

The Inventory of Depressive Symptomatology: German translation and psychometric validation

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Abstract

The Inventory of Depressive Symptomatology (IDS) is a rating scale for depression, widely used in international multi-centre studies. There are two corresponding versions: a self-rated (IDS-SR) and a clinician-rated (IDS-C) scale. The aim of this study was to evaluate the reliability and validity of the German versions of the IDS-SR and IDS-C in comparison to the Hamilton Rating Scale for Depression (HRSD) and to the Beck Depression Inventory (BDI). The sample consisted of 59 inpatients and outpatients treated for unipolar or bipolar disorders. Internal consistency of the IDS-SR and IDS-C was found highly acceptable ($\alpha = 0.94$ and $\alpha = 0.93$). Item-total-correlations of the IDS-SR revealed that 68% of the items were strongly correlated with the sum score (≥ 0.50). This was in the same range with the IDS-C (54%), the HRSD (53%) and the BDI (76%). Furthermore, there is a high concurrent validity ($r \geq 0.88$) of the IDS-SR with the IDS-C, the BDI and the HRSD. Substantial score-differences between inpatients and outpatients indicate a good discriminant validity. It is concluded that the German version of the IDS is a useful instrument for the assessment of depressive symptoms and that it has the same highly acceptable psychometric properties as the original English version. Copyright © 2008 John Wiley & Sons, Ltd.

Key words: BDI, bipolar disorder, depression, HRSD, IDS, rating scale, reliability, validity

Introduction

The Inventory of Depressive Symptomatology (IDS, Rush et al., 1986, 1996) is a diagnostic tool for the assessment of the severity of depression, which is widely used in large national and international multicentre studies, e.g. the STAR*D trial (Fava et al., 2003) or the trails of the Stanley Foundation Bipolar Network (SFBN, Post et al., 2001). The aim of this study was to test the psychometric properties of the German versions of the IDS, as they are used in the German SFBN-centres.

Two versions are available, a clinician-rated (IDS-C) and a self-report (IDS-SR) scale. Both scales have been translated in different languages and a psychometric validation was published for the English, Italian and French versions. Validation studies showed highly

acceptable psychometric properties in different psychiatric populations (Corruble et al., 1999, $n = 68$; Rush et al., 1996, $n = 337$; Rush et al., 2003, $n = 596$; Trivedi et al., 2004, $n = 946$).

The need for a new scale for the assessment of depressive symptoms results from shortcomings of the so far widely used Hamilton Rating Scale for Depression (HRSD, Hamilton, 1960) and the Beck Depression Inventory (BDI, Beck et al., 1961). Rush criticized the incomplete assessment of depressive symptoms as well as psychometric deficits (Rush et al., 1986; cf. Zimmerman et al., 2005). The new scales were intended to comprise all areas of depressive symptoms according to the Diagnostic and Statistical Manual of Mental Disorders, DSM-III-R and DSM-IV, assessed in a clear and steady graduation (Rush et al., 1986, 1996).

Due to shortcomings of HRSD and BDI, new scales like the Montgomery–Asberg Depression Rating Scale (MADRS, Montgomery and Asberg, 1979; the self rating version of the MADRS, Svanborg and Asberg, 2001) and the Inventory to Diagnose Depression (IDD, Zimmerman and Coryell, 1987) were developed; furthermore the BDI was revised (BDI-II, Beck et al., 1996). Beside the recently published self-report version of the MADRS (Svanborg and Asberg, 2001), the IDS is the sole depression rating scale with a comparable self-rated and a clinician-rated form.

On development, the item-selection of the IDS was aligned with the DSM-III (Table 1) and other then existing depression scales. Furthermore, symptoms of the anxious and melancholic subtypes of depression and other atypical symptoms were included. The selection process was supported by clinical experts and by patients (Rush et al., 1986). In its final form, the IDS contains 30 items. Only 28 of 30 items count for the sum-score, because the two questions addressing change of weight and appetite distinguish between ‘loss’ and ‘increase’. All items are rated on a scale from ‘0’ (symptom is not present) to ‘3’ (strongest impairment). A cut-off-point of ≥ 18 (IDS-SR) indicates a clinical relevant depressive symptomatology (Rush et al., 1996). Further information about the IDS is available on the internet (www.ids-qids.org).

The translation of the IDS-SR was aimed at a high correspondence with the clinician rated version, which was already translated by Dittmann and Grunze (Department of Psychiatry, University of Munich, Germany, unpublished data). Whenever possible, colloquial terms instead of medical expressions were used. To provide a clear reference point, the first answer of an item was formulated in a positive direction (e.g. ‘I feel physically healthy . . .’).

Beside the psychometric evaluation of the IDS-SR and the IDS-C, we wished to determine whether the IDS-SR can be reliably used instead of the more extensive clinical interview.

Methods

Subjects and design

The sample consisted of 59 inpatients and outpatients with a clinical diagnosis of unipolar depression or bipolar disorder according to DSM-IV and ICD-10 (APA, 1994; Dilling et al., 2000). Bipolar patients were not in an acute hypomanic or manic episode (Table 2).

Table 1. DSM-IV criteria for depression and the items of the IDS

DSM-IV criteria for depression	IDS-C/IDS-SR (item number)
Depressive mood	Sadness, anxiety, irritability (5,6,7) Reactivity of mood (8) Mood variations (9) Quality of mood (10) Outlook (Future) (17)
Loss of interest/pleasure	Involvement (19) Pleasure/enjoyment (21) Sexual interest (22)
Decreased appetite and weight loss	Loss of appetite and weight loss (11,13)
Increased appetite and weight loss	Increased appetite and weight loss (12,14)
Reduced sleep	Sleep onset insomnia (1) Midnocturnal insomnia (2) Early morning insomnia (3)
Increased sleep	Hypersomnia (4)
Psychomotoric agitation/psychomotor slowing	Psychomotoric agitation (24) Sympathetic arousal (26) Psychomotor slowing (23)
Energy/fatiguability	Energy/fatiguability (20), physical energy (30)
Self-esteem, self-blame	Self-esteem (16)
Concentration/problems in decision-making	Concentration/decision-making (15)
Suicidal ideation	Think about the death (18)
Other symptoms	Panic/phobic symptoms (27) Somatic/gastrointestinal complaints (25,28) Interpersonal sensitivity (29)

The patients were treated at the Department of Psychiatry, University Medical Centre Freiburg, Germany. At the time of the investigation, eight outpatients (32%) suffered from an acute clinically relevant depression and 17 outpatients (68%) were partly or fully remitted. All inpatients were treated for an acute depressive episode, only one inpatient was at the end of treatment and already remitted.

Table 2. Characteristics of the sample

	n (%) / mean (standard deviation, SD)
All, n (%)	59 (100%)
Unipolar depression, n (%)	29 (49%)
Major depression	27
Depression due to a medical condition	1
Depression (NOS)	1
Bipolar depression, n (%)	30 (51%)
Bipolar I	21
Bipolar II	8
Bipolar (NOS)	1
Inpatients, n (%)	34 (58%)
Acute depressive/remitted, n (%) (according ICD-10/ DSM IV)	41 (69%)/18 (31%)
Female, n (%)	39 (66%)
Education, years: mean (SD)	11.3 (1.5)
BDI – all patients: mean (SD) (n = 58)	15.8 (12.5)
BDI – acute depressive patients: mean (SD)	21.6 (10.6)
BDI – remitted patients: mean (SD)	3.1 (3.9)
HRSD-17 – all patients: mean (SD) (n = 43)	11.1 (9.0)
HRSD-17 – acute depressive patients: mean (SD)	16.3 (7.3)
HRSD-17 – remitted patients: mean (SD)	2.3 (1.9)
IDS-SR – all patients: mean (SD) (n = 59)	26.7 (16.3)
IDS-SR – acute depressive patients: mean (SD)	35.5 (11.9)
IDS-SR – remitted patients: mean (SD)	7.7 (4.2)
IDS-C – all patients: mean (SD) (n = 43)	21.1 (15.0)
IDS-C – acute depressive patients: mean (SD)	30.1 (11.5)
IDS-C – remitted patients: mean (SD)	6.1 (4.0)

All participants completed the IDS-SR and all but one the BDI (original form). The HRSD-17 and the IDS-C was available from 43 subjects.

Interviews were done by two psychiatrists and two clinical psychologists, which were trained in the use of these instruments. Self-reports were completed on the same day and after the clinical interviews.

Statistics

Cronbach's Alpha and the corrected item-total correlations were calculated. Concurrent validity was evaluated by correlations (Pearson's formula) between the total scores of the IDS-SR/IDS-C and the scores of the other scales (HRSD-17, BDI). Additionally, the correspondence between the self rating and clinician rating (two groups: euthymic versus symptomatic subjects, according to cut-off values, Rush et al., 1996) was examined by calculating the Kappa-coefficient.

Differences of sum scores and values of each item between the IDS-SR and the IDS-C were examined using the student's t-test for dependent samples. Because the normal distribution of the calculated difference scores [(IDS-SR) – (IDS-C)] was questionable, we added a non-parametric test (Wilcoxon) and report divergent results. Since individual hypotheses were tested, we did not apply an α -correction. Furthermore, correlations between self-rated and clinician-rated values of each symptom were calculated.

To investigate the discriminant validity, differences between inpatients and outpatients were examined with the student's t-test for independent samples. We also examined the correct discrimination between inpatients and outpatients. Therefore, a series of binary logistic regression analyses were conducted (dependent variable: inpatient versus outpatient; independent variable: sum score of IDS, BDI or HRSD). The level of significance was set at $p \leq 0.05$.

Results

Internal consistency and item-total correlations

Cronbach's Alpha was $\alpha = 0.94$ for the IDS-SR and $\alpha = 0.93$ for the IDS-C. The internal consistencies of the BDI ($\alpha = 0.94$) and HRSD-17 ($\alpha = 0.89$) were in the same range. The corrected item-total correlations are shown in Table 3. High item-total correlations (≥ 0.50) were found in 68% of the IDS-SR items and 54% in the IDS-C, compared to 53% in the HRSD-17 and to 76% in the BDI. Table 3 shows the coefficients for each item of the IDS-SR and IDS-C.

Discriminant validity

An indicator of the validity of a test is the degree to which it discriminates between different patients. We assumed that outpatients are less symptomatic than inpatients. This hypothesis was clearly confirmed for the IDS-SR (mean, $M = 13.9 \pm 11.9$ and 36.1 ± 12.2 ,

Table 3. Corrected item-total correlations, means (M values) (standard deviation, SD) and correlations for all IDS-SR and IDS-C-items (IDS-SR: $n = 53$ /IDS-C: $n = 42$)¹

Item		IDS-SR <i>r</i> (item-total)	IDS-C <i>r</i> (item-total)	IDS-SR M (SD)	IDS-C M (SD)	<i>r</i> (IDS-SR/IDS-C)
1	Sleep onset	0.48	0.16	1.27 (1.10)	0.86 (1.08) ²	0.78
2	Midnocturnal insomnia	0.78	0.42	1.14 (1.13)	0.86 (1.10) ^{2,3}	0.67
3	Early morning insomnia	0.45	0.67	0.56 (0.98)	0.71 (0.98)	0.44
4	Hypersomnia	0.13	-0.19	0.67 (0.81)	0.54 (0.77)	0.52
5	Mood (sad)	0.81	0.87	1.09 (1.04)	1.14 (1.08)	0.81
6	Mood (irritable)	0.60	0.37	0.63 (0.73)	0.44 (0.59)	0.56
7	Mood (anxious)	0.75	0.67	0.93 (0.86)	0.93 (0.88)	0.65
8	Reactivity of mood	0.73	0.78	0.91 (1.00)	0.74 (0.93)	0.82
9	Diurnal mood variation	0.25	0.27	0.56 (0.73)	0.70 (1.00)	0.50
10	Quality of mood	0.84	0.71	1.12 (1.07)	1.09 (1.19)	0.74
11 + 12	Appetite (increase/decrease)	0.33	0.27	0.81 (0.96)	0.83 (0.81)	0.72
13 + 14	Weight (increase/decrease)	0.35	0.43	1.36 (1.19)	1.07 (1.13)	0.63
15	Concentration/ decision-making	0.73	0.73	1.19 (0.98)	1.02 (0.89)	0.54
16	Outlook/self	0.71	0.83	1.21 (1.17)	1.05 (1.15)	0.67
17	Outlook /future	0.81	0.78	1.12 (1.07)	0.79 (0.89) ²	0.67
18	Suicidal ideation	0.63	0.73	0.67 (0.84)	0.53 (0.88)	0.63
19	Involvement	0.72	0.77	1.12 (1.22)	0.72 (1.01) ²	0.74
20	Energy/fatigability	0.81	0.81	1.02 (1.08)	0.77 (0.84)	0.64
21	Pleasure/enjoyment	0.80	0.77	0.98 (1.08)	0.74 (0.93) ²	0.78
22	Sexual interest	0.52	0.57	1.02 (1.14)	1.07 (1.83)	0.81
23	Psychomotor slowing	0.73	0.69	0.77 (0.84)	0.58 (0.73)	0.61
24	Psychomotor agitation	0.52	0.23	0.58 (0.82)	0.39 (0.62)	0.38
25	Somatic complaints	0.59	0.46	0.79 (0.77)	0.70 (0.83)	0.60
26	Sympathetic arousal	0.65	0.48	0.79 (0.86)	0.60 (0.73)	0.55
27	Panic/phobic symptoms	0.36	0.40	0.33 (0.68)	0.21 (0.60)	0.53
28	Gastrointestinal	0.11	0.27	0.67 (0.87)	0.60 (0.82)	0.82
29	Interpersonal sensitivity	0.44	0.47	0.77 (0.95)	0.65 (0.87)	0.71
30	Physical energy	0.77	0.82	1.04 (1.02)	0.79 (0.86) ^{2,3}	0.63
Sum				25.09 (17.09)	21.14 (15.04) ²	0.89

¹ All correlation coefficients: $p \leq 0.05$. Italic typeface indicates item-total correlation ≥ 0.50 .

² Significant difference between self rating and clinician rating with $p \leq 0.05$ (t-test for dependent sample).

³ Not significant according to the Wilcoxon test (item 2: $p = 0.07$; item 30: $p = 0.051$).

$p < 0.001$, 95% confidence interval difference (CI-Diff.): 15.7–28.5) as well as for the IDS-C ($M = 12.1 \pm 9.9$ and 32.6 ± 12.4 , $p < 0.01$, 95% CI-Diff.: 13.6–27.4). Logistic regression analyses were done to examine the percentage of correct discrimination between inpatients and outpatients. They revealed that 83% (IDS-SR) and 81% (IDS-C) of the patients could be classified correctly in comparison to 84% and 81% using the HRSD-17 and BDI, respectively. This corresponded to the following odds ratios (OR). IDS-SR: OR = 1.14 (95% CI = 1.08–

1.22), IDS-C: OR = 1.16 (95% CI = 1.07–1.26), HRSD-17: OR = 1.44 (95% CI = 1.17–1.78), BDI: OR = 1.20 (95% CI = 1.09–1.33). All coefficients were statistical significant ($p < 0.01$).

Self-rated versus clinician-rated symptoms

The sum score of the self-report form of the IDS (25.1 ± 17.1) was significantly higher than the sum score of the clinician-rated form (21.1 ± 15.0 ; $p = 0.002$; 95% CI-Diff.: 1.6–6.3). The same trend was seen comparing

Table 4. Correlations between the IDS-SR, IDS-C, BDI and HRSD-17

	IDS-SR	IDS-C	BDI
IDS-C	0.89		
BDI	0.91	0.89	
HRSD-17	0.90	0.93	0.88

the single items, where the patients also tended to rate themselves more impaired than the clinicians did (Table 3). Using t-tests for dependent samples, the scores were significantly higher in the self-ratings for the following symptoms: sleep onset, midnocturnal insomnia, outlook/future, involvement, pleasure/enjoyment, and physical energy. However, according to the non-parametric Wilcoxon test, the differences for midnocturnal insomnia and physical energy just failed the level of significance.

Seventy-nine per cent of the variance in the clinician-rated score could be explained by the self-rated score ($r = 0.89$). Using the optimal cut-off points to distinguish between depressive and euthymic participants (IDS-SR ≥ 18 and IDS-C ≥ 13 ; Rush et al., 1996) we calculated an accordance of $\kappa = 0.81$.

Correlations between the corresponding items of the self-rated and the clinician-rated form indicate high concordances. Only two symptoms (early morning insomnia, psychomotor agitation) were not strongly correlated ($r < 0.50$, Table 3).

Concurrent validity

The IDS-SR and the IDS-C showed very high and almost identical correlations with the BDI and HRSD-17 (Table 4).

Discussion

With the exception of the recently developed self-report form of the MADRS, the IDS is the sole depression rating scale with comparable self-rated and clinician-rated versions. A further advantage of the IDS is that it includes all areas of depressive symptoms according to DSM-IV, i.e. atypical, somatic and anxious symptoms. However, this leads to more items than other instruments have (e.g. MADRS, HRSD-17, BDI). This poses a small disadvantage for everyday clinical use.

The German versions of the IDS-SR and of the IDS-C revealed highly acceptable internal consistencies and item-total correlations. The internal consistencies of the IDS-SR and of the IDS-C were high and quite comparable to the consistencies of the HRSD-17 and the BDI. Regarding the item-total correlations, the following symptoms had the best coefficients: mood (sadness), quality of mood, energy/fatigueability, pleasure/enjoyment. These symptoms correspond exactly to the key symptoms of a depressive episode according to DSM-IV and ICD-10. In contrast, somatic symptoms (hypersomnia, weight, appetite, diurnal mood variation and gastrointestinal symptoms) had low coefficients in both IDS-versions, indicating a multifactorial structure.

In accordance with findings of Tondo et al. (1988) and Rush et al. (1987), patients tended to rate symptoms worse compared to the ratings of clinicians. This may be due to the fact, that patients compare their current situation with their former well-being, while clinicians use an inter-personal view based on clinical knowledge. Another source of discrepancy could be a negative biased view of the depressed patients. Assuming that these differences may be due to a depressive view and thus the difference might be higher in more severe depressed patients, we calculated correlations between a difference score [(IDS-SR) – (IDS-C)] and the sum scores. There was no significant relation between this difference score and the sum score of the IDS-C. In contrast, a moderate correlation ($r = 0.47$, $p = 0.002$) was found between the difference score [(IDS-SR) – (IDS-C)] and the sum score of the IDS-SR. This indicates that only a high subjective burden may lead to a systematic discrepancy between self ratings and clinician ratings.

In our study, the covariations of the IDS-SR and IDS-C with the BDI and the HRSD were even somewhat higher compared to previous findings with the English version (Rush et al., 1986, 1996, 2003). This indicates a good concurrent validity. We found that both scales, the IDS-SR and the IDS-C, clearly distinguish between inpatients and outpatients, showing a good discriminant validity. The difference was highly significant.

Recently, Rush et al. (2003) proposed a shorter self-rating and clinician version of the IDS with only 16 items (Quick Inventory of Depressive Symptomatology, QIDS). It contains only those items that assess DSM-IV-criteria and does not address the whole depressive

spectrum anymore. Items from the irritable-arousal dimension, reactivity to mood and mood variations, gastrointestinal complaints, physical energy, outlook/future, and involvement were excluded. This partly negates the advantages of the IDS over other scales like HRSD or BDI. From our point of view, given the high correspondence of the IDS-SR and the IDS-C, we feel it might be better to use the IDS-SR only and omit the IDS-C in daily practice, instead of reducing the number of items.

Study limitations include the fact, that the same person completed both interviews (IDS-C and HRSD), thus the interviewer was not blinded to the results of the other scale. Furthermore, patients who completed the self rating after the interview might be influenced by the questions of the interviewer. Another limitation is the sample size. Since the results might vary across diagnostic subgroups, the validity and reliability of the German version of the IDS should be re-evaluated in other clinical populations. Furthermore, the sample was too small to test the factorial structure of the IDS. However, the study was not underpowered to detect differences between inpatients and outpatients and between the self ratings and the clinician ratings (Cohen, 1988).

In conclusion, our findings indicate that the German versions of the IDS-SR and of the IDS-C have highly acceptable psychometric properties, corroborating results of the original English version (Rush et al., 1996, 2003; Trivedi et al., 2004). Thus, its use in international multicentre-trials can be recommended. Given the high correspondence between the self-rated and the clinician-rated version, we recommend the use of the self-rated form of the IDS for clinical practice and research instead of the more extensive clinical interview.

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