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and Incremental Validity

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Further validation of the IDAS:

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Abstract

We explicated the validity of the Inventory of Depression and Anxiety Symptoms (IDAS; Watson et al., 2007) in two samples (306 college students, and 605 psychiatric patients). The IDAS scales showed strong convergent validity in relation to parallel interview-based scores on the Clinician Rating version of the IDAS (IDAS-CR); the mean convergent correlations were .51 and .62 in the student and patient samples, respectively. With the exception of Well-Being, the scales also consistently demonstrated significant discriminant validity. Furthermore, the scales displayed substantial criterion validity in relation to *DSM-IV* mood and anxiety disorder diagnoses in the patient sample. We identified particularly clear and strong associations between (a) major depression and the IDAS General Depression, Dysphoria and Well-Being scales; (b) panic disorder and IDAS Panic; (c) posttraumatic stress disorder and IDAS Traumatic Intrusions; and (d) social phobia and IDAS Social Anxiety. Finally, in logistic regression analyses, the IDAS scales showed significant incremental validity in predicting several *DSM-IV* diagnoses when compared against the Beck Depression Inventory-II (Beck, Steer, & Brown, 1996) and Beck Anxiety Inventory (Beck & Steer, 1990).

Keywords: major depression, anxiety disorders, convergent validity, discriminant validity, criterion validity

Further validation of the IDAS:

Evidence of Convergent, Discriminant, and Criterion Validity

Traditional self-report measures of depression—such as the Beck Depression Inventory-II (BDI-II; Beck, Steer, & Brown, 1996) and the Center for Epidemiological Studies Depression Scale (CES-D; Radloff, 1977)—have been valuable clinical research tools for more than 40 years (for a recent review, see Joiner, Walker, Pettit, Perez, & Cukrowicz, 2005). At the same time, however, the accumulating research also has exposed some limitations of these instruments, thereby establishing the need for alternative measures (Joiner et al., 2005). Watson et al. (2007) created the Inventory of Depression and Anxiety Symptoms (IDAS) to complement these traditional measures and to address their limitations.

The IDAS differs from these older instruments in two basic ways. First, these traditional measures originally were created to yield a single overall index of symptom severity. These total scores are valuable in many contexts; nevertheless, this focus on global dysfunction ignores the heterogeneous and multidimensional nature of depressive symptoms, and it hampers the identification of meaningful subtypes (Ingram & Siegle, 2002; Joiner et al., 2005). In contrast, the IDAS was specifically designed to contain multiple scales assessing specific symptoms of depression (e.g., insomnia, suicidality, appetite loss).

Second, extensive evidence has established that these depression measures are very strongly associated with symptoms of anxiety (e.g., Clark & Watson, 1991; Mineka, Watson, & Clark, 1998; Watson, 2005). Consequently, the original IDAS item pool contained a broad range of anxiety-related symptoms. The inclusion of these items facilitated the development of depression scales with good discriminant validity, and also eventually led to the creation of complementary anxiety scales (e.g., social anxiety, panic).

Development and Preliminary Validation of the IDAS

Development of the IDAS

An initial pool of 180 items was subjected to a series of analyses in a large undergraduate sample (see Watson et al., 2007, Study 1); this yielded a revised pool of 169 items. Next, this revised set of items was administered to large samples of college students, psychiatric patients, and community adults (Watson et al., 2007, Study 2). Data from these three samples were subjected to separate series of principal factor analyses. Ten specific content factors emerged in all three samples and were used to create corresponding scales. Five of these scales represent specific symptoms of major depression: Insomnia, Lassitude (which includes items reflecting fatigue, lack of energy, and hypersomnia), Suicidality, Appetite Loss, and Appetite Gain. In addition, three scales—Panic, Social Anxiety, and Traumatic Intrusions—assess specific types of anxiety symptoms. The other two content scales assess feelings of high energy and positive affect (Well-Being) and anger/hostility (Ill Temper).

A large, nonspecific factor also emerged in all three solutions; this dimension represents the core (and largely nonspecific) emotional and cognitive symptoms of depression and anxiety (see Watson et al., 2007, Table 1). The IDAS Dysphoria scale was created to capture the nature and scope of this diverse factor. It contains single items assessing depressed mood, anhedonia, worry, worthlessness, guilt, and hopelessness, as well as two items apiece tapping psychomotor disturbance (one reflecting retardation, the other agitation) and cognitive problems.

Although the Dysphoria scale is broad and non-specific in its content, it is narrower in scope than most traditional measures of depression, such as the BDI-II. Watson et al. (2007) therefore created an expanded measure that more closely resembles these older measures and that includes a comprehensive range of depression-related content. Thus, the 20-item General Depression scale includes all 10 Dysphoria items, as well as two items apiece from Suicidality, Lassitude, Insomnia, Appetite Loss, and Well-Being (these items are reverse-keyed).

Preliminary Validation

Reliability evidence. Watson et al. (2007) reported a variety of psychometric data in the three scale development samples and in five new samples (high school students, college students, young adults, postpartum women, and psychiatric patients; see Watson et al., Study 3). For instance, they present evidence indicating that the scales all are internally consistent, with coefficient alphas typically exceeding .80 (see Watson et al., 2007, Table 3). In addition, they report one-week retest correlations in a sample of 250 psychiatric patients ranging from .72 (Ill Temper) to .84 (General Depression).

Validity evidence. Watson et al. (2007) also presented various types of data to establish the validity of the scales. For instance, the 10 specific scales generally have low to moderate correlations with one another (typically in the |.20| to |.50| range; see Watson et al., 2007, Table 4), demonstrating that these symptom dimensions can be distinguished from one another. Moreover, item-level factor analyses established that the specific scales do an excellent job of capturing the underlying target dimensions.

The Current Research

Overview of the Research

The primary goal of this study is to explicate the convergent, discriminant, criterion and incremental validity of the IDAS scales. To do so, we present additional data from two of the Study 3 samples—college students and psychiatric patients—previously reported in Watson et al. (2007).¹ In addition, we evaluate the comparative and incremental validity of the IDAS scales against the BDI-II and the Beck Anxiety Inventory (BAI; Beck & Steer, 1990). In the sections that follow, we briefly summarize relevant data reported earlier by Watson et al. (2007) and then describe how the current results augment and extend them.

Convergent and Discriminant Validity

Prior evidence. Watson et al. (2007) reported several types of evidence to establish convergent and discriminant validity. For example, they demonstrated that the IDAS General Depression and Dysphoria scales were very strongly correlated with the BDI-II (r s ranged from .81 to .83; see Watson et al., 2007, Table 6), whereas the IDAS Panic scale was highly related to the BAI ($r = .79$ and $.78$ in Studies 2 and 3, respectively).

Moreover, Watson et al. (2007) correlated eight of the IDAS scales with corresponding symptom composites from the Interview for Mood and Anxiety Symptoms (IMAS; Kotov, Gamez, & Watson, 2005), a semi-structured instrument that was administered approximately 6 weeks later. The mean convergent correlation was .50, which indicates good convergent validity (see Watson et al., 2007, Table 7). Next, a classic test of discriminant validity is that each of the convergent correlations should be higher than any of the other values in its row or column of the heteromethod block (Campbell & Fiske, 1959). Watson et al. conducted significance tests comparing the convergent correlations to each of the 14 discriminant correlations in the same row or column of the heteromethod block. Overall, 106 of these 112 comparisons (94.6%) were significant, which offers encouraging evidence of discriminant validity.

The current study. The current study extends this evidence by examining convergent and discriminant relations between self-report and interview-based measures of all 11 non-overlapping IDAS scales (i.e., General Depression is excluded because it shares items with other scales). Because no suitable interview-based measure existed (i.e., one that assessed all of the IDAS dimensions), we created the Clinician Rating version of the IDAS (IDAS-CR), which consists of a single clinician rating for each of the 11 non-overlapping IDAS scales. IDAS-CR data are available in both samples. Based on the earlier results reported by Watson et al. (2007), we expected the IDAS scales to show strong convergent validity and significant discriminant validity in relation to their IDAS-CR counterparts.

Criterion Validity

Prior evidence. Watson et al. (2007) examined the criterion validity of the IDAS scales by correlating them with clinicians' ratings on the widely used Hamilton Rating Scale for Depression (HRSD; Hamilton, 1960) in a postpartum sample (see their Table 9); for comparison purposes, they also reported parallel results for the BDI-II and BAI. Three aspects of these data were noteworthy. First, consistent with previous research (Beck & Steer, 1993; Clark & Watson, 1991), the results demonstrated strong associations between self-rated and clinician-rated symptoms. Second, all of the IDAS scales were significantly correlated with the HRSD (r s ranged from $|.30|$ to $|.67|$), which establishes some degree of criterion validity for each of them. Third, the two general IDAS scales—General Depression ($r = .67$) and Dysphoria ($r = .64$)—had correlations with the HRSD that were comparable to those of the BDI-II ($r = .62$) and BAI ($r = .64$), thereby demonstrating a similar level of criterion validity.

The current study. Although these HRSD results are encouraging, Watson et al. (2007) did not report any data relating the IDAS scales to formal *DSM-IV* diagnoses of major depression and the anxiety disorders. Accordingly, a basic goal of the current research was to relate the IDAS scales to *DSM-IV* diagnoses that were assessed using the Structured Clinical Interview for *DSM-IV* (SCID-IV; First, Spitzer, Gibbon, & Williams, 1997) in the patient sample.²

Based on the data reported in Watson et al. (2007), we expected that the IDAS General Depression and Dysphoria scales would display correlates that are very similar to those of the BDI-II. All of these scales tap variance that is strongly related to the general distress/negative affectivity dimension that lies at the heart of the unipolar mood and anxiety disorders (see Clark & Watson, 1991; Mineka et al., 1998; Watson, 2005; Watson et al., 2007). All of these scales, therefore, should be significantly associated with a broad range of diagnoses, but should display particularly strong links to distress-based disorders such as major depression and generalized

anxiety disorder (GAD; see Watson, 2005). We expected that the other IDAS scales would show weaker—but significant—associations with depression and GAD.

In addition, the three anxiety scales of the IDAS should show more specific associations with corresponding *DSM-IV* anxiety disorders. That is, one would expect to observe specific associations between (a) IDAS Panic and *DSM-IV* panic disorder, (b) IDAS Social Anxiety and social phobia, and (c) IDAS Traumatic Intrusions and PTSD.

Multivariate analyses. We also report multivariate logistic regression analyses in which the self-report scales are examined together in relation to the *DSM-IV* diagnoses. These analyses have two basic goals. First, given that the IDAS scales are significantly correlated and, therefore, not completely independent, we were interested in identifying which of them showed unique, incremental power in relation to each *DSM-IV* disorder. Second, we used these analyses to examine the incremental validity of the IDAS scales in relation to the BDI-II and BAI.

Method

Participants and Procedure

College student sample. The participants were 307 students enrolled in an introductory psychology course at the University of Iowa. They participated in partial fulfillment of a course research exposure requirement. They were assessed in small-group sessions. The sample consisted of 194 women and 112 men (the sex of one participant was unknown); it included 272 Whites (88.6%), 13 Asian Americans, (4.2%), 4 African Americans (1.3%), and 18 participants (5.9%) whose racial status was either unknown or from another category. Because of missing data, we subsequently report results based on data from 303 students.

Psychiatric patient sample. Watson et al. (2007, Study 3) report findings from a sample of 337 psychiatric patients. We present data here on an expanded sample of 605 patients. The participants (age range = 18-83, $M = 41.8$ years) were recruited from the Community Mental

Health Center of Mideastern Iowa, the Adult Psychiatry Clinic at the University of Iowa Hospital and Clinics, and the Seashore Psychology Clinic in the Department of Psychology at the University of Iowa. Patients at these sites were individually approached and asked if they were interested in participating in a research study. They were assessed in small group sessions and were paid for their participation. The sample consisted of 386 women and 217 men (the sex of two participants was unknown); it included 544 Whites (89.9%), 12 African Americans (2.0%), 10 native Americans (1.7%), 9 Asian Americans (1.5%), 12 multiracial participants (2.0%), and 18 respondents (3.0%) whose racial status was either unknown or from another category. We subsequently report results based on data from 605 (IDAS-CR analyses) and 575 (SCID-IV analyses) patients.

Self-Report Measures

IDAS. All participants completed the final 64-item version of the IDAS; they indicated the extent to which they had experienced each symptom “during the past two weeks, including today” on a 5-point scale ranging from *not at all* to *extremely*. The IDAS contains the 10-item Dysphoria scale; 8-item measures of Well-Being and Panic; 6-item measures of Suicidality, Lassitude, and Insomnia; 5-item measures of Social Anxiety and Ill Temper; a 4-item Traumatic Intrusions scale; and 3-item measures of Appetite Loss and Appetite Gain. Finally, as discussed earlier, it also includes the 20-item General Depression scale, which contains all 10 Dysphoria items, as well as two items apiece from the Suicidality, Lassitude, Insomnia, Appetite Loss, and (reverse-keyed) Well-Being scales. Coefficient alphas for the scales in these samples are reported in Watson et al. (2007, Table 3).

BDI-II and BAI. Participants in the patient sample also completed the BDI-II (Beck et al., 1996) and BAI (Beck & Steer, 1990). The BDI-II is one of the most widely used and best validated self-report measures of depression (see Joiner et al., 2005). The BDI-II consists of 21

items, each of which is rated on a 4-point scale ranging from 0 to 3; thus, total scores can range from 0 to 63. For each item, respondents choose the option that best characterizes how they have been feeling “during the past two weeks, including today.” The BDI-II had a coefficient alpha of .93 in the patient sample.

The BAI assesses 21 affective and somatic symptoms of anxiety that are rated on a 4-point scale (0 = *not at all*, 3 = *severely/I could barely stand it*). Respondents indicate to what extent they have been bothered by each symptom “during the past week, including today.” The BAI had a coefficient alpha of .94 in the patient sample.

Interview Measures

IDAS-CR. Participants in both samples were rated on the IDAS-CR. The interviewers were trained staff members who had masters’ level training in clinical/counseling psychology or public health.

As noted earlier, the IDAS-CR consists of a series of ratings representing each of the 11 non-overlapping IDAS scales (i.e., General Depression is not assessed). Each rating is made on a 3-point scale (*absent, subthreshold, present*). In order to make these ratings, the clinicians asked a standard initial probe question, as well as several standard follow up questions, for each symptom. In addition, the clinicians were free to ask additional questions to ensure the individual received a proper rating on the dimension. For the IDAS-CR Dysphoria rating, for example, the interviewers began with the standard probe question, ““Did you feel sad, depressed, or down over the past two weeks?” They then asked a number of follow up questions, including “Have you felt inadequate?”, “Have you had trouble concentrating?” and “Have you found yourself worrying much of the time?” The interviewers also clarified whether or not reported symptoms had been present “more days than not” over the past two weeks, and whether they had (a) been noticed by others or (b) interfered with the patients’ day-to-day activities.

To assess interrater reliability, the interviews were audiotaped; 56 (student sample) and 76 (patient sample) of them were scored independently by a second interviewer (due to audiotape problems, some intraclass correlations in the patient sample are based on an N of only 75). Intraclass correlations in the student sample ranged from .65 (Ill Temper) to .95 (Insomnia), with a mean value of .83 and a median value of .87. Intraclass correlations in the patient sample ranged from .74 (Well-Being) to .99 (Appetite Gain), with a mean value of .90 and a median value of .89. Intraclass correlations in this range indicate good to excellent interrater reliability (see Cicchetti, 1994).

SCID-IV. The patients were interviewed using the mood disorders, anxiety disorders, and substance use disorders modules of the SCID-IV. This last class was included primarily as a further test of discriminant validity (i.e., we expected that the IDAS scales would relate much more weakly to substance use disorders than to the mood and anxiety disorders). Because we had no differential predictions regarding individual substance use disorders, we collapsed them into a single overall category (i.e., “any substance use disorder”). This left 10 diagnoses for further consideration. Table 1 presents prevalence data for these disorders in this sample.

To assess interrater reliability, the SCID-IV interviews were audiotaped, and 76 of them were scored independently by a second interviewer (because of audiotape problems, the actual N ranged from 74 to 76 across various disorders). The resulting kappas are reported in Table 1. Nine diagnoses showed good to excellent interrater reliability; the kappas ranged from .70 (GAD) to .95 (major depression), with a median value of .86. Accordingly, these diagnoses were retained for subsequent analyses. In contrast, however, the interrater reliability for agoraphobia ($\kappa = .46$) was unacceptably low; it therefore was dropped from further consideration.

Results

IDAS-CR Analyses

Student sample. We first evaluate the convergent and discriminant validity of the IDAS scales by examining correlations between them and parallel interview-based ratings on the IDAS-CR. Table 2 presents these correlations in the college student sample in the form of a heteromethod block (Campbell & Fiske, 1959). Looking first at convergent validity, all of the IDAS scales were significantly related to their IDAS-CR counterparts, with coefficients ranging from .30 (Well-Being) to .62 (Dysphoria). The mean convergent correlation was .51, which reflects a strong level of convergent validity; these results are particularly impressive given that the IDAS-CR consists of a series of single ratings. Thus, consistent with previous research (e.g., Beck et al., 1988; Clark & Watson, 1991; Watson et al., 2007), our results demonstrate substantial associations between self-report and interview-based symptom measures.

Having said that, however, we also must acknowledge that the convergent correlation for Well-Being ($r = .30$) is substantially lower than that for any other scale (the next lowest coefficient is $r = .42$ for Ill Temper). In this regard, some of our interviewers commented that they found it particularly challenging to rate well-being/positive affectivity (this rating also showed a relatively low level of interrater reliability in this sample, with an intraclass correlation of .69), given that they were much more used to evaluating dysfunction and psychopathology than healthy psychological functioning.

We turn now to discriminant validity. In discussing these data, it is important to emphasize that valid measures of depression and anxiety should not be completely independent of one another, but rather should be significantly interrelated (Clark & Watson, 1991; Watson, 2005). Thus, the key issue here is the *pattern* of the correlations; that is, whether purported measures of the same construct (e.g., IDAS Lassitude vs. IDAS-CR Lassitude) correlate more highly than purported measures of different constructs (e.g., IDAS Lassitude vs. IDAS-CR Insomnia).

As noted earlier, a classic test of discriminant validity is that each of the convergent

correlations should be higher than any of the other values in its row or column of the heteromethod block (Campbell & Fiske, 1959). In part because of its low convergent correlation, Well-Being clearly failed this test. In contrast, however, the other 10 scales easily met this criterion. We further quantified these relations by conducting significance tests (using the Williams modification of the Hotelling test for two correlations involving a common variable; see Kenny, 1987) comparing these convergent correlations to each of the 20 discriminant coefficients in the same row or column of the block; this yields a total of 200 tests of discriminant validity across these 10 symptom dimensions. Overall, 199 of these 200 comparisons (99.5%) were significant ($p < .05$, 1-tailed), which offers strong evidence of discriminant validity. The single exception was that the convergent coefficient for Ill Temper ($r = .42$) did not significantly exceed the .35 correlation between IDAS Ill Temper and IDAS-CR Dysphoria ($z = 1.09$, n.s.).

Patient sample. Table 3 presents parallel data from the psychiatric patient sample. It is interesting to note that the self-report and interview-based measures showed a stronger overall level of convergence in this sample. The convergent coefficients ranged from .52 (Well-Being) to .71 (Appetite Loss), with a mean value of .62; this reflects a very strong level of convergent validity, particularly when one considers the limitations of using single IDAS-CR ratings.

In part because of these stronger convergent correlations, the patient data also yielded clearer evidence of discriminant validity. As before, we conducted significance tests comparing each of the convergent correlations to all of the other values in its row or column of the heteromethod block. The results indicated that 219 of the 220 comparisons (99.5%) were significant ($p < .05$, 1-tailed); the sole exception was that the convergent correlation for Well-Being ($r = .62$) was not significantly higher than the -.49 correlation between IDAS-CR Well-being and IDAS Dysphoria ($z = 0.86$, n.s.).

Summary. Overall, these data offer encouraging evidence of convergent and discriminant validity. All of the convergent correlations were significant and at least moderate in magnitude, with mean coefficients of .51 and .62 in the student and patient data, respectively. With the exception of Well-Being, the scales also consistently showed adequate discriminant validity; indeed, 399 of the 400 individual comparisons involving the other 10 scales were significant ($p < .05$, 1-tailed) across the two samples. Thus, our data demonstrate that specific symptom dimensions—such as lassitude, insomnia, suicidality and panic—can be distinguished from one another across methods.

SCID-IV Analyses

Preliminary analyses. To examine the criterion validity of the scales, we first report point biserial correlations with the SCID-IV diagnoses; in these analyses, diagnoses are scored as 0=absent, 1=present, so that positive correlations indicate that higher scores on a scale are associated with an increased likelihood of receiving the diagnosis.

Preliminary analyses revealed that three diagnostic categories—specific phobia, dysthymic disorder, and any substance use disorder—had consistently weak associations with all of the self-report scales. In fact, the strongest correlations were only .16 (IDAS Panic and the BAI) for specific phobia, -.07 (IDAS Well-Being) for dysthymic disorder, and .16 (IDAS Ill Temper) for any substance use disorder. Moreover, mean-level comparisons (to be described in more detail subsequently) yielded 39 null or small effects, only 3 moderate effects (Panic and the BAI with specific phobia; Ill Temper with substance use), and no large effects. Consequently, these disorders will not be considered further.

Correlational analyses. Table 4 presents point biserial correlations with the six remaining disorders. Several aspects of these data are noteworthy. First, Table 4 displays many moderate to strong associations; thus, our results again demonstrate the substantial criterion validity of

self-report symptom scales (see also Clark & Watson, 1991; Watson et al., 2007). Beyond this general finding of strong criterion validity, these data also clearly establish differential patterns of association within each disorder that were largely consistent with our predictions. Four disorders yielded particularly clear results that supported our hypotheses. As expected, General Depression, Dysphoria, and the BDI-II (all $r_s = .62$) all had significantly stronger associations with depression ($p < .01$, 1-tailed) than any other scale. Next, the BAI and the IDAS Panic scales ($r = .50$ and $.47$, respectively) both had significantly stronger correlations with panic disorder ($p < .01$, 1-tailed) than all other scales. Similarly, the IDAS Traumatic Intrusions scale ($r = .43$) had a significantly stronger correlation with PTSD ($p < .05$, 1-tailed) than any other scale. Finally, the IDAS Social Anxiety scale ($r = .39$) had a significantly stronger correlation with social phobia ($p < .01$, 1-tailed) than all other scales. These data demonstrate clear differential relations that help to explicate the construct validity of these scales.

The other two disorders yielded more complex results. Our predictions regarding GAD received some support. The BAI, General Depression and Dysphoria scales (r_s ranged from $.37$ to $.38$) had the strongest associations with GAD; moreover, follow-up tests indicated that these correlations were significantly stronger ($p < .05$, 2-tailed) than those for all other scales, with the single exception of the BDI-II ($r = .34$; z_s ranged from 1.18 to 1.43 , n.s.); thus, these findings demonstrate some limited evidence of specific, differential relations with GAD. In contrast, although many scales had relatively low but significant associations with OCD, none of these correlations was high enough to establish a clear differential pattern.

Mean-level comparisons. Correlations offer an effective way of quantifying the differential magnitude of the relations between different self-report scales and a given diagnosis (e.g., establishing that major depression is more strongly related to Dysphoria than to Insomnia). However, they are more problematic in quantifying the differential strength of relations across

diagnoses (e.g., examining how strongly Dysphoria is related to depression versus GAD). This is because correlations are influenced by the prevalence rates and variances of dichotomous diagnoses (i.e., relatively common disorders will tend to show stronger correlations than rarer conditions). We therefore supplemented these correlational analyses with mean-level comparisons, which are expressed as Cohen's d (Cohen, 1988, 1992). These analyses were conducted separately for each diagnosis by first computing the mean self-report scale scores for those individuals with ("cases") and without ("non-cases") the disorder, and dividing the difference between these means by the pooled standard deviation. The resulting d values are presented in Table 5. (The scale means and standard deviations for the cases and non-cases in all of these analyses are available as online supplements, and are reported in Tables S1 through S6.).

These analyses produced several interesting findings. First, it is important to note that the majority of these effect sizes are moderate to large in magnitude. Cohen (1992, Table 1) proposed that d values in the .20 to .49 range represent small effect sizes; those in the .50 to .79 range reflect moderate effect sizes; and values of .80 or greater indicate large effect sizes. Based on these criteria, 30 of the 84 effect sizes (35.7%) are large (9 for panic disorder, 8 for major depression 7 for PTSD, 4 for GAD, and 1 apiece for social phobia and OCD), and 34 more (40.5%) are moderate (9 for OCD; 7 for GAD; 5 apiece for major depression, PTSD, and social phobia; and 3 for panic disorder).

Second, five scales show clear evidence of diagnostic specificity in these data.

Corroborating key findings from the correlational analyses, (a) the BAI and IDAS Panic scales ($d = 1.56$ and 1.48 , respectively) are most strongly related to panic disorder, (b) Traumatic Intrusions ($d = 1.28$) is most strongly linked to PTSD, and (c) the IDAS Social Anxiety scale ($d = 1.13$) has its strongest association with social phobia. In addition, the IDAS Well-Being scale had a stronger association with major depression ($d = -0.89$) than with any other disorder (ds

ranged from -0.31 to -0.51). This last finding is consistent with previous research establishing that low positive affectivity is a relatively unique and specific component of depression (see Clark & Watson, 1991; Mineka et al., 1998; Watson, 2005).

In contrast, however, most of the scales showed relatively nonspecific associations with multiple disorders. Although the three general depression measures (i.e., the BDI-II and the IDAS General Depression and Dysphoria scales) all were strongly related to depression (all $d_s = 1.25$)—and, in fact, had their strongest links to depression—they also had strong associations with panic disorder (d_s ranged from 1.08 to 1.18), PTSD (d_s ranged from 0.85 to 0.92) and GAD (d_s ranged from .82 to .90). Five additional scales—Suicidality, Lassitude, Insomnia, Ill Temper and Appetite Loss—had moderate to strong associations with three or more diagnoses and failed to exhibit a clear differential pattern. Finally, consistent with findings reported in Watson et al. (2007), Appetite Gain failed to show any moderate to strong effects.

These nonspecific effects are due, in part, to the substantial overlap among these disorders. In this sample, for instance, diagnoses of major depression had tetrachoric correlations of .48 with panic disorder, .45 with GAD and PTSD, .30 with OCD, and .21 with social phobia (see also Mineka et al., 1998; Watson, 2005). Consequently, we reconducted these analyses after eliminating the effects of comorbid depression and anxiety. Specifically, in the analyses involving major depression, we removed as cases any individuals who also met criteria for one of the five relevant anxiety disorders (i.e., GAD, PTSD, panic disorder, social phobia, OCD). Conversely, for each of these anxiety disorders, we eliminated as cases any individuals who also met criteria for major depression. As would be expected in light of the substantial comorbidity between depression and anxiety, this reduced the number of diagnosed cases considerably (the reduced numbers of cases were 88 for major depression, 41 for GAD, 21 for PTSD, 66 for panic disorder, 35 for social phobia, and 19 for OCD).

Table 6 reports the d values from these analyses (once again, the means and standard deviations for the cases and non-cases are reported in the supplemental Tables S1 through S6). These results demonstrate that many of the Table 5 associations largely reflect overlapping variance between depression and the anxiety disorders. Indeed, after controlling for comorbid depression and anxiety, only 3 of the 84 effect sizes (3.6%) are large (2 for panic disorder, 1 for PTSD), and only 15 more (17.9%) are moderate (7 for panic disorder, 4 for PTSD, 2 for major depression, and 1 apiece for social phobia and OCD). The obvious advantage of eliminating these nonspecific effects is that it allows the few truly specific associations to emerge much more clearly. Thus, replicating the findings of Table 5, we again see that (a) the BAI ($d = 1.31$) and IDAS Panic ($d = 1.17$) are most strongly related to panic disorder, (b) Traumatic Intrusions ($d = 1.05$) is most strongly linked to PTSD, (c) Social Anxiety ($d = 0.78$) has its strongest association with social phobia, and (d) IDAS Well-Being scale has its strongest association with major depression ($d = -0.57$). In contrast, the remaining scales had small to moderate associations with the diagnoses that failed to demonstrate a clear specific pattern.

Logistic regression analyses. Thus far, we have examined the criterion validity of individual self-report scales in a series of separate bivariate analyses. Although these analyses yield useful information, they do not take into account the significant correlations among the scales (for more information about these inter-scale correlations, see Watson et al., 2007). We therefore conducted three series of logistic regression analyses that were designed (a) to identify the unique, incremental power of the individual scales in relation to each *DSM-IV* disorder and (b) to examine the incremental validity of the IDAS scales in relation to the BDI-II and BAI. In all of these analyses, the scale scores were standardized to put them on the same metric. Each of the individual *DSM-IV* disorders served as a criterion in a separate analysis.

In the first series of regressions, the 11 non-overlapping IDAS scales served as predictors

(i.e., the IDAS General Depression scale was omitted because it shares items with the other scales) and the original SCID-IV diagnoses were used as the criteria (i.e., we did not control for comorbid depression and anxiety in these analyses). Table 7 presents the odds ratios and 95% confidence intervals from these logistic regressions. These results highlight the unique predictive power of several IDAS scales and they largely corroborate the bivariate results presented earlier. Thus, as would be expected from the bivariate analyses, (a) Dysphoria and (low) Well-Being made significant contributions to major depression, (b) Dysphoria also was significantly related to GAD and panic disorder, (c) Traumatic Intrusions made the strongest contribution to PTSD, (d) Panic was uniquely related to panic disorder, and (e) Social Anxiety was the only scale to have a significant association with social phobia. Two less obvious effects also emerged: Insomnia contributed to the prediction of GAD, whereas Social Anxiety was significantly linked to PTSD.

It is interesting to note that these analyses also produced one suppressor effect: lower scores on Ill Temper were associated with an increased risk of major depression. Suppressor effects occur when the addition of a predictor either increases the effect size or changes the sign of another predictor in the regression equation (Paulhus, Robins, Trzesniewski, & Tracy, 2004). In this particular case, these results indicate that Ill Temper contains two different components that are oppositely related to this criterion: That is, it contains a nonspecific component (which overlaps with scales such as Dysphoria) that is positively related to major depression, as well as a unique, non-overlapping component that is negatively linked to depression. Thus, after eliminating the influence of this nonspecific component, we see evidence that anger and hostility are associated with a reduced risk for major depression.

In the second set of logistic regressions, we reconducted these analyses using the recomputed diagnoses that controlled for comorbid depression and anxiety (these were discussed

earlier in connection with the Table 6 analyses). These results are presented in Table 8. The most noteworthy aspect of these data is that we replicated five of the key findings from Table 7: Dysphoria and (low) Well-Being were significantly related to major depression, Traumatic Intrusions made a significant contribution to PTSD, Panic was a unique predictor of panic disorder, and Social Anxiety was significantly linked to social phobia.

These analyses also yielded a much larger number of suppressor effects (e.g., low levels of Insomnia were associated with an increased risk for major depression; low levels of Dysphoria were linked to an elevated risk for PTSD). Most of these effects are at least partly artifactual and should be interpreted with considerable caution. That is, all of these participants were patients, and most of them reported substantial amounts of both depression and anxiety (see Watson et al., 2007). Moreover, previous research has shown that relatively “pure” cases of disorders (e.g., patients who meet criteria for PTSD but not major depression) tend to have less severe psychopathology than comorbid cases (e.g., patients who meet criteria for both PTSD and major depression) (see Clark, Watson, & Reynolds, 1995). Thus, it is hardly surprising that these relatively pure diagnostic cases actually would report somewhat lower levels of certain symptoms than the rest of the patients (most of whom met criteria for one or more disorders).

In the final series of logistic regressions, we examined the incremental validity of the IDAS scales vis-à-vis the BDI-II and BAI. The original SCID-IV diagnoses were used as the criteria in these analyses (i.e., we did not control for comorbid depression and anxiety).³ These results are presented in Table 9. The most noteworthy aspect of these data is that the IDAS scales made significant incremental contributions to five of the six disorders: Dysphoria to major depression, Dysphoria and Insomnia to GAD, Traumatic Intrusions and Social Anxiety to PTSD, Lassitude to panic disorder, and Social Anxiety to social phobia (there also are three suppressor effects that we will not consider further). In addition, (low) Well-Being was a marginally significant

predictor of major depression ($OR = 0.70, p < .08$). Overall, therefore, these data establish that the IDAS scales—particularly Traumatic Intrusions (in relation to PTSD) and Social Anxiety (in relation to social phobia)—have incremental validity and tap important variance that is not contained in the BDI-II and BAI.

Discussion

Convergent and Discriminant Validity

We examined convergent and discriminant relations between self-report and interview-based measures of all 11 non-overlapping IDAS scales in two large samples (303 college students and 605 psychiatric patients). Our data yielded consistent evidence of convergent validity. All of the convergent correlations were significant and at least moderate in magnitude (the convergent r s ranged from .30 to .71 across the two samples), with mean coefficients of .51 and .62 in the students and patients, respectively. This level of convergence is particularly impressive when one considers that each of these symptom dimensions was assessed using only a single 3-point rating on the IDAS-CR.

With the exception of Well-Being, the scales also showed clear discriminant validity. In fact, 399 of the 400 individual convergent-discriminant comparisons involving the other 10 IDAS scales were significant ($p < .05$, 1-tailed) across the two samples. We note, moreover, that these scales showed distinctive patterns of clinical correlates with *DSM-IV* disorders, and that many of them provided unique, incremental predictive power in our multivariate analyses. Thus, taken together with the earlier findings of Watson et al. (2007), these results demonstrate that specific symptom dimensions can be distinguished from one another across multiple methods; moreover, they demonstrate the clinical and heuristic value of assessing and analyzing these symptoms separately. We return to this latter issue subsequently.

Having said that, however, we also must acknowledge that the findings for Well-Being

were more problematic: Although the scale performed well in the patient data, it clearly failed to show adequate discriminant validity in the student sample. Although these results are somewhat disappointing, we do not believe they indicate fundamental problems with the IDAS Well-Being scale for two related reasons. First, as suggested earlier, these mixed results primarily reflect a problem of convergence, rather than of differentiation; that is, Well-Being had the lowest convergent correlations in both the student ($r = .30$) and patient ($r = .52$) samples. In this regard, it is noteworthy that Watson et al. (2007) reported that Well-Being had low to moderate correlations with all of the other IDAS scales; indeed, its strongest correlations were only $-.47$ and $-.52$ with Dysphoria in Studies 2 and 3, respectively (see Watson et al., 2007, Table 4). Moreover, Dysphoria actually had stronger associations with several other scales (e.g., Social Anxiety, Lassitude, Ill Temper, Panic). Thus, the Well-Being scale does not appear to present any particular problems related to discriminant validity.

Second, we strongly suspect that these mixed findings are due more to problems with the interview-based IDAS-CR than with the self-report Well-Being scale. As noted earlier, some of our interviewers found this dimension of euthymia/positive affectivity to be particularly challenging to rate; the challenging nature of this judgment was reflected in the relatively low interrater reliabilities for this rating (the intraclass correlations were $.69$ and $.74$ in the students and patients, respectively). Furthermore, the Well-Being scale showed substantial criterion validity in subsequent analyses and, in fact, made a significant incremental contribution to the prediction of major depression. Consequently, despite these mixed results, we believe that the bulk of the evidence supports the validity of the IDAS Well-Being scale.

Criterion Validity

Overall, our data offer strong support for the criterion validity of these self-report symptom scales (see Tables 4 and 5). We reported a total of 84 effect sizes in Table 5. Using the criteria

provided by Cohen (1992), 30 of the 84 effect sizes (35.7%) were large and 34 more (40.5%) were moderate in magnitude. Overall, the scales showed the strongest links to panic disorder (9 large effects, 3 moderate effects), major depression (8 large effects, 5 moderate effects), PTSD (7 large effects, 5 moderate effects), and GAD (4 large effects, 7 moderate effects).

Clearly, however, most of these effects were nonspecific, reflecting both substantial correlations among the scales and significant comorbidity between these *DSM-IV* diagnoses. We controlled for these nonspecific effects in various ways, including eliminating comorbid depression and anxiety (see Table 6) and conducting two series of logistic regression analyses (see Tables 7 and 8). These analyses highlighted the distinctive qualities—as well as the unique predictive power—of several IDAS scales. Although the results varied somewhat across different analyses, we found robust evidence of five specific effects: (a) Dysphoria and (low) Well-Being both made significant contributions to major depression, (b) Traumatic Intrusions had the strongest association with PTSD, (c) Panic was uniquely related to panic disorder, and (d) Social Anxiety was significantly linked to social phobia.

In contrast, the remaining IDAS scales showed relatively limited evidence of specificity in relation to these *DSM-IV* diagnoses. Further research is needed to determine whether these findings reflect limitations in the scales (e.g., the IDAS Insomnia scale has unsatisfactory discriminant validity) or represent intrinsic features of these symptom dimensions (e.g., symptoms of insomnia are nonspecifically related to various mood and anxiety disorders).

Incremental Validity

One of the basic goals of this study was to examine the incremental validity of the IDAS scales against the BDI-II and BAI. We examined this issue in the final series of logistic regression analyses (see Table 9). These analyses established the IDAS scales made significant incremental contributions to five of the six disorders: Dysphoria to major depression, Dysphoria

and Insomnia to GAD, Traumatic Intrusions and Social Anxiety to PTSD, Lassitude to panic disorder, and Social Anxiety to social phobia. In addition, (low) Well-Being was a marginally significant predictor of major depression ($OR = 0.70, p < .08$). We also should note that the IDAS Panic scale—which had strong, specific associations with panic disorder in all previous analyses (see Tables 4 through 8)—failed to emerge as an independent contributor here because of its very strong correlation with the BAI ($r = .80$) in this sample. In other words, although the IDAS Panic scale has a strong, specific link to panic disorder, this association is due to variance it shares with the BAI. Overall, however, these data establish that the IDAS scales—particularly Traumatic Intrusions (in relation to PTSD) and Social Anxiety (in relation to social phobia)—have incremental validity and tap important variance that is not contained in the BDI-II and BAI.

Limitations and Directions for Future Research

Need for replication. Our results generally were positive and consistent with expectations. Although these results are very encouraging, it clearly will be important to replicate these findings in other types of samples (e.g., adolescents, older adults). Moreover, given that our student (88.6%) and patient (89.9%) samples both were predominately White, it also will be important to examine the generalizability of these findings in more ethnically diverse samples.

Dysthymic disorder. We also obtained some weak and unexpected findings that merit discussion. Although the symptom scales showed substantial predictive power in relation to several *DSM-IV* mood and anxiety disorders—including major depression, GAD, panic disorder, PTSD, and social phobia—they displayed relatively weak associations with dysthymic disorder, specific phobia, and OCD. For instance, our analyses of dysthymic disorder yielded no moderate or large effect sizes; in fact, its strongest correlation was only $-.07$ with the IDAS Well-Being scale. These findings may be puzzling to some readers, given that (a) the self-report scales were substantially related to major depression and (b) several large epidemiological studies have

reported strong comorbidity between major depression and dysthymic disorder (e.g., Krueger, 1999; Slade & Watson, 2006; Vollebergh, Iedema, Bijl, de Graaf, Smit, & Ormel, 2001). For example, Krueger (1999) reported a tetrachoric correlation of .69 between major depression and dysthymia in the U.S. National Comorbidity Survey; Slade and Watson (2006) obtained a corresponding value of .72 in the Australian National Survey of Mental Health and Well-Being.

We emphasize that these surprising findings do not indicate any specific validity problems with the IDAS scales; indeed, the BDI-II ($r = .06$) and BAI ($r = .04$) also were unrelated to dysthymic disorder in this sample. Rather, the results reflect the specific manner with which our clinicians diagnosed this disorder. That is, our interviewers followed the *DSM-IV* guidelines for the differential diagnosis of these disorders very strictly, and only diagnosed dysthymic disorder when they could identify a minimum two-year period of dysphoria that clearly preceded the first onset of a major depressive episode. Because of this, diagnoses of major depression and dysthymic disorder actually showed a moderate negative association (tetrachoric $r = -.42$) in our data. Thus, these surprising findings basically reflect important differences in the diagnosis of dysthymic disorder across studies.

Further expansion of the IDAS. In contrast, our relatively weak findings for OCD and specific phobia highlight the fact that the final version of the IDAS contains no symptom content directly related to these disorders. In this regard, it is worth noting that the original IDAS item pool contained symptom content related to OCD and to agoraphobia, but not to specific phobia. However, these OCD and agoraphobia items failed to define consistent factors in our structural analyses, and so these items were dropped from the final version of the instrument.

Overall, our validity data establish that the IDAS assesses a large number of distinctive symptom dimensions in a relatively efficient manner. Moreover, these data demonstrate the clinical and heuristic value of assessing and analyzing these symptoms separately. These

encouraging results have indicated to us that it would be desirable to create an expanded instrument that provides even broader coverage and that assesses depression and anxiety symptoms more comprehensively. We therefore have begun the process of creating and testing new items related to other aspects of the mood (hypomania) and anxiety (OCD, agoraphobia, specific phobia) disorders. Our ultimate goal is to create an instrument that includes all of the important, distinctive symptom dimensions within this domain. In addition to its practical clinical utility, this expanded instrument could play an important role in clarifying the underlying symptom structure of this domain (see also Watson, 2005; Watson et al., 2007). This, in turn, potentially could have important taxonomic implications for the organization of these symptoms in subsequent editions of the *DSM*. Although we still have a long way to go, we already have made substantial progress in explicating—and assessing—the basic symptom dimensions within this domain.

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Footnotes

¹The student sample reported here is the same as that presented in Watson et al. (2007, Study 3). However, as is described in more detail subsequently, the current patient sample is an expanded version of the sample reported previously in Watson et al. (2007, Study 3).

²The participants in our student sample also were interviewed using the SCID-IV. As would be expected, however, the prevalence rates for most disorders were quite low in this unselected nonclinical sample. For example, only 7 students—or 2.3% of the sample—met formal diagnostic criteria for panic disorder. Consequently, these SCID-IV results are not presented here.

³Analyses controlling for comorbid depression and anxiety generally yielded similar results, except for a larger number of suppressor effects.

Table 1

Prevalence and Interrater Reliability of SCID-IV Diagnoses in the Patient Sample

Diagnosis	<i>Cases</i>	% of Sample	κ
Major depression	244	42.4	.95
Obsessive-compulsive disorder	53	9.2	.93
Social phobia	79	13.7	.87
Any substance use disorder	58	10.1	.87
Posttraumatic stress disorder	75	13.0	.86
Panic disorder	66	11.5	.84
Dysthymic disorder	71	12.3	.80
Specific phobia	68	11.8	.80
Generalized anxiety disorder	126	21.9	.70
Agoraphobia	75	13.0	.46

Note. $N = 575$ (overall sample), 74-76 (interrater reliability analyses).

Table 2

Correlations between the IDAS and the IDAS-CR (Student Sample)

IDAS Scale	IDAS-CR Item										
	1	2	3	4	5	6	7	8	9	10	11
1. Dysphoria	<u>.62</u>	.45	.18	<u>.41</u>	.20	.39	.28	.22	.28	.21	-.28
2. Lassitude	.50	<u>.60</u>	.11	.35	.28	.18	.19	.19	.22	.23	-.30
3. Appetite Loss	.30	.13	<u>.58</u>	.12	-.17	.20	.07	.04	.12	.07	-.15
4. Social Anxiety	.35	.29	.08	<u>.57</u>	.14	.22	.27	.16	.19	.06	-.26
5. Appetite Gain	.25	.30	-.13	.20	<u>.55</u>	.09	.07	.19	.14	.08	-.11
6. Panic	.34	.30	.20	.32	.20	<u>.48</u>	.22	.14	.23	.07	-.12
7. Insomnia	.33	.30	.15	.21	.07	.15	<u>.47</u>	.12	.14	.14	-.12
8. Suicidality	.34	.22	.09	.25	.13	.21	.17	<u>.47</u>	.19	.12	-.20
9. Traumatic Intrusions	.34	.23	.09	.22	.14	.28	.14	.14	<u>.47</u>	.17	-.09
10. Ill Temper	.35	.23	.01	.16	.14	.15	.21	.14	.24	<u>.42</u>	-.11
11. Well-Being	<u>-.42</u>	-.30	-.11	-.19	-.12	-.18	-.19	-.16	-.14	-.05	<u>.30</u>

Note. $N = 303$. Convergent correlations are highlighted. Discriminant correlations of $|.40|$ and greater are underlined. Mean convergent correlation = .51. Correlations of $|.12|$ and greater are significant at $p < .05$, 2-tailed. IDAS = Inventory of Depression and Anxiety Symptoms. IDAS-CR = Clinician Rating version of the IDAS.

Table 3

Correlations between the IDAS and the IDAS-CR (Patient Sample)

IDAS Scale	IDAS-CR Item										
	1	2	3	4	5	6	7	8	9	10	11
1. Appetite Loss	<u>.71</u>	.23	-.35	.18	.23	.32	.19	.21	.27	.29	-.25
2. Suicidality	.19	<u>.67</u>	.07	.32	.28	.33	.26	.27	.13	.37	-.38
3. Appetite Gain	-.28	.10	<u>.62</u>	.11	.10	.02	.11	.21	.04	.14	-.02
4. Social Anxiety	.21	.32	.07	<u>.62</u>	.26	.39	.19	.30	.20	.33	-.34
5. Traumatic Intrusions	.23	.32	.00	.34	<u>.62</u>	.35	.30	.25	.18	.34	-.29
6. Panic	.25	.27	-.01	.30	.34	<u>.61</u>	.25	.33	.20	.33	-.31
7. Ill Temper	.16	.32	.08	.21	.31	.32	<u>.61</u>	.21	.13	.31	-.20
8. Lassitude	.17	.21	.15	.24	.26	.30	.18	<u>.61</u>	.13	.35	-.27
9. Insomnia	.26	.20	.01	.21	.27	.33	.23	.30	<u>.60</u>	.29	-.24
10. Dysphoria	.31	<u>.44</u>	.11	<u>.42</u>	.38	<u>.47</u>	.29	<u>.44</u>	.27	<u>.59</u>	<u>-.49</u>
11. Well-Being	-.13	-.32	-.01	-.24	-.10	-.19	-.08	-.30	-.11	<u>-.43</u>	<u>.52</u>

Note. $N = 605$. Convergent correlations are highlighted. Discriminant correlations of $|.40|$ and greater are underlined. Mean convergent correlation = $.62$. Correlations of $|.08|$ and greater are significant at $p < .05$, 2-tailed. IDAS = Inventory of Depression and Anxiety Symptoms. IDAS-CR = Clinician Rating version of the IDAS.

Table 4

Correlations between the Self-Report Scales and SCID-IV Diagnoses in the Patient Sample

Scale	MDD	GAD	PTSD	Panic Disorder	Social Phobia	OCD
<i>IDAS Scales</i>						
General Depression	.62	.37	.31	.38	.21	.20
Dysphoria	.62	.37	.29	.36	.22	.19
Well-Being	-.44	-.21	-.13	-.15	-.11	-.11
Suicidality	.43	.22	.22	.26	.12	.13
Lassitude	.40	.20	.20	.28	.17	.16
Insomnia	.34	.29	.25	.25	.12	.17
Ill Temper	.28	.25	.20	.20	.15	.17
Appetite Loss	.28	.16	.22	.25	.15	.07
Appetite Gain	.12	.04	.08	-.02	.02	.10
Traumatic Intrusions	.32	.26	.43	.30	.17	.15
Panic	.38	.27	.27	.47	.21	.21
Social Anxiety	.42	.30	.29	.31	.39	.20
<i>Beck Inventories</i>						
BDI-II	.62	.34	.30	.34	.22	.19
BAI	.43	.38	.36	.50	.24	.24

Note. $N = 575$. Correlations of $|.30|$ and greater are highlighted. Correlations of $|.10|$ and greater are significant at $p < .05$, 2-tailed. IDAS = Inventory of Depression and Anxiety Symptoms. MDD = major depression. GAD = generalized anxiety disorder. PTSD = posttraumatic stress disorder. OCD = obsessive-compulsive disorder. BDI-II = Beck Depression Inventory-II. BAI = Beck Anxiety Inventory.

Table 5

*Mean-Level Comparisons of Diagnosed Cases versus Non-Cases (Expressed as Cohen's d):
Basic Analyses*

Scale	MDD	GAD	PTSD	Panic Disorder	Social Phobia	OCD
<i>IDAS Scales</i>						
General Depression	1.25	0.89	0.92	1.18	0.62	0.71
Dysphoria	1.25	0.90	0.85	1.13	0.63	0.65
Well-Being	-0.89	-0.51	-0.39	-0.46	-0.31	-0.37
Suicidality	0.88	0.54	0.64	0.83	0.36	0.46
Lassitude	0.81	0.49	0.59	0.89	0.49	0.54
Insomnia	0.69	0.70	0.74	0.79	0.35	0.60
Ill Temper	0.56	0.60	0.59	0.62	0.43	0.58
Appetite Loss	0.56	0.39	0.65	0.78	0.45	0.25
Appetite Gain	0.23	0.10	0.23	-0.07	0.06	0.36
Traumatic Intrusions	0.64	0.63	1.28	0.95	0.49	0.51
Panic	0.76	0.66	0.80	1.48	0.61	0.73
Social Anxiety	0.84	0.74	0.86	0.98	1.13	0.70
<i>Beck Inventories</i>						
BDI-II	1.25	0.82	0.89	1.08	0.65	0.67
BAI	0.88	0.91	1.08	1.56	0.69	0.83

Note. $N = 575$. Large effect sizes (ds of 1.801 and greater) are highlighted. IDAS = Inventory of Depression and Anxiety Symptoms. MDD = major depression. GAD = generalized anxiety disorder. PTSD = posttraumatic stress disorder. OCD = obsessive-compulsive disorder. BDI-II = Beck Depression Inventory-II. BAI = Beck Anxiety Inventory.

Table 6

Mean-Level Comparisons of Diagnosed Cases versus Non-Cases (Expressed as Cohen's d) in the Patient Sample: Analyses Removing Comorbid Depression and Anxiety

Scale	MDD	GAD	PTSD	Panic Disorder	Social Phobia	OCD
<i>IDAS Scales</i>						
Well-Being	-0.57	0.00	0.22	0.01	0.13	0.14
Dysphoria	0.48	0.16	0.26	0.55	0.07	-0.18
General Depression	0.44	0.09	0.28	0.61	0.02	-0.10
Lassitude	0.39	0.04	0.35	0.66	-0.03	0.21
Suicidality	0.28	-0.18	0.16	0.13	-0.15	-0.15
Appetite Loss	0.14	0.03	0.28	0.66	0.06	-0.03
Appetite Gain	0.14	0.10	0.43	-0.28	0.17	0.56
Ill Temper	0.05	0.24	0.57	0.48	0.30	-0.07
Insomnia	-0.10	0.13	0.43	0.43	0.02	-0.05
Traumatic Intrusions	-0.14	0.28	1.05	0.66	-0.04	0.22
Panic	0.01	0.08	0.69	1.17	0.13	0.05
Social Anxiety	0.03	0.16	0.57	0.65	0.78	0.24
<i>Beck Inventories</i>						
BDI-II	0.58	0.06	0.34	0.55	0.10	-0.11
BAI	-0.04	0.35	0.71	1.31	0.27	0.05

Note. $N = 575$. Large effect sizes (d s of 1.80 and greater) are highlighted. IDAS = Inventory of Depression and Anxiety Symptoms. MDD = major depression. GAD = generalized anxiety disorder. PTSD = posttraumatic stress disorder. OCD = obsessive-compulsive disorder. BDI-II = Beck Depression Inventory-II. BAI = Beck Anxiety Inventory.

Table 7

Odds Ratios (with 95% Confidence Intervals) from Logistic Regression Analyses of the IDAS Scales (Basic Analyses)

IDAS Scale	MDD		GAD		PTSD		Panic Disorder		Social Phobia		OCD	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Dysphoria	5.34	3.25, 8.77	2.48	1.54, 3.99	0.87	0.48, 1.59	2.43	1.21, 4.86	0.70	0.39, 1.24	0.92	0.49, 1.75
Lassitude	1.14	0.85, 1.52	0.92	0.69, 1.24	1.07	0.74, 1.55	1.52	0.99, 2.34	1.17	0.82, 1.68	1.12	0.76, 1.66
Insomnia	1.21	0.94, 1.57	1.42	1.09, 1.84	1.27	0.92, 1.76	1.04	0.72, 1.49	0.86	0.63, 1.18	1.29	0.91, 1.82
Suicidality	1.14	0.84, 1.56	0.77	0.58, 1.03	0.77	0.54, 1.09	0.84	0.58, 1.22	0.71	0.50, 1.01	0.83	0.57, 1.21
Appetite Loss	0.94	0.71, 1.25	0.81	0.61, 1.07	1.37	0.97, 1.95	1.04	0.70, 1.52	1.17	0.83, 1.64	0.95	0.65, 1.38
Appetite Gain	0.87	0.66, 1.14	0.83	0.64, 1.08	1.25	0.90, 1.73	0.69	0.47, 1.01	0.92	0.66, 1.27	1.23	0.87, 1.72
Well-Being	0.60	0.45, 0.80	0.83	0.62, 1.11	0.73	0.50, 1.06	1.03	0.68, 1.56	0.83	0.59, 1.17	0.76	0.52, 1.13
Ill Temper	0.75	0.56, 0.99	1.12	0.87, 1.43	0.84	0.61, 1.16	0.75	0.53, 1.06	1.13	0.83, 1.54	1.19	0.86, 1.64
Traumatic Intrusions	0.90	0.67, 1.20	1.13	0.86, 1.48	3.56	2.43, 5.21	1.24	0.85, 1.80	1.05	0.75, 1.45	1.04	0.72, 1.51
Social Anxiety	1.02	0.76, 1.38	1.25	0.94, 1.68	1.56	1.07, 2.26	1.15	0.76, 1.74	4.33	2.90, 6.47	1.46	0.98, 2.19
Panic	1.05	0.76, 1.44	1.02	0.76, 1.35	0.95	0.67, 1.34	2.39	1.62, 3.53	1.07	0.77, 1.50	1.31	0.91, 1.91

Note. $N = 575$. Significant effects ($p < .05$) are highlighted. IDAS = Inventory of Depression and Anxiety Symptoms. MDD = major depression. GAD = generalized anxiety disorder. PTSD = posttraumatic stress disorder. OCD = obsessive-compulsive disorder. OR = odds ratio. CI = confidence interval.

Table 8

Odds Ratios (with 95% Confidence Intervals) from Logistic Regression Analyses of the IDAS Scales (Comorbidity Analyses)

IDAS Scale	MDD		GAD		PTSD		Panic Disorder		Social Phobia		OCD	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Dysphoria	2.73	1.61, 4.62	1.31	0.67, 2.56	0.29	0.10, 0.83	0.87	0.27, 2.79	0.49	0.22, 1.11	0.24	0.08, 0.70
Lassitude	1.19	0.86, 1.65	0.83	0.54, 1.28	1.04	0.56, 1.92	1.52	0.75, 3.06	0.73	0.45, 1.20	1.27	0.70, 2.29
Insomnia	0.69	0.51, 0.93	0.98	0.66, 1.46	1.00	0.58, 1.73	0.78	0.43, 1.44	0.82	0.53, 1.27	0.85	0.49, 1.48
Suicidality	1.12	0.81, 1.54	0.48	0.28, 0.81	0.59	0.31, 1.13	0.50	0.23, 1.09	0.52	0.29, 0.95	0.76	0.37, 1.57
Appetite Loss	1.15	0.85, 1.57	0.97	0.64, 1.46	1.21	0.68, 2.16	1.18	0.62, 2.24	1.20	0.74, 1.93	1.66	0.92, 2.97
Appetite Gain	1.08	0.80, 1.46	1.12	0.77, 1.64	1.59	0.95, 2.66	0.66	0.33, 1.31	1.33	0.84, 2.11	2.24	1.30, 3.86
Well-Being	0.70	0.49, 0.99	0.96	0.65, 1.42	0.98	0.57, 1.68	1.22	0.64, 2.33	1.01	0.66, 1.55	0.77	0.43, 1.36
Ill Temper	0.92	0.69, 1.24	1.28	0.87, 1.87	1.35	0.77, 2.35	1.14	0.63, 2.05	1.81	1.15, 2.87	0.94	0.50, 1.78
Traumatic Intrusions	0.63	0.46, 0.87	1.43	0.94, 2.17	3.54	1.86, 6.71	1.26	0.62, 2.56	0.65	0.40, 1.07	1.53	0.84, 2.81
Social Anxiety	0.61	0.43, 0.86	1.12	0.72, 1.75	1.47	0.79, 2.72	1.34	0.62, 2.89	5.14	2.91, 9.08	1.88	0.99, 3.57
Panic	0.89	0.63, 1.25	0.98	0.61, 1.56	1.62	0.86, 3.04	2.48	1.26, 4.88	0.99	0.59, 1.66	1.08	0.54, 2.20

Note. $N = 575$. Significant effects ($p < .05$) are highlighted. IDAS = Inventory of Depression and Anxiety Symptoms. MDD = major depression. GAD = generalized anxiety disorder. PTSD = posttraumatic stress disorder. OCD = obsessive-compulsive disorder. OR = odds ratio. CI = confidence interval.

Table 9

Odds Ratios (with 95% Confidence Intervals) from Logistic Regression Analyses of the IDAS and Beck Scales (Basic Analyses)

Scale	MDD		GAD		PTSD		Panic Disorder		Social Phobia		OCD	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
<i>IDAS Scale</i>												
Dysphoria	3.47	2.03, 5.92	1.97	1.17, 3.33	0.54	0.28, 1.06	1.44	0.66, 3.13	0.55	0.30, 1.04	0.75	0.37, 1.51
Lassitude	1.09	0.80, 1.47	0.98	0.72, 1.32	1.15	0.78, 1.69	1.77	1.12, 2.79	1.19	0.83, 1.70	1.17	0.79, 1.73
Insomnia	1.20	0.92, 1.57	1.36	1.04, 1.77	1.21	0.86, 1.70	0.95	0.64, 1.39	0.86	0.62, 1.17	1.25	0.88, 1.78
Suicidality	1.06	0.77, 1.47	0.78	0.58, 1.04	0.76	0.53, 1.08	0.85	0.58, 1.26	0.69	0.49, 0.99	0.83	0.57, 1.22
Appetite Loss	0.88	0.66, 1.18	0.82	0.61, 1.09	1.39	0.97, 2.00	1.08	0.72, 1.64	1.15	0.81, 1.63	0.96	0.65, 1.41
Appetite Gain	0.82	0.62, 1.09	0.83	0.63, 1.09	1.27	0.90, 1.78	0.68	0.45, 1.03	0.91	0.65, 1.26	1.22	0.86, 1.73
Well-Being	0.75	0.55, 1.03	0.84	0.61, 1.17	0.84	0.56, 1.26	1.18	0.73, 1.91	0.92	0.63, 1.33	0.79	0.52, 1.21
Ill Temper	0.70	0.52, 0.94	1.12	0.86, 1.44	0.77	0.55, 1.08	0.70	0.48, 1.02	1.09	0.80, 1.49	1.18	0.85, 1.65
Traumatic Intrusions	0.93	0.69, 1.25	1.05	0.79, 1.39	3.58	2.40, 5.34	1.12	0.75, 1.68	1.03	0.73, 1.44	0.99	0.68, 1.44
Social Anxiety	1.02	0.75, 1.38	1.21	0.90, 1.63	1.50	1.02, 2.20	1.09	0.70, 1.71	4.29	2.87, 6.42	1.42	0.94, 2.14
Panic	1.00	0.67, 1.48	0.70	0.48, 1.01	0.64	0.41, 0.99	1.38	0.86, 2.21	0.93	0.61, 1.44	1.01	0.63, 1.61
<i>Beck Inventories</i>												
BDI-II	2.45	1.58, 3.81	1.09	0.72, 1.66	1.65	0.98, 2.78	1.38	0.74, 2.56	1.44	0.86, 2.39	1.16	0.67, 2.00
BAI	1.06	0.70, 1.61	1.92	1.30, 2.86	2.02	1.25, 3.28	3.07	1.77, 5.32	1.24	0.78, 1.99	1.59	0.96, 2.64

Note. $N = 575$. Significant effects ($p < .05$) are highlighted. IDAS = Inventory of Depression and Anxiety Symptoms. MDD = major depression. GAD = generalized anxiety disorder. PTSD = posttraumatic stress disorder. OCD = obsessive-compulsive disorder. OR = odds ratio. CI = confidence interval. BDI-II = Beck Depression Inventory-II. BAI = Beck Anxiety Inventory.

Table S1

Descriptive Statistics for Diagnosed Cases versus Non-Cases of Major Depression

Scale	Basic Analyses				Comorbidity Analyses			
	Cases		Non-Cases		Cases		Non-Cases	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
<i>IDAS Scales</i>								
General Depression	68.6	11.9	48.3	13.3	62.9	10.9	55.9	16.8
Dysphoria	35.9	6.8	24.0	8.0	32.9	6.5	28.3	9.8
Lassitude	19.6	5.0	14.9	5.6	18.8	5.0	16.5	5.9
Insomnia	18.4	6.5	13.8	6.1	15.2	6.0	15.9	6.8
Suicidality	13.4	6.0	8.7	3.8	12.0	5.6	10.5	5.3
Appetite Loss	8.0	3.6	6.0	3.1	7.3	3.7	6.8	3.4
Appetite Gain	7.2	3.7	6.3	3.3	7.1	3.7	6.6	3.4
Well-Being	14.9	5.5	21.0	6.7	15.1	5.1	19.0	7.0
Ill Temper	12.2	5.6	9.3	4.4	10.7	4.9	10.5	5.2
Traumatic Intrusions	11.3	4.8	8.3	4.2	9.0	4.2	9.7	4.8
Social Anxiety	15.2	5.3	10.4	5.1	12.6	5.0	12.4	5.8
Panic	18.6	7.4	13.4	5.4	15.7	5.7	15.6	7.0
<i>Beck Inventories</i>								
BDI-II	30.9	10.6	14.4	10.3	27.9	10.2	20.2	13.4
BAI	24.2	13.5	12.5	10.8	17.0	10.6	17.6	13.7

Note. *N* = For basic analyses, *N* = 244 (cases), 331 (Non-Cases). For comorbidity analyses, *N* = 88 (Cases), 487 (Non-Cases). IDAS = Inventory of Depression and Anxiety Symptoms. BDI-II = Beck Depression Inventory-II. BAI = Beck Anxiety Inventory.

Table S2

Descriptive Statistics for Diagnosed Cases versus Non-Cases of Generalized Anxiety Disorder

Scale	Basic Analyses				Comorbidity Analyses				
	Cases		Non-Cases		Cases		Non-Cases		
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
<i>IDAS Scales</i>									
General Depression	68.2	13.4	53.8	15.5	58.3	12.3	56.8	16.5	
Dysphoria	35.7	7.5	27.1	9.2	30.4	7.6	28.9	9.7	
Lassitude	19.1	5.3	16.2	5.8	17.1	5.3	16.8	5.9	
Insomnia	19.4	6.5	14.8	6.4	16.6	6.4	15.7	6.7	
Suicidality	13.0	6.0	10.1	5.0	9.8	3.8	10.8	5.5	
Appetite Loss	7.9	3.3	6.6	3.4	7.0	3.2	6.8	3.4	
Appetite Gain	7.0	3.7	6.6	3.4	7.0	3.7	6.7	3.5	
Well-Being	15.7	5.9	19.2	7.0	18.4	6.2	18.4	6.9	
Ill Temper	12.9	5.9	9.9	4.7	11.7	5.2	10.4	5.1	
Traumatic Intrusions	11.9	4.9	8.9	4.4	10.8	5.1	9.5	4.7	
Social Anxiety	15.7	5.4	11.5	5.5	13.3	5.3	12.4	5.7	
Panic	19.2	8.1	14.6	6.1	16.1	6.5	15.6	6.9	
<i>Beck Inventories</i>									
BDI-II	29.9	12.0	19.0	12.6	22.1	10.9	21.4	13.4	
BAI	27.0	13.5	14.8	12.0	21.9	12.8	17.1	13.3	

Note. *N* = For basic analyses, *N* = 126 (cases), 449 (Non-Cases). For comorbidity analyses, *N* = 41 (Cases), 534 (Non-Cases). IDAS = Inventory of Depression and Anxiety Symptoms. BDI-II = Beck Depression Inventory-II. BAI = Beck Anxiety Inventory.

Table S3

Descriptive Statistics for Diagnosed Cases versus Non-Cases of Posttraumatic Stress Disorder

Scale	Basic Analyses				Comorbidity Analyses				
	Cases		Non-Cases		Cases		Non-Cases		
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
<i>IDAS Scales</i>									
General Depression	70.0	12.6	55.0	15.8	61.4	11.8	56.8	16.3	
Dysphoria	36.1	7.2	28.0	9.4	31.4	7.9	28.9	9.6	
Lassitude	19.9	5.3	16.4	5.8	18.9	5.4	16.8	5.8	
Insomnia	20.1	6.2	15.1	6.5	18.5	6.4	15.7	6.7	
Suicidality	13.7	6.4	10.3	5.1	11.5	5.0	10.7	5.4	
Appetite Loss	8.8	3.6	6.6	3.3	7.8	3.4	6.8	3.4	
Appetite Gain	7.4	3.8	6.6	3.4	8.1	3.7	6.6	3.5	
Well-Being	16.1	6.6	18.8	6.9	19.9	6.8	18.4	6.9	
Ill Temper	13.1	5.1	10.1	5.0	13.3	4.7	10.4	5.1	
Traumatic Intrusions	14.8	3.2	8.8	4.4	14.3	3.7	9.4	4.6	
Social Anxiety	16.7	5.1	11.8	5.5	15.6	5.3	12.3	5.7	
Panic	20.4	7.2	14.9	6.5	20.1	7.3	15.5	6.8	
<i>Beck Inventories</i>									
BDI-II	31.7	11.0	19.9	12.8	25.7	14.1	21.3	13.2	
BAI	29.9	12.1	15.6	12.4	26.6	12.9	17.1	13.2	

Note. *N* = For basic analyses, *N* = 75 (cases), 500 (Non-Cases). For comorbidity analyses, *N* = 21 (Cases), 554 (Non-Cases). IDAS = Inventory of Depression and Anxiety Symptoms. BDI-II = Beck Depression Inventory-II. BAI = Beck Anxiety Inventory.

Table S4

Descriptive Statistics for Diagnosed Cases versus Non-Cases of Panic Disorder

Scale	Basic Analyses				Comorbidity Analyses			
	Cases		Non-Cases		Cases		Non-Cases	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
<i>IDAS Scales</i>								
General Depression	73.9	11.0	54.8	15.4	66.6	8.3	56.7	16.3
Dysphoria	38.6	6.5	27.8	9.1	34.1	5.6	28.9	9.6
Lassitude	21.5	4.7	16.3	5.7	20.6	5.7	16.8	5.8
Insomnia	20.4	5.8	15.2	6.5	18.6	6.4	15.7	6.7
Suicidality	14.7	6.0	10.2	5.1	11.4	4.3	10.7	5.4
Appetite Loss	9.2	3.4	6.5	3.3	9.1	3.4	6.8	3.4
Appetite Gain	6.5	3.3	6.7	3.5	5.8	3.4	6.7	3.5
Well-Being	15.6	5.8	18.8	6.9	18.5	5.9	18.4	6.9
Ill Temper	13.3	5.5	10.2	5.0	12.9	5.0	10.5	5.1
Traumatic Intrusions	13.5	4.5	9.1	4.5	12.6	3.9	9.5	4.7
Social Anxiety	17.4	4.7	11.8	5.5	16.1	4.4	12.4	5.7
Panic	24.6	6.9	14.5	5.9	23.4	5.6	15.4	6.7
<i>Beck Inventories</i>								
BDI-II	34.1	11.8	19.8	12.5	28.5	13.0	21.2	13.2
BAI	35.9	12.6	15.1	11.4	34.4	12.4	17.0	13.0

Note. *N* = For basic analyses, *N* = 66 (cases), 509 (Non-Cases). For comorbidity analyses, *N* = 16 (Cases), 559 (Non-Cases). IDAS = Inventory of Depression and Anxiety Symptoms. BDI-II = Beck Depression Inventory-II. BAI = Beck Anxiety Inventory.

Table S5

Descriptive Statistics for Diagnosed Cases versus Non-Cases of Social Phobia

Scale	Basic Analyses				Comorbidity Analyses			
	Cases		Non-Cases		Cases		Non-Cases	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
<i>IDAS Scales</i>								
General Depression	65.6	13.7	55.6	16.1	57.2	12.3	56.9	16.4
Dysphoria	34.2	8.1	28.2	9.5	29.7	7.4	29.0	9.7
Lassitude	19.3	5.3	16.5	5.8	16.7	4.9	16.9	5.9
Insomnia	17.8	6.9	15.5	6.6	15.9	6.4	15.8	6.7
Suicidality	12.4	5.4	10.4	5.3	10.0	4.3	10.8	5.4
Appetite Loss	8.2	3.5	6.6	3.4	7.1	3.3	6.8	3.4
Appetite Gain	6.9	3.3	6.7	3.5	7.2	3.2	6.7	3.5
Well-Being	16.6	6.4	18.7	6.9	19.3	6.7	18.4	6.9
Ill Temper	12.4	5.1	10.2	5.1	12.0	5.6	10.4	5.1
Traumatic Intrusions	11.5	4.9	9.2	4.6	9.4	4.3	9.6	4.7
Social Anxiety	18.0	4.4	11.6	5.4	16.7	4.3	12.2	5.7
Panic	19.2	7.6	15.1	6.5	16.5	6.3	15.6	6.9
<i>Beck Inventories</i>								
BDI-II	28.8	10.9	20.2	13.2	22.7	9.7	21.3	13.4
BAI	25.3	13.3	16.2	12.9	20.8	10.9	17.3	13.4

Note. *N* = For basic analyses, *N* = 79 (cases), 496 (Non-Cases). For comorbidity analyses, *N* = 35 (Cases), 540 (Non-Cases). IDAS = Inventory of Depression and Anxiety Symptoms. BDI-II = Beck Depression Inventory-II. BAI = Beck Anxiety Inventory.

Table S6

Descriptive Statistics for Diagnosed Cases versus Non-Cases of Obsessive-Compulsive Disorder

Scale	Basic Analyses				Comorbidity Analyses				
	Cases		Non-Cases		Cases		Non-Cases		
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
<i>IDAS Scales</i>									
General Depression	67.3	14.9	55.9	16.0	55.4	13.7	57.0	16.3	
Dysphoria	34.7	8.9	28.5	9.4	27.4	8.6	29.1	9.6	
Lassitude	19.7	5.3	16.6	5.8	18.1	5.6	16.8	5.8	
Insomnia	19.4	7.2	15.4	6.5	15.5	7.4	15.8	6.7	
Suicidality	12.9	5.9	10.5	5.3	9.9	4.7	10.7	5.4	
Appetite Loss	7.6	3.3	6.8	3.4	6.9	3.8	6.8	3.4	
Appetite Gain	7.8	3.6	6.6	3.5	8.6	3.9	6.6	3.4	
Well-Being	16.1	6.7	18.6	6.9	19.3	6.5	18.4	6.9	
Ill Temper	13.2	6.0	10.3	5.0	10.2	5.3	10.5	5.1	
Traumatic Intrusions	11.7	4.8	9.3	4.6	10.6	4.8	9.5	4.7	
Social Anxiety	16.1	4.8	12.1	5.7	13.8	5.4	12.4	5.7	
Panic	20.1	7.9	15.2	6.5	15.9	5.4	15.6	6.9	
<i>Beck Inventories</i>									
BDI-II	29.5	13.3	20.6	13.0	19.9	11.7	21.5	13.3	
BAI	27.5	14.2	16.4	12.8	18.2	11.2	17.4	13.3	

Note. *N* = For basic analyses, *N* = 53 (cases), 522 (Non-Cases). For comorbidity analyses, *N* = 19 (Cases), 556 (Non-Cases). IDAS = Inventory of Depression and Anxiety Symptoms. BDI-II = Beck Depression Inventory-II. BAI = Beck Anxiety Inventory.