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Validation of a Revised Form of the

Dysfunctional Attitudes Scale

in a Clinical Population

by

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Validation of a revised form of the dysfunctional attitudes scale
in a clinical population

- please omit appendices A-C, pp. 62-67.

ABSTRACT

The Dysfunctional Attitude Scale (Weissman, 1979) is
purported to measure the idiosyncratic cognitive schemas
hypothesized by Beck (1967) to be involved in depression.
Swan (1988) reduced this scale to develop a 20 item rapid
assessment instrument (DAS-20). The purpose of the present
study was to validate the DAS-20 in a clinical population.
The DAS-20 was administered along with the Beck Depression
Inventory (BDI) and the Profile of Mood States (POMS) to
three subject groups (Depressive Disorder patients, Panic
Disorder patients, and normal controls). For clinical
subjects, scores on the DAS-20 were found to be most highly
related to depressive symptomatology, as measured by the BDI
(r=.51). Control subjects' DAS-20 scores were most highly
related to the confusion scale of the POMS (r=.56). The
DAS-20 discriminated between clinical and control groups,
but not between the two clinical groups themselves. It was
concluded that in clinical populations dysfunctional
attitudes, as measured by the DAS-20, are primarily related
to syndrome depression rather than nosological Depressive
Disorders.

ACKNOWLEDGEMENTS

TABLE OF CONTENTS

LIST OF TABLES

CHAPTER I

INTRODUCTION

In the last decade, cognitive intervention strategies have become the dominant mode of psychotherapy for depression. Common to these approaches is a focus on the cognitive processes which lead to and maintain depressive symptoms. From the cognitive perspective, an individual's affect and behaviour are determined, not through the direct influence of external events, but rather through his/her interpretations of those events. Thus, distress states such as depression can be seen as resulting from particular cognitive styles or schemas. A number of assessment instruments have been developed to identify the cognitive processes related to depression and have been used in both pretreatment assessment and research. According to Hammen and Krantz (1985), measures which have undergone the most extensive validation procedures include the Irrational Beliefs Test (Jones, 1969), the Cognitive Bias Questionnaire (Hammen & Krantz, 1976; Krantz & Hammen, 1979), the Automatic Thoughts Questionnaire (Hollon & Kendall, 1980), and the Dysfunctional Attitude Scale (Weissman, 1979; Weissman & Beck, 1978a, 1978b).

One of the most commonly used instruments, as indicated by its predominance in the literature, is the Dysfunctional Attitude Scale (DAS). The original DAS (DAS-100) (Weissman, 1979; Weissman & Beck, 1978a, 1978b) is a 100 item self-report scale designed to measure the degree to which an individual endorses beliefs that are thought to lead to depressive states. Respondents are asked to indicate the extent to which they agree or disagree with statements such as "I can not be happy unless most people I know admire me" and "If I fail at my work then I am a failure as a person." The items were created so as to reflect the maladaptive or dysfunctional ways of thinking identified by Beck (1967) as a major component in the constellation of depressive symptoms. The DAS-100 is thus derived directly from Beck and his colleagues' cognitive theory of depression (Beck, 1967; Beck, 1976; Beck, Rush, Shaw, & Emery, 1979; Kovacs & Beck, 1978; Sacco and Beck, 1985).

Beck's Cognitive Theory of Depression

Through analyzing the free associations and verbal reports of depressed patients, Beck (1963, 1964) observed a common pattern of idiosyncratic cognitive content and cognitive distortions. The patients' thinking patterns were characterized by an unrealistically negative view of the self, the world, and the future: labelled the "negative

triad" (Beck, 1987). According to Sacco and Beck (1985):

> Depressed persons regard themselves as
> unworthy, incapable, and undesirable. They
> expect failure, rejection, and dissatisfaction
> and perceive most experiences as confirming
> these negative expectations (p.4).

This negative cognitive view is seen to play a significant role in the development and maintenance of depressive symptomatology.

Furthermore, the "negative triad" is viewed as being a distortion of reality, maintained, despite contradictory evidence, through idiosyncratic cognitive schemas. According to Beck (1964), schemas represent relatively stable cognitive patterns used in evaluating particular sets of situations. Thus, the idiosyncratic schemas involved in depression are seen as stable traits, rather than episodic symptoms of depression (Kovacs & Beck, 1978). Beck (1987) outlines some common systematic errors or cognitive distortions which characterize depressogenic schemas:

1. Arbitrary inference: drawing a conclusion in the absence of supporting evidence.

2. Selective abstraction: conceptualizing an event on the basis of an isolated detail, while ignoring more salient features of the situation.

3. Overgeneralization: drawing a general conclusion on the basis of a single event and applying it in dissimilar situations.

4. <u>Magnification and minimization</u>: overestimating or underestimating the significance of events being evaluated.

5. <u>Personalization</u>: relating external events to oneself when there is no evidence to support doing so.

6. <u>All or none thinking</u>: tendency to think in absolute terms.

The activation of cognitive schemas characterized by these logistical flaws results in the distorted interpretation of events so that depression-prone individuals view phenomena in absolute, inappropriate, self-referential, and negative terms. Sacco and Beck (1985) propose that these illogical cognitive schemas are shaped through early experience and that they remain latent until activated by stressors to which the individual is vulnerable. When faced with stressors to which one is sensitive, depressogenic cognitive patterns may be activated resulting in erroneous and inappropriately negative interpretations of reality. Such views may result in the onset of depressive symptoms. As the depression worsens, an individual's thinking may become increasingly dominated by these idiosyncratic schemas so that increasingly greater numbers of situations are illogically interpreted in a negative manner. It is these maladaptive cognitive schemas, purported by Beck to be involved in depression, that the DAS-100 was designed to measure.

The Dysfunctional Attitude Scale - 100

Reliability. The DAS-100 has been shown to demonstrate satisfactory reliability. Test-retest reliability has been reported with coefficients of .73 over an interval of four to six weeks for a sample of unselected adults and .71 over an interval of eight weeks in a university student population (Oliver & Baumgart, 1985; Weissman & Beck, 1978a; respectively). In a sample of adult psychiatric outpatients, a stability coefficient of .62 was reported for an eight week interval (Riskind, Beck, & Smucker, 1983). Estimates of internal consistency have shown alpha coefficients of .90 in an unselected adult sample, .93 in a university student sample, and .97 in an adult psychiatric outpatient sample (Oliver & Baumgart, 1985; Weissman & Beck, 1978a; Riskind et al, 1983; respectively).

Validity. Allen and Yen (1979) outline three major types of validity: content validity, criterion-related validity, and construct validity. Content validity involves a subjective judgement of whether the test and its items are relevant to the domain of behavior being measured. A more sophisticated form of validity is criterion-related validity, in which test scores are used to predict a criterion variable. Criterion-related validity can be assessed through either predictive validity, in which test scores are used to predict future behaviour, or concurrent validity, in which test scores and criterion scores are

measured at the same time. The third measure of validity,

construct validity, is the degree to which a test measures

the theoretical construct or trait that it purports to

measure. According to Allen and Yen:

> Establishing construct validity is an ongoing process.
> Based on current theory regarding the trait being
> measured, the test developers make predictions about
> how the test scores should behave in various
> situations. These predictions are then tested. If the
> predictions are supported by the data, construct
> validity is enhanced (p.108).

Thus, findings of both content-related and criterion-related

validity, if based on relevant theory, can be used to

support construct validity. In fact, as Hogan and Nicholson

(1988) suggest, all validity is really construct validity

and the fundamental process of validation is hypothesis

testing.

The initial validation study of the DAS-100 was

conducted by Weissman and Beck (1978a) utilizing a sample of

university students. DAS-100 scores were shown to be

related to the intensity of depression, as indicated by

positive correlation coefficients of .65 with the Beck

Depression Inventory (BDI; Beck, Ward, Mendelson, Mock, &

Erbaugh, 1961), and .76 with the Depression (D) scale of the

Profile of Mood States (POMS; McNair, Lorr, & Droppleman,

1971). In addition, the authors found a positive

correlation of .62 between the DAS-100 and the Story

Completion Test (SCT; Hammen & Krantz, 1976), a series of

stories designed to detect idiosyncratic thinking involved

in depression. In a second administration of these scales positive correlation coefficients of .53 with the BDI, .62 with the POMS-D, and .60 with the SCT were obtained. A significant relationship between the DAS-100 and the BDI has been further demonstrated with positive correlation coefficients of .41 in a sample of adult volunteers and .44 in an adult outpatient psychiatric group (Oliver & Baumgart, 1985; Riskind et al., 1983; respectively). DAS-100 scores have also been found to discriminate between depressive groups defined by BDI cutoff scores (Riskind et al.,1983). As the DAS-100 is purported to measure idiosyncratic schemas that lead to depression, these significant relationships between the DAS-100 and measures of depression and depressogenic schemas provide evidence for the concurrent validity of this scale.

Moreover, the DAS-100 has been shown to be positively related to measures of self-concept and hopelessness (Riskind et al.,1983). The correlation coefficients remained significant even when BDI scores were partialled out, indicating relationships independent of depression. As negative views of the self and the future are important features of depressogenic schemas in Beck's model, this finding lends further support to the concurrent validity of the DAS-100.

However, the use of this scale has been shown to be somewhat problematic. The factor structure of the DAS-100,

was found to exhibit 29 significant factors, with the first factor accounting for only 14% of the variance (Swan, 1988). As the DAS-100 is used as a unitary measure, this lack of precision makes interpretation of the scale difficult. Moreover, subjects have been critical of the amount of time required to complete the scale (Weissman & Beck, 1978a). In order to improve upon the shortcomings of the DAS-100, Weissman and Beck (1978a, 1978b) and Weissman (1979) revised the DAS-100 into two 40-item parallel forms.

The Dysfunctional Attitude Scale - 40

Scale Development. Construction of the two DAS-40 parallel forms (DASA-40 and DASB-40) was carried out through factor analytic procedures. Items with the highest loadings on the first factor of the DAS-100 were extracted and then paired to form two equivalent scales. This reformulation was intended not only to shorten the time required for administration, but also to provide convenient pre- and post-treatment measures.

Reliability. Estimates of the reliability of the DAS-40 yielded results similar to those found for the DAS-100. Weissman (1979) gave university students one form of the DAS-40 initially (Time one; T1) and the other form eight weeks later (Time two; T2), with the order of administration counterbalanced. Test-retest reliability estimates yielded correlation coefficients of .80 for those

subjects taking the DASA-40 initially and .81 for those taking the DASB-40 first. A conversion equation was calculated in order to equate scores on the DASA-40 with scores on the DASB-40. Thus, scores could be reported in equivalent units for both T1 and T2 regardless of the DAS form being administered. Using the conversion equation, a correlation coefficient of .84 was found between T1 and T2 DAS-40 scores. In another study, Form B was administered one week subsequent to Form A, resulting in a stability coefficient of .79 (Weissman & Beck, 1978a).

Estimates of internal consistency in normal populations have yielded alpha coefficients ranging from .85 to .92 for the DASA-40 and from .81 to .90 for the DASB-40 (Cane, Olinger, Gotlib, & Kuiper, 1986; Oliver & Baumgart, 1985; Weissman, 1979; Weissman & Beck, 1978a). Dobson and Shaw (1986) found alpha coefficients of .81 for depressed psychiatric patients, .93 for nondepressed psychiatric patients, and .87 for nonpsychiatric patients.

Validity. In Weissman's (1979) initial validation study, DAS-40 scores were equated so that each subject had a T1 and a T2 score, regardless of the form actually taken. Thus, validity findings were reported for the combined forms of the DAS-40. In support of the DAS-40's concurrent validity, dysfunctional attitudes were found to be positively correlated with depression, as measured by the BDI (r=.36) and the POMS-D (r=.40). These associations were

slightly stronger at T2: r=.47 with the BDI and r=.44 with the POMS-D. DAS-40 scores were also found to correlate positively with the SCT (r=.52), another measure of depressive cognitions; the SCT was not administered at T2. Although these correlations were all significant, they were smaller than those found for the DAS-100 (Weissman & Beck, 1978a).

In an additional analysis, Weissman (1979) divided subjects into depressed and nondepressed subgroups on the basis of BDI scores. Significantly higher DAS-40 scores were found in the depressed group at both T1 and T2. When a similar analysis was done, using BDI scores to create three subgroups in a clinical sample (moderately to severely depressed, mildly depressed, and normal) DAS-40 scores were found to discriminate the moderately to severely depressed group from the other groups at T1 and T2, and the mildly depressed group from the normal group at T2 only. Furthermore, apart from Confusion (C), the D-scale was the only POMS scale found to correlate significantly with the DAS-40 once the effects of the other scales were removed. This relationship was significant only at T1. Together, these findings suggest that scores on the DAS-40 are both related to and highly specific to depressive mood disturbance, thus providing concurrent validation of the scale.

Support for the scale's construct validity was found through a comparison of DAS-40 and BDI stability coefficients (Weissman, 1979). The DAS-40 was found to have greater test-retest reliability than the BDI, supporting Beck's theory that dysfunctional attitudes represent a more stable trait than depressed mood. In a further test of construct validity, Weissman attempted to make inferences about the causal relationships between the DAS-40 and the two measures of depression (BDI and POMS-D), through a quasi-experimental cross-lagged panel design correlational method. In this statistical technique, the correlation between a measure given at T1 and another measure given at T2 is compared to the correlation between these two measures given in a reversed order. However, Weissman's analysis did not indicate a causal relationship. She concluded that:

> We truly cannot assert any priority; perhaps both depressogenic attitudes and affect influence each other, or both are influenced by a third factor (p.125).

With evidence of reasonable reliability and validity, this shortened form of the DAS has become an important tool for researchers investigating depressogenic cognitive schemas. However, as the DASA-40 and DASB-40 have been acclaimed as parallel instruments, researchers frequently omit citing the form of the scale being utilized. Thus, research findings must be interpreted for the DAS-40 as a whole, rather than as two separate instruments.

Various studies have provided evidence for the concurrent validity of the DAS-40. In college samples, the endorsement of dysfunctional attitudes was positively correlated with nonassertiveness and feelings of loneliness, even with the effects of depression partialled out (Olinger, Shaw, & Kuiper, 1987; Wilbert & Rupert, 1986; respectively). It has also been demonstrated with college students that individuals with high scores on the DAS-40 are more likely to become depressed in response to negative life events (Wise and Barnes, 1986). In studies investigating clinical samples, depressed patients have been shown to endorse more dysfunctional attitudes on the DAS-40 than nondepressed psychiatric patients and normal controls (Blackburn, Jones, & Lewin, 1986; Dobson & Shaw, 1986; Eaves & Rush, 1984; Hamilton & Abraham, 1983). DAS-40 scores have also been found to discriminate between suicidal and nonsuicidal psychiatric patients (Ellis & Ratliff, 1988).

However, studies have also demonstrated the existence of relationships between the DAS-40 and disorders other than depression. Zimmerman, Coryell, Corenthal, & Wilson (1986) found no differences on DAS-40 scores between depressed and schizophrenic samples; though both groups had higher scores than normal controls. Furthermore, Gotlib (1984) demonstrated significant positive correlations between the DAS-40 and measures of anxiety, obsessive compulsive behavior, and psychoticism, in addition to depression.

These mixed findings make it unclear as to whether the DAS-40 measures attitudes which are involved specifically in depression or in general psychological distress.

In order to test the contention that dysfunctional attitudes are stable traits as opposed to episodic symptoms of depression (Kovacs and Beck, 1978), researchers have measured these attitudes in individuals who have recovered from depressive states. Remitted depressed patients have been found to demonstrate higher DAS-40 scores than normal controls, suggesting that this scale may indeed be measuring relatively stable traits (Dobson & Shaw, 1986; Eaves and Rush, 1984). In contradiction, Hamilton and Abramson (1983) did not find a significant difference in DAS-40 scores between remitted depressed patients and normal controls. Furthermore, in a study of remitted psychiatric patients, Schrader, Gibbs, and Harcourt (1986) found that scores on the DAS-40 were not significantly different between patients with previous diagnoses of depression and patients with previous diagnoses of other psychiatric disorders. Thus, the stability of depressogenic schemas as measured by the DAS-40 is still uncertain.

The DAS-40 has been demonstrated as a useful tool in predicting therapeutic success (Hammen, Jacobs, Mayol, & Cochran, 1980; Keller, 1983) and future depressive relapse (Rush, Weissenburger, & Eaves, 1986; Simons, Murphy, Levine, & Wetzel, 1986). Keller (1983) found that regardless of

initial level of depression, individuals with low levels of
dysfunctional attitudes responded better than those with
high levels of these attitudes to cognitive therapy aimed at
restructuring dysfunctional cognitions. Thus, level of
dysfunctional attitudes may serve as a better predictor of
cognitive therapy success than level of depression.
Furthermore, Hannen et al. (1980) demonstrated that low
initial levels of dysfunctional attitudes were associated
with treatment success, as measured by reduction in DAS-40
scores, irrespective of whether assertion skills training or
cognitive-behavior therapy was implemented. Hence,
individuals with low levels of dysfunctional attitudes are
likely to respond better to treatment than individuals with
high levels of dysfunctional attitudes, regardless of
whether the treatment focuses on cognitive restructuring.

Through a factor analysis of Form A of the DAS-40, Cane
et al., (1986) extracted two factors: one labelled
"Performance Evaluation", accounting for 47% of the variance
and another labelled "Approval by Others", accounting for an
additional 14% of the variance. These two factors
correspond to two personality subtypes, hypothesized by Beck
(1983) to require different types of events to precipitate
depression. Factor 1 relates to the Autonomous subtype, for
which failure to meet personal goals is suspected to
precipitate depression, whereas Factor 2 relates to the

Sociotropic subtype, for which disruption of personal relationships is hypothesized to lead to depression.

However, a comparison of the factor structures of the two DAS-40 forms, has revealed less impressive results. In a factor analysis of both the DASA-40 and the DASB-40, Oliver and Baumgart (1985) extracted four factors for each form. The first three factors on Form A were characterized as "Need for Approval", "Perfectionism", and "Avoidance of Risks", respectively, while the fourth factor was uninterpretable. On the other hand, Form B factors, in order of significance, were labelled "Need for Success", "Need to Impress Others", "Need for Approval", and "Need to Control Feelings". Thus, an analysis of factor content suggests that the factors for the two scales are not congruent. Oliver and Baumgart have also criticized the DAS-40 for having low item-total correlations, suggesting that individual items make relatively independent contributions to the scale as a whole. On the basis of these findings, Oliver and Baumgart recommended that the DAS-100 not be replaced by the two shortened forms of the DAS-40.

The Dysfunctional Attitude Scale - 20

Scale Development. In response to the criticisms of Oliver and Baumgart (1985), Swan (1988) revised the original 100 item DAS in order to construct a short measure of

dysfunctional attitudes with good psychometric properties. The DAS-100 was subjected to a factor analysis and items which loaded highest on the first factor and had high item total correlations were retained for further analyses. This was done in order to create a precise instrument with good internal consistency. The number of items was further reduced through factor analytic procedures resulting in a scale of 20 items (DAS-20). Initial reliability and validity research for the DAS-20 was obtained by Swan (1988) utilizing a university student population.

Reliability. Repeated administration of the DAS-20 after a four week interval revealed reliability coefficients of .64 and .83 in two separate samples. Internal consistency analysis resulted in an alpha coefficient of .88. These reliability estimates are comparable to those found for the longer DAS versions.

Validity. Swan (1988) found that the DAS-20 had a high positive correlation with the earlier DAS forms (DAS-100, r=.92; DASA-40, r=.92; DASB-40, r=.90). This is a good indication that the DAS-20 taps the same construct that the longer versions measure. In support of concurrent validity, Swan found positive correlations of the DAS-20 with the BDI (r=.36) and the Ellis Scale (r=.51), (MacDonald & Games, 1972; Newmark, Frerking, Cook, & Newmark, 1973), an alternative measure of depressogenic cognitions. She also found that the DAS-20 differentiated between students who

had been categorized as moderately and severely depressed from those who had been defined as nondepressed on the basis of BDI cutoff scores.

Despite strong support for the relationship of the DAS-20 with depression, additional evidence indicates that this scale may also be related to other psychological characteristics. For example, although depression tends to be more prevalent in females, no significant gender differences were found in scores on the DAS-20. Furthermore, the endorsement of dysfunctional attitudes, as measured by the DAS-20, was found to be positively correlated with the following scales (in order of significance): conformity, nonassertiveness, anxiety, loneliness, lack of energy, intolerance of others, low self-esteem, and a feeling that one's friends are not understanding (Swan, 1988). These correlations remained significant even with the effects of the BDI held constant. Some of these relationships might be predicted by Beck's cognitive theory of depression. However, that conformity, anxiety, and an intolerance of others are related to the DAS-20 irrespective of their relationships with depression, suggest that scores on this scale are involved in other characteristics of psychological functioning. As Swan's research was conducted with a normal sample, this finding may not be generalizable to clinical populations.

To investigate the relationship of the DAS-20 with
Beck's (1983) personality subtypes, Swan (1988) subjected
the scale's items to a factor analysis. Results of this
analysis revealed two moderately correlated factors,
accounting for 88% of the total variance. A majority of the
items loaded significantly on both factors. The first
factor accounted for 74% of the variance and was suggested
to represent a dimension which Swan labelled "Need for
Approval", corresponding to Beck's Sociotropic personality
subtype. The second factor, however, only accounted for 14%
of the variance and was largely uninterpretable. Thus, it
appears that Beck's Autonomous personality subtype was not
represented in this scale. The finding that a major
component of the DAS-20 measures need for approval would
account for the high positive correlation of this scale with
conformity. Swan concludes that the DAS-20 is primarily a
measure of the need for approval of others.

Through a factor analysis of the DAS-20 and 26 other
psychological measures, four independent factors were
produced. The DAS-20 loaded on the factor labelled
"Dysfunctional Cognitions" along with scales that measure
irrational beliefs, depression, loneliness, assertion
difficulties, anxiety, conformity, energy level, and social
adroitness. Individuals who endorsed the scales of this
factor in a cognitively dysfunctional manner were described

by Swan (1988) as fitting the following profile:

> They seem to be anxious, depressed individuals who
> have little energy, feel a strong need for the
> approval of others and try to achieve this approval by
> complying or pretending to comply with the rules of
> society and the wishes of others. They are lonely and
> feel unable to assert themselves in social situations.
> Their inability to allow others to have ideas and
> opinions which differ from their own, and the
> possibility that they may prove somewhat manipulative
> in social relationships, may contribute to the reported
> loneliness. It could be hypothesized that other
> people may not be particularly interested in being the
> friend of someone who has dysfunctional attitudes, is
> intolerant of differences in others, and tries to
> fulfill his/her own needs by manipulating others
> (pp.110-111).

Finally, in order to establish validity in a clinical

population, Swan (1988) administered the DAS-20 to a sample

of both student and nonstudent adult children of alcoholics

(ACOC) who were involved in an on-going support group.

DAS-20 scores were found to be significantly higher for the

ACOC group than for the original student validation sample.

Swan suggested that adult children of alcoholics are more

likely to experience emotional distress than children from

non-alcoholic families. Thus, the finding indicating that

DAS-20 scores were higher for the ACOC group, provides

further evidence of the concurrent validity of this measure.

Overview and Purpose of the Present Study

Assessment of the cognitive processes related to

depression plays an important role in cognitive approaches

to the treatment of depressive disorders. Instruments

measuring depressogenic schemas can be used in pretreatment assessment to identify the presence of these processes. Cognitive assessment tools are also required for research in order to explore the nature of the cognitive structures involved in depression.

Various cognitive assessment instruments have been developed, the most prominent of which is the Dysfunctional Attitude Scale, a measure of beliefs or attitudes that, according to Beck (1967), predispose individuals to depression. The original 100 item DAS was criticized for the amount of time required for completion and its poor measurement precision. In an effort to improve its utility, Weissman (1979) revised the DAS-100, creating two parallel forms of 40 items each. This was intended not only to shorten the time required for administration but also to provide convenient pre- and post-treatment measures. However, Oliver and Baumgart (1985) demonstrated that the factorial composition of these two forms was not equivalent and that their item-total correlations were low.

Therefore, in response to the need for a psychometrically sound scale for rapidly assessing cognitive processes underlying depression, Swan (1988) reduced the original DAS to 20 items. The resulting DAS-20 was found to have good reliability and validity in a student sample. However, only one study to date has investigated the validity of this scale within a clinical sample (Swan,

1988). In order to establish the utility of the DAS-20 for the assessment of severely distressed individuals, it was the purpose of the present study to validate the DAS-20 with clinical subjects. As both the DAS-40 and the DAS-20 have been found to relate to forms of psychopathology other than depression (Gotlib, 1984; Swan, 1988; Zimmerman et al., 1986), the goal of this research was to determine whether the attitudes measured by the DAS-20 are specific to clinical depression or are related to general psychological distress. To address this goal, two strategies were employed. First, the relationships between the DAS-20 and other measures of psychological functioning were investigated within a clinical sample. Second, the ability of the DAS-20 to discriminate between nosological psychiatric groups was assessed.

Research Hypotheses

On the basis of Beck's cognitive theory of depression, a number of predictions can be made in order to test the concurrent and construct validity of the DAS-20:

1. Subjects who have high dysfunctional attitude scores will also have high scores on measures of depression.

2. The presence of dysfunctional attitudes will be associated with other measures of mood disturbance, to the extent that these measures are related to depression.

3. Patients with depressive disorders will have higher levels of dysfunctional attitudes than patients with other psychiatric disorders and normal controls.

CHAPTER II

METHOD

Subjects

Two psychiatric populations were sampled to form two
clinical groups for this study. The first group consisted
of 24 subjects diagnosed with Major Depression (N=16),
Dysthymia (N=1), or Bipolar Disorder, Major Depressive
Episode (N=7). Depressed subjects were recruited from the
Affective Disorders inpatient unit at the Health Sciences
Centre, Winnipeg, and from both the inpatient and outpatient
psychiatric services at St. Boniface General Hospital,
Winnipeg. The Depressive Disorder group was chosen to
represent a clinical population with predominantly
depressive features. The second group consisted of adults
diagnosed with Panic Disorder (PD) who presented themselves
for outpatient psychotherapy at the Health Sciences Centre
and St. Boniface General Hospital in Winnipeg. This group
was included to represent a clinical population with
predominant symptoms of anxiety. Group assignment was based
on diagnoses formed independently of the present study by
experienced clinicians (PhDs or MDs), according to the
criteria of the Diagnostic and Statistical Manual of Mental
Disorders, 3rd ed., Revised (DSM-III-R; APA, 1987). A third

23

group of subjects consisted of 29 nonmedical hospital staff volunteers. This control group resembled the clinical groups in age and gender. The demographic characteristics for each group are given in Table 1.

Measures

All subjects were requested to fill out the following self-report questionnaires: Dysfunctional Attitudes Scale-20 (DAS-20; Swan, 1988); Beck Depression Inventory (BDI; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961) and Profile of Mood States (POMS; McNair, Lorr, & Droppleman, 1971). The BDI was chosen in order to investigate the relationship between depressive affect and dysfunctional attitudes. The POMS, on the other hand, was added to explore the relationships of various characteristics of emotional distress to dysfunctional attitudes. As both of these instruments were utilized by Weissman (1979) in the initial validation of the DAS-40, their inclusion in the present study provided an avenue for comparing the validity of the DAS-20 and DAS-40.

Dysfunctional Attitude Scale - 20. The DAS-20 (see Appendix A) is a revised form of the original Weissman and Beck 100 item Dysfunctional Attitude Scale (DAS-100), (Weissman, 1979; Weissman & Beck, 1978a, 1978b). It was developed as a rapid assessment instrument to measure the idiosyncratic cognitive schemas hypothesized by Beck to be

Table 1

Demographic Characteristics of the Sample

Demographic Variables	Group		
	Depressive Disorder	Panic Disorder	Normal Control
Number of Females	18	23	22
Number of Males	6	2	7
Mean Age (Standard Deviation)	39.7 (13.6)	33.2 (8.4)	34.7 (12.2)
Marital Status			
Number Single	8 (33%)	5 (25%)	7 (24%)
Number Married	13 (54%)	13 (65%)	17 (59%)
Number Divorced	2 (8%)	2 (10%)	4 (14%)
Number Widowed	1 (4%)	0 (0%)	1 (3%)

involved in depressive symptomatology. Individuals are asked to indicate on a seven-point Likert scale the extent to which they agree or disagree with 20 statements or beliefs. An example item is "I can not be happy unless most people I know admire me." Scores range from 20 to 140, with higher scores reflecting greater endorsement of dysfunctional attitudes. As previously outlined, the DAS-20 has been demonstrated to be a reliable and valid instrument in a student population (Swan, 1988).

Beck Depression Inventory. The BDI (see Appendix B) is a 21 item self-report inventory that assesses the severity of depressive symptoms. For each item, respondents choose from a choice of four statements the one which is most applicable to themselves. For example, the individual would select one of the following descriptors:

   0. I do not feel sad.

   1. I feel sad.

   2. I am sad all the time and I can't snap out of it.

   3. I am so sad or unhappy that I can't stand it.

Scores range from 0 to 63, with higher scores indicative of more severe depressive symptoms. Cutoff scores have been established to indicate different levels of depression: 0-9 = nondepressed; 10-15 = mildly depressed; 16-23 = moderately depressed; and 24-64 = severely depressed (Oliver & Simmons, 1984).

Extensive research has been done with the BDI demonstrating it as a reliable and valid measure of depression. Beck et al. (1961) report a split-half reliability of .93 in a psychiatric population. Test-retest reliability over a three week interval was found to be .78 in a university sample (Oliver & Burkham, 1979). Correlations ranging from .61 to .67 between BDI scores and clinical ratings of depression give support to the concurrent validity of this instrument (Beck & Beck, 1972). Further evidence of the BDI's concurrent validity has been provided by correlations with other self-report measures of depression ranging from .68 to .76 in a university student population (Dobson, 1985). The BDI has also been shown to discriminate well between depression and anxiety (Beck, 1972; Steer, Beck, Riskind, & Brown, 1986).

Profile of Mood States. The POMS (see Appendix C) is a 65 item self-report adjective rating scale designed to measure multiple dimensions of affect. Respondents are required to indicate on a five-point Likert scale the extent to which each adjective describes how they are feeling. Examples of items are tense, unhappy, angry, and trusting. The POMS yields scores for six affective states: Tension-Anxiety (T); Depression-Dejection (D); Anger-Hostility (A); Vigor-Activity (V); Fatigue-Inertia (F); and Confusion-Bewilderment (C).

Internal consistency reliabilities for the six scales range from .84 to .85 in a psychiatric population. Test-retest reliability estimates range from .65 to .74, based on POMS scores taken in a psychiatric population at intake and again immediately prior to treatment (median time of 20 days), (McNair et al. 1971). In concurrent validity research, when comparing POMS scores to a modified version of the Hopkins Symptom Distress Scales (Parloff, Kelman, & Frank, 1954), McNair et al. found that the Tension-Anxiety Scale was most related to the anxiety distress score and that the Depression-Dejection Scale was most highly correlated with the depression distress score. Furthermore, McNair et al. report in a literature review that various POMS scales have been shown to improve after psychotherapy and pharmacotherapy. They also indicate that POMS scores have been found to be affected by emotion-inducing conditions.

Procedure

Inpatients diagnosed with a Depressive Disorder were approached individually on their ward by the researcher and asked to participate in the study. Patients presenting to outpatient clinics and diagnosed with either a Depressive Disorder or Panic Disorder were invited to take part in the study by their psychotherapists. The participation of

nonmedical hospital staff volunteers was sought through contact by the researcher.

Potential subjects were informed that a research project investigating the types of attitudes and beliefs people hold was being conducted, that participation was voluntary, and that information gathered from the study was for research purposes only. Those patients who were interested in participating in the study were requested to read and fill out the informed consent form (see Appendix D). Once this form had been signed the subjects were asked to complete a demographics questionnaire (see Appendix E) and the three self-report inventories. As patients were receiving different treatment regimes, their participation was sought prior to the onset of therapy or early in the therapeutic process. For the clinical groups, the clinician most familiar with the patient was asked to fill out a clinical information form to provide a diagnostic evaluation (see Appendix F).

CHAPTER III

RESULTS

Overview

The purpose of this study was to validate the DAS-20 in
a clinical population. Therefore, a correlational analysis
examining the relationships between the DAS-20 and the
validity measures (BDI and six POMS scales) was conducted
for clinical subjects, irrespective of their diagnostic
classification (combined clinical group). Correlational
analyses were also completed for each of the three sample
groups independently, in order to examine the relationships
of the DAS-20 within specific nosological categories. In
addition, a series of multiple regression analyses were
performed to assess the relative contribution of the
validity measures in predicting DAS-20 scores. As the
sample sizes for the individual groups were small, the
multiple regression results for only the combined clinical
group are reported here.

A multiple discriminant function analysis was
conducted, utilizing the clinical scales as predictors of
group classification, to provide an estimation of the
relative discriminative ability of these measures.
Specifically, this analysis provided a method for

30

investigating the role of the DAS-20 in discriminating between the three subject groups, independently and in relationship with the other clinical measures.

This chapter reports the findings of these analyses.

Means and Standard Deviations

The mean scores and standard deviations of each of the clinical measures for the combined clinical group, the individual clinical groups, and the control group are provided in Table 2. The small number of male subjects did not permit comparative analyses between female and male responses. However, as the majority of subjects in this study were female, some analyses were conducted for female subjects alone. The mean scores and standard deviations for female subjects on each of the clinical measures for all groups are provided in Appendix G.

Correlational Analysis

Pearson product-moment correlations between the clinical measures were calculated for the combined clinical group, individual clinical groups, and control group. These correlation matrices are provided in Appendix H. Correlational analyses for females alone yielded a similar pattern of relationships and thus, results from only the combined gender analyses are reported. The correlation coefficients for the relationships between the DAS-20 and

Table 2

Mean Scores and Standard Deviations for each Group

	Group			
Measure	Combined Clinical Group	Depressive Disorder	Panic Disorder	Normal Control
DAS-20	64.04 (23.20)	63.88 (24.98)	64.20 (21.87)	38.83 (17.46)
BDI	19.88 (11.49)	23.00 (11.75)	16.88 (10.60)	4.03 (3.04)
POMS-T	17.49 (8.91)	19.08 (8.17)	15.96 (9.48)	5.24 (4.15)
POMS-D	23.57 (17.34)	30.56 (18.13)	16.84 (13.79)	4.00 (5.10)
POMS-A	12.20 (11.20)	16.58 (11.95)	8.00 (8.75)	4.41 (4.94)
POMS-V	10.31 (6.93)	9.92 (7.36)	10.68 (6.62)	18.89 (5.51)
POMS-F	12.61 (7.86)	14.63 (7.61)	10.68 (7.74)	6.28 (4.70)
POMS-C	10.92 (6.88)	13.71 (7.01)	8.24 (5.72)	3.59 (2.65)

Note. Numbers in parentheses indicate the standard deviation from the mean. DAS-20 = Dysfunctional Attitude Scale - 20; BDI = Beck Depression Inventory; POMS = Profile of Mood States; POMS subscales are: T = Tension-Anxiety Scale, D = Depression-Dejection; A = Anger-Hostility; V = Vigour-Activity; F = Fatigue-Inertia; C = Confusion-Bewilderment.

the validity measures are presented in Table 3. These
correlations were examined to determine whether there is
evidence to demonstrate convergence between the DAS-20 and
measures of theoretically related constructs.

Combined clinical group. As predicted, in the combined
clinical group the DAS-20 was found to be positively related
to measures of depression as demonstrated by significant
correlations with the BDI (r=.51, p<.001) and the POMS-D
(r=.25, p<.05). A significant positive relationship was
also indicated between the DAS-20 and the POMS-A, a measure
of anger (r=.31, p<.05). The DAS-20 was not significantly
correlated with measures of tension, vigour, fatigue, or
confusion.

Depressive Disorder group. Significant positive
correlations were found between the DAS-20 and both the BDI
(r=.57, p<.01) and the POMS-A (r=.47, p=.01) for the
Depressive Disorder group. No significant correlations were
evidenced between the DAS-20 and the other validity
measures.

Panic Disorder group. In the Panic Disorder group, the
DAS-20 had a significant positive correlation with the BDI
(r=.48, p<.01) and the POMS-D (r=.37, p<.05). The DAS-20
was also found to be positively correlated with the POMS-C
(r=.34, p< 05) and negatively correlated with the POMS-V
(r=-.45, p<.05), measures of confusion and vigour,
respectively. Significant relationships were not present

Table 3

Correlations of the DAS-20 with the Validity Measures
for each Group

| | Group | | | |
Measure	Combined Clinical Group	Depressive Disorder	Panic Disorder	Normal Control
BDI	.51***	.57**	.48**	.41*
POMS-T	.18	.29	.08	.17
POMS-D	.25*	.22	.37*	.24
POMS-A	.31*	.47**	.14	.18
POMS-V	-.11	.16	-.45*	-.27
POMS-F	.20	.20	.21	.18
POMS-C	.12	-.01	.34*	.58***

Note. * = p ≤ .05; ** = p ≤ .01; *** = p ≤ .001 (one-tailed
test of significance). BDI = Beck Depression Inventory; POMS =
Profile of Mood States; POMS subscales are: T = Tension-Anxiety
Scale, D = Depression-Dejection; A = Anger-Hostility; V = Vigour-
Activity; F = Fatigue-Inertia; C = Confusion-Bewilderment.

between the DAS-20 and measures of tension, anger, and fatigue.

Control group. Analyses for the control group, demonstrated the DAS-20 to have a significant positive relationship with the POMS-C (r=.56, p=.001) and a significant positive relationship with the BDI (r=.41, p<.05). POMS scales measuring tension, depression, anger, vigour, and fatigue were not significantly correlated with the DAS-20.

It is clear from these correlational analyses that in the clinical groups the BDI was significantly related to the DAS-20. POMS scales measuring depression, anger, vigour, and confusion were also found to be related to the DAS-20, although to a lesser degree and not consistently between the two clinical groups.

Multiple Regression Analysis

Several multiple regression analyses were applied to the data for the combined clinical group to further assess the relationships of the validity measures with the DAS-20. Initially, a standard multiple regression analysis, which enters a set of independent variables into the model simultaneously, was used to predict DAS-20 scores. With all of the validity measures included, the model accounted for 38% of the variance in the DAS-20 (R =.38), F=3.62 (7,41), p<.01. The Beta coefficients for each of the validity

measures are reported in Table 4. Only the BDI reached
significance as a predictor of the DAS-20 (B=.79, $\underline{p}$<.001).

Further analyses were done to examine the proportion of
variance accounted for by entering subsets of the
independent variables into the regression equation. With
the BDI as the sole predictor, 26% of the variance in the
DAS-20 was accounted for ($\underline{R}$ =.26), $\underline{F}$=16.24 (1,47), $\underline{p}$<.001.
In a second analysis, the POMS scales were entered together,
as no single POMS scale was found to be a significant
predictor in the full model. Together the six POMS scales
explained 13% of the variance in the DAS-20 ($\underline{R}$ =.13), $\underline{F}$=1.07
(6,42), $\underline{p}$>.05. Although this model did not reach
statistical significance, it accounted for a fair portion of
the variance in the DAS-20. The Beta weights for these two
analyses are presented in Table 4.

By comparing the subset analyses with the full
regression model, it can be seen that the POMS scales
together accounted for an additional 12% of the variance in
the DAS-20 ($\underline{R}$ =.12), over and above that explained by the
BDI. Furthermore, this $\underline{R}$ change was almost as great as the
$\underline{R}$ for the POMS scales entered without the BDI ($\underline{R}$ =.13).
Thus, approximately 92% of the POMS' relationship with the
DAS-20 was independent of the BDI.

A stepwise multiple regression analysis was applied to
the data to develop the best model for predicting DAS-20
scores. Significance levels of $\underline{F}$ were set at 0.05 for entry

Table 4

Beta Weights for all Regression Equations

Variable	Regression Equation			
	Full Model	BDI Entered	POMS Entered	Stepwise
BDI	.79***	.51***	–	.72****
POMS-C	-.31	–	-.32	-.34*
POMS-T	-.25	–	-.17	–
POMS-D	-.22	–	.23	–
POMS-A	.33	–	.33	–
POMS-V	-.05	–	-.11	–
POMS-F	.06	–	.15	–

Note. $* = p \leq .05$; $** = p \leq .01$; $*** = p \leq .001$; $**** = p \leq .0001$. BDI = Beck Depression Inventory; POMS = Profile of Mood States; POMS subscales are: T = Tension-Anxiety Scale, D = Depression-Dejection; A = Anger-Hostility; V = Vigour-Activity; F = Fatigue-Inertia; C = Confusion-Bewilderment.

into the equation and at 0.10 for removal from the equation.
The stepwise regression procedure was selected as it is a
model-building technique and thus permits the elimination of
superfluous predictor variables (Tabachnick & Fidell, 1983).
The first measure entered into the model was the BDI,
accounting for 26% of the variance (R =.26). The POMS-C
scale accounted for an additional 6% of the variance,
increasing the total explained variance to 32% (R =.32),
F=11.07 (2,46), p=.0001. Additional measures did not
significantly increase the variance accounted for. Hence,
Confusion was the POMS scale most highly correlated with the
variance in the DAS-20 not explained by the BDI. Beta
coefficients are reported in Table 4.

It is clear from these regression analyses that the BDI
was the most significant predictor of the DAS-20. However,
there was a portion of the remaining variance which was
explained by the POMS scales. It should be noted that,
whereas the POMS-C itself was positively correlated with the
DAS-20, its Beta coefficient, when in the stepwise multiple
regression equation with the BDI, had a negative value. In
fact, throughout all of the regression analyses, a number of
the POMS scales' Beta weights had signs opposite to those of
their correlations with the DAS-20. These sign reversals
are indicative of the multicollinearity within the validity
measures. Hair, Anderson, and Tatham (1987) suggest that
"if the predictor variables are not independent, the

regression coefficients may be incorrectly estimated and have the wrong signs" (p.42). Thus, although there appears to be a slight relationship between the DAS-20 and the POMS scales, independent of the BDI, the roles of the individual POMS scales in predicting DAS-20 scores are difficult to interpret.

Multiple Discriminant Function Analysis

A direct discriminant function analysis was performed using all of the clinical measures in predicting membership in the three subject groups. This analysis was undertaken to assess the role of the DAS-20 in discriminating among these groups. Two functions were derived, which together significantly discriminated among the three groups, X (16, $N=78$) = 78.23, $p<.0001$. After removal of the first function, discriminating power was still highly significant, X (7, $N=78$) = 22.02, $p<.01$. The two discriminant functions accounted for 77% and 23%, respectively, of the between group variability. The eigenvalue, relative variance, and canonical correlation for each of the functions appear in Table 5.

Using the classification procedure of the discriminant function analysis, group membership was predicted for each subject. Through the use of all of the clinical measures, 72% of the cases were correctly classified. Normal controls were more likely to be classified correctly (90%) than

Table 5

Discriminant Function Statistics Using all Clinical Measures

Function	Eigenvalue	Percent of Variance	Canonical Correlation
1	1.195	76.82	.7378*
2	0.361	23.18	.5148*

Note. * = p ≤ .01.

either Panic Disorder subjects (84%) or Depressive Disorder subjects (58%). Classification results are shown in Table 6.

Group centroids, in the form of Z-scores, were calculated for each of the three groups on both functions and are presented in Table 7. Inspection of these centroids revealed that the first function discriminated normal controls from the two clinical groups. The second discriminant function maximally separated Depressive Disorder subjects from Panic Disorder subjects, with normal controls falling between these two groups.

Wilks' lambda tests and univariate F-ratios were calculated to determine the discriminative ability of each of the clinical measures. Each measure was found to vary significantly among groups. These results are reported in Table 8. Post-hoc analysis, using Tukey's Honestly Significant Difference (HSD) tests, was carried out to determine which of the group means differed significantly on each variable. The results of the post-hoc analysis are presented in Table 9.

Although univariate analyses indicate the ability of predictor variables to differentiate between groups, they do not take into account the interdependence of these variables. In order to assess the relative importance of the clinical measures in discriminating between groups, the correlations between predictor variables and discriminant

Table 6

Classification Results of the Discriminant Function Analyses

Using All Clinical Measures

		Predicted Group Membership		
Actual Group	Number of Cases	Depressive Disorder	Panic Disorder	Normal Control
Depressive Disorder	24	14 (58.3%)	6 (25.0%)	4 (16.7%)
Panic Disorder	25	5 (20.0%)	16 (64.0%)	4 (16.0%)
Normal Control	29	1 (3.4%)	2 (6.9%)	26 (89.7%)

Percentage of Total Cases Correctly Classified: 71.8%

Table 7

Group Centroids on each Discriminant Function

Group	Function 1	Function 2
1	1.02	0.68
2	0.62	-0.79
3	-1.38	0.11

Note. Centroids are in the form of Z scores.

Table 8

Univariate Tests for Differences between Group Means on all
Clinical Measures

Measure	Wilks' Lambda	F	Significance
DAS-20	.7480	12.63	.0000
BDI	.5494	30.75	.0000
POMS-T	.5940	25.63	.0000
POMS-D	.5804	27.12	.0000
POMS-A	.7430	12.97	.0000
POMS-V	.7097	15.34	.0000
POMS-F	.7863	10.19	.0001
POMS-C	.8107	23.91	.0000

Note. Degrees of freedom = 2 and 75. DAS-20 = Dysfunctional
Attitude Scale - 20; BDI = Beck Depression Inventory; POMS =
Profile of Mood States; POMS subscales are: T = Tension-Anxiety
Scale, D = Depression-Dejection; A = Anger-Hostility; V = Vigour-
Activity; F = Fatigue-Inertia; C = Confusion-Bewilderment.

Table 9

Tukey's HSD Tests Between Group Pairs on each Clinical Measure

	Group Pairs		
Measure	Depressive Disorder & Panic Disorder	Depressive Disorder & Normal Control	Panic Disorder & Normal Control
DAS-20	-	*	*
BDI	-	*	*
POMS-T	-	*	*
POMS-D	*	*	*
POMS-A	*	*	..
POMS-V	-	*	*
POMS-F	-	*	*
POMS-C	*	*	*

Note. * denotes pairs of groups significantly different at the 0.05 level. DAS-20 = Dysfunctional Attitude Scale - 20; BDI = Beck Depression Inventory; POMS = Profile of Mood States; POMS subscales are: T = Tension-Anxiety Scale, D = Depression-Dejection; A = Anger-Hostility; V = Vigour-Activity; F = Fatigue-Inertia; C = Confusion-Bewilderment.

functions were examined. These correlations, representing the discriminant function loadings, are shown in Table 10. The primary variable in distinguishing the clinical groups from the control group (first function) was the BDI ($r=.82$). The other clinical measures also had high loadings on the first function (r's$\geq.45$). The variable which contributed most to discriminating between the two clinical groups, was the POMS-A ($r=.54$). The POMS-C and POMS-D were also highly correlated with this function (r's$=.52$). All other variables had loadings less than $r=.28$. Thus, while all of the clinical measures played a role in discriminating clinical from non-clinical subjects, only POMS scales measuring depression, anger, and confusion contributed substantially to the discrimination of Panic Disorder from Depressive Disorder subjects.

The DAS-20 loaded most highly on the first function ($r=.52$), whereas it contributed relatively little discriminative power to the second function ($r=-.15$). These findings are in accordance with the univariate analysis performed on the DAS-20, which indicated that mean scores on this scale were significantly different between the control and the clinical groups, but not between the two clinical groups themselves. In fact, the Depressive Disorder group and Panic Disorder group had mean DAS-20 scores which were almost identical (63.9 and 64.2, respectively). Thus, the DAS-20 was capable of

Table 10

Discriminant Function Loadings

Measure	Function 1	Function 2
DAS-20	.5245	-.1504
BDI	.8177	.2418
POMS-T	.7549	.0832
POMS-D	.7233	.5209
POMS-A	.4474	.5440
POMS-V	-.5836	.0757
POMS-F	.4517	.2783
POMS-C	.6719	.5216

Note. DAS-20 = Dysfunctional Attitude Scale – 20; BDI = Beck Depression Inventory; POMS = Profile of Mood States; POMS subscales are: T = Tension-Anxiety Scale, D = Depression-Dejection; A = Anger-Hostility; V = Vigour-Activity; F = Fatigue-Inertia; C = Confusion-Bewilderment.

discriminating between clinical and non-clinical samples, but was not able to make distinctions between different diagnostic classifications.

Summary

In the two clinical groups, the DAS-20 was most highly correlated with the BDI. It was related to a lesser degree and not consistently between the groups with POMS scales measuring depression, anger, vigour, and confusion. In contrast, in the control group the DAS-20 was most highly correlated with the POMS-C and was correlated with the BDI at only the .05 level of significance. The multiple regression analyses, further indicated that the BDI accounted for a large portion of the variance in the DAS-20. However, some of the variance not explained by the BDI was accounted for by the POMS scales. These results indicate that subjects who endorsed greater numbers of dysfunctional attitudes were more likely to be depressed than subjects who endorsed fewer numbers of dysfunctional attitudes. They were also somewhat more likely to be angry, confused, and lacking in vigor, irrespective of their level of depression as measured by the BDI. A discriminant function analysis indicated that the three subject groups were from three distinct populations. The DAS-20 discriminated Depressive Disorder subjects and Panic Disorder subjects from normal controls, but did not discriminate one clinical group from

the other. Therefore, subjects with Depressive Disorders and those with Panic Disorders were equally likely to hold dysfunctional attitudes.

CHAPTER IV

DISCUSSION

The purpose of the present study was to validate the
DAS-20 in a clinical population. Scores on the DAS-20 were
examined in relation to scores on other measures of
psychological functioning in two groups of psychiatric
patients. The tendency of psychiatric patients to endorse
dysfunctional attitudes was then compared between groups and
also with normal controls. The results of these
investigations are discussed in this chapter in relation to
the hypotheses posed in chapter one. The implications of
the findings, along with the limitations of the study and
recommendations for future research will also be presented.

The Relationships of the DAS-20 with the Validity Measures

The original DAS scales were designed to measure the
idiosyncratic cognitive schemas purported by Beck (1967) to
play a significant role in the onset and maintenance of
depressive symptoms. In accordance with Beck's theory, the
original forms of the DAS (DAS-100 and DAS-40) were found to
be positively related to depression as measured by the BDI
and the POMS-D (Weissman, 1979). Similarly, Swan (1988)
found that the DAS-20 was positively correlated with

50

depression as measured by the BDI. The results from the present study correspond only partially to these earlier findings. As hypothesized, clinical subjects with higher dysfunctional attitude scores, as measured by the DAS-20, also reported greater depressive symptomatology, as indicated by scores on the BDI. This relationship was greater than that found for normal controls in this study or for university students in Swan's (1988) study. For the Panic Disorder and Control groups, the DAS-20 was also found to be significantly related to depression, as measured by the POMS-D. In contrast to expectations, the DAS-20 was not significantly related to the POMS-D in the Depressed group. However, the POMS-D is primarily a measure of depressed mood (McNair, Lorr, & Droppleman, 1971), unlike the BDI which is designed to measure more comprehensive depressive symptomatology (Oliver & Simmons, 1984). Thus, the DAS-20 may measure attitudes which are primarily involved in depressive syndromes and related symptomatology, rather than mere depressed mood.

In addition, scores on the DAS-20 were found to have a significant positive relationship with anger (POMS-A) in the Depressive Disorder group, and with confusion (POMS-C) and lack of vigour (POMS-V) in the Panic Disorder group. Thus, beyond its fundamental relationship with depression, the DAS-20 seems to tap various measures of psychological functioning, though inconsistently between clinical groups.

These findings suggest that patients with Depressive Disorders who endorse greater numbers of dysfunctional attitudes on the DAS-20 are likely to experience greater feelings of anger. In contrast, patients with Panic Disorder indicating higher levels of dysfunctional attitudes are likely to report feelings of confusion and decreased vigour to a greater extent. Whereas Weissman (1979) found that the DAS-40 was significantly related to all of the POMS scales, the findings of the present study show that the DAS-20 is selectively related to these measures. These results may reflect a difference in the constructs measured by the DAS-40 and the DAS-20 or may demonstrate the different correlates of dysfunctional attitudes in normal versus clinical samples.

Results of the multiple regression analyses provide further evidence that clinical subjects' scores on the DAS-20 are primarily related to depression, as measured by the BDI. The POMS scales did not explain a significant portion of the variance in the DAS-20. Thus, although some POMS scales appeared to be related to the DAS-20 in the correlational analyses, the results of the regression analyses indicate that the relationships were too small to be of clinical significance. Nevertheless, that the relationships of the POMS scales with the DAS-20 were independent of the effects of the BDI, negates the second hypothesis. It seems that, despite their small correlation

coefficients, measures of mood disturbance were related to dysfunctional attitudes, irrespective of their relationships with depression. Of course, the converse is also true: the DAS-20 and the BDI have a relationship independent of the POMS scales. This finding suggests that dysfunctional attitudes, as measured by the DAS-20, seem to be involved in that part of depression which is distinct from other mood states.

As indicated by the stepwise regression analysis, the scale most highly related to that part of the DAS-20 not explained by the BDI was the POMS-C. A similar result was found in a normal sample by Weissman (1979). Hence, it seems that the variance in the DAS-20 which is unexplained by depression may be accounted for in part by feelings of confusion. Although in the clinical groups, the Confusion scale of the POMS did not account for a significant portion of the total variance in the DAS-20, in the normal control group the Confusion scale was the measure most highly related to the DAS-20. Thus, in addition to depression, feelings of confusion may also be related to the endorsement of dysfunctional attitudes.

The Discriminative Ability of the DAS-20 and the Validity Measures

The results of the discriminant function analysis indicate that the three subject groups employed in this

study were nosologically distinct. Each of the clinical scales was independently significant in discriminating between at least two of these groups. Together, the clinical measures had significant discriminative power between all three groups. However, although most subjects in the control group were correctly classified, membership in psychiatric groups was less accurately predicted. All of the clinical measures played a significant role in discriminating between clinical and normal subjects, with the BDI having the most discriminative power. Hence, in comparison to normal controls, individuals with psychiatric diagnoses tended to report greater numbers of depressive symptoms, more dysfunctional attitudes, and greater feelings of tension, depression, confusion, reduced vigour, fatigue, and anger. In contrast, only some of the clinical measures contributed to the discrimination of the two clinical groups. Depressive Disorder patients were more likely to report feelings of depression, confusion, and anger than Panic Disorder patients.

The endorsement of dysfunctional attitudes, as measured by the DAS-20, was not significantly different between the two clinical groups. Therefore, the prediction that patients with depressive disorders would have higher levels of dysfunctional attitudes than patients with other psychiatric disorders and normal controls was only partially supported by the data. Although clinical groups tended to

have higher DAS-20 scores than normal controls, Depressive
Disorder subjects could not be discriminated from Panic
Disorder subjects on the basis of DAS-20 scores. This
finding suggests that the attitudes assessed by the DAS-20
may be related to general psychological distress, rather
than specifically to Depressive Disorders.

Construct Validity of the DAS-20

Results discussed thus far, demonstrating the
relationship between dysfunctional attitudes and depression,
provide evidence of the DAS-20's concurrent validity. In
order to evaluate the construct validity of a scale, a
number of hypotheses based on relevant theory must be
formulated and then formally tested (Allen & Yen, 1979).
The three hypotheses in the present study were only
partially supported by the data. In accordance with the
first hypothesis, dysfunctional attitudes, as measured by
the DAS-20, were found to be primarily related to depressive
symptomatology. However, in contrast to the second
hypothesis, depression was not found to account for the DAS-
20's relationships with other measures of psychological
functioning; although these relationships were barely
significant. Finally, with respect to the third hypothesis,
the DAS-20 was able to discriminate clinical subjects from
normal controls, but not Depressive Disorder subjects from
Panic Disorder subjects. Together these findings suggest

that the DAS-20 is measuring attitudes primarily involved in depressive symptomatology, but not specific to Depressive Disorders. That the BDI, like the DAS-20, discriminated between the clinical groups and the control group but not between the two clinical groups themselves, further supports this hypothesis.

Previous research has yielded inconsistent findings with respect to the specificity of the DAS-40 to depressive psychiatric disorders. Some studies have demonstrated that dysfunctional attitudes discriminate well between Depressive Disorders and other psychiatric disorders (Dobson & Shaw, 1986; Hamilton & Abramson, 1983). However, results from these studies are difficult to interpret as the diagnostic classifications of subjects in the control groups were not specified. In contrast, when dysfunctional attitude scores of depressed subjects were compared to those of schizophrenic subjects in one study, no significant differences were found (Hollon, Kendall, & Lumry, 1986; Zimmerman et al., 1986). More relevant to the present study, were the findings of Blackburn et al. (1986) that dysfunctional attitudes significantly differentiated patients diagnosed with Depressive Disorders from patients diagnosed with Anxiety Disorders. However, this result is not directly comparable to the present study, as most of the subjects in the Anxiety Disorder group were diagnosed with Phobic Disorder rather than Panic Disorder. Nevertheless,

it may be that the DAS-20 is less specific to Depressive
Disorders than the DAS-40.

These mixed findings have further confused the question
of whether dysfunctional attitudes are unique to specific
psychiatric classifications. Hollon et al. (1986) argue
that dysfunctional attitudes may be related more to syndrome
rather than nosological depression. Moreover, Weissman
(1979) noted that:

> As a psychopathological dimension, depression may be
> observed in association with other psychopathological
> states such as "schizophrenic reaction" or "anxiety
> reaction," as well as in cases receiving a primary
> diagnosis of depression (p.17).

She further claims that it is this psychopathological
dimension of depression that Beck's cognitive theory of
depression is based on. Thus, in Hollon et al.'s
terminology, the DAS-20 may be measuring attitudes which are
related to syndrome depression as opposed to nosological
depression.

Although the results of this study provide support for
the construct validity of the DAS-20, the validation process
is far from complete. Simply stated, the findings presented
here indicate that individuals who score high on the DAS-20
are more likely to score high on a measure of depressive
symptomatology and are more likely to have been diagnosed
with a psychiatric disorder (not necessarily depression).
Whether the attitudes in the DAS-20 represent underlying
cognitive processes or schemas which are intimately involved

in the onset and maintenance of depression, as hypothesized
by Beck (1987), is purely conjecture. In fact, little is
known about the nature of these attitudes beyond their
relationships with other measures. As Kagan (1988) points
out, researchers utilizing self-report data are often too
quick to suggest that a personality predicate represents a
stable and enduring psychological process. Thus, the nature
of dysfunctional attitudes must be repeatedly examined
within different contexts and over time in order to
understand the construct that the DAS-20 measures.

Implications of the Findings

The findings of this study suggest a number of
implications for clinical practice and research. The DAS-20
was developed by Swan (1988) to provide a university setting
with an instrument which rapidly assesses the maladaptive
beliefs purported by Beck (1987) to be involved in
depression. The validation of the DAS-20 in a clinical
population extends the utility of this measure to clinical
settings. Furthermore, its brevity makes it an extremely
convenient tool to administer, score, and interpret. Thus,
the DAS-20 may easily be included among other measures in a
psychological assessment battery or be employed
independently for a rapid appraisal of depressive tendency.
Earlier versions of the DAS have been demonstrated as
valuable instruments in predicting success in therapy

(Hammen et al., 1983; Keller, 1983). Hence, DAS-20 scores
may also contribute to the prediction of the outcome of
therapy. Moreover, this scale may be more useful than the
DAS-40 in measuring depressive tendency in a psychiatric
population, as it assesses attitudes related to depressive
syndromes, irrespective of diagnostic classification.
However, this scale would not be useful as a predictor of
psychiatric diagnosis. In terms of research, the DAS-20 may
be used to further test the tenets of Beck's theory and of
cognitive therapy in general. Finally, this study suggests
that in a normal population the DAS-20 should be used with
caution as a measure of depressive tendency.

Limitations of the Study

The results of this study must be interpreted within
the context of a number of methodological limitations.
First, as a clinical sample was utilized, restricted numbers
of subjects were available for participation. Thus, sample
sizes were too small to enable a rigorous comparison of the
variable relationships found in the different subject
groups. In addition, the predominance of females in the
sample restricts the generalizability of the findings to
males; although Swan (1988) found no significant differences
in DAS-20 scores as a function of gender. Similarly, that
subjects from only two psychiatric populations were used.

limits the generalizability of these results to psychiatric patients from other clinical groups.

Using subjects from a psychiatric population also limited the number of clinical measures that could be employed. The scales used in the present study tap only a small portion of the psychological dimensions amenable to self-report measurement. Of greater concern, however, Hogan and Nicholson (1988) assert that responses on self-report measures represent self-presentations as opposed to factual summaries of behaviour or psychological functioning. They suggest that the results of self-report questionnaires are not reliable or valid indicators of the constructs that they are intended to measure and should thus be interpreted with caution.

Recommendations for Future Research

To continue the ongoing process of construct validation, further research should examine the DAS-20 through a rigorous process of hypothesis testing. Furthermore, subsequent investigations should address the limitations of the present study in order to extend the research findings. Thus, future studies could examine the DAS-20 within a number of clinically distinct groups to explore its relevance to various manifestations of psychopathology. In addition to the use of a number of self-report measures, the DAS-20 should be examined in

relation to a variety of clinical indicators, as assessed through interviews and direct behavioural observations. Studies which investigate the relationships of the DAS-20 over time will be particularly fruitful in testing the existence of core processes purported to be measured by the DAS-20. The greater the precision with which scores on the DAS-20 are accounted for, the clearer will be our understanding of the construct it is measuring.

APPENDIX D-1

INFORMED CONSENT FORM FOR

THE CLINICAL GROUPS

PSYCHOLOGY RESEARCH PROJECT

Informed Consent for Participation in a Study
of People's Attitudes

A study is currently being conducted at the Health Sciences Centre and St. Boniface General Hospital to examine the different attitudes and beliefs that people hold. If you agree to participate in this research you will be asked to fill out three brief multiple-choice questionnaires, which should take approximately 20 minutes. Also, confirmation of your clinical status will be sought by the researchers.

Your participation in this project is completely voluntary. If you refuse to take part, your treatment at this facility will in no way be affected.

Your responses on the questionnaires will be used solely for research purposes. Only research staff will have access to this information. It will be kept confidential and will not be used for making any clinical or treatment decisions. If you wish to discontinue the study at any time while you are filling out the questionnaires, you are free to do so.

I have read and understand the above information, and am voluntarily agreeing to participate in this study.

Date:_____   Signature:_____

Witness:_____

APPENDIX D-2

INFORMED CONSENT FORM FOR

THE CONTROL GROUP

PSYCHOLOGY RESEARCH PROJECT

Informed Consent for Participation in a Study
of People's Attitudes

A study is currently being conducted at the Health Sciences
Centre and St. Boniface General Hospital to examine the different
attitudes and beliefs that people hold. If you agree to
participate in this research you will be asked to fill out three
brief multiple-choice questionnaires, which should take
approximately 20 minutes.

Your participation in this project is completely voluntary.
Responses on the questionnaires will be used solely for research
purposes. Only research staff will have access to this
information and it will be kept confidential. If you wish to
discontinue the study at any time while you are filling out the
questionnaires, you are free to do so.

I have read and understand the above information, and am
voluntarily agreeing to participate in this study.

Date:_____   Signature:_____

                             Witness:_____

APPENDIX E-1

DEMOGRAPHICS QUESTIONNAIRE

FOR THE CLINICAL GROUPS

Study of People's Attitudes

Purpose: This study is being done to investigate the different attitudes and beliefs that people hold.

Directions: All responses to these questionnaires will remain completely anonymous, however we request that you put your name where it is indicated so that your clinical status can be matched to your responses.

Please read each statement carefully and respond according to the directions provided at the beginning of each questionnaire. Work quickly and remember to answer every question. There are no right or wrong answers, and these are not tests of intelligence or ability, but simply statements that express commonly held beliefs.

Before answering the multiple-choice questionnaires, please fill in the following information.

Name:_____

Age:_____   Sex:_____

Marital status (single, married, divorced, separated):_____

Primary language (english, french, other):_____

APPENDIX E-2

DEMOGRAPHICS QUESTIONNAIRE

FOR THE CONTROL GROUP

Study of People's Attitudes

<u>Purpose</u>: This study is being done to investigate the different attitudes and beliefs that people hold.

<u>Directions</u>: All responses to these questionnaires will remain completely anonymous. Please read each statement carefully and respond according to the directions provided at the beginning of each questionnaire. Work quickly and remember to answer every question. There are no right or wrong answers, and these are not tests of intelligence or ability, but simply statements that express commonly held beliefs.

Before answering the multiple-choice questionnaires, please fill in the following information.

Age:_____   Sex:_____

Marital status (single, married, divorced, separated):_____

Primary language (english, french, other):_____

APPENDIX F

SUBJECT CLINICAL INFORMATION FORM

Subject Clinical Information Form

Subject Name:_____ _____

DSM-III-R diagnosis (Axis 1):_____

Medication:_____

Additional Comments (psychiatric history, DSM-III-R evaluation on
other axes, etc.):_____
_____
_____
_____
_____

APPENDIX G

MEAN SCORES AND STANDARD DEVIATIONS FOR
FEMALE SUBJECTS ONLY

Table G-1

Mean Scores and Standard Deviations for Female Subjects Only

Measure	Group			
	Combined Clinical Group	Depressive Disorder	Panic Disorder	Normal Control
DAS-20	84.63 (23.29)	66.00 (24.94)	63.57 (22.42)	37.27 (18.03)
BDI	20.37 (11.68)	25.56 (10.84)	16.30 (10.87)	3.36 (2.58)
POMS-T	17.93 (8.98)	21.44 (7.14)	15.17 (9.44)	4.18 (3.63)
POMS-D	24.73 (17.78)	35.17 (16.54)	16.56 (14.32)	2.36 (3.48)
POMS-A	12.51 (11.72)	19.17 (11.84)	7.30 (8.77)	3.14 (4.25)
POMS-V	9.54 (6.64)	8.61 (6.57)	10.26 (6.74)	18.88 (5.39)
POMS-F	12.76 (7.81)	15.44 (6.72)	10.65 (8.09)	6.45 (4.77)
POMS-C	10.80 (6.82)	14.39 (5.95)	8.00 (5.78)	2.82 (2.17)

Note. Numbers in parentheses indicate the standard deviation from the mean. DAS-20 = Dysfunctional Attitude Scale - 20; BDI = Beck Depression Inventory; POMS = Profile of Mood States; POMS subscales are: T = Tension-Anxiety Scale, D = Depression-Dejection; A = Anger-Hostility; V = Vigour-Activity; F = Fatigue-

APPENDIX H

CORRELATIONS BETWEEN THE CLINICAL MEASURES

FOR EACH GROUP

Table H-1

Correlations between the Clinical Measures for the Combined
Clinical Group

	Measure						
Measure	DAS -20	BDI	POMS -T	POMS -D	POMS -A	POMS -V	POMS -F
DAS-20	-						
BDI	.51***	-					
POMS-T	.18	.82***	-				
POMS-D	.25*	.76***	.71***	-			
POMS-A	.31*	.53***	.65***	.69***	-		
POMS-V	-.11	-.46***	-.38**	-.48***	-.12	-	
POMS-F	.20	.65***	.66***	.73***	.51***	-.82***	-
POMS-C	.12	.64***	.56***	.80***	.51***	-.58***	.78***

Note. * = p ≤ .05; ** = p ≤ .01; *** = p ≤ .001; (one
tailed test of significance). DAS-20 = Dysfunctional Attitude
Scale - 20; BDI = Beck Depression Inventory; POMS = Profile of
Mood States; POMS subscales are: T = Tension-Anxiety Scale, D =
Depression-Dejection; A = Anger-Hostility; V = Vigour-Activity; F
= Fatigue-Inertia; C = Confusion-Bewilderment.

Table H-2

Correlations between the Clinical Measures for the Depressive
Disorder Group

	Measure						
Measure	DAS -20	BDI	POMS -T	POMS -D	POMS -A	POMS -V	POMS -F
DAS-20	-						
BDI	.57**	-					
POMS-T	.29	.48**	-				
POMS-D	.22	.67***	.80***	-			
POMS-A	.47**	.34	.58**	.60***	-		
POMS-V	.16	-.47**	-.34	-.52**	.13	-	
POMS-F	.20	.55**	.61***	.71***	.32	-.58**	-
POMS-C	-.01	.44*	.44*	.66***	.22	-.63***	.85***

Note. * = p ≤ .05; ** = P ≤ .01; *** = P ≤ .001; (one
tailed test of significance). DAS-20 = Dysfunctional Attitude
Scale - 20; BDI = Beck Depression Inventory; POMS = Profile of
Mood States; POMS subscales are: T = Tension-Anxiety Scale, D =
Depression-Dejection; A = Anger-Hostility; V = Vigour-Activity; F
= Fatigue-Inertia; C = Confusion-Bewilderment.

Table H-3

Correlations between the Clinical Measures for the Panic
Disorder Group

Measure	Measure						
	DAS -20	BDI	POMS -T	POMS -D	POMS -A	POMS -V	POMS -F
DAS-20	−						
BDI	.48**	−					
POMS-T	.08	.71***	−				
POMS-D	.37*	.85***	.65***	−			
POMS-A	.14	.69***	.76***	.69***	−		
POMS-V	−.45*	−.46**	−.42*	−.52**	−.46**	−	
POMS-F	.21	.69***	.68***	.73***	.66***	−.68***	−
POMS-C	.34*	.82***	.67***	.92***	.75***	−.58***	.69***

Note. * = $p \leq .05$; ** = $p \leq .01$; *** = $p \leq .001$; (one
tailed test of significance). DAS-20 = Dysfunctional Attitude
Scale - 20; BDI = Beck Depression Inventory; POMS = Profile of
Mood States; POMS subscales are: T = Tension-Anxiety Scale, D =
Depression-Dejection; A = Anger-Hostility; V = Vigour-Activity; F
= Fatigue-Inertia; C = Confusion-Bewilderment.

Table H-4

Correlations between the Clinical Measures for the Control Group

Measure	DAS -20	BDI	POMS -T	POMS -D	POMS -A	POMS -V	POMS -F
DAS-20	-						
BDI	.41*	-					
POMS-T	.17	.50**	-				
POMS-D	.24	.28	.76***	-			
POMS-A	.18	.48**	.75***	.68***	-		
POMS-V	-.27	-.27	-.29	-.21	-.38*	-	
POMS-F	.16	.31*	.29	.27	.43**	-.48**	-
POMS-C	.56***	.56***	.66***	.68***	.59***	-.40*	.19

Note. * = p ≤ .05; ** = p ≤ .01; *** = p ≤ .001; (one tailed test of significance). DAS-20 = Dysfunctional Attitude Scale - 20; BDI = Beck Depression Inventory; POMS = Profile of Mood States; POMS subscales are: T = Tension-Anxiety Scale, D = Depression-Dejection; A = Anger-Hostility; V = Vigour-Activity; F = Fatigue-Inertia; C = Confusion-Bewilderment.

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