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Psychiatry Research 125 (2004) 171–180
PSYCHIATRY RESEARCH
www.elsevier.com/locate/psychres

Dimensional structure of the Hamilton Depression Rating Scale in patients with obsessive–compulsive disorder

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Received 27 January 2003; received in revised form 16 October 2003; accepted 30 November 2003

Abstract

Comorbid depression is frequent in obsessive–compulsive disorder (OCD) and is acknowledged as a major confound in biological and neurocognitive investigations in OCD. The aim of the present study was to assess the distribution of depressive symptoms in a large OCD sample ($n=162$) and to analyze the dimensional structure of the Hamilton Depression Rating Scale (HDRS) in OCD. Major depressive disorder according to DSM-IV criteria was apparent in approximately one third of the patients. Frequent symptoms were depressed mood, reduced ability to work, anxiety symptoms and guilt feelings. HDRS scores were submitted to a varimax-rotated factor analysis. In accordance with studies conducted with depressed samples, multi-dimensional solutions suggesting three to six factors emerged. Subsequent confirmatory factor analysis revealed satisfactory fit indices for a four-factorial solution comprising core depressive symptoms, sleep disturbance, anxiety and gastrointestinal problems. Aggression-related obsessions as well as the overall severity of obsessions were related to core depressive symptoms. Anxiety symptoms were associated with excessive rituals. Greater recognition of depressive sub-components may help to raise the replicability of empirical findings in OCD research as there is evidence from both depression and OCD samples that distinct depressive syndromes have different biological correlates.

Keywords: Hamilton Depression Rating Scale; Depression; obsessive–compulsive disorder; Factor analysis

1. Introduction

The Hamilton Depression Rating Scale (HDRS; Hamilton, 1960) is a clinician-administered instrument to quantify depressive symptoms. During the last decades, numerous algorithms and cut-off scores derived from the HDRS have been put forward to classify severity of illness and course of the disease (e.g. remission, relapse; Ballenger, 1999; Frank et al., 1991). Despite several weaknesses of the scale that have led to the construction of alternative instruments such as the Bech-Rafaelsen Melancholia Scale (Bech et al., 1983) and the Montgomery-Åsberg Depression Rating Scale (Montgomery and Åsberg, 1979), the HDRS, along with the Beck Depression Inventory (Beck and Steer, 1987), is still the most prominent

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0165-1781/04/$ - see front matter © 2003 Elsevier Ireland Ltd. All rights reserved.
doi:10.1016/j.psychres.2003.11.003

instrument to assess depressive symptoms and the gold standard to validate new depression instruments (see e.g. Holm et al., 2001). The scale taps diverse aspects of depression with a strong emphasis on somatic complaints. Accordingly, one criticism is that physical illness unrelated to depression may lead to artificially inflated HDRS scores (Hammond, 1998).

Gibbons et al. (1993) have argued that the HDRS total score is a weak index of symptom severity and that if one disregards the multidimensionality of the scale essential information might remain undetected, especially in clinical outcome trials (see pp. 261–262). In line with this claim, factor-analytic studies conducted with depressive patients confirm that the scale is best represented by at least three underlying dimensions (Fleck et al., 1995; Gibbons et al., 1993; Ohishi and Kamijima, 2002; Pancheri et al., 2002), although some early studies favoured a uni-dimensional model (Baumann, 1976; Maier et al., 1985). Quite consistently, a core depressive syndrome has been extracted that usually comprises *depressed mood, work and activities*, as well as *retardation* (sometimes the *general somatic symptoms* item also loads on this dimension). The three sleep disturbance items (items 4–6) typically load on one single factor. Anxiety, agitation and hypochondriasis have been found to form one factor in some studies. Pancheri et al. (2002) found an additional somatic complaints factor.

Apart from its utilisation in depression studies, the HDRS is often applied in schizophrenia, posttraumatic stress disorder and obsessive–compulsive disorder (OCD). In OCD research, the HDRS is administered along with the Yale-Brown Obsessive–Compulsive Scale (Y-BOCS; Goodman et al., 1989), as comorbid depressive symptoms are frequent in OCD (Zitterl et al., 2000). Although the possible impact of depression on biological (Baxter et al., 1990; Saxena et al., 2001) and neuropsychological variables in OCD (Basso et al., 2001; Moritz et al., 2001) is increasingly recognized in research, there is as yet no consideration of different depression syndromes in OCD, despite evidence that different depressive symptoms may have different brain metabolic correlates (Galynker et al., 1998). In OCD research, the HDRS total score is typically correlated with the dependent variable of interest and absence of a significant relationship is taken as sufficient evidence that depression does not moderate results in OCD, despite the aforementioned problems of using total scores.

To our knowledge no effort has yet been made to analyze whether the dimensional structure of the HDRS in unipolar depressive patients also applies to OCD. Analogous syndrome structures cannot be inferred a priori as OCD symptomatology may inflate scores on several HDRS items independent of depression. For example, core OCD symptoms may heavily affect ratings on items covering *guilt feelings* (item 2; some OCD patients feel guilty due to aggressive/sexual obsessions or because their family and children are neglected as a consequence of their time-consuming rituals), *work and activities* (item 7; some OCD patients are so absorbed in their compulsions that work and previous interests can no longer be pursued) and *anxiety*. High scores on the last item may stem from comorbid anxiety disorders that could complicate/prolong treatment of the primary disorder.

A closer inspection of the factorial structure of the HDRS in OCD is especially important for basic and predictor research. For example, there is inconclusive evidence whether or not high depressive symptoms are a negative predictor for treatment outcome in OCD (de Haan et al., 1997; Keijsers et al., 1994). It deserves investigation whether some depressive symptoms are more predictive than others. Sleep disturbances and gastrointestinal problems may be of less relevance than lack of insight or symptoms of anxiety. In addition, in a recent study (Moritz et al., 2003), we found core depressive symptoms (*depressed mood, retardation, work and activities*) to be highly significant predictors of non-verbal memory disturbance in OCD while other depression subscales (composed according to Pancheri et al., 2002) or OCD symptoms had a negligible impact. Importantly, the association remained undetected when only the HDRS total score was taken into account. Thus, using the total score instead of factor scores may have obscured real associations in other studies.

The aim of the present study was to investigate the dimensional structure of the HDRS in OCD

Table 1
Main sociodemographic and psychopathological characteristics of the sample

Variable	Frequency/means (S.D.)
Gender	64 male/98 female
Age (years)	33.34 (10.74)
Premorbid IQ (according to Lehrl, 1995)	108.79 (13.73)
Years of formal school education	11.35 (1.86)
Length of illness (years)	11.01 (8.71)
Previous hospitalisations	1.82 (1.89)
Y-BOCS total score	23.77 (5.99)
Y-BOCS obsessions[a]	7.16 (2.78)
Y-BOCS compulsions[a]	7.25 (2.39)
Y-BOCS resistance[a]	3.94 (1.98)
HDRS total score	10.49 (6.83)

[a] Computed according to Moritz et al. (2002).

subjects and to assess the frequency of core depressive symptoms in this population. A more fine-grained analysis of depression symptoms in OCD will increase our understanding of the disorder and may help to explain inconsistent findings across studies.

2. Methods

2.1. Participants

One hundred and sixty-two in-patients with an established diagnosis of OCD according to DSM-IV criteria who were consecutively admitted to our hospital participated in the study. Written informed consent was obtained from all patients prior to participation. Psychopathological and sociodemographic criteria of the sample are presented in Table 1. Patients were assessed prior to entering a cognitive-behavioural OCD program. Seventy-six of the patients were medicated with antidepressants (47%). Neuroleptic agents were prescribed in 16 patients (10%). Axis I disorders were assessed using a semi-structured interview (Mini International Neuropsychiatric Interview, Sheehan et al., 1998). Fifty-six patients (35%) fulfilled criteria for a current diagnosis of major depression according to DSM-IV symptoms; 33 patients reported additional anxiety disorders (20%), two patients reported eating disorders. Patients had no history of drug or alcohol abuse, bipolar or schizophrenic disorder or significant neurological disturbances (e.g. stroke, head trauma, multiple sclerosis). Psychopathology was assessed using the German version of the Y-BOCS (Goodman et al. 1989; translation by Hand and Büttner-Westphal 1991) and the HDRS (17-item version; translation by CIPS, 1990). The HDRS total score was 10.5 and the Y-BOCS total was 23.8, which is comparable to other studies conducted with acute OCD patients. Ratings were performed by trained and experienced psychologists. The psychopathological assessment lasted at least 2 h, and the information collection was complemented through additional observations provided by staff on the ward.

3. Results

3.1. Prevalence of HDRS symptoms in the entire sample

Table 2 shows the prevalence of HDRS scores for the entire sample. Anxiety symptoms (somatic and psychic) were reported most often (38%). More than one third of all patients displayed definite symptoms of depressed mood (36.4%; item 1, scores $\geqslant 2$). Almost one third of patients were severely compromised regarding work activities (32.7%; item 7, scores $\geqslant 2$). Feelings of guilt were also very common (27.2%; item 2, scores $\geqslant 2$). Substantial genital symptoms, sleep problems (especially early insomnia), general somatic complaints occurred in approximately one fifth of all patients.

Table 2
Prevalence rates of HDRS symptoms (in %)

Hamilton depression item	Score 0	Score 1	Score 2	Score 3	Score 4
(1) Depressed mood	25.3	38.3	20.4	11.7	4.3
(2) Feelings of guilt	48.8	24.1	21.6	5.6	–
(3) Suicide	74.1	16.7	6.8	2.5	0.0
(4) Insomnia, early	67.9	11.7	20.4	–	–
(5) Insomnia, middle	69.8	16.0	14.2	–	–
(6) Insomnia, late	71.6	14.8	13.6	–	–
(7) Work and activities	40.7	26.5	17.9	9.9	4.9
(8) Retardation	75.9	17.3	6.8	–	–
(9) Agitation	60.5	28.4	9.3	1.9	0.0
(10) Anxiety, psychic	34.0	27.8	21.6	12.3	4.3
(11) Anxiety, somatic	34.6	27.2	24.7	13.0	0.6
(12) Gastrointestinal symptoms	79.0	17.3	3.7	–	–
(13) Somatic symptoms, general	51.2	28.4	20.4	–	–
(14) Genital symptoms	60.5	17.9	21.6	–	–
(15) Hypochondriasis	71.0	21.6	5.6	1.2	0.6
(16) Loss of weight	81.5	8.0	10.5	–	–
(17) Insight	96.9	1.2	1.9	–	–

–, Not applicable.

3.2. Exploratory factor analysis

The first 17 HDRS scores of the sample were submitted to a principal component analysis with varimax rotation. The analysis was performed by means of the correlation matrix. The Keyser-Meyer-Olkin-measure of sampling adequacy revealed a score of 0.73, confirming the adequacy of the data for factor analysis. Bartlett's test of non-sphericity was highly significant ($\chi^2 = 592.09$; $P < 0.00001$). Depending on the extraction criterion applied, a three- (scree-plot) to six-factor (Kaiser-Guttman criterion) solution emerged. Table 3 presents the rotated factor matrix for a three- to five-factor model. Loadings beyond 0.40 are set in bold type. All three solutions extracted a sleep factor (items 4–6). For the three-factor solution, sleep items and anxiety symptoms loaded on the same factor, whereas the four- and five-factor models yielded a separate anxiety factor (items 10, 11 and 15). A core depression factor (at least items 1, 2, 7 and 8) also emerged. Gastrointestinal symptoms loaded on the same factor as weight loss, with inconsistent additional loadings across models. A six-factor model, not displayed in Table 3, resembled the five-factor model. The sixth factor comprised insight (inverse loading) and agitation (positive loading). A somatic factor emerged in the five- and six-factor solutions.

The five-factor solution explained 55.5% of the overall variance. The three- and four-factor models explained 41.9% and 49%, respectively, of the variance. A uni-dimensional model was not supported by any extraction method despite satisfactory internal consistency (Cronbach's alpha = 0.79): 9 out of the 17 items showed commonalities below 0.25, indicating that the model poorly represented the data (the uni-dimensional model explained 23.6% of the variance). For all but one item, the multi-dimensional solutions provided commonalities of at least 0.3 for all items.

3.3. Reanalysis of factor analysis with non-depressed subjects

In a second analysis, we removed data from those subjects with an established diagnosis of major depressive illness ($n = 56$; 35%) since inclusion of such subjects may have artificially enhanced the correspondence with results obtained in unipolar depressive patients. Item 17 (insight) was excluded because all values in the non-depressed sample were zero. The factorial structure was essentially comparable to the solution of the

Table 3
Varimax-rotated factor loadings for a three- to four-factor factorial solution. Loadings beyond 0.40 are set in bold type

Hamilton depression item	3-Factor solution			4-Factor solution				5-Factor solution				
	1	2	3	1	2	3	4	1	2	3	4	5
(1) Depressed mood	−0.01	**0.68**	**0.40**	**0.70**	−0.02	0.36	0.11	**0.71**	−0.01	0.25	0.04	0.25
(2) Feelings of guilt	0.06	**0.55**	0.29	**0.58**	0.09	0.23	0.08	**0.57**	0.10	0.15	0.01	0.21
(3) Suicide	0.03	0.35	**0.48**	0.34	−0.06	**0.49**	0.14	**0.52**	−0.08	0.32	0.31	−0.13
(4) Insomnia, early	**0.58**	−0.09	**0.40**	−0.07	**0.62**	0.37	0.16	−0.02	**0.62**	0.39	0.15	0.02
(5) Insomnia, middle	**0.65**	0.10	0.30	0.14	**0.78**	0.21	0.14	0.14	**0.78**	0.21	0.10	0.10
(6) Insomnia, late	**0.58**	0.23	0.14	0.27	**0.74**	0.02	0.10	0.28	**0.74**	−0.04	0.12	0.04
(7) Work and activities	0.21	**0.59**	0.35	**0.61**	0.25	0.28	0.14	**0.65**	0.25	0.15	0.15	0.13
(8) Retardation	−0.03	**0.60**	−0.07	**0.65**	0.15	−0.20	−0.09	**0.63**	0.15	−0.35	−0.04	0.04
(9) Agitation	**0.41**	0.02	−0.03	0.03	**0.49**	−0.09	0.09	−0.01	**0.49**	−0.07	0.05	0.08
(10) Anxiety, psychic	**0.49**	**0.47**	−0.11	0.32	0.10	−0.03	**0.68**	0.29	0.11	−0.12	**0.65**	0.31
(11) Anxiety, somatic	**0.69**	0.20	−0.06	0.00	0.17	0.08	**0.84**	−0.09	0.18	0.13	**0.67**	**0.49**
(12) Gastrointestinal symptoms	0.12	0.01	**0.64**	0.06	0.15	**0.64**	−0.01	0.09	0.16	**0.71**	−0.15	0.16
(13) Somatic symptoms, general	0.39	**0.44**	−0.03	0.34	0.16	−0.01	**0.46**	0.14	0.20	0.10	0.11	**0.67**
(14) Genital symptoms	0.16	**0.56**	−0.09	**0.47**	−0.03	−0.07	0.36	0.26	0.01	0.01	0.01	**0.68**
(15) Hypochondriasis	**0.55**	−0.02	0.19	−0.12	0.25	0.28	**0.52**	0.06	0.22	0.14	**0.76**	−0.20
(16) Loss of weight	0.24	0.05	**0.56**	0.02	0.04	**0.63**	0.28	0.09	0.04	**0.65**	0.23	0.13
(17) Insight	−0.03	0.02	**0.65**	0.09	0.06	**0.63**	−0.13	0.29	0.03	**0.52**	0.05	−0.29

Note: For all solutions the following factors emerged: 'core depressive symptoms' (factor 2 in the 3-factor model; factor 1 in the remaining models), 'sleep disturbance' (factor 1 in the 3-factor model; factor 2 in the remaining models) and 'gastrointestinal problems' (factor 3 in the 3-factor model along with *insight*; factor 3 in the other models). The 4- and 5-factor solutions represented an 'anxiety' dimension (factor 4 in both solutions). The 5-factor solution yielded a 'somatic complaints' factor (factor 5).

entire sample. In the best-fitting four-factor solution a core depression dimension emerged (items 1, 7 and 8) along with dimensions representing sleep (items 4–6), anxiety (10, 11 and 15) and gastrointestinal problems (items 12 and 16). Somatic complaints also loaded on the anxiety factor.

3.4. Correlation of factor scores with sociodemographic and psychopathological variables

We saved the factor scores of the four-factor solution to the data matrix and correlated the four dimensions with Y-BOCS total and subscores (revised and conventional algorithm; see Goodman et al., 1989; Moritz et al., 2002), age, gender, length of illness and number of hospitalisations. Due to the high number of correlations, a more conservative level of significance was chosen ($P<0.01$). The core depressive syndrome significantly correlated with the number of hospitalisations ($r=0.22$; $P=0.007$), both obsession scores ($r=0.27$ and 0.30; $P<0.001$) and the total score ($r=0.26$; $P=0.001$). The gastrointestinal factor also correlated with both obsession measures ($r=0.26$, $P=0.001$; $r=0.20$, $P=0.01$).

3.5. Group comparisons according to OCD symptomatology

The short form of the Hamburg Obsessional Compulsive Inventory (HOCI; Klepsch et al., 1991) was available for 143 of the 162 patients. The HOCI is a self-rating instrument that assesses 72 core obsessions and compulsions along six scales: checking; cleaning; arranging things (order); counting, touching and speaking; thoughts of words and pictures; thoughts of doing harm to self/others (aggressive thoughts). Main reasons for non-completion were early discharge or obsessional slowness. Patients were dichotomized into subgroups with high or low scores on a particular subscale (e.g. washers, checkers) according to norm values of the HOCI (high symptom group: scores greater-equal STANINE 5). Comparisons were performed for the factor scores of the four-factor solution.

Patients with an elevated number of order-related OCD symptoms ($n=61$) reported greater sleep difficulties than patients with low scores [$t(141)=2.03$; $P=0.045$]. Patients with counting and other rituals ($n=71$) showed a trend towards higher scores regarding gastrointestinal problems [$t(141)=1.78$; $P=0.08$] and anxiety [$t(141)=1.86$; $P=0.06$]. Patients with a frequent number of intrusive thoughts of words and pictures ($n=36$) displayed greater core depressive symptoms [$t(141)=2.13$; $P=0.03$] and symptoms of fear [$t(141)=2.10$; $P=0.04$]. Patients with pronounced aggressive thoughts ($n=35$) displayed greater core depressive symptoms [$t(141)=2.34$; $P=0.02$] and also more sleep problems [$t(141)=2.14$; $P=0.04$]. Patients scoring high ($n=54$) and low on the washing subscale did not differ on any factor score ($P>0.3$). Likewise, no differences emerged when the sample was split according to control behaviour (high score: $n=66$, $P>0.5$).

3.6. Confirmatory factor analysis

In order to compare the factor structure that emerged with OCD patients to previously proposed models for depressive patients, we used confirmatory factor analyses. As the items of the HDRS are all ordinal, we computed polychoric correlations and analyzed the resulting asymptotic covariance matrix with the weighted least squares method. Table 4 provides a summary of factor solutions extracted for depressive patients, all from exploratory factor analyses. For the current study, we investigated whether the data structure of the OCD patients fit these models. Only items that had factor loadings of at least 0.4 in the original studies were used.

A summary of the confirmatory factor analyses is provided in Table 5. As expected, a one-factor solution including all the 17 items of the HDRS did not fit the data well. As indicated by highly significant χ^2-values and unsatisfactory fit indices, the five- and six-factor models did not represent the observed data adequately. From the other solutions from samples of depressive patients, the three-factor model from Ohishi et al. (2002) represented our data adequately with $\chi^2(11)=15.3$, $P=0.17$. However, this model includes only 7 of

Table 4
Summary of factor loadings in previous studies conducted with depressed patients. Numbers designate the factor on which a particular item loaded. Loadings below 0.4 are excluded

Item description	Fleck et al. (3 factor)	Fleck et al. (6 factor)	Gibbons et al. (5 factor)[a]	Pancheri et al. (4 factor)	Ohishi (3 factor[b])
(1) Depressed mood	1	1	1&4	3	1
(2) Feelings of guilt	1	6	1	2	
(3) Suicide		4&6	1		
(4) Insomnia, early	3	3		1	
(5) Insomnia, middle	3	3	2		3
(6) Insomnia, late	3	3	2	1	3
(7) Work and activities	1	1	1&4	3	
(8) Retardation	1	1	4		1
(9) Agitation	2	2	1	2	
(10) Anxiety, psychic	2	2	1		2
(11) Anxiety, somatic	2	2	1	1	2
(12) Gastrointestinal symptoms	2	4	5	1&4	
(13) Somatic symptoms, general	1	1&5	4		
(14) Genital symptoms	1	5			
(15) Hypochondriasis	2	2		1	2
(16) Loss of weight	2	4	3&5	4	
(17) Insight		6	3		

[a] Values refer to the varimax solution; allocation of some items to factors is ambiguous due to confusion of some item labels with item numbers in the article (e.g. loss of insight is described as item 16 but is in fact item 17).
[b] Values refer to the loading matrix of the European sample.

the 17 items of the HDRS and therefore omits a large amount of potentially useful information. From our analyses, it is obvious that both the solution modelled after Pancheri et al. (2002, 10 items) and the solution derived from our own exploratory analysis (11 items), provide an adequate fit of the data. The new four-factor model is depicted in Fig. 1. This model contains the items of the Ohishi solution forming the factors 'core depressive symptoms', 'sleep disturbance' and 'anxiety', and also includes an additional 'gastrointestinal problems' factor.

4. Discussion

In line with previous studies (e.g. Zitterl et al., 2000; Rasmussen and Eisen, 1992), major depressive illness was very common in the present OCD sample. Approximately one third of patients fulfilled diagnostic criteria for major depression,

Table 5
Fit indices of the HDRS confirmatory factor analyses

Model	GFI	AGFI	CFI	RMSEA	AIC
1-Factor model	0.84	0.79	0.83	0.34	2358.43
3-Factor model (Fleck et al.)	0.94	0.92	0.95	0.10	305.50
6-Factor model (Fleck et al.)	0.96	0.94	0.96	0.18	716.16
5-Factor model (Gibbons et al.)	0.89	0.82	0.85	0.15	386.49
4-Factor model (Pancheri et al.)	0.96	0.92	0.95	0.07	104.61
3-Factor model (Ohishi et al.)	0.98	0.95	0.98	0.05	49.34
Present study (4 factor)	0.96	0.93	0.96	0.07	87.35
Present study (5 factor)	0.77	0.68	0.63	0.15	602.07

Notes: GFI, goodness of fit index; AGFI, adjusted goodness of fit index; CFI, comparative fit index; RMSEA, root mean square error of approximation; AIC, Aikake information criterion; lower scores in the AIC and RMSEA index designate better fit.

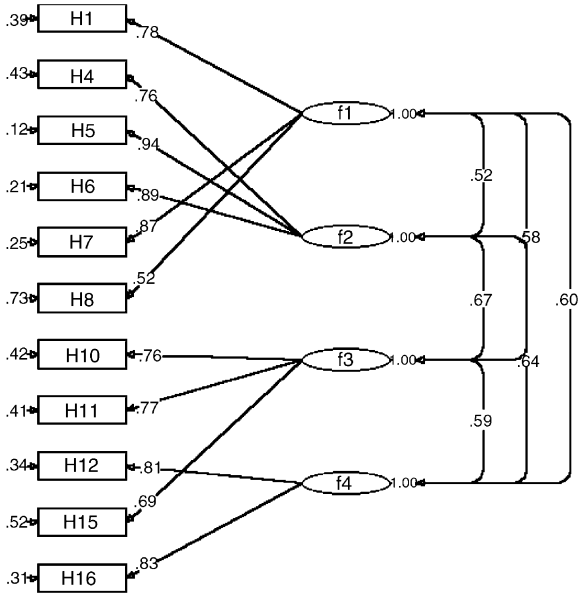

Fig. 1. HDRS factor structure from OCD patients. The factors represent 'core depressive symptoms' (f1), 'sleep disturbance' (f2), 'anxiety' (f3) and 'gastrointestinal problems' (f4).

which roughly equates to the numbers reported in previous studies (e.g. Rasmussen and Eisen, 1992). Frequent depressive symptoms (scores $\geqslant 2$) were the following: anxiety symptoms (38%, psychic or somatic), depressed mood (36.4%) problems with work and activities (32.7%), and feelings of guilt (27.2%).

In accordance with prior research conducted with depressive samples (Fleck et al., 1995; Gibbons et al., 1993; Ohishi and Kamijima, 2002; Pancheri et al., 2002), the present study of a large sample of OCD patients supports the notion that the HDRS is best represented by multiple dimensions. A core depression factor (*depressed mood, retardation, work and activities*) was found as well as a sleep disturbance factor (*early, middle and late insomnia*). Sleep disturbance and anxiety symptoms loaded on the same factor in the three-dimensional model, whereas an additional anxiety dimension occurred for solutions with 4 to 6 factors. Also, in the five-dimensional model, a somatic factor emerged in accordance with Pancheri et al. (2002). A subsequent confirmatory approach, as well as another exploratory factor analysis with non-depressed OCD patients, favoured a four-factor solution. Good fit indices also emerged for a three-factor solution previously described by Ohishi and Kamijima (2002). However, we prefer the four-factor over the three-factor solution since the latter incorporated fewer items from the HDRS. We suggest that HDRS symptoms should be broken down into the following four subscales: core depressive symptoms (items 1, 7 and 8), sleep problems (items 4–6), anxiety symptoms (items 10, 11 and 15) and gastrointestinal problems (items 12 and 16). A somatic factor, as suggested by Pancheri et al., also deserves consideration, although their four-factor model shows slightly worse fit indices in three of five parameters, while incorporating one item less.

As expected from previous exploratory factor analyses that were unable to represent all items of the HDRS, a model incorporating all items of the HDRS did not yield satisfactory fit indices. Especially agitation, somatic items, insight, suicide and feelings of guilt either loaded poorly on the dimensions extracted or showed variable associations to other item assemblies across studies. A one-dimensional solution was dismissed despite satisfactory internal consistency as many items did not show substantial loading on the first factor (9 out of the 17 items displayed very low commonalities). A further advantage of the multi-dimensional solutions is that composition of subscales gives separate weight to core depressive symptoms that are underrepresented in the HDRS.

The HDRS has been subject to criticism for a number of reasons (see e.g. Gibbons et al., 1993). As already mentioned, somatic complaints are over-represented (e.g. sleep disturbances are tapped with three items). Furthermore, cognitive symptoms (especially attentional problems, memory dysfunction) are not covered separately (attentional difficulties may be scored on the retardation and agitation items). In addition, different aspects are sometimes collapsed in one item (e.g. *genital symptoms* assesses loss of libido and menstrual disturbances; *feelings of guilt* also taps acoustic hallucinations). Advantages of the HDRS—and possible reasons for its continued application—are its wide spread use, easy application and broad symptom coverage. Moreover, some of the prob-

lems inherent in the HDRS also apply to newer instruments.

A number of studies have highlighted the impact of depressive symptoms on several parameters such as cerebral blood flow and neurocognitive functioning (Basso et al., 2001; Baxter et al., 1990; Moritz et al., 2001; Saxena et al., 2001). It is expected that greater convergence of results across studies may be obtained when more care is devoted to potential moderators such as OCD subtype (especially washing, checking, ordering, hoarding), drug treatment (Mataix-Cols et al., 2002) and structure of depression symptoms. We found an interesting pattern of depression subscores in OCD subgroups. Whereas core depressive symptoms were associated with aggressive obsessions (fear to harm oneself or others), intrusive thoughts and pictures as well as the overall severity of obsessions, anxiety symptoms were related to counting and other rituals (trend level). Unexpectedly, sleep disturbances were greater in patients with pronounced ordering behaviour and aggressive thoughts. As already outlined, core depressive symptoms such as depressed mood and problems with work and activities are given relatively little weight in the HDRS and thus their possible impact on variables of interest might have been obscured (for a discussion of this problem, see Gibbons et al., 1993). This may well account for contradictory findings in OCD studies with samples that are otherwise comparable with respect to Y-BOCS and HDRS total scores.

For future research, there are two major methodological approaches to a consideration of the multidimensionality of the scale. One is to correlate factor scores with variables of interest. The other is to compose subscales according to empirically derived algorithms of the HDRS, which seem to apply to both depressive and OCD patients. A clear disadvantage of the first option is that factor-analytic studies need large samples to provide stable results. Also, comparability across studies is clearly limited, even if the same items load on a particular factor but with different weight. We therefore recommend that HDRS subscales be composed according to a fixed algorithm.

We would like to stress that the present findings need replication in other cultural contexts. For example, Ohishi and Kamijima (2002) have demonstrated that the dimensional structure of the HDRS is somewhat different in Japanese from US or European depressive samples. Moreover, hoarding symptoms were not covered by the HOCI so that the association between depression and hoarding awaits elucidation.

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