The 16-Item Quick Inventory of Depressive Symptomatology (QIDS), Clinician Rating (QIDS-C), and Self-Report (QIDS-SR): A Psychometric Evaluation in Patients with Chronic Major Depression

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Background: *The 16-item Quick Inventory of Depressive Symptomatology (QIDS), a new measure of depressive symptom severity derived from the 30-item Inventory of Depressive Symptomatology (IDS), is available in both self-report (QIDS-SR_{16}) and clinician-rated (QIDS-C_{16}) formats.*

Methods: *This report evaluates and compares the psychometric properties of the QIDS-SR_{16} in relation to the IDS-SR_{30} and the 24-item Hamilton Rating Scale for Depression (HAM-D_{24}) in 596 adult outpatients treated for chronic nonpsychotic, major depressive disorder.*

Results: *Internal consistency was high for the QIDS-SR_{16} (Cronbach's α = .86), the IDS-SR_{30} (Cronbach's α = .92), and the HAM-D_{24} (Cronbach's α = .88). QIDS-SR_{16} total scores were highly correlated with IDS-SR_{30} (.96) and HAM-D_{24} (.86) total scores. Item–total correlations revealed that several similar items were highly correlated with both QIDS-SR_{16} and IDS-SR_{30} total scores. Roughly 1.3 times the QIDS-SR_{16} total score is predictive of the HAM-D_{17} (17-item version of the HAM-D) total score.*

Conclusions: *The QIDS-SR_{16} was as sensitive to symptom change as the IDS-SR_{30} and HAM-D_{24}, indicating high concurrent validity for all three scales. The QIDS-SR_{16} has highly acceptable psychometric properties, which supports the usefulness of this brief rating of depressive symptom severity in both clinical and research settings.*
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Key Words: Chronic major depression, self-reports, symptom severity, Quick Inventory of Depressive Symptomatology, psychometric properties, concurrent validity

Introduction

The 30-item Inventory of Depressive Symptomatology (IDS) is available as both a self-report (IDS-SR_{30}) and as a clinician rating scale (IDS-C_{30}) (Rush et al 1996). Both forms contain identical items. The 30 items include all DSM-IV (American Psychiatric Association 1994) diagnostic criterion items for major depressive disorder (MDD) (e.g., mood, vegetative, psychomotor, and cognitive symptoms), as well as commonly associated symptoms, such as anxiety, irritability, and melancholic and atypical symptom features. The IDS-C_{30} and the IDS-SR_{30} are scored by summing the responses to 28 of 30 items (i.e., only appetite and weight increase *or* appetite and weight decrease are scored for a given rating). Each symptom item is scored on a scale of 0–3, with higher scores denoting greater symptom severity. The total score range is 0–84.

The IDS was developed to improve on the available clinician and patient ratings by 1) providing equivalent weightings (0–3) for each symptom item; 2) providing clearly stated anchors for each item; 3) including all DSM-IV criterion items required to diagnose MDD; and

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4) providing matched clinician and patient ratings (Rush et al 1986, 1996; Gullion and Rush 1998).

Recently, Rush et al (2000) reported initial efforts to develop shortened versions of both the IDS-C_{30} and IDS-SR_{30}. The 16-item Quick Inventory of Depressive Symptomatology Clinician Rating (QIDS-C_{16}) and the matching self-report version (QIDS-SR_{16}) were constructed by selecting only items from the 30-item scales that assessed DSM-IV criterion diagnostic symptoms (see Appendixes 1 and 2). The scoring system for the QIDS converts responses to 16 separate items into the nine DSM-IV symptom criterion domains. The nine domains comprise 1) sad mood; 2) concentration; 3) self-criticism; 4) suicidal ideation; 5) interest; 6) energy/fatigue; 7) sleep disturbance (initial, middle, and late insomnia or hypersomnia); 8) decrease/increase in appetite/weight; and 9) psychomotor agitation/retardation. The total score ranges from 0 to 27.

Note that the IDS-SR_{30} contains QIDS-SR_{16} items as well as mood reactivity, mood quality, diurnal mood variation, irritable mood, anxious mood, capacity for pleasure, sexual interest, bodily aches and pains, panic/phobic symptoms, constipation/diarrhea, interpersonal rejection sensitivity, and leaden paralysis (Rush et al 1996). Both the IDS-SR_{30} and QIDS-SR_{16} rate symptoms from the prior 7 days (independent of whether they have been long-standing, chronic, or recent).

This report evaluates the psychometric properties of the QIDS-SR_{16} using a data set in which the full IDS-SR_{30} was used to evaluate the symptomatic status of outpatients with chronic, nonpsychotic MDD who participated in a 12-week acute-phase, randomized, controlled trial comparing nefazodone, cognitive–behavioral analysis system of psychotherapy (CBASP; McCullough 1984, 2000), and the combination of nefazodone and CBASP (Keller et al 2000).

This study assessed the internal consistency of the QIDS-SR_{16} and the IDS-SR_{30}; it also assessed the concurrent validity of the QIDS-SR_{16} with the IDS-SR_{30}, the Patient Global Impression–Improvement Scale (PGI-I), which was derived from the Clinical Global Impression–Improvement Scale (Guy 1976), and the 24-item Hamilton Rating Scale for Depression (HAM-D_{24}; Hamilton 1960, 1967; Miller et al 1985). Item–total correlations were computed. Sensitivity to symptomatic change using the QIDS-SR_{16} was compared with the IDS-SR_{30}. We developed metrics by which to convert among IDS-SR_{30}, QIDS-SR_{16}, 17- and 21-item versions of the HAM-D (HAM-D_{17}, HAM-D_{21}), and HAM-D_{24} total scores. This report concludes with a commentary on the potential clinical utility of the QIDS-SR_{16}.

Methods and Materials

Subjects

The data used in these analyses were collected from 681 adult outpatients with chronic, nonpsychotic MDD recruited from 12 academic centers between June 1996 and December 1997. Patients fulfilled DSM-IV criteria for either a chronic major depressive episode (at least 2 years' duration), or a current MDD superimposed upon a preexisting dysthymic disorder (double depression), or recurrent MDD with a history of incomplete remission between episodes. All patients were required to have at least 2 years of continuous duration of depressive illness before study entry (Keller et al 2000). Diagnoses were established using the Structured Clinical Interview for Axis I DSM-IV Disorders (First et al 1997). All patients were 18–75 years of age; all scored at least 20 on the HAM-D_{24} at screening and after a 2-week, drug-free period (at baseline). Only subjects with an IDS-SR_{30} and a HAM-D_{24} score at baseline and exit were included in the analysis (n = 596) (87.5% of the original sample of 687). Written informed consent was obtained by all subjects, and each of the 12 institutional review boards granted approval of the study.

Treatment

Subjects were randomly assigned to 12 weeks of acute-phase outpatient treatment with nefazodone, CBASP, or their combination. Outcomes were obtained by self-reports and by clinical raters blind to treatment assignment. Details of treatment outcome have previously been published (Keller et al 2000).

Rating Scales

Both the IDS-SR_{30} and the HAM-D_{24} scores were obtained at baseline and at weeks 1–4, 6, 8, 10, and 12. The order was usually that the IDS-SR_{30} was completed before the HAM-D_{24}, although the order was not systematically required nor systematically varied across subjects. The IDS-SR_{30} was scored by totaling 28 of the 30 items. Either appetite increase or decrease, and either weight increase or decrease items were included to compute the IDS-SR_{30} total score (total score range: 0–84).

The QIDS-SR_{16} total score was calculated via computer by adding scores obtained for the following IDS-SR_{30} items: sad mood (item 5); concentration/decision-making (item 15); outlook (self) (item 16); suicidal ideation (item 18); general interest (item 19); energy/fatigability (item 20); the highest score on any one of the four sleep items (sleep onset insomnia; midnocturnal insomnia; early morning insomnia; hypersomnia) (items 1–4); the highest score on any one of the four appetite/weight change items (appetite increase; appetite decrease; weight increase; weight decrease) (items 11–14); and the highest score on the two psychomotor agitation/retardation items (psychomotor slowing; psychomotor agitation) (items 23 and 24) (total score range: 0–27) (Rush et al 2000).

The HAM-D_{24}, a commonly used clinician-rated depression symptom rating scale, includes 24 items rated on a scale of 0–2, 0–3, or 0–4 (total score range: 0–75). The HAM-D_{24} was administered by experienced clinical raters certified to have a

high rate of interrater reliability and level of procedural integrity. The PGI-I was used to gauge the patients' overall self-report of illness improvement. The PGI-I subscale score ranges from 1 to 7, where a score of 1 is defined as "very much improved" and a score of 7 signifies "very much worse."

Statistical Methods

Internal consistency was calculated for the QIDS-SR_{16}, IDS-SR_{30} and HAM-D_{17}, HAM-D_{21}, and HAM-D_{24} using Cronbach's α (Cronbach 1951). Exit scores were used to maximize the range of scores on all of the measures being evaluated. Pearson's product moment correlations between the QIDS-SR_{16}, IDS-SR_{30}, HAM-D_{17}, HAM-D_{21}, and HAM-D_{24} were computed at exit to determine concurrent validity. The mean percent change and effect size (baseline to exit) for the QIDS-$SR_{16,}$ IDS-$SR_{30,}$ HAM-D_{17}, HAM-D_{21}, and HAM-D_{24} was computed for each level of PGI-I change (1–7) (defined at exit). The correlations between each item and total score (i.e., uncorrected item–total correlations) were computed for QIDS-SR_{16}, IDS-SR_{30}, HAM-D_{17}, HAM-D_{21}, and HAM-D_{24} scores obtained at study exit.

Item response theory (IRT; Hulin et al 1983) methods were used to estimate the relationship between 1) the QIDS-SR_{16} total score and the IDS-SR_{30} total score; 2) the IDS-SR_{30} total score and total scores on the HAM-D_{17}, HAM-D_{21}, and HAM-D_{24}; and 3) the QIDS-SR_{16} total score and total scores on the HAM-D_{17}, HAM-D_{21}, and HAM-D_{24} (all obtained at exit). In item response theory, a generalized linear model is estimated for each item of the scale. The estimated model parameters for each item allow one to describe how the probability of endorsement of that item changes as the level of symptom severity changes. The level of symptom severity is treated as an unobserved (i.e., latent) trait that is estimated from the data (Hays et al 2000). MULTILOG (Thissen 1991) generated a set of model parameters for all IDS-SR_{30} items, the three QIDS-SR_{16} items (i.e., sleep, appetite/weight, psychomotor changes) that are derived from but not identical to the IDS-SR_{30} items, and the HAM-D_{24} items (55 unique items) using the graded IRT model of Samejima (1997). Then the procedure of Orlando et al (2000) (and associated software) was used to derive a latent trait score for each possible total score on the IDS-SR_{30}, the QIDS-SR_{16}, HAM-D_{17}, HAM-D_{21}, and HAM-D_{24}. Once total scores for all the scales had been equated to the latent trait scale, total scores for any two scales were equated by matching the total scores whose latent trait scores were most similar (Orlando et al 2000). Item response theory analysis is based on the assumption that all items measure the same latent trait (i.e., all the items together constitute a unidimensional scale). The unidimensional nature of the 55 unique items was checked by an unrotated common factor analysis of these items.

The IDS-SR_{30} and the QIDS-SR_{16} were compared on their ability to identify response and remission at exit. Response was defined *a priori* as a ≥50% reduction in baseline total score for each scale (IDS-SR_{30}, QIDS-SR_{16}, and HAM-D_{24}). The remission threshold for the IDS-SR_{30} was determined from the IRT analysis to represent the same level of symptom severity as a HAM-D_{17} score of 7. The remission threshold for the QIDS-SR_{16} was the score representing the same level of symptom severity as the IDS-SR_{30} threshold as determined by the IRT analysis. Kaplan-Meier (1958) survival estimates of time to response and time to remission were computed for the QIDS-SR_{16}, IDS-SR_{30}, and the HAM-D_{24}. Agreement in the assessment of response and remission between the QIDS-SR_{16} and the IDS-SR_{30} was assessed with a κ statistic. McNemar's test was used to determine whether the QIDS-SR_{16} had a greater likelihood of misclassifying patients as responders or nonresponders, relative to the IDS-SR_{30}.

Table 1. Clinical and Demographic Characteristics of the Sample

Characteristic	% or Mean ± SD
Female (%)	64.4
Ethnicity (%)	
Caucasian	90.6
African-American	3.7
Hispanic	3.0
Marital Status (%)	
Married or cohabiting	44.3
Single	26.0
Widowed	2.0
Divorced	27.7
Depressive Subtype (%)	
Chronic MDD	35.1
Recurrent MDD	23.0
Double depression	42.0
Age (years)	43.6 ± 10.7
Age at Onset of MDD (years)	26.8 ± 13.2
Age at Onset of Dysthymic Disorder (years) (n = 270)	19.5 ± 13.8
Duration of Current MDD Episode (years)	8.0 ± 9.7
Duration of Current Dysthymic Disorder Episode (years) (n = 276)	23.3 ± 15.4
Global Assessment of Functioning Score	53.6 ± 5.7

Total n = 596. MDD, major depressive disorder.

Results

The subject sample is shown in Table 1. High internal consistencies (Cronbach's α) were found for all four scales at study exit (n = 596) (QIDS-SR_{16} = .86, IDS-SR_{30} = .92, HAM-D_{17} = .83, HAM-D_{21} = .84, and HAM-D_{24} = .88). As expected, Cronbach's α increased consistently over time in this study for all four scales: QIDS-SR_{16} = .73–.92 (baseline to week 12); IDS-SR_{30} = .57–.85 (baseline to week 12); HAM-D_{17} = .37–.82 (baseline to week 12); HAM-D_{21} = .34–.83 (baseline to week 12); and HAM-D_{24} = .45–.87 (baseline to week 12), as the range on all four scales increased over time in this study.

Total scores on the QIDS-SR_{16} were highly correlated with the IDS-SR_{30} (.96), HAM-D_{17} (.81), HAM-D_{21} (.82), and HAM-D_{24} (.84) total scores at study exit (n = 596). The IDS-SR_{30} was highly correlated with the HAM-D_{17}

Table 2. Percent Change in IDS-SR_{30}, QIDS-SR_{16}, HAM-D_{24}, HAM-D_{21} and HAM-D_{17} for Patient Groups Defined by PGI-I Ratings at Study Exit

		% Change from Baseline to Exit				
Level of PGI-I	*n*	IDS-SR_{30}[a] (Effect Size)[c]	QIDS-SR_{16}[a] (Effect Size)	HAM-D_{24}[b] (Effect Size)	HAM-D_{21}[a] (Effect Size)	HAM-D_{17}[a] (Effect Size)
Very Much Improved	137	−77.8 ± 17.6 (−4.4)	−75.4 ± 21.4 (−3.5)	−80.5 ± 15.8 (−5.1)	−78.8 ± 17.1 (−4.6)	−78.2 ± 17.9 (−4.4)
Much Improved	213	−58.1 ± 21.1 (−2.7)	−58.5 ± 23.8 (−2.4)	−61.7 ± 20.8 (−3.0)	−59.5 ± 21.6 (−2.8)	−59.0 ± 21.8 (−2.7)
Minimally Improved	130	−28.5 ± 24.7 (−1.2)	−28.5 ± 28.7 (−1.0)	−28.0 ± 25.2 (−1.1)	−27.0 ± 25.1 (−1.1)	−27.1 ± 25.7 (−1.0)
No Change	80	−10.6 ± 24.5 (−.4)	−12.9 ± 27.1 (−.5)	−8.2 ± 22.4 (−.4)	−6.8 ± 23.4 (−.3)	−6.0 ± 24.6 (−.2)
Minimally Worse	17	.8 ± 37.8 (.02)	1.2 ± 30.0 (.04)	−2.8 ± 28.1 (−.1)	−.3 ± 28.8 (−.01)	−2.0 ± 27.9 (−.1)
Much Worse	15	1.3 ± 26.5 (.05)	8.3 ± 38.1 (.2)	10.4 ± 29.8 (.3)	9.7 ± 29.3 (.3)	11.6 ± 30.4 (.4)
Very Much Worse	4	12.9 ± 29.4 (.4)	14.8 ± 15.9 (.9)	33.0 ± 14.6 (2.3)	25.6 ± 17.9 (1.4)	21.0 ± 15.8 (1.3)

Total $n = 596$. Values are mean ± SD. IDS-SR_{30}, 30-item Inventory of Depressive Symptomatology, Self-Report; QIDS-SR_{16}, 16-item Quick Inventory of Depressive Symptomatology, Self-Report; HAM-D, Hamilton Rating Scale for Depression (17-, 21-, and 24-item versions); PGI-I, Patient Global Impression-Improvement.

[a] Very much improved < much improved < minimally improved < all lower levels ($p < .05$) by Tukey's studentized range test.

[b] Very much improved < much improved < minimally improved < no change < much worse/ very much worse ($p < .05$) by Tukey's studentized range test.

[c] Mean percent change ÷ standard deviation of mean percent change.

(.84), HAM-D_{21} (.85), and HAM-D_{24} (.86) total scores at study exit ($n = 596$).

Uncorrected item–total correlations at exit were computed for the QIDS-SR_{16}. High item–total correlations (≥.60) with the QIDS-SR_{16} were found for sad mood (.80), concentration (.74), self-outlook (.75), involvement (.78), energy (.76), psychomotor change (.71), and suicidal ideation (.63). Sleep disturbances (.52) and appetite/weight changes (.49) had only modest item–total correlations. Notably, similar items had the highest correlations with the IDS-SR_{30} total scores. Specifically, items that correlated highly with the total IDS-SR_{30} score included sad mood (.79), irritable mood (.70), anxious mood (.70), reactivity of mood (.75), quality of mood (.76), concentration/decision making (.72), self outlook (.70), future outlook (.70), suicidal ideation (.60), involvement (.74), energy/fatigability (.74), pleasure and enjoyment (.77), psychomotor slowing (.67), interpersonal rejection sensitivity (.63), and leaden paralysis (.62).

More modest item–total correlations were found with sleep onset (.43), midnocturnal insomnia (.41), early morning insomnia (.41), and hypersomnia (.25), as well as appetite (.44) and weight change (.32). Mood variation (.30) and gastrointestinal complaints (.33) were poorly correlated with the total IDS-C_{30} score. Psychomotor slowing (.54), somatic complaints (.44), sympathetic arousal (.45), and panic/phobic symptoms (.47) had moderate correlations with IDS-C_{30} total score. Thus, similar IDS-SR_{30} and QIDS-SR_{16} items correlate most strongly with the total score on each scale.

Less robust item–total correlations were found for the HAM-D_{24}, with only depressed mood (.82), guilt feelings (.66), suicide (.62), work and interests (.74), psychic anxiety (.62), somatic energy (.67), helplessness (.73), hopelessness (.72) and worthlessness (.71) exceeding a .60 correlation with the total score.

For the HAM-D_{21}, only depressed mood (.81), guilt (.63), suicide (.68), work and interests (.74), psychic energy (.62), and somatic energy (.68) correlated at least .60 with the total score. For the HAM-D_{17}, depressed mood (.81), guilt (.63), work and interests (.75), psychic energy (.62), and somatic energy (.68) were highly correlated (i.e., ≥.60) with the total score.

Item–total correlations for the IDS-SR_{30} exceeded .65 for sad (.79), irritable (.70), anxious (.70), reactivity of mood (.75), quality of mood (.76), concentration/decision making (.72), view of self (.70), view of future (.70), involvement (.74), energy/fatigability (.74), pleasure/enjoyment (not sexual) (.77), and psychomotor slowing (.67). Appetite and sleep onset, midnocturnal, and early morning insomnia correlated only moderately (.41–.44), and hypersomnia correlated poorly (.25). This finding was not due to sleep-enhancing effects of nefazodone, as similar item–total correlations were found for those receiving only CBASP.

Percent change values from baseline to exit in QIDS-SR_{16}, IDS-SR_{30}, HAM-D_{17}, HAM-D_{21}, and HAM-D_{24} total scores were computed for subjects divided into groups based on PGI-I exit scores (Table 2). Average percent change values in both the IDS-SR_{30} and the

Table 3. Conversion Between QIDS-SR_{16} Total Scores and IDS-SR_{30}, HAM-D_{24}, HAM-D_{21}, and HAM- D_{17} Total Scores Using IRT Analysis at Study Exit[a]

QIDS-SR_{16}	IDS-SR_{30}	HAM-D_{24}	HAM-D_{21}	HAM-D_{17}
0	0–3	0–1	0–1	0
1	4–5	2	2	1–2
2	6	3–4	3	3
3	7–8	5	4	4
4	9–11	6–7	5–6	5–6
5	12–13	8–9	7–8	7
6	14–16	10–11	9	8
7	17–18	12	10	9–10
8	19–21	13–14	11–12	11
9	22–23	15–16	13	12
10	24–25	17–18	14–15	13
11	26–28	19	16	14–15
12	29–30	20–21	17	16
13	31–33	22–23	18–19	17
14	34–36	24–25	20–21	18–19
15	37–38	26	22	18–19
16	39–40	27–28	23	20
17	41–43	29–30	24–25	21–22
18	44–45	31–32	26	23
19	46–47	33	27	24
20	48	34	28	25
21	49–53	35–38	29–31	26–27
22	54–55	39	32	28
23	56–58	40–41	33–34	29
24	59–61	42–44	35–36	30–31
25	62–24	45–46	37–38	32
26	65–67	47–49	39–41	33–35
27	68–84	50–75	42–64	36–52

Total $n = 578$. QIDS-SR_{16}, 16-item Quick Inventory of Depressive Symptomatology, Self-Report; IDS-SR_{30}, 30-item Inventory of Depressive Symptomatology, Self-Report; HAM-D, Hamilton Rating Scale for Depression (17-, 21-, and 24-item versions); IRT, item response theory.

[a]The only valid conversions that can be made from this table are between 1) QIDS-SR_{16} and HAM-D_{24}; 2) QIDS-SR_{16} and HAM-D_{21}; 3) QIDS-SR_{16} and HAM-D_{17}; and 4) QIDS-SR_{16} and IDS-SR_{30}.

QIDS-SR_{16} distinguished groups with PGI-I ratings of 1, 2, and 3 from each other and from all other groups.

For the IRT analysis, the requirement for unidimensionality of the 55 unique items in the IDS-SR_{30}, QIDS-SR_{16}, and HAM-D_{24} obtained at exit was verified by an unrotated common factor analysis. The largest eigenvalue was 15.9, the second largest 2.3. Of 55 items, 44 had loadings on the first factor $> .35$ (range = 0–.80, average = .50). Table 3 shows the conversion between QIDS-SR_{16} total score and the IDS-SR_{30} total score using all subjects at study exit ($n = 578$). The QIDS-SR_{16} total score multiplied by 2.5 predicted the IDS-SR_{30} total score. Similarly, the QIDS-SR_{16} total score multiplied by 1.3 predicted HAM-D_{17} total score. The conversions between total scores on the QIDS-SR_{16}, and the HAM-D_{17}, HAM-D_{21}, and HAM-D_{24} are also shown in Table 3. Table 4 provides results of the IRT analysis for converting the IDS-SR_{30} total score to HAM-D_{17}, HAM-D_{21}, and HAM-D_{24} total scores.

The IRT analysis showed the remission cutoff value representing the same level of symptom severity as a HAM-D_{17} cutoff of ≤ 7 to be an IDS-SR_{30} of ≤ 14. A QIDS-SR_{16} cutoff score of ≤ 6 was selected based on its correspondence with an IDS-SR_{30} score of 14 by the IRT analysis. An IDS-SR_{30} cutoff score of ≤ 14 produced an 82% correct classification (sensitivity = 76%; specificity = 87%; positive predictive value [PPV] = 80%; negative predictive value [NPV] = 84%). The results for a QIDS-SR_{16} cutoff score of ≤ 6 was an 80% correct classification (79% sensitivity, 81% specificity, 74% PPV, and 85% NPV).

Figures 1 and 2 compare the sensitivity to improvement using the IDS-SR_{30}, QIDS-SR_{16}, and HAM-D_{24} based on 1) the time to response (Figure 1) and 2) the time to remission (Figure 2). Figures 1 and 2 indicate that the QIDS-SR_{16} is at least as (or slightly more) sensitive in detecting response and remission, as is the IDS-SR_{30}.

The κ statistic (chance-corrected percent agreement) for response between the QIDS-SR_{16} and the IDS-SR_{30} was 0.85 at study exit. For remission at study exit, κ was also 0.81. A $\kappa > 0.81$ is considered to represent an almost perfect level of agreement (Landis and Koch 1977).

The QIDS-SR_{16} and IDS-SR_{30} agreed on classification of patients as either responders or nonresponders for 92.6% (552/596) of patients. The two types of misclassification included 4.6% (14/302) classified as responders by the IDS-SR_{30} and as nonresponders by the QIDS-SR_{16}. Conversely, 10.2% (30/294) were classified as nonresponders by the IDS-SR_{30} and as responders by the QIDS-SR_{16}. If the IDS-SR_{30} classification is assumed to be correct, then the QIDS-SR_{16} was significantly more likely to misclassify an IDS-SR_{30} nonresponder as a QIDS-SR_{16} responder than vice-versa (McNemar's test, $p < .016$). For remitters versus nonremitters, the IDS-SR_{30} and QIDS-SR_{16} gave the same classification for 90.6% (540/596) of patients. In 6.1% (14/231) of patients, remitters defined by the IDS-SR_{30} were classified as nonremitters by the QIDS-SR_{16}, whereas 11.5% (42/365) of patients deemed nonremitters by the IDS-SR_{30} were classified remitters by the QIDS-SR_{16} (McNemar's test, $p < .0002$). Thus, the QIDS-SR_{16} seems somewhat less sensitive to residual symptomatology than the IDS-SR_{30}.

Discussion

These data reveal that QIDS-SR_{16}, as well as the IDS-SR_{30}, have highly acceptable psychometric properties with high internal consistencies. Item–total correlations for the QIDS-SR_{16} revealed that the appetite/weight and sleep disturbance domains had lower item–total correlations (.49–.52) with the total score than did all other domains (.63–.80). By contrast, only three items (sad mood, work/

Table 4. Conversion Between IDS-SR_{30} Total Scores and QIDS-SR_{16}, HAM-D_{24}, HAM-D_{21}, and HAM-D_{17} Total Scores Using IRT Analysis at Study Exit[a]

IDS-SR_{30}	QIDS-SR_{16}	HAM-D_{24}	HAM-D_{21}	HAM-D_{17}
0–2	0	0	0	0
3	0	1	1	1
4–5	1	2–3	2	2
6	2	4	3	3
7	3	5	4	3
8	3	5	4	4
9	4	6	5	5
10	4	7	6	5
11	4	7	6	6
12	5	8	7	6
13	5	9	7	7
14	6	9	8	7
15	6	10	9	8
16	6	11	9	9
17	7	12	10	9
18	7	12	10	10
19	8	13	11	10
20	8	14	12	11
21	8	15	12	11
22	9	15	13	12
23	9	16	13	12
24	10	17	14	13
25	10	17	15	13
26	11	18	15	14
27	11	19	16	14
28	11	20	16	15
29	12	20	17	15
30	12	21	17	16
31	13	22	18	16
32	13	22	19	17
33	13	23	19	17
34	14	24	20	18
35	14	25	20	19
36	14	25	21	19
37–38	15	26	22	20
39–40	16	27–28	23	20
41	17	29	24	21
42–43	17	30	25	22
44–45	18	31–32	26	23
46–47	19	33	27	24
48	20	34	28	25
49–50	21	35	29	26
51–52	21	36–37	30	26
53	21	38	31	27
54–55	22	39	32	28
56–57	23	40	33	29
58	23	41	34	29
59	24	42–43	35	30
60–61	24	44	36	31
62	25	45	37	32
63–64	25	46	38	33
65	26	47	39	33
66	26	48	40	34
67	26	49	41	35
68	27	50	42	35
69–70	27	51	43	36
71	27	52	44	37
72	27	53–54	45	38
73–74	27	55	46	39
75–76	27	56	47–48	40
77–78	27	57–58	49–50	42–43
79–82	27	59–62	51–54	44–48
83–84	27	63–75	55–64	49–52

Total $n = 578$. IDS-SR_{30}, 30-item Inventory of Depressive Symptomatology, Self-Report; HAM-D, Hamilton Rating Scale for Depression (17-, 21-, and 24-item versions); IRT, item response theory.

[a]The only valid conversions that can be made from this table are between 1) IDS-SR_{30} and HAM- D_{24}; 2) IDS-SR_{30} and HAM-D_{21}; and 3) IDS-SR_{30} and HAM-D_{17}.

interests, somatic energy) on the HAM-D_{17} and HAM-D_{21} had item–total correlations $\geq .65$.

These results corroborate previous studies of the IDS-SR_{30} that revealed highly acceptable psychometric properties (Biggs at al 2000; Corruble et al 1999; Gullion and Rush 1998; Rush et al 1996, 2000) and a recent report revealing good concurrent validity of the QIDS-SR_{16}, and the IDS-SR_{30} (Rush et al 2000).

The IDS-SR_{30} and the QIDS-SR_{16} were equivalently sensitive to symptom change, when viewed as a discontinuous variable (response or remission), although the QIDS-SR_{16} may be slightly less sensitive to residual symptoms than the longer IDS-SR_{30}. Concurrent validity was established for the QIDS-SR_{16}, when compared with study exit outcomes as gauged by the PGI-I and by the IDS-SR_{30}.

Results from the IRT analysis suggest a relatively simple conversion of scores between the QIDS-SR_{16} and the IDS-SR_{30} (QIDS-SR_{16} total score $\times$ 2.5 = IDS-SR_{30} total score). The IRT analyses further revealed that a HAM-D_{17} total score $\times$ 2.0 = IDS-SR_{30} total score; that

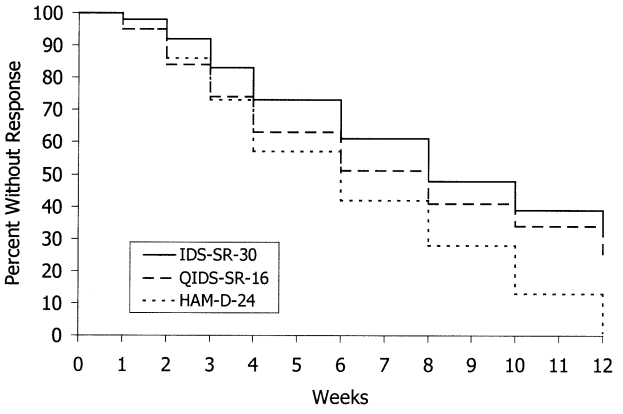

Figure 1. Time to response (≥50% reduction in the 30-item Inventory of Depressive Symptomatology, Self-Report [IDS-SR_{30}], 16-item Quick Inventory of Depressive Symptomatology, Self-Report [QIDS-SR_{16}], and 24-item Hamilton Rating Scale for Depression [HAM-D_{24}] total score from baseline to exit).

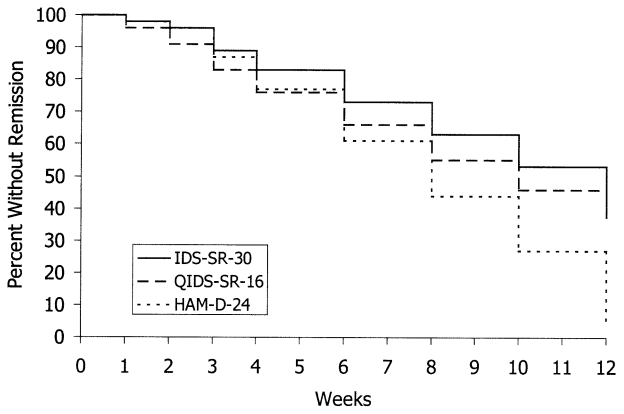

Figure 2. Time to remission as determined by total score at exit for 30-item Inventory of Depressive Symptomatology, Self-Report (IDS-SR_{30}) ($\leq$14), 16-item Quick Inventory of Depressive Symptomatology, Self-Report (QIDS-SR_{16}) ($\leq$6), and 24-item Hamilton Rating Scale for Depression (HAM-D_{24}) ($\leq$8).

a HAM-D_{17} total score $\times$ 0.8 = QIDS-SR_{16} total score; and that a QIDS-SR_{16} total score $\times$ 1.3 = HAM-D_{17} total score.

Generalizability of these findings is restricted to outpatients with chronic MDD and moderate to severe levels of depression. Thus, the range of depressive symptom severity is limited to an outpatient sample, although analyses used exit scores to maximize the range of scores available in this outpatient population. Also, treatment effects reported pertain to treatment with nefazodone, CBASP, or the combination. That is, the study did not include inpatients, patients suffering from very severe, nonchronic, psychotic depression, dysthymic disorder, or patients treated with treatment modalities other than CBASP or nefazodone. To address these limitations, additional studies to replicate and extend these initial findings are needed. Furthermore, the QIDS-SR_{16} total scores were derived by computer from the IDS-SR_{30} items. This may affect results as compared with those obtained if the QIDS-SR_{16} alone was administered to patients. Finally, the present results are largely limited to a sample of mostly Caucasians.

What are the potential practical implications of these findings? Medication guidelines or specific algorithms (Crismon et al 1999; Depression Guideline Panel 1993; Suppes et al 2001) for the treatment of major depressive or bipolar disorder recommend changes in treatment tactics or strategies at critical decision points based on changes in baseline symptom severity. Brief self-report or clinician ratings that provide simpler measures of symptom severity may facilitate the implementation of such clinical procedures in representative practice and efficacy trials. The QIDS-SR_{16} is a brief (5–7-min) self-report that reflects symptom severity, as well as symptomatic change, with a sensitivity that closely parallels results obtained with the longer clinician ratings (i.e., HAM-D_{17}, HAM-D_{21}, and HAM-D_{24}). The QIDS-SR_{16} may, therefore, help to monitor symptom outcome changes during treatment, both for individual patients and for health care systems. The QIDS-SR_{16} is sensitive to change and is capable of rapidly and reliably defining response and remission. Whether the introduction of such a tool in daily practice might improve clinical outcomes deserves study.

From a research perspective, it would seem likely that the QIDS-SR_{16} (or the IDS-SR_{30}) could substitute for a clinician rating to assess clinical trial symptomatic outcomes. In fact, recent findings suggest that in nonpsychotic, non–cognitively impaired, depressed outpatients, the QIDS-SR_{16} (and IDS-SR_{30}) are as reliable and sensitive to change as the longer HAM-D_{24} (Rush et al, unpublished data). Although brief, the QIDS-SR_{16} provides a specific assessment of all of the core criterion DSM-IV symptoms of MDD (unlike the HAM-D_{24}). The QIDS-SR_{16} is shorter than the Beck Depression Inventory–II (Beck et al 1996), which also measures all of the DSM-IV criterion symptoms with the exception of weight. Unlike the BDI–II however, the QIDS-SR_{16} is also available in a clinician-rated format (QIDS-C_{16}). The QIDS-C_{16} and QIDS-SR_{16} and are highly correlated (Rush et al, unpublished data; Trivedi et al, unpublished data). The simultaneous use of both the QIDS-C_{16} and QIDS-SR_{16} in research protocols would facilitate the direct translation of research findings into routine practice where either the QIDS-C_{16} or QIDS-SR_{16} could be used.

Finally, although not evaluated in this report, the QIDS-SR_{16}, given its inclusion of all DSM-IV criterion symptoms for MDD, could be used as a simple self-report screening instrument in primary care, in accordance with recent recommendations for increased depression screening in primary care settings by the U.S. Preventive Services Task Force (Pignone et al 2002).

In summary, the present results provide strong evidence for the potential use of the QIDS-SR_{16} in clinical practice, in efficacy trials, and in effectiveness trials. Its performance among children, adolescents, the elderly, and those with less chronic forms of depression deserves study.

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Appendix 1. Quick Inventory of Depressive Symptomatology (Clinician-Rated) (QIDS-C_{16})

NAME: _____ TODAY'S DATE: _____

Please circle one response to each item that best describes the patient for the last seven days.

1. Sleep Onset Insomnia:
   0 Never takes longer than 30 minutes to fall asleep.
   1 Takes at least 30 minutes to fall asleep, less than half the time.
   2 Takes at least 30 minutes to fall asleep, more than half the time.
   3 Takes more than 60 minutes to fall asleep, more than half the time.
2. Mid-Nocturnal Insomnia;
   0 Does not wake up at night.
   1 Restless, light sleep with few awakenings.
   2 Wakes up at least once a night, but goes back to sleep easily.
   3 Awakens more than once a night and stays awake for 20 minutes or more, more than half the time.
3. Early Morning Insomnia:
   0 Less than half the time, awakens no more than 30 minutes before necessary.
   1 More than half the time, awakens more than 30 minutes before need be.
   2 Awakens at least one hour before need be, more than half the time.
   3 Awakens at least two hours before need be, more than half the time.
4. Hypersomnia:
   0 Sleeps no longer than 7–8 hours/night, without naps.
   1 Sleeps no longer than 10 hours in a 24-hour period (include naps).
   2 Sleeps no longer than 12 hours in a 24-hour period (include naps).
   3 Sleeps longer than 12 hours in a 24-hour period (include naps).

Enter the highest score on any 1 of the 4 sleep items (1–4 above) ____

5. Mood (Sad):
   0 Does not feel sad.
   1 Feels sad less than half the time.
   2 Feels sad more than half the time.
   3 Feels intensely sad virtually all the time.
6. Appetite (Decreased):
   0 No change from usual appetite.
   1 Eats somewhat less often and/or lesser amounts than usual.
   2 Eats much less than usual and only with personal effort.
   3 Eats rarely within a 24-hour period, and only with extreme personal effort or with persuasion by others.
7. Appetite (Increased):
   0 No change from usual appetite.
   1 More frequently feels a need to eat than usual.
   2 Regularly eats more often and/or greater amounts than usual.
   3 Feels driven to overeat at and between meals.
8. Weight (Decrease) Within The Last Two Weeks:
   0 Has experienced no weight change.
   1 Feels as if some slight weight loss occurred.
   2 Has lost 2 pounds or more.
   3 Has lost 5 pounds or more.
9. Weight (Increase) Within the Last Two Weeks:
   0 Has experienced no weight change.
   1 Feels as if some slight weight gain has occurred.
   2 Has gained 2 pounds or more.
   3 Has gained 5 pounds or more.

Enter the highest score on any 1 of the 4 appetite/weight change items (6–9 above) ____

10. Concentration/Decision Making:
    0 No change in usual capacity to concentrate and decide.
    1 Occasionally feels indecisive or notes that attention often wanders.
    2 Most of the time struggles to focus attention or make decisions.
    3 Cannot concentrate well enough to read or cannot make even minor decisions.
11. Outlook (Self):
    0 Sees self as equally worthwhile and deserving as others.
    1 Is more self-blaming than usual.
    2 Largely believes that he/she causes problems for others.
    3 Ruminates over major and minor defects in self.
12. Suicidal Ideation:
    0 Does not think of suicide or death.
    1 Feels life is empty or is not worth living.
    2 Thinks of suicide/death several times a week for several minutes.
    3 Thinks of suicide/death several times a day in depth, or has made specific plans, or attempted suicide.
13. Involvement:
    0 No change from usual level of interest in other people and activities.
    1 Notices a reduction in former interests/activities.
    2 Finds only one or two former interests remain.
    3 Has virtually no interest in formerly pursued activities.
14. Energy/Fatigability:
    0 No change in usual level of energy.
    1 Tires more easily than usual.
    2 Makes significant personal effort to initiate or maintain usual daily activities.
    3 Unable to carry out most of usual daily activities due to lack of energy.
15. Psychomotor Slowing:
    0 Normal speed of thinking, gesturing, and speaking.
    1 Patient notes slowed thinking, and voice modulation is reduced.
    2 Takes several seconds to respond to most questions; reports slowed thinking.
    3 Is largely unresponsive to most questions without strong encouragement.
16. Psychomotor Agitation:
    0 No increased speed or disorganization in thinking or gesturing.
    1 Fidgets, wrings hands and shifts positions often.
    2 Describes impulse to move about and displays motor restlessness.
    3 Unable to stay seated. Paces about with or without permission.

Enter the highest score on either of the 2 psychomotor items (15 or 16 above) ____

Total Score:____ (Range 0–27)

Appendix 2. Quick Inventory of Depressive Symptomatology (Self-Report) (QIDS-SR$_{16}$)

NAME: _____ TODAY'S DATE _____

Please circle the one response to each item that best describes you for the past seven days.

1. Falling Asleep:
   - 0 I never take longer than 30 minutes to fall asleep.
   - 1 I take at least 30 minutes to fall asleep, less than half the time.
   - 2 I take at least 30 minutes to fall asleep, more than half the time.
   - 3 I take more than 60 minutes to fall alseep, more than half the time.
2. Sleep During the Night:
   - 0 I do not wake up at night.
   - 1 I have a restless, light sleep with a few brief awakenings each night.
   - 2 I wake up at least once a night, but I go back to sleep easily.
   - 3 I awaken more than once a night and stay awake for 20 minutes or more, more than half the time.
3. Waking Up Too Early:
   - 0 Most of the time, I awaken no more than 30 minutes before I need to get up.
   - 1 More than half the time, I awaken more than 30 minutes before I need to get up.
   - 2 I almost always awaken at least one hour or so before I need to, but I go back to sleep eventually.
   - 3 I awaken at least one hour before I need to, and can't go back to sleep.
4. Sleeping Too Much:
   - 0 I sleep no longer than 7–8 hours/night, without napping during the day.
   - 1 I sleep no longer than 10 hours in a 24-hour period including naps.
   - 2 I sleep no longer than 12 hours in a 24-hour period including naps.
   - 3 I sleep longer than 12 hours in a 24-hour period including naps.

Enter the highest score on any 1 of the 4 sleep items (1–4 above) ____

5. Feeling Sad:
   - 0 I do not feel sad
   - 1 I feel sad less than half the time.
   - 2 I feel sad more than half the time.
   - 3 I feel sad nearly all of the time.
6. Decreased Appetite:
   - 0 There is no change in my usual appetite.
   - 1 I eat somewhat less often or lesser amounts of food than usual.
   - 2 I eat much less than usual and only with personal effort.
   - 3 I rarely eat within a 24-hour period, and only with extreme personal effort or when others persuade me to eat.
7. Increased Appetite:
   - 0 There is no change from my usual appetite.
   - 1 I feel a need to eat more frequently than usual.
   - 2 I regularly eat more often and/or greater amounts of food than usual.
   - 3 I feel driven to overeat both at mealtime and between meals.
8. Decreased Weight (Within the Last Two Weeks):
   - 0 I have not had a change in my weight.
   - 1 I feel as if I've had a slight weight loss.
   - 2 I have lost 2 pounds or more.
   - 3 I have lost 5 pounds or more.
9. Increased Weight (Within the Last Two Weeks):
   - 0 I have not had a change in my weight.
   - 1 I feel as if I've had a slight weight gain.
   - 2 I have gained 2 pounds or more.
   - 3 I have gained 5 pounds or more.

Enter the highest score on any 1 of the 4 appetite/weight change items (6–9 above) ____

10. Concentration/Decision Making:
    - 0 There is no change in my usual capacity to concentrate or make decisions.
    - 1 I occasionally feel indecisive or find that my attention wanders.
    - 2 Most of the time, I struggle to focus my attention or to make decisions.
    - 3 I cannot concentrate well enough to read or cannot make even minor decisions.
11. View of Myself:
    - 0 I see myself as equally worthwhile and deserving as other people.
    - 1 I am more self-blaming than usual.
    - 2 I largely believe that I cause problems for others.
    - 3 I think almost constantly about major and minor defects in myself.
12. Thoughts of Death or Suicide:
    - 0 I do not think of suicide or death.
    - 1 I feel that life is empty or wonder if it's worth living.
    - 2 I think of suicide or death several times a week for several minutes.
    - 3 I think of suicide or death several times a day in some detail, or I have made specific plans for suicide or have actually tried to take my life.
13. General Interest:
    - 0 There is no change from usual in how interested I am in other people or activities.
    - 1 I notice that I am less interested in people or activities.
    - 2 I find I have interest in only one or two of my formerly pursued activities.
    - 3 I have virtually no interest in formerly pursued activities.
14. Energy Level:
    - 0 There is no change in my usual level of energy.
    - 1 I get tired more easily than usual.
    - 2 I have to make a big effort to start or finish my usual daily activities (for example, shopping, homework, cooking or going to work).
    - 3 I really cannot carry out most of my usual daily activities because I just don't have the energy.

Appendix 2. Continued

15. Feeling Slowed Down:
    - 0 I think, speak, and move at my usual rate of speed.
    - 1 I find that my thinking is slowed down or my voice sounds dull or flat
    - 2 It takes me several seconds to respond to most questions and I'm sure my thinking is slowed.
    - 3 I am often unable to respond to questions without extreme effort.
16. Feeling Restless:
    - 0 I do not feel restless.
    - 1 I'm often fidgety, wringing my hands, or need to shift how I am sitting.
    - 2 I have impulses to move about and am quite restless.
    - 3 At times, I am unable to stay seated and need to pace around.

Enter the highest score on either of the 2 psychomotor items (15 or 16 above) ____

Total Score:____ (Range 0–27)