. It consisted of items associated with autonomic hyperarousal, such as dizziness, abdominal discomfort, heart pounding or racing, and hot or cold spells.

Cluster 4 was defined by symptoms of "Vigilance," often associated with anxiety disorders. It was composed of two items from the BAI: "unable to relax" and "nervous," and one item from the Anxiety subscale of the SCL-90: "feeling tense or keyed up."

Cluster 5, "Irritability," was composed of one item from the Beck Depression Inventory (BDI), and one item from the Hostility subscale of the SCL-90, which were characterized by feelings of extreme or excessive irritability.

The sixth cluster was characterized by "Insecurity," especially as regards relationships, and consisted of two items from the Introjective subscale of the Depressive Experiences Questionnaire (DEQ).

Clusters 7 through 9 consisted of items describing feelings often associated with general distress, or "negative affectivity." Cluster 7 was termed "Upset," and consisted of

four items from the NA subscale of the GTS, which described a tendency to become overly upset at small setbacks. Cluster 8 was termed "Tense." It consisted of three items from the NA subscale of the GTS which described a tendency to feel tense, stressed, or "on edge." The ninth cluster was termed "Worry." It consisted of one item from the BDI: "I am so worried about my physical problems that I cannot think of anything else," and one item from the Depression subscale of the SCL-90: "worrying too much about things."

Clusters 10 and 11 described symptoms often associated with depression. Cluster 10, termed "Dysphoric Mood" consisted of 3 items from the Depression subscale of the SCL-90 and 2 items from the BDI. These items described many of the feelings often associated with depression, such as loneliness, sadness, and tearfulness. Cluster 11, on the other hand, consisted of symptoms of the "Fatigue" which is often associated with depression. This cluster consisted of two items from the Depression subscale of the SCL-90, two items from the BDI, and one item from the NA subscale of the GTS. The items depicted lethargy, tiredness, and the feeling that life "feels like a big struggle."

Clusters 12 and 13 consisted of items from subscales of the Positive Temperament (PA) subscale of the GTS. Cluster 12, "Energy," consisted of all 12 items of the "Energy" subscale, and described an active, energetic, fast-paced lifestyle. Cluster 13, "Enthusiasm," consisted of three items from the Positive Temperament subscale and two items from the general Positive Affect subscale. The items depicted an enthusiastic and excited attitude toward life.

Clusters 14 through 16 described some of the disturbances often associated with

depression. Cluster 14, "Sleep Disturbance," consisted of one item from the BDI and one item from the NA subscale of the GTS, describing sleep difficulties most often associated with endogenous, or more severe, depression. Cluster 15, "Appetite Disturbance," consisted of two items from the BDI describing lack of appetite and extreme weight loss. Cluster 16, "Cognitive Difficulties," consisted of two items from the NA subscale of the GTS describing mental confusion and troubling thoughts or ideas.

Clusters 17 through 19 each consisted of items from the DEQ which focus on interpersonal needs. Cluster 17, "Dependency," consisted of eight items from the Anaclitic subscale of the DEQ, describing intense needs for interpersonal relatedness and difficulties in being alone. Cluster 18, "Insufficiency," consisted of two items from the Introjective subscale of the DEQ which describe feelings of helplessness and emptiness. Cluster 19, "Need for Approval," consisted of five items from the Anaclitic subscale of the DEQ which are characterized by a focus on attempting to please others as well as fears of being criticized by or offending others.

Cluster 20, "Self-Critical," consisted of three items from the BDI and one item from the Introjective subscale of the DEQ which are characterized by self-blame, self-hatred, and feeling of failure.

Cluster 21, "Anhedonia," consisted of three items from the BDI and two items from the Depression subscale of the SCL-90, and is characterized by feelings of disinterest, boredom, and a lack of positive investment in living.

Clusters 22 and 23 focused on feelings of self-esteem and self-efficacy. Cluster 22,

"Self-Esteem," consisted of three items from the Self-Efficacy subscale of the DEQ, one item from the Interpersonal Sensitivity subscale of the SCL-90, and one item from the Depression subscale of the SCL-90. These items address a sense of inner strength and worth. Cluster 23, "Efficacy," consisted of three items from the Self-Efficacy subscale of the DEQ, which describe high goals, standards, and expectations.

Cluster 24, "Unstable," consisted of two items from the Introjective subscale of the DEQ, which describe extreme variability in feelings toward self and others.

Clusters 25 through 28 each was characterized by negative affect. Cluster 25, "Guilt," consisted of one item from the BDI, and one item from the NA subscale of the GTS which described feelings of guilt. Cluster 26, "Anger," consisted of three items from the NA subscale of the GTS describing frequent, uncontained, or irrational anger. Cluster 27, "Hostility," consisted of five items from the Hostility subscale of the SCL-90 and one item from the Interpersonal Sensitivity subscale of the SCL-90 and consisted of items describing feeling critical toward others, temper outbursts, and aggressive urges. Cluster 28, "Negative Affectivity," consisted of two items from the NA subscale of the GTS which describe general negative affectivity in terms to vague to be included in those clusters which describe more specific negative feelings.

Cluster 29, "Positive Affectivity," consisted of six items from the Positive Affect subscale of the GTS, which characterize a positive, active investment in life and living.

Clusters 30 and 31 depicted some of the more severe symptoms associated with depression. Cluster 30, "Hopelessness," consisted of one item from the BDI and one item

from the Depression subscale of the SCL-90 describing feelings of hopelessness. Cluster 31, "Suicidality," consisted of one item from the BDI and one item from the Depression subscale of the SCL-90 describing the desire to end one's life.

Cluster 32, "Interpersonal Sensitivity," consisted of eight items from the Interpersonal Sensitivity subscale of the SCL-90, describing feelings of self-consciousness and uneasiness with others, as well as fears of being disliked or regarded as inferior.

Clusters 33, 34, and 35 consisted of items from the Disinhibition scale of the GTS. Cluster 33, "Impulsivity," consisted of eight items which are characterized by a somewhat reckless, incautious, and unreasoned stance toward life. Cluster 34, "Irresponsibility," consisted of one item which is reverse scored: "I am a serious-minded person." Cluster 35, "Persistence," consisted of one item which is reverse scored: "I work just hard enough to get by." This item was also included in Cluster 40.

Cluster 36, "Playful," consisted of three items from the Positive Affect subscale of the GTS which are characterized by feelings of enthusiasm and playfulness.

Clusters 37 through 40 consisted largely of items from the Disinhibition subscale of the GTS. Cluster 37, "Antisocial," consisted of 11 items characterized by a lack of regard for accepted rules and standards for social behavior, as well as a willingness to hurt others to obtain a desired goal. Cluster 38, "Sensation Seeking," consisted of eight Disinhibition items, as well as one Positive Affect item, which are characterized by a desire for excitement, novelty, and thrills. Cluster 39, "Disorganization," consisted of one item: "taking care of details is not my strong point." Cluster 40, "Ambitious," consisted of two

items which describe a willingness to work hard to achieve desired goals.

Clusters 41 through 44 consisted of the "Rosenberg Self-Esteem Scale," the "Mastery Scale," the items from the "Cook Shame Scale," and the "Chang-Hunter Guilt Scale," respectively. These scales have been described in detail in the Method section.

Confirmatory Factor Analysis of Items

A confirmatory factor analysis tested empirically the item clusters identified by the content analysis. The results of the confirmatory factor analysis are considered cluster by cluster. For each cluster, it was possible to check to see if the items in that cluster form a coherent or "unidimensional" set.

In order for a set of items to be unidimensional, they must all measure the same construct. For this data, that means that all items must measure the same symptom or the same trait. This is tested in confirmatory factor analysis by examining each cluster for internal consistency - the pattern of correlations among items in the same cluster - and for parallelism - the pattern of correlations between the items in that cluster and the other symptoms and characteristics measured.

The confirmatory factor analysis also computes the alpha or Spearman-Brown reliability of each cluster.

Binary format response set. The main clusters manifesting severe problems were clusters with items from the General Temperament Survey (GTS) which uses a binary response format. The binary items were not parallel to the other items. The binary items showed much stronger correlations with all GTS clusters than did the non-binary items.

The binary items across different clusters such as "Irritability" or "Fear" correlated much more highly with binary items from the other clusters than did the other, non-binary, items.

This pattern of correlation for binary response format items has been found in other studies (as reviewed in Green, Goldman, & Salovey, 1993). The fact that this pattern derives from a binary format response set was proven in data gathered for that purpose by Green and his colleagues (1993). Had that study been published when the data for this study was collected, the design would have been changed and a non-binary format would have been used.

There have been some heuristic methods used in previous studies to reduce the effects of the binary response set, but because of the specific structure of the GTS, these methods could not be used in this study.

The net results were these: First, each cluster defined by both binary and non-binary items was split to form two clusters; one with binary and one with non-binary items. Second, for the main purposes of the study, all binary item clusters were dropped from further consideration.

Interpersonal sensitivity. The SCL-90 has a scale of items devoted explicitly to "interpersonal sensitivity". The confirmatory factor analysis showed that this scale is not unidimensional. A detailed content analysis of the "Interpersonal Sensitivity" items was then done. This identified two specific clusters of items which were labeled "Unliked" and "Self-Conscious". The "Unliked" cluster consisted of three items stating that the person

feels unliked by others. The "Self-Conscious" cluster consisted of three items asking if the person often feels self-conscious.

There were three other items in the "Interpersonal Sensitivity" scale. The item that read "feeling critical of others" was added to the Hostility cluster. The other two items were just dropped (i.e., put in the "Residual" cluster).

Worry. The "Worry" cluster is defined by only two non-binary items. These items initially seemed similar in content, but the empirical pattern of correlations was dissimilar for the two items. When correlations between the "worry" scale and other scales are corrected for attenuation, many of the estimated correlations are larger than 1.00. So the initial "Worry" cluster does not work.

The two Worry items are :

149. SCL-DEP Worrying too much about things.

128. BDI I am so worried about my physical problems that I cannot think about anything else.

The problem seems to be with the BDI item. It is specific to physical problems, whereas many people are more worried about social or personal problems. Furthermore, there is an element of obsessiveness in the item that is inconsistent for an item written as a depression item rather than as an anxiety item. This cluster was dropped from further analysis.

The Final Item Clusters

The final confirmatory factor analysis began with 49 item clusters. The items for each cluster are listed in Appendix A. The binary format GTS items are those with

numbers 201 to 290. In cases where a content cluster would have included items from the GTS and items from the non-binary scales, that cluster was split so that the binary items were put in a separate cluster. Because there seems to be no way to solve the binary response set problem in these data, all clusters using the binary format were reluctantly dropped from further analysis.

Clusters 45 through 48 consisted of NA items which were not included in the previous clusters of the same names, because of differences in response set between the Likert and binary formats. Cluster 45, "Irritability (GTS)," consisted of two NA items describing extreme irritability. Cluster 46, "Worry (GTS)," consisted of three NA items which describe frequent or excessive worrying. Cluster 47, "Fear (GTS)," consisted of two NA items characterized by fearful apprehension. Finally, Cluster 48, "Sleep Disturbance (GTS)," consisted of one NA item: "I often have difficulty sleeping because of my worries."

Cluster 49, "Alienated," consisted of three items from the Interpersonal Sensitivity scale of the SCL-90, characterized by feeling easily hurt and that others are unfriendly or unsympathetic. The 29 symptoms retained for further analysis are listed and described in Table 9.

The correlations among symptoms can be computed either using the items as scales or using confirmatory factor analysis to produce construct correlations. The confirmatory factor analysis construct correlations are the same as the scale correlations corrected for attenuation due to random error of measurement: i.e., the same as the scale

Table 9

Number of Items and Reliabilities for Symptoms Retained for Further Analysis

SYMPTOM	NUMBER OF ITEMS	RELIABILITY*
Fear	11	89
Motor Tension	10	85
Autonomic Hyperarousal	17	92
Vigilance	3	77
Irritability	2	51
Insecure	2	47
Worry	2	35
Dysphoric Mood	5	80
Fatigue	4	73
Sleep	1	100
Appetite	2	34
Dependency	8	65
Insufficiency	2	59
Need for Approval	5	48
Self-Critical	6	73
Anhedonia	6	76
Self-Esteem	5	64
Self-Efficacy	3	56
Unstable	2	60
Guilt	2	50
Hostility	6	80
Hopelessness	2	67
Suicidality	2	73
Self-Conscious	3	72

Table 9 (cont'd).

SYMPTOM	NUMBER OF ITEMS	RELIABILITY
Rosenberg Self-Esteem	10	85
Mastery	10	71
Shame	10	91
Chang-Hunter Guilt	9	76
Alienated	3	76

* All decimals omitted.

correlations corrected using the alpha reliabilities.

The symptom correlation matrix will be presented later since it is easier to consider after the symptoms have been arranged by syndrome.

Symptoms and Syndromes

The next step in the analysis was to see how the symptoms related to each other. The key question is this: Are there two syndromes corresponding to anxiety and depression? The second key question is this: Are the other characteristics claimed to be measures of depression really the same as depression or are they separate syndromes or traits in their own right?

An earlier generation of psychologists was dominated by psychometricians who believed that the dimensionality of a set of variables could be determined by a method now

called "exploratory factor analysis". However in recent years, most psychometricians have joined earlier critics and come to the belief that dimensionality is better determined by a method that is now called "confirmatory factor analysis".

Both exploratory and confirmatory factor analysis were applied to the symptom correlations to determine the number and identity of syndromes. The exploratory factor analysis fit the name "exploratory"; it suggested rough syndrome categories but those categories had to be revised to meet the more stringent criteria set by confirmatory factor analysis.

The following segment will describe the steps taken to form the final syndromes. The results of the final syndrome analysis will then be presented.

Exploratory factor analysis

Exploratory factor analysis is often called just "factor analysis" in many articles, especially older articles. By far the common method of exploratory factor analysis is a two step process: (a) a principal axis factor analysis done with communalities, (b) followed by VARIMAX rotation.

The beginning symptom correlation matrix can take one of two forms: (a) the correlations among symptom scales or (b) the correlations among symptom constructs. Both analyses were done and proved to have similar results. The exploratory factor analysis of the symptom construct correlation matrix is presented in Table 10.

Two factors identified symptom clusters that were very similar in content. Two factors identify clusters with only slight modifications. Two factors identify specific

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Table 10

The Exploratory Factor Analysis of the Symptom Construct Correlation Matrix.

SYMPTOM	1	2	3	4	5	6	7	8	9	10
Autonomic Hyperarousal	85*	-8	37	15	8	-1	18	4	-8	6
Motor Tension	84*	-18	35	26	14	10	14	3	-5	1
Fear	66*	-27	45	32	20	18	1	-7	7	-7
Vigilance	65*	-15	13	46	22	25	12	-6	16	-1
Hostility	62*	-23	38	30	12	-3	14	21	-6	16
Self-Esteem (Rosenberg)	-11	90*	-26	-5	-22	1	-12	1	-7	-5
Mastery	-16	90*	-22	-13	-25	-7	-5	-7	1	-1
Self-Esteem	-30	72*	-32	-30	-12	20	-9	6	38	-1
Shame	19	-70*	17	28	33	16	9	20	-3	0
Self-Critical	21	-54*	52	35	34	12	12	7	-9	3
Guilt	31	-27	89*	16	12	2	10	16	-2	6
Appetite Disturbance	42	-26	85*	15	-12	-7	33	-2	-13	10
Suicidality	40	-28	75*	21	3	-9	-5	2	-1	-25
Anhedonia	35	-26	64*	39	20	-6	16	2	5	24
Hopelessness	29	-41	54*	44	30	10	15	-18	8	12
Alienated	47	-18	25	74*	19	22	8	8	-7	-9
Dysphoric Mood	42	-18	40	67*	27	10	11	-14	-2	-1
Irritability	41	-25	39	66*	30	13	13	16	-2	19
Fatigue	43	-22	36	55*	22	10	20	1	0	42
Self-Conscious	47	-29	15	50*	20	30	22	18	-16	-7

* Identifies symptom's highest positive or negative correlation.
All decimals omitted.

Table 10 (cont'd).

SYMPTOMS	1	2	3	4	5	6	7	8	9	10
Unstable	9	-20	-2	21	91*	24	6	13	8	-4
Insufficiency	30	-33	11	25	76*	33	9	4	-5	5
Insecure	14	-44	23	12	74*	32	4	-7	-6	10
Need for Approval	9	-3	-5	14	23	92*	0	14	5	-7
Dependency	11	-18	18	18	41	78*	4	-12	-19	14
Efficacy	-2	45	-3	-3	11	62*	-7	3	41	1
Sleep Disturbance	24	-14	15	15	8	-1	67*	-1	-1	3
Guilt (Chang-Hunter)	13	-27	20	5	5	33	-6	41*	3	0

* Identifies symptom's highest positive or negative correlation.
All decimals omitted.

symptoms that seem to have no clear syndromal meaning. Two factors have no large correlates. However, there are two factors where the statistical clusters are not well defined by considering only the highest loadings. The discussion below considers the simplest cases first.

No symptoms had their highest correlations with Factors 9 or 10. On the other hand, the factor analysis for 10 factors is clearer than the analysis for 8 factors. In this case, these "extra" factors seem to reduce the impact of sampling error.

Factor 8 has a modestly high correlation only with the trait Guilt construct. Trait

Guilt does not show a pattern in common with any other symptom.

Factor 7 has a modestly high correlation only with Sleep Disturbance. This symptom has weak correlations with other factors.

Factor 2 has very high correlations with the five symptoms related to Shame or Self-Esteem. These symptoms are used to define a syndrome of Shame (to focus on the negative end).

Factor 5 has very high correlations with the three symptoms related to feelings of Insecurity. These symptoms are used to define a syndrome of Insecurity.

Factor 6 has very high correlations with the symptoms that tap feelings of Need for Others (i.e., Need for Approval and Dependency). Feelings of self-efficacy also correlate highly with Factor 6, but Efficacy clearly differs from the two measures of Need for Others in that Efficacy has a high correlation of +.45 with the Self-Esteem factor (Factor 2) while the Alienation measures correlate -.03 and -.18. Thus, only the two symptoms that tap Need for Others are used to define a syndrome.

Factor 1 has very high correlations with the symptoms most closely identified with anxiety: i.e., Autonomic Hyperarousal, Motor Tension, Fear (or apprehension), and Vigilance. Hostility also correlates highly with Factor 1, but is clearly different in content. The four conventional symptoms are used to define a syndrome of Anxiety. The symptom of Hostility is so important that it is used by itself to define a syndrome.

Factors 3 and 4 are complicated. Both factors have very high correlations with symptoms associated with depression. Examination of the full set of factor loadings

shows that neither factor lines up with clearly delineated clusters. This seems to represent a cases where exploratory factor analysis rotates to a misleading position.

The two symptoms that tap feelings of Alienation (feeling Alienated and Self-Conscious) both have high correlations with Factor 4, though they line up at opposite ends. On the other hand, consideration of the full pattern of loadings shows that the Alienation symptoms have a very different pattern of correlations than do the other three symptoms that correlate highly with Factor 4; namely Dysphoric Mood, Irritability, and Fatigue. These three symptoms are classic symptoms for depression. In particular, these three symptoms all correlate much more highly with Factor 3 (the other Depression factor) than do the Alienation symptoms.

All five symptoms that correlate highly with Factor 3 are classic symptoms of depression. However, while Anhedonia and feelings of Hopelessness are specific to depression, the other three symptoms are also frequently found in other disorders. Furthermore, while the full pattern of loadings is extremely similar for state Guilt, Appetite Disturbance, and Suicidality; the other two symptoms are not similar. This is especially clear in regard to the other depression factor, Factor 4. Anhedonia and feelings of Hopelessness correlate much more highly with Factor 4 than do Guilt, Appetite Disturbance, or Suicidality. Close examination of the symptoms highly correlated with Factors 3 and 4 suggests three clusters that might define syndromes. First, the two symptoms that tap feelings of Alienation form a closely knit cluster. Second, the three symptoms of Guilt, Appetite Disturbance, and Suicidality seem to form a closely knit

cluster. Third, the other symptoms more closely tied to the definition of depression can be put into a cluster: namely Dysphoric Mood, Anhedonia, Fatigue, Irritability, and Hopelessness. That is, there is one cluster specifically suggested by Factor 4, one specifically suggested by Factor 3, and one cluster of items that are very highly correlated with both factors.

Initial Confirmatory Factor Analysis

The provisional clusters suggested by the exploratory factor analysis were tested by confirmatory factor analysis. The clusters are shown in Table 11.

The confirmatory factor analysis showed that most of these symptom clusters are unidimensional and can be used to define a syndrome. However there were clear departures from simple equivalence for both the Anxiety and Depression clusters.

Anxiety subclusters. Close examination of the Anxiety cluster showed that the four symptoms can be subdivided into two pairs. The two arousal symptoms have much lower correlations with Depression than do the two cognitive symptoms. Thus for further analysis, the Anxiety cluster was split into two Anxiety subclusters. Autonomic Hyperarousal and Motor Tension were put in one cluster while, Fear and Vigilance were put in the other. Since the arousal symptoms have relatively low correlations with Depression, that cluster is called "Pure Anxiety" while the other cluster is called "Mixed Anxiety."

Depression subclusters. Close examination of the Depression cluster showed that the five symptoms can be subdivided into two subclusters. Fatigue, Irritability, and

Table 11

Provisional Clusters Suggested by Exploratory Factor Analysis

CLUSTER	SYMPTOM
Anxiety	Autonomic Hyperarousal
	Motor Tension
	Fear (apprehension)
	Vigilance (psychological tension)
Depression	Dysphoric Mood
	Anhedonia
	Fatigue
	Irritability
	Hopelessness
Severe Symptoms	State Guilt
	Appetite Disturbance
	Suicidality
Alienation	Alienated
	Self-Conscious
Need for Others	Need for Approval
	Dependency
Shame	Mastery (reverse scored)
	Rosenberg Self-Esteem (reverse scored)
	Self-Esteem (reverse scored)
	Shame
	Self-Criticism

Table 11 (cont'd).	
CLUSTER	SYMPTOM
Insecurity	Insufficiency
	Unstable
	Insecurity
Hostility	Hostility

Hopelessness have relatively lower correlations with Anxiety than do Dysphoric Mood and Anhedonia. Thus for further analysis, the Depression cluster was split into two subclusters. Fatigue, Irritability, and Hopelessness were put in one subcluster, while Dysphoric Mood and Anhedonia were put in the other. Since the energy symptoms have relatively low correlations with Anxiety, that cluster is called "Pure Depression" while the more directly mood related cluster is called "Mixed Depression".

The 10 Working Clusters.

The subdivision of the large Anxiety and Depression clusters produced a set of 10 provisional clusters to be considered as syndromes. This set of clusters was tested using confirmatory factor analysis. The factor loadings for the confirmatory factor analysis using the symptom construct correlations are reported in Table 12. This analysis was extended to include the three symptoms that were not used in the definition of the confirmatory factor clusters. The results for the unused symptoms are shown in Table 13.

Examination of the results shows good fit for the unidimensionality of each cluster.

Table 12

The Confirmatory Factor Loadings for Construct Correlation Matrix Defined by 10 Symptom Clusters.*

Factor/ CLUSTERS	CONFIRMATORY FACTORS									
	Pure Anxiety	Mixed Anxiety	Mixed Depression	Pure Depression	Shame	Need for Others	Severe Symptoms	Insecurity	Hostility	Alienated
Pure Anxiety										
MOTOR TENSION	98	95	85	79	57	29	74	47	79	81
AUTONOMIC HYPERAROUSAL	98	82	77	71	47	15	73	34	78	69
Mixed Anxiety										
FEAR	85	90	86	81	65	37	76	54	76	81
VIGILANCE	77	90	79	76	48	47	49	54	63	82
Mixed Depression										
DYSPHORIC MOOD	73	87	87	92	62	36	69	59	65	88
ANHEDONIA	70	73	87	88	67	12	84	49	74	73
Pure Depression										
FATIGUE	74	80	94	94	63	35	65	55	68	80
IRRITABILITY	75	84	99	101	71	42	71	65	85	92
HOPELESSNESS	65	81	99	85	78	35	76	63	63	72
Shame										
SELF-ESTEEM (ROSENBERG)	43	50	59	62	99	28	54	63	48	55
MASTERY	35	47	55	58	90	18	54	55	42	42
SELF-ESTEEM	44	58	65	67	85	41	49	69	52	65
SHAME	59	57	73	68	89	5	68	45	62	67
SELF-CRITICAL	59	68	84	86	86	34	75	69	65	73

* All decimals omitted.

Table 12 (cont'd).

Factor/ CLUSTERS	CONFIRMATORY FACTORS									
	Pure Anxiety	Mixed Anxiety	Mixed Depression	Pure Depression	Shame	Need for Others	Severe Symptoms	Insecurity	Hostility	Alienated
Need for Others										
NEED/ APPROVAL	16	40	14	26	17	93	0	52	8	48
DEPENDENCY	26	48	38	48	37	93	12	72	23	53
Severe Symptoms										
GUILT	70	71	88	78	70	13	100	41	66	60
SUICIDALITY	69	67	79	65	62	2	86	29	64	58
APPETITE.	80	64	93	77	63	4	106	19	75	57
Insecurity										
UNSTABLE	25	48	44	53	49	59	13	100	28	53
INSUFFICIENCY	55	67	70	70	69	68	35	95	43	69
INSECURE	39	58	64	64	74	65	39	92	48	56
Hostility										
HOSTILITY	80	78	80	77	60	17	71	42	100	73
Alienation										
ALIENATED	72	88	93	86	59	46	58	55	68	92
SELF-CONSCIOUS	69	78	77	74	64	54	52	59	65	92

* All decimals omitted.

Table 13

The Confirmatory Factor Loadings for the Symptoms Not Used to Define Clusters in the Analysis of the Symptom Construct Correlation Matrix Defined by 10 Symptom Clusters.*

CONFIRMATORY FACTORS	RESIDUAL (i.e., unused) ITEMS		
	Sleep	Efficacy	Guilt
Pure Anxiety	44	11	30
Mixed Anxiety	40	-5	37
Mixed Depression	47	13	37
Pure Depression	46	12	39
Shame	36	42	44
Need for Others	10	-53	47
Severe Symptoms	41	29	31
Insecurity	25	-12	53
Hostility	42	15	33
Alienation	42	1	41

* All decimals omitted.

That is, the symptoms within each cluster follow the pattern required for statistical equivalence.

Since the clusters delineate unidimensional sets of symptoms, the confirmatory factor model shows good fit. Thus, essentially all of the information in the symptom profile is captured by the 10 confirmatory constructs. These will be provisionally called "syndromes" for short. The correlations between syndromes are shown in Table 14.

One correlation shows a problem in differential validity: the estimated correlation of 1.04 between the two Depression subclusters. The fact that this correlation is larger than 1.00 is due to sampling error in the estimation process. However, if we revise that estimated correlation down to 1.00 it still poses a problem. Is there any difference between the two Depression subclusters?

There are two ways in which the subclusters differ. First, they differ in their correlations with Anxiety. For Pure Anxiety, the correlations are .77 for the Pure Depression factor and .83 for the Mixed Depression factor (See Table 15). For Mixed Anxiety, the correlations are .87 for the Pure Depression factor and .92 for the Mixed Depression factor. Second, the two factors differ in the extent of correlation with Need for Others, where the correlations are .40 for the Pure Depression factor and .28 for the Mixed Depression factor.

So there is some evidence for differentiation between the two depression subclusters. If they are different, then it would mean that the estimated correlation of 1.04 is a sampling error departure from some number smaller than 1.00. This is certainly

Table 14

Correlations Between Syndromes*

SYNDROME	1	2	3	4	5	6	7	8	9	10
1. Pure Anxiety	100	91	83	77	53	23	75	42	80	77
2. Mixed Anxiety	91	100	92	87	63	47	69	60	78	91
3. Mixed Depression	83	92	100	104	75	28	89	62	80	93
4. Pure Depression	77	87	104	100	76	40	76	65	77	87
5. Shame	53	63	75	76	100	29	67	67	60	67
6. Need for Others	23	47	28	40	29	100	7	67	17	54
7. Severe Symptoms	75	69	89	76	67	7	100	30	71	60
8. Insecurity	42	60	62	65	67	67	30	100	42	62
9. Hostility	80	78	80	77	60	17	71	42	100	73
10. Alienation	77	91	93	87	67	54	60	62	73	100

* All decimals omitted.

possible with the sample size for this study though there is no way to estimate just how high the population correlation might be.

If we assume a two dimensional structure for the four subclusters, it is possible to generate an algebraic estimate of the correlation between the Depression clusters from the other five correlations. That estimate is $\underline{r} = .94$. This value is within the confidence interval around 1.04 and is thus consistent with the data.

There are some other very high correlations in this table as might be predicted from the exploratory factor findings. There is a very high correlation of .92 between Alienation and Mixed Depression. There is a very high correlation of .89 between the

Severe Symptoms factor and Mixed Depression.

Is there a difference between Mixed Depression, Alienation, and the Severe Symptoms factors? One sharp difference is in how the three factors relate to Need for Others (See Table 15).

Table 15

Correlations Between Need for Others
and Mixed Depression, Severe Symptoms, and Alienation

SYMPTOM	Need for Others
Mixed Depression	.28
Severe Symptoms	.07
Alienation	.54

The difference between $\underline{r} = .54$ for Alienation and $\underline{r} = .07$ for the Severe Symptoms factor is very large. Furthermore, while both Alienation and the Severe Symptoms factor have very high correlations with Mixed Depression, they have a much lower level of correlation with each other: $\underline{r} = .60$.

There is another difference between the Severe Symptoms factor and Mixed Depression. The Mixed Depression factor shows a large difference in its correlations with Pure Depression (nominal $\underline{r} = 1.04$; estimated $\underline{r} = .94$) and with Pure Anxiety ($\underline{r} = .83$). The Severe Symptoms factor shows little difference in its correlations with Pure Depression ($\underline{r} = .76$) and with Pure Anxiety ($\underline{r} = .75$).

The Symptom Correlations

Of the 28 symptoms that could be measured in this study, 25 were used to define syndromal clusters and 3 were not used. Thus, the symptom correlation matrix is a bulky 25 x 25 in the primary symptoms are considered and a bulky 28 x 28 if all symptoms are considered. The symptom correlations are much easier to look at if the symptoms are organized. The good fit for the confirmatory factor model shows that the 10 working clusters provide a good way to organize the clusters.

Symptoms can be correlated at one of two levels. The items in each cluster can be used to generate a scale to measure that symptom. These scale correlations are attenuated by error of measurement in each cluster. The key to reducing error is to use many items. This was not possible in this study since so many different symptoms were considered. For small clusters, the scale will have low reliability and the scale correlations for that scale will be very much attenuated.

Confirmatory factor analysis can be used to estimate the size of the correlation between symptom constructs themselves. These are the correlations that are assumed mentally when we think about "the correlation" between two symptoms in terms of theory or clinical practice. That is, confirmatory factor analysis estimates the size of the correlation that would be obtained from a perfect measure of the symptom: i.e., the correlation if we could measure each symptom with a very long scale. These construct correlations are the same as the scale correlations corrected for attenuation using the scale reliabilities.

Table 16 presents the symptom correlation matrix organized by clusters. Table 18 presents the symptom scale correlation matrix; i.e., the size of the correlations for the imperfect symptom measures in this study.

Scatter plots of the total scores for anxiety and depression for each individual revealed an extreme skew which can not be discerned from the correlational data. This skew was more extreme for the anxiety scores than for the depression scores. It is possible that we are looking at one end of a normal distribution. If so, a more balanced scale, in which both ends of the continuum were represented, would show a clearer picture of the actual constructs. Unfortunately, in the current study, those items which might best describe the positive end of a continuum moving from fatigue to energy are best represented by items from the GTS, which is wrought with measurement problems. It is not clear at this point whether anxiety can best be described as a continuum with contentment at the opposite pole, or whether anxiety may be better conceptualized as a unipolar construct in which contentment, or relaxation, is merely the absence of anxiety.

Anxiety Driven Depression

The van Praag (1994) theory of serotonin driven depression predicts that high trait anxiety will produce high trait depression. However, because of the effect of serotonin dysregulation on hostility and aggression, his theory also predicts an equally strong relationship between hostility and depression. This prediction can be tested using multiple regression. The multiple regression analysis for the present data is presented in Table 18.

Table 16

Symptom Construct Correlation Matrix
(Corrected for Attenuation)

CLUSTER/Symptom	2	3	1	4	10	21	11	5	30	41	42	43	22	20	19	17	25	31	15	24	18	6	27	49	32	14	23	44
PURE ANXIETY																												
2. Motor Tension	96	96	89	83	76	72	74	80	68	46	39	49	62	62	22	32	71	69	75	28	60	46	79	76	73	44	9	34
3. Autonomic Hyperarousal	96	96	78	68	67	65	71	67	60	38	31	37	53	54	10	19	65	67	82	21	47	31	78	65	62	42	12	25
MIXED ANXIETY																												
1. Fear	89	78	81	81	78	71	72	75	80	53	48	56	61	73	30	40	78	74	69	38	60	57	76	80	69	35	2	36
4. Vigilance	83	68	81	81	78	59	72	75	65	37	36	49	42	50	42	46	49	47	46	48	61	46	63	79	72	36	-12	31
MIXED DEPRESSION																												
10. Dysphoric Mood	76	67	78	78	75	75	81	95	84	49	42	57	61	70	25	42	68	65	69	43	68	58	65	92	70	41	8	30
21. Anhedonia	72	65	71	59	75	75	83	77	88	53	52	56	66	76	0	23	84	71	91	33	54	53	74	70	64	40	15	34
PURE DEPRESSION																												
11. Fatigue	74	71	72	72	81	83	89	96	80	50	46	56	60	72	22	44	72	50	69	42	61	54	68	78	69	45	9	31
5. Irritability	80	67	75	75	95	77	96	103	87	57	51	66	62	83	32	46	74	62	72	57	71	59	85	93	76	41	8	44
30. Hopelessness	68	60	80	65	84	88	80	87	73	67	66	65	68	86	20	45	73	72	77	49	65	66	63	70	63	43	15	35
SHAME																												
41. Self-Esteem (Rosenberg)	46	38	53	37	49	53	50	57	67	98	97	85	84	81	20	33	54	51	52	49	63	69	48	47	54	26	34	43
42. Mastery	39	31	48	36	42	52	46	51	66	97	81	77	79	71	6	28	57	50	52	39	53	66	42	35	42	32	42	41
43. Self-Esteem	49	37	56	49	57	56	56	66	65	85	77	73	74	75	32	45	52	47	43	57	74	68	52	56	64	30	20	52
22. Shame	62	53	61	42	61	66	60	62	68	84	79	74	80	85	-11	21	66	63	69	21	51	58	62	60	63	35	73	21
20. Self-Critical	62	54	73	50	70	76	72	83	86	81	71	75	85	74	29	42	84	68	67	55	70	73	65	68	65	41	19	42

Table 16 (cont'd)

CLUSTER/Symptom	2	3	1	4	10	21	11	5	30	41	42	43	22	20	19	17	25	31	15	24	18	6	27	49	32	14	23	44
NEED FOR OTHERS																												
19. Need for Approval	22	10	30	42	25	0	22	32	20	20	6	32	-11	29	87	87	7	-2	-5	52	52	45	8	40	49	4	-66	47
17. Dependency	32	19	40	46	42	23	44	46	45	33	28	45	21	42	87	87	17	6	12	58	74	75	23	46	51	14	-32	41
SEVERE SYMPTOMS																												
25. State Guilt	71	65	78	49	68	84	72	74	73	54	57	52	66	84	7	17	99	86	106	25	44	49	66	56	55	36	18	42
31. Suicidality	69	67	74	47	65	71	50	62	72	51	50	47	63	68	-2	6	86	75	91	17	30	34	64	60	47	26	26	30
15. Appetite Disturbance	75	82	69	46	69	91	69	72	77	52	52	43	69	67	-5	12	106	91	112	-4	27	31	75	54	50	58	38	20
INSECURITY																												
24. Unstable	28	21	38	48	43	33	42	57	49	49	39	57	21	55	52	58	25	17	-4	100	95	92	28	46	52	18	-14	48
18. Insufficiency	60	47	60	61	68	54	61	71	65	63	53	74	51	70	52	74	44	30	27	95	91	88	43	62	65	28	-12	54
6. Insecure	46	31	57	46	58	53	54	59	66	69	66	68	58	73	45	75	49	34	31	92	88	84	48	52	51	26	-8	50
HOSTILITY																												
27. Hostility	79	78	76	63	65	74	68	85	63	48	42	52	62	65	8	23	66	64	75	28	43	48	100	68	65	42	15	33
ALIENATION																												
49. Alienated	76	65	80	79	92	70	78	93	70	47	35	56	60	68	40	46	56	60	54	46	62	52	68	84	84	37	0	38
32. Self-Conscious	73	62	69	72	70	64	69	76	63	54	42	64	63	65	49	51	55	47	50	52	65	51	65	84	84	40	2	36
RESIDUAL																												
14. Sleep Disturbance	44	42	35	36	41	40	45	41	43	26	32	30	35	41	4	14	36	26	58	18	28	26	42	37	40	94	14	11
23. Self-Efficacy	9	12	2	-12	8	15	9	8	15	34	42	20	73	19	-66	-32	18	26	38	-14	-12	-8	15	0	2	14	1	-4
44. Guilt (Chang/Hunter)	34	25	36	31	30	34	31	44	35	43	41	52	21	42	47	41	42	30	20	48	54	50	33	38	36	11	-4	1

Table 17

Symptom Scale Correlation Matrix
(Not Corrected for Attenuation)

CLUSTER / Symptom	2	3	1	4	10	21	11	5	30	41	42	43	22	20	19	17	25	31	15	24	18	6	27	49	32	14	23	44
PURE ANXIETY																												
2. Motor Tension	85	85	77	67	63	58	59	52	52	40	30	44	66	49	14	24	47	55	41	21	42	29	66	61	58	41	6	28
3. Autonomic Hyperarousal	85	85	71	58	58	55	59	46	47	24	25	34	41	44	6	14	44	55	46	16	35	20	67	55	51	40	9	21
MIXED ANXIETY																												
1. Fear	77	71	67	67	66	58	58	50	62	46	39	50	46	59	20	30	52	60	38	28	43	37	65	66	56	33	2	30
4. Vigilance	67	58	67	67	61	46	55	47	47	30	27	41	30	38	26	33	30	35	24	33	41	28	50	61	54	32	-8	24
MIXED DEPRESSION																												
10. Dysphoric Mood	63	58	66	61	59	59	62	61	62	41	32	48	44	54	16	30	43	50	36	30	47	36	52	72	53	36	5	24
21. Anhedonia	58	55	58	46	59	59	62	48	63	43	39	46	46	57	0	16	52	53	47	22	36	31	58	53	48	35	10	26
PURE DEPRESSION																												
11. Fatigue	59	59	58	55	62	62	65	58	57	40	34	46	41	53	13	30	44	37	35	28	40	32	53	58	51	38	6	23
5. Irritability	52	46	50	47	61	48	58	52	51	38	31	45	35	51	16	27	37	38	30	32	39	29	54	58	46	29	5	28
30. Hopelessness	52	47	62	47	61	48	58	52	51	38	31	45	45	61	11	30	42	51	37	31	41	37	46	50	44	35	9	25
SHAME																												
41. Self-Esteem (Rosenberg)	40	34	46	30	41	43	40	38	51	84	76	75	63	64	13	24	35	40	28	35	44	44	40	38	43	24	24	34
42. Mastery	30	25	39	27	32	39	34	31	46	76	59	63	54	52	4	19	34	36	26	26	35	38	32	26	31	27	27	30
43. Self-Esteem	44	34	50	41	48	46	46	45	51	75	63	67	56	62	21	34	35	38	24	42	54	44	45	47	52	29	15	43
22. Shame	46	41	46	30	44	46	41	35	45	63	54	56	51	59	-6	14	37	44	32	13	31	32	44	42	43	28	45	15
20. Self-Critical	49	44	59	38	54	57	53	51	61	64	52	62	59	54	17	29	51	51	34	37	46	43	50	51	48	35	13	32

Table 17 (cont'd)

CLUSTER/Symptom	2	3	1	4	10	21	11	5	30	41	42	43	22	20	19	17	25	31	15	24	18	6	27	49	32	14	23	44
NEED FOR OTHERS																												
19. Need for Approval	14	6	20	26	16	0	13	16	11	13	4	21	-6	17	49	49	3	-1	-2	28	28	21	5	25	29	3	-35	29
17. Dependancy	24	14	30	33	30	16	30	27	30	24	19	34	14	29	49	49	10	4	6	37	46	42	17	32	35	11	-20	29
SEVERE SYMPTOMS																												
25. State Guilt	47	44	52	30	43	52	44	37	42	35	34	35	37	51	3	10	49	52	44	14	24	24	42	34	33	26	10	26
31. Suicidality	55	55	60	35	50	53	37	38	51	40	36	38	44	51	-1	4	52	55	46	11	20	20	49	45	35	22	17	22
15. Appetite Disturbance	41	46	38	24	36	47	35	30	37	28	26	42	32	34	-2	6	44	46	38	-2	12	12	40	28	25	34	17	10
INSECURITY																												
24. Unstable	21	16	28	33	30	22	28	32	31	35	26	42	13	37	28	37	14	11	-2	60	57	49	20	31	34	14	-9	33
18. Insufficiency	42	35	43	41	47	36	40	39	41	44	35	54	31	46	28	46	24	20	12	57	53	46	30	41	43	22	-7	37
6. Insecure	29	20	37	28	36	31	32	29	37	44	38	44	32	43	21	42	24	20	12	49	46	39	29	31	30	18	-4	30
HOSTILITY																												
27. Hostility	66	67	65	50	52	58	53	54	46	40	32	45	44	50	5	17	42	49	40	20	30	29	100	53	50	38	11	26
ALIENATION																												
49. Alienated	61	55	66	61	72	53	58	58	50	38	26	47	42	51	25	32	34	45	28	31	41	31	53	63	63	33	0	29
32. Self-Conscious	58	51	56	54	53	48	51	46	44	43	31	52	43	48	29	35	33	35	25	34	43	30	50	63	63	34	1	27
RESIDUAL																												
14. Sleep Disturbance	41	40	33	32	36	35	38	29	35	24	27	29	28	35	3	11	26	22	34	14	22	18	38	33	34	70	11	10
23. Self-Efficacy	6	9	2	-8	5	10	6	5	9	24	27	15	45	13	-35	-20	10	17	17	-9	-7	-4	11	0	1	11	1	-2
44. Guilt (Chang/Hunter)	28	21	30	24	24	26	23	28	25	34	30	43	15	32	29	29	26	22	10	33	37	30	26	29	27	10	-2	1

Table 18

Correlations Between Pure Anxiety, Hostility, and Pure Depression*

	Pure Anxiety	Hostility	Pure Depression
Pure Anxiety	100		
Hostility	80	100	
Pure Depression	77	77	100

* All decimals omitted.

Multiple regression:

Beta for anxiety: .43
Beta for hostility: .43

Multiple correlation: .81

The multiple correlation is consistent with the prediction derived from the van Praag (1994) theory. The correlation between Hostility and Pure Depression is as high as the correlation between Pure Anxiety and Depression. The beta weight for Hostility is just as high as that for Pure Anxiety. The multiple correlation increases from a high .77 to a still higher .81.

Results Pertaining to a One-Factor Model

One Higher Order Factor?

Some advocates of the Big Five factor model have argued that symptoms considered in this study are largely expressions of a single factor called "neuroticism" or "negative affectivity." This hypothesis can be tested statistically at two levels. Those tests

will be considered in this segment. The results will show that considerable information would be lost if the symptoms were replaced by one global factor.

The strongest test of the one-factor model would consider the prediction of variables outside the domain of neuroticism. No such variables were measured for this study, and so the strong test of this model cannot be performed here. However, weaker tests can be done which consider just the structure of correlations between items, between symptoms, or between syndromes. It will be shown that the one factor model fails using even these weaker tests.

The Flat One-Factor Model

Many researchers have argued that the symptoms collected for this study are largely expressions of one underlying factor, traditionally called "neuroticism." This model can be tested statistically.

The flat model makes no distinction between symptoms. Thus, the unit of analysis for this model is the item. That is, the flat model predicts that each item differs only by random error from the single dimension of neuroticism. If this model were true, then all of the symptom clusters would be equivalent to one another. For any two symptoms, the population construct correlation would be 1.00. The average sample construct correlation would thus be 1.00. Half of the sample correlations would be expected to be larger than 1.00, and half would be expected to be smaller.

The symptoms construct correlation matrix was presented in Table 14. There is one sample correlation between Mixed Depression and Pure Depression which is 1.04.

All other correlations are less than 1. The correlation between Need for Others and the Severe Symptom cluster is only .07. The average correlation between symptoms is only .65; far less than 1.00.

The flat factor model is clearly disconfirmed.

The Hierarchical One-Factor Model

Big Five theorists have a more sophisticated model which is hierarchical in structure. This model acknowledges that items in the domain of neuroticism form clusters such that the correlations within each cluster are larger than would be predicted by the general factor of neuroticism. The factor defined by each cluster is called a "facet." The theorists acknowledge that facets have specific variation above and beyond variation due to the general factor. However, they argue that the only significant variation in the facets is the variation due to the general factor.

In the data for this study, there are actually two lower levels considered, not just one. First, items can be collected in clusters that define symptoms. Second, the symptoms can be clustered to form syndromes. There is no recognition of this double level of structure in the current Big Five literature.

The hierarchical factor model can be tested at either level. That is, the concept of "facet" can be considered where "facet" denotes "symptom" or where facet denotes "syndrome." The model was tested at both levels and the results follow.

Test at the symptom level. Suppose that the concept "facet" is considered to mean "symptom." In this study I identified 28 measurable symptoms. If the word "facet" is

defined by symptoms, then the hierarchical one factor model would claim that the symptom correlation matrix should be explained by one factor. That is, if all significant variation in facets is explained by neuroticism, then the size of the correlations between the facets must be explained by the general factor. This hypothesis can be tested using the data from the current study.

Consider first the implications for the factor analysis of the symptom correlation matrix. According to the one factor model, the symptom correlation matrix should have only one common factor. The exploratory factor analysis reported in Table 10 found 10 factors, where 6 factors had high correlations with more than one symptom. That disconfirms the one factor model.

It is mathematically possible for the multiple factor structure in the data to be due to sampling error. In clinical psychology and psychiatry, there are some studies with samples so small that this becomes a real concern. In this study, the sample size was $\underline{N}$ = 366, which makes this concern unreasonable. However, this remote possibility can be tested statistically by using confirmatory factor analysis to do a significance test on the departures from the predictions of the one factor model. This was done using the symptom scale correlation matrix. The deviations from the one factor model generated a chi square value of 33340.53 with 377 degrees of freedom. This is equivalent to a $\underline{z}$ value of 108, and is significant at far beyond the .000001 level. Thus, the one factor model is totally disconfirmed at the symptom level.

The deviations from the one factor model are statistically massive and totally

beyond question. Are the deviations substantively significant? In this segment, the substantive meaning of the deviations is not considered. However, it is possible to consider simply the size of the deviations. Are the deviations large enough to be of practical significance? An abstract way to approach this question is through partial correlation. The one factor model is fitted to the data and a correlation is computed between each symptom and the general factor. The factor correlations can then be used to compute partial correlations. If the one factor model were true, then each such partial correlation would be 0 if computed for population data. The sample partial correlation would differ from 0 only by sampling error.

The partial correlations were computed for the symptom scale correlation matrix. If the population partial correlation is 0, and the sample size is $\underline{N} = 330$, the standard error of the sample population correlations is .055. The probability of a sample correlation as large as .20 is only .00014, or 1 in 7143. Yet, among the 378 symptom partial correlations, there were 76 correlations larger than .20, of which 24 were larger than .30, 10 were larger than .40, and 5 were larger than .50.

Lipsey and Wilson (1993) compiled meta-analyses across 18,000 treatment studies in psychology, and found an average treatment correlation of $\underline{r} = .23$. By that standard, 76 of the 378 partial correlations were large enough to be of practical significance. Thus, considerable information would have been lost if the symptoms were replaced by a single neuroticism factor.

Test at the syndrome level. Examination of the content names for the facets used in the current Big Five inventories shows names like anxiety, depression, self-consciousness, etc. Thus, the facets currently used are closer in level to syndromes than to symptoms. The one factor model can also be tested at the syndrome level.

If syndromes are the "facets" of the hierarchical model, then the syndrome correlation matrix should be explained by one factor. That is, if all significant variation in facets is explained by neuroticism, then the size of the correlations between the facets must be explained by the general factor. This hypothesis can be tested using the data from this study.

Consider first the implications for the factor analysis of the syndrome correlation matrix. According to the one factor model, the syndrome correlation matrix should have only one common factor. To test this hypothesis, the syndrome scale matrix was computed, and confirmatory factor analysis was used to fit a one factor model to the data. The deviations from the one factor model generated a chi square value of 357.35 with 44 degrees of freedom. This is equivalent to a z value of 33.40, which is significant at far beyond the .0001 level. Thus, the one factor model is disconfirmed at the syndrome level.

The deviations from the one factor model are statistically massive and beyond question. Are the deviations large enough to be of practical significance? An abstract way to approach this question is to compute the partial correlations between syndromes with the general factor held constant. If the one factor model were true, then each such partial correlation would be 0 if computed for population data. The sample partial

correlation would differ from 0 only by sampling error.

The partial correlations were computed for the syndrome scale correlation matrix. If the population partial correlation is 0, and the sample size is $\underline{N}$ = 330, the standard error of the sample partial correlations is .055. The probability of a sample correlation as large as .20 is only .00014, or 1 in 7143. Yet, among the 45 syndrome partial correlations, there were 12 correlations larger than .20, two of which were larger than .30.

Using the average treatment correlation of .23 found by Lipsey and Wilson (1993), 12 of the 45 partial correlations were large enough to be of practical significance. Thus, considerable information would be lost if the syndromes were replaced by a single neuroticism factor.

The one factor model does not fit the data. The flat item model fails; the hierarchical model using symptoms as facets fails; and the hierarchical model using syndromes as facets fails. Thus, no substantive construct was found that corresponds to the concept of "neuroticism."

On the other hand, the correlations between syndromes are all positive: some quite large. So it is possible to define mathematical general factors which are composites of the neurotic syndromes. Since the one factor model does not fit the data, the mathematical factor is not uniquely defined and the exact content of the factor will vary somewhat from one study to another, depending on the specific set of syndromes considered in any given study. However, the neuroticism factors defined in different studies will be very highly correlated with one another.

This mathematical neuroticism factor provides a useful first approximation to the data and may be all that is needed in some applications. A person who is high on the mathematical neuroticism factor will tend to be high on all of the symptoms; however, that individual will be higher on those symptoms more highly correlated with the neuroticism factor than on those symptoms less highly correlated with the neuroticism factor.

Since the one factor model does not fit the data, there may be no substantive neuroticism factor as such. On the other hand, there may be a substantive neuroticism factor which is only one cause of the high correlations between certain symptoms. However, there are now many research findings that show that many of the high correlations between symptoms and syndromes are due to causal rather than structural relations. In view of that fact, researchers should exercise extreme caution in using "neuroticism" as an explanatory variable. Use of such terminology must be regarded as speculative at this point.

CHAPTER 6

DISCUSSION

In this study, I looked at clusters of symptoms associated with anxiety and depression in an attempt to better understand commonalities and distinctions between these disorders. The literature suggests that depression should be linked with dysphoric mood, low self-esteem, indecisiveness, hopelessness, psychomotor retardation, anhedonia, feelings of guilt or worthlessness, and suicidal ideation. Those symptoms most specifically linked to anxiety have been feelings of worry, anxiety, disquietude, and irritability; fears of dying or being out of control; somatic symptoms, such as shortness of breath, dizziness, chest pains, aches, and an exaggerated startle response; depersonalization and derealization; and shyness. Those symptoms linked to both depression and anxiety include appetite disturbance and abdominal distress, sleep disturbance, fatiguability, concentration difficulties, and agitation.

The current findings support some of these expected links, but not others. Depression was linked most specifically to fatigue and hopelessness, as anticipated, but also linked to dysphoric mood and anhedonia. Anxiety was linked most specifically to somatic symptoms of motor tension and autonomic hyperarousal, and also to fear and vigilance. This replicates previous findings linking somatization to anxiety, but not to depression (King, Margraf, Ehlers, & Maddock, 1986). Contrary to expectations,

irritability and worry were linked to depression rather than anxiety. These findings will be discussed in greater detail in ensuing sections, with one exception; because of the problems associated with the Worry cluster, the findings regarding worry should be considered as tentative and will not be elaborated.

It is notable that each syndrome was best distinguished by two clusters: one psychological and one physiological. Anxiety was best distinguished first by physiological symptoms associated with activation of the arousal system, and second by psychological symptoms associated with fear and vigilance. Depression was best distinguished by physiological symptoms associated with decreased energy, and by psychological symptoms associated with dysphoric mood and irritability.

Negative Affectivity: A General Distress Factor?

At this point, we can begin to answer empirically questions about some of the models which have been presented. The findings from this study were in many ways highly consistent with those found by Watson and colleagues (1995b) in their factor analysis of symptoms of anxiety and depression. However, it should be noted that neither my results nor their results were consistent with their conclusions. In the Watson and colleagues (1995b) study, the authors interpreted the high correlations between symptoms of anxiety and depression as evidence of a general distress factor. However, their results showed no evidence for a separate general distress factor. Rather, the symptoms that they placed in the General Distress category each follow one of two patterns: the pattern for the anxiety items or the pattern for the depression items. In terms of those items which

were most discriminative, Watson and colleagues (1995a) found that those items best distinguishing anxiety from depression were symptomatic of "Anxious Arousal." Items which Watson and colleagues (1995a) claimed best distinguished depression from anxiety were best characterized by "Loss of Interest" and "High Positive Affect." Their interpretation of depression as anhedonia led them to incorporate the High Positive Affect items into their design. However, their findings show that the High Positive Affect items are no more highly correlated with loss of interest than with the other depression items. A perusal of the factor loadings of the items used by Watson and colleagues (1995b) showed that their "General Distress" items were better markers of either anxiety or depression than they were for a general distress factor.

A content analysis of Watson and colleagues' (1995b) items revealed a great deal of overlap across the categories that they formed (See Table 19). This is not surprising as the categories were formed on the basis of lists of items thought to be linked to the disorder in clinical practice, rather than on the basis of either a content analysis or their empirical loadings.

The "Anxious Arousal" factor appears to be the cleanest, consisting of 12 items associated with autonomic hyperarousal, four items associated with motor tension, and one item associated with fear. The "Loss of Interest" category had four Anhedonia items, two items measuring Fatigue, one Suicidality item, and one Shame item (measuring Self-Criticism).

The "General Distress: Anxious Symptoms" category had four items measuring

Table 19

Content analysis of the Items Considered in the Watson and Colleagues (1995b) Study.

SCALE / Item from Watson et al., 1995b	Symptom Category from Current Study
GENERAL DISTRESS: MIXED SYMPTOMS	
Worried a lot about things	Worry
Trouble concentrating	Cognitive Disturbance
Felt dissatisfied with things	Self-Critical
Felt confused	Cognitive Disturbance
Felt irritable	Irritability
Trouble making decisions	Cognitive Disturbance
Trouble paying attention	Cognitive Disturbance
Felt restless	Motor Tension
Felt something awful would happen	Fear
Got fatigued easily	Fatigue
Trouble remembering things	Cognitive Disturbance
Trouble falling asleep	Sleep Disturbance
Trouble staying asleep	Sleep Disturbance
Loss of appetite	Appetite Disturbance
Slept very well (-)	Sleep Disturbance
GENERAL DISTRESS: DEPRESSIVE SYMPTOMS	
Felt depressed	Dysphoric Mood
Felt discouraged	Self-Critical
Felt sad	Dysphoric Mood
Felt hopeless	Hopelessness
Disappointed in myself	Self-Critical
Felt like crying	Dysphoric Mood
Felt like a failure	Self-Critical
Felt worthless	Self-Esteem (-)

Table 19 (cont'd).

SCALE / Item from Watson et al., 1995b	Symptom Category from Current Study
GENERAL DISTRESS: DEPRESSIVE SYMPTOMS	**(Cont'd)**
Blamed myself for things	Guilt
Felt inferior to others	Self-Esteem
Pessimistic about the future	Hopelessness
Felt tired or sluggish	Fatigue
GENERAL DISTRESS: ANXIOUS SYMPTOMS	
Felt tense: "high strung"	Vigilance
Felt uneasy	too vague to categorize
Felt nervous	Vigilance
Felt afraid	Fear
Felt "on edge," keyed up	Vigilance
Unable to relax	Vigilance
Lump in my throat	Autonomic Hyperarousal
Upset stomach	Autonomic Hyperarousal
Tense or sore muscles	Motor Tension
Felt nauseous	Autonomic Hyperarousal
Had diarrhea	Autonomic Hyperarousal
LOSS OF INTEREST	
Felt unattractive	Self-Critical
Felt that nothing was enjoyable	Anhedonia
Felt withdrawn from others	Anhedonia
Took extra effort to get started	Fatigue
Felt slowed down	Fatigue
Nothing was interesting or fun	Anhedonia
Felt bored	Anhedonia
Thought about death, suicide	Suicidality

Table 19 (cont'd).

SCALE / Item from Watson et al., 1995b	Symptom Category from Current Study
ANXIOUS AROUSAL	
Felt dizzy, lightheaded	Autonomic Hyperarousal
Was trembling, shaking	Motor Tension
Shaky hands	Motor Tension
Trouble swallowing	Autonomic Hyperarousal
Short of breath	Autonomic Hyperarousal
Dry mouth	Autonomic Hyperarousal
Twitching or trembling muscles	Motor Tension
Hot or cold spells	Autonomic Hyperarousal
Cold or sweaty hands	Autonomic Hyperarousal
Felt like I was choking	Autonomic Hyperarousal
Felt faint	Autonomic Hyperarousal
Pain in chest	Motor Tension
Racing or pounding heart	Autonomic Hyperarousal
Felt numbness or tingling	Autonomic Hyperarousal
Afraid I was going to die	Fear
Had to urinate frequently	Autonomic Hyperarousal
Easily startled	Autonomic Hyperarousal
HIGH POSITIVE AFFECT	
Felt really lively, "up" *	Dysphoric Mood (-)
Felt really happy *	Dysphoric Mood (-)
Felt I had a lot of energy *	Fatigue (-)
Was having a lot of fun *	Anhedonia (-)
Felt I had much to look forward to *	Hopelessness (-)
Felt good about myself *	Self-Esteem
I had many interesting things to do *	Anhedonia (-)

Table 19 (cont'd).

SCALE / Item from Watson et al., 1995b	Symptom Category from Current Study
HIGH POSITIVE AFFECT (Cont'd)	
Felt confident	Self-Esteem
Looked forward to things *	Hopelessness (-)
Felt I had accomplished a lot *	Self-Critical (-)
Was proud of myself *	Self-Critical (-)
Felt cheerful *	Dysphoric Mood (-)
Felt successful	Self-Critical (-)
Felt optimistic *	Hopelessness (-)
Felt really talkative	Anhedonia (-)
Moved quickly and easily *	Fatigue (-)
Felt hopeful about the future *	Hopelessness (-)
Able to laugh easily	Dysphoric Mood (-)
Felt like being with others	Anhedonia (-)
Felt very clearheaded	Cognitive Disturbance (-)
Thoughts came to me very easily	Cognitive Disturbance (-)
Felt very alert	Fatigue (-)
Could do everything I needed to	Anhedonia (-)
Felt I didn't need much sleep	Fatigue (-)

(-) Reverse scored.

* Selected as reverse keyed item for the Anhedonic Depression scale by Watson et al, 1995b.

Autonomic Hyperarousal, one item measuring Motor Tension, four items measuring Vigilance, one item measuring Fear, and one final item ("felt uneasy") that was too vague to categorize effectively.

The "General Distress: Depressive Symptoms" category had five items measuring Shame (three measuring Self-Criticism and two measuring low Self-Esteem), three items measuring Dysphoric Mood, two measuring Hopelessness, and one measuring Guilt.

The "General Distress" category had 15 items: five measuring Cognitive Disturbance, two measuring Depression (one Fatigue item and one Irritability item), one measuring Shame, one measuring Worry, one measuring Appetite Disturbance, and one measuring Sleep Disturbance.

They also had a category that is radically different in content from the symptoms usually listed for anxiety and depression: the "High Positive Affect" category (which they also termed "Anhedonic Depression") had 14 items. These items were designed to measure feelings of happiness, energy, and positive self-regard. The items can also be classified as the bipolar opposites of some of the symptoms for depression. Looking at the scale this way produced the following analysis: two items measuring Anhedonia, three measuring Fatigue, three measuring Hopelessness, three measuring Dysphoric Mood, and two measuring Shame (i.e., low Self-Esteem). Thus, of the 14 "Anhedonic Depression" items, only two items specifically consider Anhedonia; the other 12 tap different dimensions.

Watson and colleagues (1995a) ultimately reverse scored the "High Positive

Affect" items and combined them with the "Loss of Interest" items to form a measure intended to be specific to depression and separate from General Distress. However, careful examination of the factor loadings shows that there is no basis for this combination. The remaining depression items correlate just as highly with the Positive Affect factor as do the "Loss of Interest" items. Furthermore, there is only a modest correlation between the "High Positive Affect" item construct and the depression item construct (r = -.50). However, it is possible that that correlation may be lowered due to nonlinearity. The real correlation may in actuality be much higher.

Because strong markers of both anxiety and depression were included in the General Distress category, it is not surprising that it correlated highly with both anxiety and depression factors. However, invoking a "General Distress" category does little to tease out the salient components of depression and anxiety, once arousal and anhedonia have been factored out. A content analysis of the items within the categories supports the contention that there are two major categories of symptoms within the category of anxiety: the first characterized by primarily physiological symptoms associated with Autonomic Hyperarousal and Motor Tension, the second characterized by primarily psychological symptoms associated with Fear and Vigilance. In my study, when I split the original Anxiety cluster into two separate clusters, depending on the level of correlation, I found that the physiological symptoms defined one factor, which I termed "Pure" anxiety symptoms, whereas the psychological symptoms defined a second factor, which I termed "Mixed" symptoms of anxiety.

The construct of Depression appears to be somewhat more complex. When I broke down the Depressive symptoms into those which were relatively "Pure" versus those which were more "Mixed" markers of depression, I found that my results, in this case, were largely at odds with those of Watson and colleagues (1995b) in that their analysis did not distinguish between anhedonia and fatigue. To the contrary, my best markers of "Pure" Depression were the clusters of Fatigue, Irritability, and Hopelessness, whereas the superordinate cluster of "Mixed" Depression contained Dysphoric Mood, Anhedonia, and Worry. Notably, in the current study the high correlation between the categories of "Pure" and "Mixed" Depression appears to be due largely to the high correlations between the various variants of dysphoric mood: Dysphoric Mood, Worry, and Irritability, rather than the relatively lower correlations between Fatigue and Anhedonia. Results from the current study do not support Watson and Clark's conceptualization of depression.

Consistent with my own data, Watson and his colleagues (1995b) found that items associated with Shame, such as self-criticism and low self-esteem, tended to correlate more highly with items associated with depression than with items associated with anxiety. However, including these items within their "General Distress: Depressive Symptoms" may be a poor solution. My findings support a correlation between Shame and Depression (r = .76); however this correlation is low enough that the two constructs may best be conceptualized as distinct and separate.

The results from the current study suggest that there are meaningful distinctions

between subjective experiences of anxiety and depression in spite of their similarities. These differences may be obscured when "General Distress" is invoked as a means for explaining those similarities.

Confirmation and Disconfirmation of Claims

The "Interpersonal Sensitivity" Scale

The "Interpersonal Sensitivity" scale of the SCL-90 purports to measure what has often been called "rejection sensitivity" in the literature. This construct is often depicted as an aspect of depression (Blatt, 1974), and therefore could be presumed to correlate more highly with depression than with anxiety. However, the "Interpersonal Sensitivity" scale is not homogeneous. A content analysis of its items shows that three concede feelings of being unliked or "Alienated" from others. Three of the items may best be described as "Self-Conscious." One item described feeling critical of others, consistent with items describing "Hostility." The remaining items did not clearly fit with any of the other symptoms, and were not included in further analyses.

The "Interpersonal Sensitivity" scale was also not internally valid; the content did not fit the title. If this had been a valid measure of the construct, we would have expected higher correlations between "Interpersonal Sensitivity" and Depression than Anxiety. The actual differences found were modest: .85 versus .73. Depictions in the literature of rejection sensitivity as an important correlate of anaclitic depression (Blatt, Quinlan, & Chevron, 1990) would lead us to predict higher correlations between "Interpersonal Sensitivity" and Need for Others than Insecurity. This would be consistent with previous

findings that link the anaclitic style to feelings of being unliked or unpopular (Blatt, Hart, Quinlan, Leadbetter, & Auerbach, 1993). These expectations were not born out; "Interpersonal Sensitivity" was actually more strongly associated to Insecurity (the current study cluster composed of introjective items; $\underline{r} = .59$) than to Need for Others (the cluster composed of anaclitic items; $\underline{r} = .47$). We would also have expected to find higher correlations between the "Interpersonal Sensitivity" scale and Irritability and Hostility than were actually found (Becker & Lesiak, 1977).

Taken together, these findings suggest that this scale is not a good measure of the construct. Irritability may be a better measure of rejection sensitivity than the symptom clusters contained within the "Interpersonal Sensitivity" scale of the SCL-90.

Hostility and Irritability

High correlations between anxiety, depression, and correlates of anger, such as hostility and irritability, were found in the current study. These findings support previous work in which significant correlations of these three constructs were found at both the trait (Mook, van der Ploeg, & Kleijn (1990) and state levels (Gotlib & Meyer, 1986; Zuckerman, Persky, Eckman, & Hopkins, 1967). The high correlations found in the current study are more consistent with correlations reported at the state level, which tend to range between .67 and .87 (Gotlib & Meyer, 1986; Zuckerman, Persky, Eckman, & Hopkins, 1967), than with those found at the trait level, which tend to be somewhat lower (Mook, van der Ploeg, & Kleijn, 1990). These high correlations are consistent with expectations predicted by models of depression which focus on the long-term effects of

stress (Gold, Goodwin, & Chrousos, 1988), and may be most indicative of specific subtypes of depression in which anxiety is an integral factor in the development of the disorder (Weiss et. al, 1981).

Correlates of anger, such as hostility and irritability, have been found to be highly linked to depression (Becker & Lesiak, 1977; Biaggio & Godwin, 1987). A closer analysis of the data shows that, in spite of the strong association between Hostility and Irritability (r = .85), their patterns of correlations show them to be distinct constructs that have distinctive links to other affective experiences. In the current study, Irritability was associated more highly with Depression (r = .97) than with Anxiety (r = .78). In contrast, Hostility was linked similarly to both Depression (r = .73) and Anxiety (r = .76). Irritability was associated with greater distress across all factors except Mixed Anxiety; Mixed Anxiety correlated .73 with Irritability and .80 with Hostility.

Guilt

The guilt items in the current study were not homogenous; two items had a distinctly different pattern of correlations than the other nine. An analysis of these items showed that the two distinct items were taken from the BDI. The instructions for this instrument ask the respondent to answer in terms of their experience over the past week. In contrast, the other items were taken from the Chang-Hunter Guilt scale, in which the items are depicted as general statements. In this way, it is likely that the first two guilt items depict a more transient, or state, measure of guilt, whereas the other nine depict a more enduring, or trait, measure of the construct.

In contrast to expectations that guilt would be more highly linked to depression than to anxiety, neither state nor trait Guilt distinguished well between Anxiety and Depression. In the current study, the factor describing symptoms of trait Guilt was correlated .30 with Pure Anxiety and .34 with Pure Depression. By contrast, state Guilt was correlated .69 with Pure Anxiety and .77 with Pure Depression. This large contrast is consistent with previous findings which have suggested that state guilt measures may not be good representatives of more general, or trait, guilt (Charles & Levine, 1995).

Shame, Depression and Anxiety

Many theorists have linked shame to depression. The current results support a stronger link between Shame and Pure Depression (r = .71) than Pure Anxiety (r = .50). However, it is noteworthy that what I have termed "mixed" symptoms of the constructs do not discriminate well; these correlations are .68 and .62 for Depression and Anxiety, respectively. Shame, therefore, may be linked to specific aspects of the depressive experience, or it may be that somatic symptoms are less relevant to the experience of shame than are more psychological experiences of distress.

Anaclitic and Introjective Dimensions

For the purposes of the current study, I selected a subsample of the items which Blatt listed as loading most strongly on each factor, which did not also load significantly on another factor. Using this method produced an "Anaclitic" scale which consists entirely of the items in the Dependency factor, consistent with Blatt's (1974) depiction of the anaclitic dimension as "dependent." However, it should be noted that the two clusters

which make up this factor in the current study are Dependency and Need for Approval. This is contrary to Blatt's (1974) original conceptualization of these two styles, in which it is the introjective style which is linked to need for approval.

In contrast to the homogeneity of the "Anaclitic" scale, the "Introjective" scale that I derived is more diverse. It is composed of all of the items in the Insecurity factor, which included the clusters Unstable, Insufficiency, and Insecure; plus two items from the Self-Critical Cluster; and four items which were difficult to classify and were not included in the content analysis. Two of the omitted items were considered to be too vague for inclusion in the content analysis, but were consistent with a self-critical theme ("There is a considerable difference between how I am now and how I would like to be" and "I tend not to be satisfied with what I have"). Two other omitted items were difficult to classify at all ("No matter how close a relationship between two people is, there is always a large amount of uncertainty and conflict" and "I tend not to be satisfied with what I have"). The heterogeneity of this scale is consistent with Blatt's diffuse depiction of the introjective style as a mixture of self-dissatisfaction, ambivalence toward others, and failure to meet expectations.

Because of the heterogeneity of the Introjective scale and the contamination of the Anaclitic scale with a predominant theme from the original conceptualization of the introjective style, there are severe problems of construct validity in regard to these two scales. Researchers who are trying to understand relationships between dependency and self-criticism and other constructs would be advised to look carefully at the actual content

of these scales before attempting to use them as a measure of those constructs.

Current Anxiety and Depression Scales

We can also begin to evaluate the instruments from the study which are used to measure anxiety and depression. For example, are they overweighting relevant items or, perhaps weighting irrelevant items? To address this question, I looked more closely at the anxiety and depression measures utilized in the study to ascertain how well they sample the symptoms which appear to be most relevant to these constructs (See Table 20).

A content analysis of the BAI shows that two thirds of the items are linked to Pure Anxiety, and only one third are linked to Mixed Anxiety. That is, the BAI consists of 11 items from the Autonomic Hyperarousal cluster, 3 items associated with Motor Tension, 5 items associated with Fear, and 2 items associated with Vigilance. Perusal of the SCL-Anxiety scale shows that half of the items are characteristic of Pure Anxiety, and half are linked to Mixed Anxiety; this scale consists of 1 item from the Autonomic Hyperarousal cluster, 4 items from Motor Tension, and 5 items associated with Fear.

A content analysis of the BDI shows that 19% of the items are linked to Pure Depression; more specifically, there are 2 symptoms of Fatigue, 1 of Irritability, and 1 of Hopelessness. In addition, 33% of the items are linked to Mixed Depression; 2 of Dysphoric Mood and 4 of Anhedonia. Twenty-three percent of the items are linked to Severe Symptoms; 2 of Guilt, 2 of Suicidality, and 2 of Appetite Disturbance. The remaining 23% fall into other categories; 1 of Worry, 4 of Self-Criticism, and 1 of Sleep Disturbance.

Table 20

Number of Items from Each Cluster
Represented in Anxiety and Depression Instruments.

		BAI	SCL-Anxiety	BDI	SCL-Depression
PURE ANXIETY	Autonomic Hyperarousal	11	1		
	Motor Tension	3	4		
MIXED ANXIETY	Fear	5	5		2
	Vigilance	2			
MIXED DEPRESSION	Dysphoric Mood			2	3
	Anhedonia			4	3
	Worry			1	
PURE DEPRESSION	Fatigue			2	2
	Irritability			1	
	Hopelessness			1	1
SEVERE SYMPTOMS	Guilt			2	1
	Suicidality			2	1
	Appetite Disturbance			2	
SHAME	Self-Criticism			4	
	Self-Esteem				1
RESIDUAL	Sleep Disturbance			1	1

A content analysis of the SCL-Depression scale shows that the items in this scale are not as representative of the relevant symptoms as the items in the BDI. Only 23% of the items were linked to Pure Depression; more specifically, 2 of the items were symptoms of Fatigue and 1 of Hopelessness. In addition, 38% of the items were linked to Mixed Depression; 3 of Dysphoric Mood and 3 of Anhedonia. Fifteen percent were linked to Severe Symptoms; 1 of Guilt and 1 of Suicidality. The remaining 28% were linked to other categories; 1 of low Self-Esteem, 1 of Sleep Disturbance, and 2 of Fear.

Examination of the clusters which define the anxiety and depression factors in the current study allows a more specific evaluation of how representative the scales are of the symptoms which appear to be most relevant. A content analysis suggests that the anxiety scales are more representative of the relevant syndrome than are the depression scales.

Symptoms of Anxiety

The present findings regarding symptom clusters associated with anxiety were consistent with previous factor analytic studies in which psychological and somatic clusters were found (Cloninger, 1988b; Buss, 1960). Notably, the symptom clusters of Motor Tension and Autonomic Hyperarousal, which I have termed "Pure Anxiety," were consistent with what Cloninger (1986; 1988b) described as somatic anxiety, and the symptom clusters of Fear and Vigilance which I termed "Mixed Anxiety" were consistent with what Cloninger (1986; 1988b) described as cognitive anxiety.

Somatic symptoms were not as highly linked to dependency as would have been

predicted by previous findings (Beck, Epstein, & Harrison, 1983). This link may be more likely to be found in clinical studies which are able to focus differentially on distinct subtypes of anxiety.

Drug trials support the view that somatic and psychological symptoms of anxiety should be seen as distinct; Benzodiazapines, which affect a subsystem of the gamma-aminobutyric acid (GABA) system, were effective in treating somatic symptoms and in decreasing hypervigilance. In contrast, imipramine, which blocks reuptake of norepinephrine and serotonin affected psychological symptoms, such as anxiety, interpersonal sensitivity, anger-hostility, paranoid ideation, and obsessive compulsive symptoms (Hoehn-Saric, McLeod, & Zimmerli, 1988).

Heterogeneity in the Construct of Depression

The current data suggests that the construct of depression is quite heterogeneous. This is in striking contrast to the symptoms of anxiety, which were (1) more easily described using relatively few factors, and (2) better represented by items in existing instruments. Depression was represented most clearly by the symptoms of fatigue, hopelessness, and irritability. Symptoms of depression with higher correlations with anxiety included dysphoric mood and anhedonia, often considered to be the defining symptoms of depression. In addition, the cluster which I have termed "Severe Symptoms" was largely composed of symptoms associated with depression, such as guilt, appetite disturbance, and suicidality. Notably, the factor I termed "Alienation," composed of items associated with rejection sensitivity, was also highly correlated with symptoms of Mixed

Depression and Severe Symptoms. These symptoms were not included as part of a larger mixed factor because of striking differences in their links to other constructs under study. Notably, Dependency was strongly linked to Alienation (r = .54), and not at all linked to Severe Symptoms (r = .07). The link between Dependency and Mixed Depression fell between these two extremes (r = .28).

It is notable that Dysphoric Mood, a symptom linked conceptually very strongly to depression, was not as strong a marker of this syndrome as were other symptoms. This finding is consistent with suggestions in the literature that depression may present, particularly in adolescence, without dysphoric mood as traditionally conceptualized (Nurcombe et. al., 1989). There are numerous indications in the literature that there are distinct subtypes of depression which may vary considerably in terms of predominant affective experience. For example, van Praag (1994) suggests the existence of a distinct subtype of depression characterized primarily by anxiety and/or aggression deregulation as the primary symptoms, associated with diminished serotonergic metabolism. Within this syndrome, depressed mood is seen as a derivative, rather than a primary, symptom.

Anxiety and Depression

The correlation between Pure Anxiety and Pure Depression is a high .77. However, epidemiological studies typically find an asymmetry in the relationship between them. Patients who are first diagnosed with an anxiety disorder with no severe symptoms of depression are often later given a diagnosis of depression (Angst, Vollrath, Merikangas, & Ernst, 1990). On the other hand, patients who are first diagnosed as depressed without

severe symptoms of anxiety are rarely later diagnosed with anxiety disorders (Angst et al., 1990).

Does the regression plot for Pure Anxiety and Pure Depression show any similar asymmetry? The contingency table for Pure Depression as a function of Pure Anxiety is shown in Table 21. Note that this table is constructed using scale scores which are not perfect measures of the two constructs. The error of measurement produces a blurring of position in this table. In particular, the columns show a larger variation than would be shown for a perfect measure of Pure Depression.

Table 21

Contingency Table Relating Pure Depression and Pure Anxiety

	PURE ANXIETY						
PURE DEPRESSION		**0**	**1**	**2**	**3**	**4**	**Total**
	5					1	**1**
	4		6	1	1	1	**9**
	3	5	5	3	4	1	**18**
	2	34	26	10	1		**71**
	1	76	14	2			**92**
	0	122	4				**126**
	Total	**237**	**55**	**16**	**6**	**3**	**317**

Close examination of this table shows that as anxiety goes up, there is always an increase in depression. That is, this table is consistent with the findings that high levels of anxiety tend to lead to high levels of depression at a later point in time.

On the other hand, consider the data for 0 anxiety. There is a considerable range for depression. The highest levels of depression are not seen for this level of anxiety, but very high levels are seen in the sample. Furthermore, the lack of observations of high depression must be considered in relation to the fact that the onset of depressive disorder tends to be later than onset for anxiety. In this college population, there are many students who will become severely depressed later in life. These may be the missing cases of extreme depression for the low anxiety group.

Thus, there are cases of high depression even for people with no anxiety. This is the asymmetry. High anxiety always accompanies high depression, but high depression can occur without high anxiety. This asymmetry is consistent with research regarding anxiety driven depression. Because at the state level anxiety produces depression, if there is anxiety, then there will be depression (Barlow, 1991). In these cases, serotonergic drugs have been found to be therapeutic. However, many people do not respond to drugs which affect the serotonergic system, suggesting that these individuals are depressed for reasons other than anxiety (van Praag, 1994). Those individuals who are low in anxiety and high on depression are those who tend to report depression first. That group tends to remain stable over time. These findings are not consistent with the learned helplessness findings, and suggest that there is at least one type of depression other than that which is anxiety

driven.

Conclusions as to the Measurement of Anxiety and Depression

The results of this study in part support recent work (Watson et. al, 1995a; 1995b) which suggests that vigilance/arousal best distinguishes anxiety whereas irritability and psychomotor retardation best distinguish depression. The findings do not support the utility of invoking a general distress factor to explain differences between the two syndromes. Relatively high correlations do not tell the whole story; in spite of commonalities between the negative affects, this study points to clear and potentially meaningful distinctions between these symptoms, as well.

Future research with clinical and older adult populations will help to elucidate whether the current findings will generalize beyond a non-clinical young adult sample. The literature would suggest that anxiety and depression should show greater differentiation in clinical samples (Nurcombe et al., 1989) and greater comorbidity with increasing age (Brady & Kendall, 1992).

Overall, the results of the analyses point to validation problems when measuring complex constructs. There were often no clear distinctions between state versus trait measure of the same construct, and many of the constructs were erroneously named, inadequately sampled, or confounded in widely-used instruments.

In light of the variety of treatments available to address symptoms of mood disorders, including both anxiety and depressive syndromes, it becomes particularly important to distinguish clusters of symptoms which may have implications for treatment

choice. The severity and the seriousness of certain associated symptoms, such as suicidality, make it particularly important to clarify symptom-treatment links. At this point in time, there are numerous attempts to reconcile clinical understanding with neurophysiological research, and to make sense of conflicting findings regarding psychotherapeutic versus medical interventions (Schore, 1994). This type of integration of theory and research may help us to focus our understanding toward more efficient and effective intervention.

APPENDIX A

APPENDIX A

ITEMS BY THEME - ALL SCALES

601-FEAR

143.	SCL-ANX	Suddenly scared for no reason.
151.	SCL-ANX	Feeling fearful.
172.	SCL-ANX	Spells of terror or panic.
177.	SCL-ANX	The thought that something bad is going to happen to you.
179.	SCL-ANX	Thoughts and images of a frightening nature.
142.	SCL-DEP	Feeling of being caught or trapped.
184.	BAI	Fear of the worst happening.
188.	BAI	Terrified.
193.	BAI	Fear of losing control.
195.	BAI	Fear of dying.
196.	BAI	Scared.

602-MOTOR TENSION

130.	SCL-SOM	Headaches.
136.	SCL-SOM	Pains in heart or chest.
146.	SCL-SOM	Pains in lower back.
158.	SCL-SOM	Soreness of your muscles.
131.	SCL-ANX	Nervousness or shakiness inside
139.	SCL-ANX	Trembling.
175.	SCL-ANX	Feeling so restless you couldn't sit still.
187.	BAI	Unsteady.

602-MOTOR TENSION (cont'd).

191.	BAI	Hands trembling.
192.	BAI	Shaky

603-AUTONOMIC HYPERAROUSAL

132.	SCL-SOM	Faintness or dizziness.
156.	SCL-SOM	Nausea or upset stomach.
159.	SCL-SOM	Trouble getting your breath.
160.	SCL-SOM	Hot or cold spells.
162.	SCL-SOM	A lump in your throat.
155.	SCL-ANX	Heart pounding or racing.
180.	BAI	Numbness or tingling.
181.	BAI	Feeling hot.
182.	BAI	Wobbliness in legs.
185.	BAI	Dizzy or lightheaded.
186.	BAI	Heart pounding or racing.
190.	BAI	Feelings of choking.
194.	BAI	Difficulty breathing.
197.	BAI	Indigestion or discomfort in the abdomen.
198.	BAI	Faint.
199.	BAI	Face flushed.
200.	BAI	Sweating (not due to heat).

604-VIGILANCE

165.	SCL-ANX	Feeling tense or keyed up.
183.	BAI	Unable to relax.

604-VIGILANCE (cont'd)

189.	BAI	Nervous.

605-IRRITABILITY

135.	SCL-HOST	Feeling easily annoyed or irritated.
118.	BDI	I don't get irritated at all by the things that used to irritate me.

606-INSECURITY

35.	INTROJ	I never really feel secure in a close relationship.
37.	INTROJ	Often, I feel threatened by change.

607-UPSET

207.	NEGAFF	I sometimes get too upset by minor setbacks.
229.	NEGAFF	I can get very upset when little things don't go my way.
254.	NEGAFF	I don't get very upset when things go wrong. (-)
263.	NEGAFF	Little things upset me too much.

608-TENSE

210.	NEGAFF	I sometimes feel "on edge" all day.
236.	NEGAFF	I would describe myself as a tense person.
257.	NEGAFF	I often feel nervous and "stressed."

609-WORRY

149.	SCL-DEP	Worrying too much about things.
128.	BDI	I am so worried about my physical problems that I cannot think about anything else.

610-DYSPHORIC MOOD

140.	SCL-DEP	Crying easily.
147.	SCL-DEP	Feeling lonely.
117.	BDI	I used to be able to cry, but now I can't cry even when I want to.
108.	BDI	I am so sad or unhappy that I can't stand it.
148.	SCL-DEP	Feeling blue.

611-FATIGUE

137.	SCL-DEP	Feeling low in energy or slowed down.
171.	SCL-DEP	Feeling everything is an effort.
122.	BDI	I can't do any work at all.
124.	BDI	I am too tired to do anything.

612-ENERGY

202.	ENERGY	I sometimes rush from one activity to another without pausing for rest.
205.	ENERGY	I lead an active life.
226.	ENERGY	Other people sometimes have trouble keeping up with the pace I set.
238.	ENERGY	I put a lot of energy in everything I do.
245.	ENERGY	I can work hard, and for a long time, without feeling tired.
248.	ENERGY	My pace is usually quick and lively.
253.	ENERGY	Most days I have a lot of "pep" or vigor.
256.	ENERGY	People would describe me as a pretty energetic person.
260.	ENERGY	In my life, I would rather try to do to much than too little.
274.	ENERGY	I am sometimes "on the go" so much that I wear myself out.
279.	ENERGY	I have more energy than most people I know.
288.	ENERGY	People sometimes tell me to slow down and "take it easy."

613-ENTHUSIASM

215.	POSTEMP	I get excited when I think about the future.
262.	POSTEMP	I get pretty excited when I'm starting a new project.
235.	POSTEMP	I am usually alert and attentive.
217.	POSAFF	People would describe me as a pretty enthusiastic person.
290.	POSAFF	I am usually pretty excited about the things that I do.

614-SLEEP DISTURBANCE

123.	BDI	I wake up earlier than I used to and can't get back to sleep.

615-APPETITE DISTURBANCE

125.	BDI	I have no appetite at all any more.
126.	BDI	I have lost more than 15 pounds.

616-COGNITIVE DIFFICULTIES

244.	NEGTEMP	Sometimes life seems pretty confusing to me.
247.	NEGTEMP	I am sometimes troubled by thoughts or ideas that I can't get out of my mind.

617-DEPENDENCY

2.	ANACL	Without support from others who are close to me, I would be helpless.
9.	ANACL	The lack of permanence in human relationships doesn't bother me. (-)
20.	ANACL	I would feel like I'd be losing an important part of myself if I lost a very close friend.
23.	ANACL	I often think about the danger of losing someone who is close to me.
38.	ANACL	Even if the person who is closest to me were to leave, I could still "go it alone." (-)

617-DEPENDENCY (cont'd)

50.	ANACL	If someone I cared about became angry with me, I would feel threatened that he (she) might leave me.
55.	ANACL	After an argument, I feel very lonely.
65.	ANACL	Being alone doesn't bother me at all.

618-INSUFFICIENCY

11.	INTROJ	Many times I feel helpless.
16.	INTROJ	There are times when I feel "empty" inside.

619-NEED FOR APPROVAL

34.	ANACL	I find it very difficult to say "no" to the requests of friends.
45.	ANACL	I worry a lot about hurting or offending someone who is close to me.
12.	ANACL	I seldom worry about being criticized for things I have said or done. (-)
26.	ANACL	I am not very concerned with how other people respond to me. (-)
32.	ANACL	I constantly try, and very often go out of my way, to please or help people I am close to.

620-SELF-CRITICISM

110.	BDI	I feel I am a complete failure as a person.
114.	BDI	I hate myself.
115.	BDI	I blame myself for everything bad that happens.
7.	INTROJ	I often find that I don't live up to my own ideals or standards.
121.	BDI	I believe that I look ugly.
62.	INTROJ	I am very satisfied with myself and my accomplishments.

621-ANHEDONIA

133.	SCL-DEP	Loss of sexual interest or pleasure.
150.	SCL-DEP	Feeling no interest in things.
111.	BDI	I am dissatisfied or bored with everything.
119.	BDI	I have lost interest in other people.
129.	BDI	I have lost interest in sex completely.
120.	BDI	I can't make decisions at all anymore.

622-SELF-ESTEEM

33.	SELF-EFF	I have many inner resources (abilities, strengths).
59.	SELF-EFF	What I do and say has a very strong impact on those around me.
60.	SELF-EFF	I sometimes feel that I am "special."
157.	SCL-INTP	Feeling inferior to others. (-)
176.	SCL-DEP	Feelings of worthlessness. (-)

623-EFFICACY

1.	SELFEFF	I set my personal goals and standards as high as possible.
15	SELFEFF	I feel I have many responsibilities I must meet.
24.	SELFEFF	Other people have high expectations of me.

624-UNSTABLE

36.	INTROJ	The way I feel about myself frequently varies: There are times when I feel extremely good about myself and other times when I see only the bad in me and feel like a total failure.
58.	INTROJ	Very frequently, my feelings toward someone close to me vary: There are times when I feel completely angry, and other times when I feel all-loving towards that person.

625-STATE GUILT

112.	BDI	I feel guilty all the time.
113.	BDI	I feel I am being punished.

626-ANGER

214.	NEGAFF	My anger frequently gets the better of me.
233.	NEGAFF	I often take my anger out on those around me.
283.	NEGAFF	I sometimes feel angry for no good reason.

627-HOSTILITY

134.	SCL-INTP	Feeling critical of others.
144.	SCL-HOST	Temper outbursts that you could not control.
168.	SCL-HOST	Having urges to beat, injure, or harm someone.
169.	SCL-HOST	Having urges to break or smash things.
174.	SCL-HOST	Getting into frequent arguments.
178.	SCL-HOST	Shouting or throwing things.

628-NEGATIVE AFFECTIVITY

204.	NEGAFF	I often experience strong emotions such as anxiety or anger without knowing why.
281.	NEGAFF	Things seem to bother me less than most other people. (-)

629-POSITIVE AFFECTIVITY

201.	POSAFFC	I have the ability to approach tasks in such a way that they become interesting or fun.
211.	POSAFFC	I lead a very interesting life.
223.	POSAFFC	In my life, interesting and exciting things happen every day.

629-POSITIVE AFFECTIVITY (cont'd)

230.	POSAFFC	I live a very full life.
242.	POSAFFC	It takes a lot to get me excited. (-)
286.	POSAFFC	I often feel lively and cheerful for no particular reason.

630-HOPELESSNESS

109.	BDI	I feel that the future is hopeless and that things cannot improve.
163.	SCL-DEP	Feeling hopeless about the future.

631-SUICIDALITY

116	BDI	I would kill myself if I had the chance.
138.	SCL-DEP	Thoughts of ending your life.

632-SELF-CONSCIOUS

167.	SCL-INTP	Feeling uneasy when people are watching you or talking about you.
170.	SCL-INTP	Feeling very self-conscious with others.
173.	SCL-INTP	Feeling uncomfortable about eating or drinking in public.

633-IMPULSIVITY

209.	DISINHIB	I often stop in the middle of one activity to start another one.
216.	DISINHIB	Before I make a decision I usually try to consider all sides of the issue. (-)
227.	DISINHIB	The way I behave often gets me into trouble on the job, at home, or at school.
237.	DISINHIB	I rely on careful reasoning when making up my mind. (-)
249.	DISINHIB	I always try to be fully prepared before I begin working on anything. (-)
258.	DISINHIB	I am not an "impulse buyer." (-)

633-IMPULSIVITY (cont'd)

270. DISINHIB When I'm having a good time, I don't worry about the consequences.

273. DISINHIB I am a cautious person. (-)

634-IRRESPONSIBILITY

261. DISINHIB I am a serious-minded person. (-)

635-PERSISTENCE

222. DISINHIB I work just hard enough to get by.

(Also in 640)

636-PLAYFULNESS

218. POSAFFC People would describe me as a pretty enthusiastic person.

241. POSAFFC I can make a game out of some things that others consider work.

271. POSAFFC I often feel playful around other people.

637-ANTISOCIAL

219. DISINHIB I believe in strictly playing by the rules. (-)

234. DISINHIB I greatly dislike it when someone breaks accepted rules of good behavior. (-)

250. DISINHIB I would not use others' weaknesses to my own advantage. (-)

252. DISINHIB I really enjoy beating the system.

267. DISINHIB Lying comes easily to me.

275. DISINHIB I've done a lot of things for which I could have been (or was) arrested.

278. DISINHIB When I decide things, I always refer to the basic rules of right and wrong. (-)

282. DISINHIB I often get out of things by making up believable excuses.

637-ANTISOCIAL (cont'd)

284.	DISINHIB	I get the most fun out of things that others consider immoral or illegal.
285.	DISINHIB	I would never hurt other people just to get what I want. (-)
289.	DISINHIB	At times I've done some petty thievery.

638-SENSATION SEEKING

213.	DISINHIB	If I had to choose, I would prefer having to sit through a long concert of bad music to being in a bank during an armed robbery. (-)
225.	DISINHIB	I rarely, if ever, do anything reckless. (-)
228.	DISINHIB	I get a kick out of really scaring people.
231.	DISINHIB	If I had to choose, I would prefer being in a flood to unloading a ton of newspapers from a truck.
240.	DISINHIB	I would much rather party than work.
277.	DISINHIB	I spend a good deal of my time just having fun.
287.	DISINHIB	I don't ever like to stay in one place for long.
264.	DISINHIB	I like to show-off.
269.	POSAFFC	I like to stir up some excitement when things are getting dull.

639-DISORGANIZATION

280.	DISINHIB	Taking care of details is not my strong point.

640- AMBITIOUS

222.	DISINHIB	I work just hard enough to get by. (-)
255.	DISINHIB	I've been told that I work too hard.

641-ROSENBERG SELF-ESTEEM SCALE

67.	SE	On the whole, I am satisfied with myself.
70.	SE	I feel that I have a number of good qualities.
73.	SE	I feel I do not have much to be proud of. (-)
74.	SE	I feel that I am a person of worth, at least on an equal plane with others.
80.	SE	At times I think I am no good at all. (-)
82.	SE	I am able to do things as well as most other people.
84.	SE	I take a positive attitude toward myself.
88.	SE	All in all, I am inclined to think I am a failure. (-)
91.	SE	I certainly feel useless at times. (-)
93.	SE	I wish I could have more respect for myself. (-)

642-MASTERY SCALE

71.	MAST	If I put my mind to it I can learn almost anything.
76.	MAST	I find life an endless series of problems with no end in sight. (-)
78.	MAST	Most of the time I think that the world is an exciting place to live in.
79.	MAST	My work in general is at least as good as the work of the guy next to me.
81.	MAST	When I decide to do something, I do it.
83.	MAST	I feel that I have no talent whatsoever. (-)
85.	MAST	I repeat things continuously to be sure that I am right. (-)
86.	MAST	When I want something, I just sit around wishing I could have it. (-)
90.	MAST	I feel that I am able to make decisions.
94.	MAST	I am fearful of growing up. (-)

643-COOK SHAME SCALE

97.	SHAME	I feel like I am never quite good enough.
98.	SHAME	I feel somehow left out.
99.	SHAME	I think that people look down on me.
100.	SHAME	Compared to other people I feel like I somehow never measure up.
101.	SHAME	I scold myself and put myself down.
102.	SHAME	I see myself as being very small and insignificant.
103.	SHAME	I say to myself, "how could anyone really love me or care about me?"
104.	SHAME	I feel defective as a person, as if something is basically wrong with me.
105.	SHAME	I feel intensely inadequate and full of self-doubt.
106.	SHAME	I see myself striving for perfection only to continually fall short.

644-CHANG - HUNTER GUILT SCALE (TRAIT GUILT)

68.	GUILT	I often cannot forgive myself for having caused deep pain in those I love or care for.
69.	GUILT	I feel horrible for having hostile feelings toward other people.
72.	GUILT	I have felt very guilty for letting down those close to me.
75.	GUILT	It bothers me that I have not done more for my parents or family members.
77.	GUILT	I have felt very guilty for not being there when someone close to me needed me.
87.	GUILT	Sometimes I cannot forgive myself for how I have treated others.
89.	GUILT	Sometimes I hurt people I love or care for and feel very guilty about it afterwards.
92.	GUILT	When I let my anger out, I often feel very guilty afterwards.
95.	GUILT	I often feel guilty for being better off than my family members.

645-IRRITABILITY (GTS)

220.	NEGTEMP	Small annoyances often irritate me.
259.	NEGTEMP	I have days that I'm very irritable.

646-WORRY (GTS)

212.	NEGTEMP	I frequently find myself worrying about things.
239.	NEGTEMP	I often worry about things I have said or done.
272.	NEGTEMP	I worry too much about things that don't really matter.

647- FEAR (GTS)

221.	NEGTEMP	Sometimes I will suddenly feel scared for no reason.
268.	NEGTEMP	I worry about terrible things that might happen.

648- SLEEP DISTURBANCE (GTS)

251.	NEGTEMP	I often have difficulty sleeping because of my worries.

649- ALIENATED

152.	SCL-INTP	Your feelings being easily hurt.
153.	SCL-INTP	Feeling others do not understand you or are unsympathetic.
154.	SCL-INTP	Feeling that people are unfriendly or dislike you.

RESIDUAL ITEMS

141.	SCL-INTP	Feeling shy or uneasy with the opposite sex.
157.	SCL-INTP	Feeling inferior to others.
276.	NEGTEMP	Often life feels like a big struggle.
251.	NEGTEMP	I often have difficulty sleeping because of my worries.

RESIDUAL ITEMS (cont'd)

265. NEGTEMP I am often troubled by guilt feelings.

APPENDIX B

Table 22

Correlation Matrix for all Scales Defined by Content Analysis

THEME	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Fear (NWC)	100	89	79	81	75	57	35	42	96	78	72	-18	-44	35	69	26
2. Motor Tension	89	100	96	83	79	46	37	46	99	76	74	-18	-36	44	75	21
3. Autonomic Hyperarousal	79	96	100	68	68	31	28	30	90	67	71	-11	-27	42	82	9
4. Vigilance (Tense)	81	83	68	100	75	46	53	65	101	77	72	-16	-31	36	46	44
5. Irritability*	75	79	68	75	100	58	67	58	124	95	96	-22	-39	40	71	34
6. Insecure	57	46	31	46	58	100	46	50	75	58	54	-40	-54	26	31	31
7. Upset	35	37	28	53	67	46	100	79	68	42	40	-4	-17	15	26	52
8. Tense*	42	46	30	65	58	50	79	100	74	45	47	-5	-16	17	9	53
9. Worry*	96	99	90	101	124	75	68	74	100	106	111	-33	-51	68	108	54
10. Dysphoric Mood	78	76	67	77	95	58	42	45	106	100	81	-29	-49	40	69	40
11. Fatigue	72	74	71	72	96	54	40	47	111	81	100	-34	-42	45	69	40
12. Energy*	-18	-18	-11	-16	-22	-40	-4	-5	-33	-29	-34	100	90	-21	-8	-19
13. Enthusiasm*	-44	-36	-27	-31	-39	-54	-17	-16	-51	-49	-42	90	100	-29	-31	-18
14. Sleep Disturbance	35	44	42	36	40	26	15	17	68	40	45	-21	-29	100	57	10
15. Appetite Disturbance	69	75	82	46	71	31	26	9	108	69	69	-8	-31	57	100	21
16. Cognitive Difficulties*	26	21	9	44	34	31	52	53	54	40	40	-19	-18	10	21	100
17. Dependency	39	32	19	46	46	75	46	39	58	42	43	-4	-17	14	12	44

Table 22 (cont'd).

THEME	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
18. Insufficiency	60	60	47	61	70	87	58	60	78	68	61	-27	-35	28	27	61
19. Need for Approval	48	40	24	55	48	103	39	49	55	41	36	-12	-14	14	23	47
20. Self-Critical	73	62	54	50	83	73	38	43	94	70	72	-39	-50	41	66	38
21. Anhedonia	70	72	66	59	78	50	31	30	97	75	83	-26	-46	41	89	33
22. Self-Esteem	-61	-62	-54	-43	-63	-58	-33	-32	-73	-62	-60	45	49	-35	-69	-16
23. Self-Efficacy	-2	-9	-12	12	-8	8	4	10	-5	-8	-9	40	28	-14	-38	7
24. Unstable	38	28	20	47	57	92	52	59	56	43	42	-28	-31	18	-5	49
25. Persistence*	12	4	2	10	22	19	12	14	17	9	15	-24	-17	4	-8	17
26. Guilt	78	71	65	49	74	49	18	26	99	68	72	-13	-26	36	106	27
27. Anger*	44	41	38	33	68	65	85	58	50	46	39	-7	-28	17	41	42
28. Hostility	76	79	78	63	85	48	45	34	95	64	68	-22	-39	42	75	12
29. Negative Affectivity*	51	48	32	68	69	81	107	82	91	62	65	-33	-47	24	27	58
30. Positive Affectivity*	-35	-37	-21	-32	-43	-60	-22	-21	-50	-54	-46	85	91	-24	-20	-18
31. Hopelessness	80	68	60	65	86	66	35	36	94	84	80	-28	-56	43	77	36
32. Suicidality	74	69	67	47	62	34	26	21	78	65	49	-19	-38	26	91	25
33. Self-Consciousness	69	73	62	71	76	50	46	48	89	70	69	-25	-25	40	49	24

Table 22 (cont'd).

THEME	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
34. Impulsive	24	19	17	5	21	30	14	12	27	14	19	-21	-46	14	35	9
35. Irresponsible	7	-3	1	-2	4	-3	-18	-10	-1	1	3	-14	-11	4	6	-6
36. Playful	-36	-29	-21	-16	-26	-53	-19	-29	-40	-46	-43	76	92	-18	-28	-1
37. Antisocial	14	18	17	-10	8	9	2	-5	9	8	19	-30	-46	12	37	1
38. Sensation Seeking	-2	-4	-2	-6	8	6	5	10	-15	-10	-9	14	8	-4	7	10
39. Disorganized	11	6	9	2	4	9	0	-6	20	7	12	-11	-18	11	16	2
40. Ambitious	11	-3	-1	2	26	26	1	3	18	10	27	-58	-23	9	-17	26
41. Self-Esteem (Rosenberg)	-53	-47	-38	-37	-57	-69	-35	-42	-66	-49	-51	43	44	-26	-53	-27
42. Mastery (Offer)	-48	-39	-31	-36	-51	-66	-25	-41	-63	-43	-46	50	57	-31	-52	-26
43. Shame (Cook)	56	50	37	50	66	68	46	47	76	57	57	-32	-37	30	43	37
44. Guilt (Chang & Hunter)	36	35	26	32	45	51	37	38	49	31	32	-4	-9	12	20	44
45. Irritability*	18	18	14	37	67	41	105	74	27	33	34	4	-5	4	-18	55
46. Worry*	40	40	29	56	64	51	85	78	79	48	47	-11	-16	12	24	70
47. Fear*	70	45	33	52	50	55	63	77	85	54	41	-13	-34	28	30	55
48. Sleep Disturbance*	27	24	22	38	32	40	37	53	53	32	37	-11	-11	34	20	23
49. Alienation	80	75	65	79	93	52	57	50	107	92	78	-20	-29	37	54	44

Table 22 (cont'd).

THEME	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
1. Fear (NWC)	39	60	48	73	70	-61	-2	38	12	78	44	76	51	-35	80	74
2. Motor Tension	32	60	40	62	72	-62	-9	28	4	71	41	79	48	-37	68	69
3. Autonomic Hyperarousal	19	47	24	54	66	-54	-12	20	2	65	38	78	32	-21	60	67
4. Vigilance (Tense)	46	61	55	50	59	-43	12	47	10	49	33	63	68	-32	65	47
5. Irritability*	46	70	48	83	78	-63	-8	57	22	74	68	85	69	-43	86	62
6. Insecure	75	87	103	73	50	-58	8	92	19	49	65	48	81	-60	66	34
7. Upset	46	58	39	38	31	-33	4	52	12	18	85	45	107	-22	35	26
8. Tense*	39	60	49	43	30	-32	10	59	14	26	58	34	82	-21	36	21
9. Worry*	58	78	55	94	97	-73	-5	56	17	99	50	95	91	-50	94	78
10. Dysphoric Mood	42	68	41	70	75	-62	-8	43	9	68	46	64	62	-54	84	65
11. Fatigue	43	61	36	72	83	-60	-9	42	15	72	39	68	65	-46	80	49
12. Energy*	-4	-27	-12	-39	-26	45	40	-28	-24	-13	-7	-22	-33	85	-28	-19
13. Enthusiasm*	-17	-35	-14	-50	-46	49	28	-31	-17	-26	-28	-39	-47	91	-56	-38
14. Sleep Disturbance	14	28	14	41	41	-35	-14	18	4	36	17	42	24	-24	43	26
15. Appetite Disturbance	12	27	23	66	89	-69	-38	-5	-8	106	41	75	27	-20	77	91
16. Cognitive Difficulties*	44	61	47	38	33	-16	7	49	17	27	42	12	58	-18	36	25
17. Dependency	100	74	86	42	19	-21	32	58	13	17	30	23	68	-9	45	6

Table 22 (cont'd).

THEME	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
18. Insufficiency	74	100	64	70	52	-51	12	95	10	44	44	43	76	-42	65	30
19. Need for Approval	86	64	100	50	15	-15	57	64	18	23	28	29	65	-17	41	21
20. Self-Critical	42	70	50	100	74	-85	-19	56	25	84	53	65	60	-57	87	68
21. Anhedonia	19	52	15	74	100	-67	-16	31	9	80	39	74	44	-56	86	70
22. Self-Esteem	-21	-51	-15	-85	-67	100	74	-22	-22	-67	-63	-62	-51	59	-68	-63
23. Self-Efficacy	32	12	57	-19	-16	74	100	15	-31	-18	-28	-15	-5	33	-15	-26
24. Unstable	58	95	64	56	31	-22	15	100	16	25	36	28	69	-37	49	17
25. Persistence*	13	10	18	25	9	-22	-31	16	100	12	22	13	17	-15	19	11
26. Guilt	17	44	23	84	80	-67	-18	25	12	100	39	66	39	-35	73	86
27. Anger*	30	44	28	53	39	-63	-28	36	22	39	100	60	90	-31	47	42
28. Hostility	23	43	29	65	74	-62	-15	28	13	66	60	100	54	-33	63	64
29. Negative Affectivity*	68	76	65	60	44	-51	-5	69	17	39	90	54	100	-40	54	44
30. Positive Affectivity*	-9	-42	-17	-57	-56	59	33	-37	-15	-35	-31	-33	-40	100	-59	-29
31. Hopelessness	45	65	41	87	86	-68	-15	49	19	73	47	63	54	-59	100	72
32. Suicidality	6	30	21	68	70	-63	-26	17	11	86	42	64	44	-29	72	100
33. Self-Consciousness	51	65	66	65	64	-63	-2	52	14	55	40	65	62	-37	62	47

Table 22 (cont'd).

THEME	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
34. Impulsive	17	24	10	41	28	-37	-44	19	40	16	45	32	33	-23	41	34
35. Irresponsible	2	-3	-13	8	0	-2	-23	12	17	8	2	4	-8	-2	7	1
36. Playful	-2	-24	18	-50	-55	59	27	-17	-11	-35	-29	-38	-36	112	-49	-38
37. Antisocial	0	10	-7	16	18	-26	-43	1	27	9	23	29	15	-22	4	19
38. Sensation Seeking	-9	-1	8	7	-1	0	-14	13	39	5	23	19	-9	15	5	5
39. Disorganized	10	13	-6	13	20	-18	-19	10	9	9	13	12	6	-19	15	9
40. Ambitious	27	16	35	34	3	-32	-55	21	133	4	11	9	16	-22	27	-1
41. Self-Esteem (Rosenberg)	-32	-63	-38	-81	-53	84	35	-50	-24	-54	-51	-48	-70	53	-67	-51
42. Mastery (Offer)	-28	-54	-27	-70	-52	79	42	-40	-22	-57	-48	-43	-62	65	-66	-49
43. Shame (Cook)	45	74	49	76	56	-73	-20	57	20	52	47	52	74	-50	65	47
44. Guilt (Chang & Hunter)	41	55	50	43	34	-21	5	48	16	43	35	33	48	-13	35	30
45. Irritability*	39	44	21	21	5	-19	11	57	10	-7	76	36	88	-15	20	-3
46. Worry*	60	59	65	46	27	-32	5	51	14	43	61	35	89	-20	44	24
47. Fear*	59	53	41	53	26	-63	-22	47	30	57	73	48	91	-32	44	48
48. Sleep Disturbance*	25	35	18	26	23	-32	-12	30	3	22	31	18	50	-18	26	14
49. Alienation	46	61	58	68	71	-60	1	45	12	55	45	68	65	-30	70	60

Table 22 (cont'd).

THEME	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49
1. Fear (NWC)	69	24	7	-36	14	-2	11	11	-53	-48	56	36	18	40	70	27	80
2. Motor Tension	73	19	-3	-29	18	-4	6	-3	-47	-39	50	35	18	40	45	24	75
3. Autonomic Hyperarousal	62	17	1	-21	17	-2	9	-1	-38	-31	37	26	14	29	33	22	65
4. Vigilance (Tense)	71	5	-2	-16	-10	-6	2	2	-37	-36	50	32	37	56	52	38	79
5. Irritability*	76	21	4	-26	8	8	4	26	-57	-51	66	45	67	64	50	32	93
6. Insecure	50	30	-3	-53	9	6	9	26	-69	-66	68	51	41	51	55	40	52
7. Upset	46	14	-18	-19	2	5	0	1	-35	-25	46	37	105	85	63	37	57
8. Tense*	48	12	-10	-29	-5	10	-6	3	-42	-41	47	38	74	78	77	53	50
9. Worry*	89	27	-1	-40	9	-15	20	18	-66	-63	76	49	27	79	85	53	107
10. Dysphoric Mood	70	14	1	-46	8	-10	7	10	-49	-43	57	31	33	48	54	32	92
11. Fatigue	69	19	3	-43	19	-9	12	27	-51	-46	57	32	34	47	41	37	78
12. Energy*	-25	-21	-14	76	-30	14	-11	-58	43	50	-32	-4	4	-11	-13	-11	-20
13. Enthusiasm*	-25	-46	-11	92	-46	8	-18	-23	44	57	-37	-9	-5	-16	-34	-11	-29
14. Sleep Disturbance	40	14	4	-18	12	-4	11	9	-26	-31	30	12	4	12	28	34	37
15. Appetite Disturbance	49	35	6	-28	37	7	16	-17	-53	-52	43	20	-18	24	30	20	54
16. Cognitive Difficulties*	24	9	-6	-1	1	10	2	26	-27	-26	37	44	55	70	55	23	44
17. Dependency	51	17	2	-2	0	-9	10	27	-32	-28	45	41	39	60	59	25	46

Table 22 (cont'd).

THEME	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49
18. Insufficiency	65	24	-3	-24	10	-1	13	16	-63	-54	74	55	44	59	53	35	61
19. Need for Approval	66	10	-13	18	-7	8	-6	35	-38	-27	49	50	21	65	41	18	58
20. Self-Critical	65	41	8	-50	16	7	13	34	-81	-70	76	43	21	46	53	26	68
21. Anhedonia	64	28	0	-55	18	-1	20	3	-53	-52	56	34	5	27	26	23	71
22. Self-Esteem	-63	-37	-2	59	-26	0	-18	-32	84	79	-73	-21	-19	-32	-63	-32	-61
23. Self-Efficacy	-2	-44	-23	27	-43	-14	-19	-55	35	42	-20	5	11	5	-22	-12	1
24. Unstable	52	19	12	-17	1	13	10	21	-50	-40	57	48	57	51	47	30	45
25. Persistence*	14	40	17	-11	27	39	9	133	-24	-22	20	16	10	14	30	3	12
26. Guilt	55	16	8	-35	9	5	9	4	-54	-57	52	43	-7	43	57	22	55
27. Anger*	40	45	2	-29	23	23	13	11	-51	-48	47	35	76	61	73	31	45
28. Hostility	65	32	4	-38	29	19	12	9	-48	-43	52	33	36	35	48	18	68
29. Negative Affectivity*	62	33	-8	-36	15	-9	6	16	-70	-62	74	48	88	89	91	50	65
30. Positive Affectivity*	-37	-23	-2	112	-22	15	-19	-22	53	65	-50	-13	-15	-20	-32	-18	-30
31. Hopelessness	62	41	7	-49	4	5	15	27	-67	-66	65	35	20	44	44	26	70
32. Suicidality	47	34	1	-83	19	5	9	-1	-51	-49	47	30	-3	24	48	14	60
33. Self-Consciousness	100	19	-6	-31	8	-6	15	20	-54	-43	64	37	28	52	60	30	84

Table 22 (cont'd).

THEME	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49
34. Impulsive	19	100	46	-17	73	46	31	66	-41	-41	29	27	4	11	54	13	10
35. Irresponsible	-6	46	100	1	26	22	10	36	-11	-14	2	5	-10	-11	2	-5	-3
36. Playful	-31	-17	1	100	-25	35	-20	-9	52	61	-48	-6	11	-23	-28	-7	-23
37. Antisocial	8	73	26	-25	100	61	20	54	-19	-6	12	7	-24	-8	0	16	10
38. Sensation Seeking	-6	46	22	35	61	100	4	56	-5	-9	8	13	11	-1	-3	-4	0
39. Disorganized	15	31	10	-20	20	4	100	4	-22	-24	13	11	-1	3	13	6	6
40. Ambitious	20	66	36	-9	54	56	4	100	-31	-25	27	19	2	9	12	6	10
41. Self-Esteem (Rosenberg)	-54	-41	-11	52	-19	-5	-22	-31	100	96	-85	-43	-21	-45	-60	-25	-47
42. Mastery (Offer)	-43	-41	-14	61	-6	-9	-24	-25	96	100	-77	-41	-18	-44	-63	-26	-36
43. Shame (Cook)	64	29	2	-48	12	8	13	27	-85	-77	100	51	29	52	55	27	56
44. Guilt (Chang & Hunter)	37	27	5	-6	7	13	11	19	-43	-41	51	100	35	48	42	20	39
45. Irritability*	28	4	-10	11	-24	11	-1	2	-21	-18	29	35	100	65	40	33	35
46. Worry*	52	11	-11	-23	-8	-1	3	9	-45	-44	52	48	65	100	84	43	59
47. Fear*	60	54	2	-28	0	-3	13	12	-60	-63	55	42	40	84	100	64	57
48. Sleep Disturbance*	30	13	-5	-7	16	-4	6	6	-25	-26	27	20	33	43	64	100	29
49. Alienation	84	10	-3	-23	10	0	6	10	-47	-36	56	39	35	59	57	29	100

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