

Research report

Atypical symptoms in hospitalised patients with major depressive episode: frequency, clinical characteristics, and internal validity

Florian Seemüller^{a,*}, Michael Riedel^a, Florian Wickelmaier^a, Mazda Adli^b,
Christoph Mundt^c, Andreas Marneros^d, Gerhard Laux^e, Wolfram Bender^f,
Isabella Heuser^g, Joachim Zeiler^h, Wolfgang Gaebelⁱ, Markus Jäger^a,
Hans-Jürgen Möller^a, Verena Henkel^a

^a Department of Psychiatry and Psychotherapy, Ludwig-Maximilian-University Munich, Nussbaumstrasse 7, 80336 Munich, Germany

^b Department of Psychiatry and Psychotherapy, Campus, Charité Mitte (CCM), Charitéplatz 1, 10117 Berlin

^c Department of Psychiatry and Psychotherapy, University of Heidelberg, Voßstr. 2, 69115 Heidelberg

^d Department of Psychiatry and Psychotherapy, Marthin-Luther University Halle-Wittenberg, Julius-Kühn-Str.7, 06097 Halle

^e Department of Psychiatry and Psychotherapy, District Hospital Garbersee 7, 83512 Wasserburg

^f Department of Psychiatry and Psychotherapy, District Hospital Haar, Vockestr. 72, 85540 Haar

^g Department of Psychiatry and Psychotherapy, Campus Charité Benjamin Franklin (CFB), Eschenallee 3, 14050 Berlin

^h Department of Psychiatry and Psychotherapy, Auguste-Viktoria-Krankenhaus, Rubensstr. 125, 12157 Berlin

ⁱ Department of Psychiatry and Psychotherapy, University of Düsseldorf, Bergische Landstr.2, 40629 Düsseldorf

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Abstract

Objective: The objective was (1) to assess the frequency of atypical depression (AD) in depressed inpatients; (2) to compare clinical features of patients with atypical and nonatypical depression (Non-AD) (3) to evaluate the meaning of single psychopathological symptoms with special respect to mood reactivity.

Method: Diagnoses of 1073 inpatients were assessed according to DSM-IV using SCID (Structured Clinical Interview for the DSM-IV) and AMDP (Association for Methodology and Documentation). Diagnosis of atypical depression was defined according to criteria of the DSM-IV specifier for AD. All patients were rated using HAMD-21 (Hamilton Depression Scale).

Results: A high percentage of patients met criteria for AD (15.3%, 95% CI 13.0–17.9%). Women were more likely to suffer from AD (OR=1.54, p=0.037). There were no significant differences between AD and Non-AD patients regarding age, HAMD total baseline score, and diagnosis of any bipolar illness.

In terms of psychopathology patients with AD were significantly more likely to suffer from somatic anxiety, somatic symptoms, guilt, genital symptoms, depersonalisation and suspiciousness as defined by HAMD-21 items. Interestingly, mood reactivity was not found to be significantly associated with the presence of two or more additional symptoms of AD.

Limitations: Results were assessed by a post-hoc analysis, based on prospectively collected data. Compared to other inpatient samples with MDE, prevalence of bipolar disorder was rather low.

Conclusion: (1) Frequency of AD may be underestimated, especially in inpatient samples. Further studies of inpatient samples are recommended. (2) Quality of distinct anxiety symptoms may be different in both groups, with AD patients being more likely to suffer from somatic symptoms and somatic anxiety. The presence of suspiciousness and even paranoid phenomena may not

* Corresponding author. Tel.: +49 89 5160 5751; fax: +49 89 5160 5774.

E-mail address: florian.seemueller@med.uni-muenchen.de (F. Seemüller).

exclude a diagnosis of AD, but may be related to rejection sensitivity. (3) The mandatory presence of mood reactivity for the diagnosis of AD needs further consideration, regarding its validity for the concept.

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1. Introduction

The classification of depressive illness has been a subject of discussion for many decades and is still ongoing. Early approaches included the neurosis/psychosis dichotomy and led to clusteranalytic differentiation by Roth and colleagues of anxiety states from endogenous depression (Roth et al., 1972). In the development of the concept of atypical depression the considerable overlap between anxiety or phobic neuroses/symptoms and depression was also stressed by other working groups (Paykel et al., 1983; Tyrer et al., 1980).

A review of Quitkin and colleagues (Quitkin et al., 1993), stressing the preferential response of patients with atypical depression (AD) to monoamine oxidase inhibitors (MAOI) in 1993 provided the basis for the so called “Columbia criteria” for AD and led to their inclusion into the DSM-IV (American Psychiatric Association, 1996). The diagnosis of AD requires the presence of “mood reactivity” in addition to two or more of the following features: (1) significant weight gain or increase in appetite, (2) hypersomnia, (3) leaden paralysis, and (4) interpersonal rejection sensitivity. Prevalence rates in depressed patients are ranging from 16–47% and tend to be higher in outpatient samples (Angst et al., 2002; Parker et al., 2002). The Columbia group found distinctive sociodemographic and clinical features like younger age, less illness severity and a clear female preponderance (Quitkin et al., 2003). Other researchers emphasized the association with somatoform disorders, neurasthenia, fibromyalgia, seasonal affective disorder and bipolar-II illness (Akiskal and Benazzi, 2005; Murck, 2002; Parker et al., 2002). Recent reports stressed the necessity to either improve current criteria for atypical depression (Parker et al., 2002) or to add additional symptoms (Silverstein et al., 2006).

To the best of our knowledge, only one single study (Derecho et al., 1996) has investigated features of atypical depression in a sample of hospitalised patients (N=21) so far.

In the present study we aimed at investigating the prevalence of atypical depression in depressed inpatients as well as the internal validity of AD, similar to our previous study in primary care outpatients (Henkel et al., 2004) Thus, we conducted a post-hoc analysis of a

large database, comprising 1073 inpatients. This analysis was part of a research project sponsored by the German Federal Ministry of Education and Research (BMBF).

In order to identify subjects suffering from AD within this sample we used items of the AMDP (Association for Methodology and Documentation in Psychiatry) system corresponding to the DSM-IV specifier. The AMDP system is widely used in German-speaking countries and has been translated for the use in other nations (Busch et al., 1980; Gebhardt and Pietzcker, 1983). This documentation system for psychiatric data comprises subscales for psychopathology, somatic and anamnestic findings. It has demonstrated high internal validity and reliability and a good discrimination of different depressive syndromes (Pietzcker and Gebhardt, 1983a).

Specifically, the objectives of our study were:

1. To assess the frequency of AD in a sample of depressed inpatients.
2. To compare clinical features of patients with atypical and nonatypical depression, especially in relation to earlier findings, e.g. suggestions or even evidence for younger age in AD patients (Akiskal and Benazzi, 2005), female preponderance (Akiskal and Benazzi, 2005), milder illness (Henkel et al., 2004), higher bipolarity (Benazzi, 1999).
3. To evaluate the meaning of single psychopathological symptoms with special respect to mood reactivity.

2. Method

2.1. Sample and data collection

Data from a large prospective, naturalistic, multi-center follow-up program funded by the German Federal Ministry of Education and Research (BMBF) were used for this analysis. Subjects were recruited from six German psychiatric university hospitals (Munich, 2x Berlin, Heidelberg, Halle, and Düsseldorf) and three psychiatric district hospitals (Berlin, Munich, Wasserburg). Inclusion criteria required age between 18 and 65 and signed informed consent. Patients had to meet diagnostic criteria according to ICD-10 (World Health Organization, 1992) for any major depressive episode (ICD-10: F31.3x–5x,

F32, F33) or for depressive disorder not otherwise specified (ICD-10: F34, F38, F39), including bipolar depression (F31.2-3) melancholic depression (F32.9) and depression with psychotic symptoms (F32.2). Moreover, assessment of baseline data included confirmation of the diagnosis by the Structured Diagnostic Interview of DSM-IV (SCID) (Wittchen et al., 1997) and a distinction between bipolar I and bipolar II disorder based on DSM-IV criteria. Baseline ratings were conducted using the HAMD-21. In addition, patients were rated with the 115-item AMDP psychopathology scale (Association for Methodology and Documentation in Psychiatry (Pietzcker and Gebhardt, 1983b) by trained psychologists. These methods were described in detail in a study protocol approved by the Ethics Review Committee. A sample of 1073 Patients has been recruited. Due to missing data we had to exclude 244 patients (72 missing AMDP data, 172 missing SCID data). Thus, baseline assessments of 829 patients were eligible for the analyses.

2.2. Definition of Atypical Depression

For post-hoc analyses, a two-staged screening procedure was employed: (1) patients had to meet DSM-IV diagnostic criteria for major depression according to the Structured Diagnostic Interview, (2) patients with major depression were classified into two groups “atypical” (AD) and “non-atypical” (Non-AD) according to DSM-IV criteria for atypical depression. The diagnosis “atypical depression” was assessed following the DSM-IV specifier using corresponding AMDP items. It was chosen to adopt the algorithm described by Novick et al. (2005) who applied the Inventory of Depressive Symptoms (IDS-CR) (Rush et al., 1996) for the assessment of atypical depression. The IDS-CR is a validated depression rating scale which parallels atypical symptoms as defined in DSM-IV (Rush et al., 1996) and has categories similar to the AMDP system.

In analogy to Novick et al. (14), the criterion “mood reactivity” (A criterion) was defined as absence (score=0) or only mild presence (score <3) of the AMDP item 79 which describes a decrease in mood reactivity. In addition, at least two of the following symptoms (B criteria) had to be present:

- AMDP item 107 (score ≥ 2) which refers to “excessive appetite” corresponding to the DSM-IV criterion “weight gain or increase in appetite”,
- AMDP item 105 (score ≥ 2) describing tiredness including hypersomnia corresponding to the DSM-IV criterion “hypersomnia”,

- AMDP item 128 (score ≥ 2) “heaviness in legs” corresponding to the DSM-IV criterion “leaden paralysis”,
- AMDP item 68 “irritability” (score ≥ 2) roughly corresponding to the DSM-IV criterion “rejection sensitivity”.

2.3. Statistical analyses

Data are presented as percentages for categorical variables and as means and standard deviations for continuous measures. Prevalence rates of atypical features and of AD are given in percent and 95% confidence intervals. Differences between AD and non-AD patient groups with respect to other variables are assessed by odds ratios (OR) based on separate univariate logistic regression models each having atypical/typical depression as the dependent variable. Simple logistic regression is employed for unadjusted significance tests including only a single independent variable, multiple logistic regression for adjusted tests including sex as an additional covariate. The contingency table of the five atypical features (each classified as either present or absent) was analysed for overall independence using a loglinear model, and post-hoc single-df chi-square tests were devised to detect significant association patterns among the 32 possible combinations of the features (This procedure is also known as configural frequency analysis, CFA, von Eye, 1990.). The association structure of the features was further investigated by means of hierarchical loglinear models (Agresti, 2002); using a backwards elimination approach based on likelihood ratio tests, non-significant interaction terms were successively removed from a saturated (preliminary) model in order to arrive at a final model including only significant terms. Due to the exploratory nature of the study, corrections for multiple testing were not applied, and the level of significance was set to 5%.

3. Results

3.1. Sample characteristics and frequencies of atypical symptoms

The mean age was 45.3 ± 12.0 years. Women comprised 63.6% of the total sample. The mean HAMD-21 total baseline score of 23.8 ± 6.6 indicates a moderate to severe depression at study entry (Table 1).

The symptom “mood reactivity” was found to be present in 755 of 829 depressed patients and had the highest prevalence (91.1%). The prevalence rates of the remaining four atypical symptoms in descending order were 47.6% for “hypersomnia”, 14.2% for “rejection

Table 1
Sample characteristics stratified by type of depression

	Total		Atypical		Non-atypical		Unadjusted		Adjusted	
	(N=829)		(N=127)		(N=702)		OR	p	OR	p
	M	SD	M	SD	M	SD				
Age (years)	45.3	12.0	45.0	11.0	45.4	12.2	1.00	0.728	1.00	0.791
HAMD total score	23.8	6.6	24.3	7.3	23.7	6.4	1.01	0.364	1.01	0.373
	N	%	N	%	N	%				
Sex (female)	527	63.6	91	71.7	436	62.1	1.54	0.037	–	–
SCID bipolar I/II	65	7.8	6	4.7	59	8.4	0.54	0.132	0.56	0.162
SCID bipolar I ^a	34	4.1	3	2.4	31	4.4	0.51	–	0.54	–
SCID bipolar II ^a	30	3.6	3	2.4	27	3.9	0.59	–	0.61	–
SCID not bipolar ^a	764	92.3	121	95.3	643	91.7	–	0.340	–	0.392

Odds ratios (OR) and significance tests are based on a logistic regression model without (unadjusted) and with (adjusted) sex included as a covariate.

^a Total N= 828.

sensitivity”, 12.1% for “leaden paralysis”, and 5.3% for “increased appetite”. A total of 127 patients (15.3%) met criteria for AD according to DSM IV definition (Table 2).

3.2. Comparison between depression with and without atypical features

As reported earlier, women were more likely to present with atypical features (OR = 1.54, $p=0.037$). There were no significant differences between patients regarding age, HAMD-21 total baseline score and diagnosis of any bipolar illness (neither after adjusting for gender nor without adjusting, Table 1).

Table 3 compares the presence of each individual HAMD-21 item for AD and non-AD patients at baseline. HAMD items were assessed to be present in case of a score >0. For each item, the differences between the patient groups were evaluated by means of an odds ratio, with and without adjustment for gender. As expected, we found some melancholic features such as “loss of weight” (HAMD item 16), “early insomnia” (HAMD item 4) and “loss of appetite” (HAMD item 12) significantly more often in patients without atypical depression. In line with these findings we found the presence

Table 2
Prevalence rates of five atypical features and of atypical depression (N=829). Note: CI=confidence interval

	Yes	No	% Yes	95% CI
Mood reactivity	755	74	91.1	[88.9, 92.8]
Hypersomnia	395	434	47.6	[44.3, 51.1]
Rejection sensitivity	118	711	14.2	[12.0, 16.8]
Leaden paralysis	100	729	12.1	[10.0, 14.5]
Increased appetite	44	785	5.3	[4.0, 7.1]
Atypical depression	127	702	15.3	[13.0, 17.9]

of HAMD item 13 “somatic symptoms” containing the question “heaviness in legs, back or head” to significantly increase the likelihood of an atypical depression.

Interestingly, the symptoms “guilt” (HAMD item 2), “anxiety (somatic)” (HAMD item 11), “genital symptoms” (HAMD item 14) were statistically associated with atypical depression. The strongest association with atypical features was found for the following two symptoms: “depersonalisation and derealisation” (HAMD item 19, OR=2.85, $p<0.0005$) and “paranoid symptoms” including “suspiciousness” (HAMD item 20, OR=2.58, $p<0.0005$). Of note, there was no significant difference between both groups regarding suicidal ideation (HAMD item 3, OR = 1.17, $p=0.500$).

3.3. Bipolar disorder in patients with and without atypical depression

Out of a total of 829 depressed patients only 65 (7.8%) had bipolar disorder of whom 34 (4.1%) had bipolar-I and 30 (3.6%) bipolar-II disorder (Table 1). Contrary to our hypothesis and in contrast to results of previous studies, the percentage of bipolar patients without atypical features (8.4%) was slightly but not significantly higher (OR=0.56, $p=0.162$) than was the percentage of bipolar patients with atypical features (4.7%). Even after subdividing into bipolar-I (OR=0.54) and bipolar-II illness (OR=0.61) no significant association between any bipolar illness and atypicality could be detected ($p=0.392$).

3.4. Association of mood reactivity with atypical features and interdependence of atypical features

First, we evaluated the association between mood reactivity and the presence of two or more of the

Table 3

Frequencies of patients with atypical and non-atypical depression reporting the presence of individual HAMD-21 items. Odds ratios (OR) and significance tests are based on separate univariate logistic regression models for each item as an independent variable (unadjusted), and including gender as an additional covariate (adjusted)

HAMD-21		Total		Atypical		Non-atypical		Unadjusted		Adjusted	
Item	Nr.	N	%	N	%	N	%	OR	p	OR	p
Depressed mood	1	824	99.4	127	100.0	697	99.3	–	0.196	–	0.199
Feelings of guilt	2	651	78.5	112	88.2	539	76.8	2.26	0.002	2.24	0.003
Suicide	3	634	76.5	100	78.7	534	76.1	1.17	0.510	1.17	0.500
Insomnia early	4	592	71.4	80	63.0	512	72.9	0.63	0.025	0.64	0.028
Insomnia middle	5	649	78.3	92	72.4	557	79.3	0.68	0.090	0.69	0.098
Insomnia late	6	554	66.8	76	59.8	478	68.1	0.70	0.073	0.71	0.087
Activities	7	822	99.2	125	98.4	697	99.3	0.45	0.371	0.49	0.422
Retardation	8	461	55.6	69	54.3	392	55.8	0.94	0.753	0.95	0.809
Agitation	9	406	49.0	56	44.1	350	49.9	0.79	0.231	0.79	0.219
Psychic anxiety	10	699	84.3	108	85.0	591	84.2	1.07	0.807	1.05	0.847
Somatic anxiety	11	590	71.2	101	79.5	489	69.7	1.69	0.020	1.66	0.026
Loss of appetite	12	534	64.4	66	52.0	468	66.7	0.54	0.002	0.54	0.002
Somatic symptoms	13	705	85.0	118	92.9	587	83.6	2.57	0.003	2.49	0.005
Genital symptoms	14	636	76.7	106	83.5	530	75.5	1.64	0.044	1.71	0.029
Hypochondriasis	15	323	39.0	50	39.4	273	38.9	1.02	0.919	1.03	0.874
Loss of weight	16	403	48.6	48	37.8	355	50.6	0.59	0.008	0.60	0.010
Insight	17	149	18.0	19	15.0	130	18.5	0.77	0.327	0.81	0.415
Diurnal variation	18	551	66.5	91	71.7	460	65.5	1.33	0.173	1.31	0.192
Depersonalisation	19	256	30.9	66	52.0	190	27.1	2.92	<0.001	2.85	<0.001
Paranoia	20	178	21.5	46	36.2	132	18.8	2.45	<0.001	2.58	<0.001
Compulsiveness	21	84	10.1	19	15.0	65	9.3	1.72	0.062	1.69	0.073

remaining atypical symptoms, according to the DSM-IV specifier. There was no significantly increased likelihood for patients with mood reactivity (16.8%, $N=755$) to present with two or more additional atypical features than for patients without mood reactivity (20.3%, $N=74$, $OR=0.80$, $p=0.423$). By analysing the multiway contingency table, the overall independence of the five atypical features could be rejected ($\chi^2(26)=47.1$, $p=0.007$), but the post-hoc analysis revealed no single significant symptom pattern. Therefore, their association structure was further investigated by means of hierarchical loglinear models. The resulting loglinear model (goodness of fit $\chi^2(24)=20.3$, $p=0.681$) included only two two-way interactions (thereby signifying association) between *mood reactivity* and *hypersomnia*, and between *hypersomnia* and *leaden paralyses*.

4. Discussion

To our knowledge this is one of the largest studies evaluating atypical symptoms in hospitalised depressed patients ($N=829$).

4.1. Mood reactivity

In our sample 91.1% of all patients showed a depressive symptom pattern including “mood reactivity”.

This is in line with findings from Angst and Posternak reporting prevalence rates of 85.2% and 82.4% respectively (Angst et al., 2002; Posternak and Zimmerman, 2002b). Parker found much lower rates (43.1%) in a sample of 270 depressive patients including 37% inpatients (Parker et al., 2002). Given a prevalence this high, the symptom “mood reactivity” clearly fails to discriminate between AD and Non-AD. One explanation for this unexpectedly high prevalence might be the better access to mental health care services in Germany leading to earlier hospitalisation of patients with milder depression compared to other nations.

Another reason for this high prevalence in depressed patients in the present study might be our definition of “mood reactivity” considering a spectrum from highly mood reactive to a state of moderate mood reactivity (AMDP item 107 <3), analogous to the definition used by Parker (Parker et al., 2002) and Posternak (Posternak and Zimmerman, 2002a). We hypothesised that if mood reactivity was an essential diagnostic criterion it would be significantly associated with two or more of the remaining four atypical symptoms. Unexpectedly, patients with mood reactivity were not significantly associated with 2 or more atypical symptoms than patients without ($OR=0.8$, $p=0.42$). For comparison we re-analysed our previously published data in outpatients (Henkel et al., 2004). Again, chances were not

significantly higher to have 2 or more atypical symptoms with mood reactivity (OR=0.65, $p=0.10$). These results are in good accordance with the results from Parker and Posternak (Parker et al., 2002; Posternak and Zimmerman, 2002b). Both authors found no significant association between mood reactivity and the likelihood of meeting the diagnostic atypical B threshold.

In the loglinear model analysis which revealed two two-way interactions between all five atypical symptoms, we found mood reactivity to be significantly negatively associated with hypersomnia. This finding and the lack of association with two or more atypical symptoms seems to question its hierarchical position in DSM-IV.

4.2. Prevalence of atypical depression

To our knowledge, only a single study in inpatients exists: seven of 21 patients showed AD (Derecho et al., 1996). In our sample of 829 depressed inpatients we found a 15.3% prevalence (95% confidence interval 13.0–17.9%) of atypical depression according to DSM-IV criteria. This indicates that atypical depression is, contrary to its name, a common and relatively high prevalent syndrome even in hospitalised patients with major depression. Others found prevalence rates ranging between 16.3% (Parker et al., 2002), 18% (Novick et al., 2005), 22.5% (Posternak and Zimmerman, 2002a), 26.3% (Henkel et al., 2004), 28% (Robertson et al., 1996), 30% (Asnis et al., 1995) and 46.6% (Angst et al., 2002) in samples comprising mostly outpatients. Most authors assume notably higher prevalence rates in depressed outpatients than in inpatients (Nierenberg et al., 1998; Parker et al., 2002). Thus, our results do support the hypothesis of lower prevalence rates of AD in depressed inpatients compared to outpatients.

One shortcoming of this study is that the translated AMDP items we used do not directly translate into the DSM-IV criteria, which clearly may have influenced our findings. However the negative correlation of the inverse HAMD items seems to support our methodology.

4.3. Baseline characteristics, psychopathology, and association with atypical depression

The current concept of AD has been challenged by the results of several studies (Parker et al., 2005). A distinct diagnostic entity should be characterized by specific sociodemographic and clinical features. At first glance there seems to be consensus that atypical depression defined by DSM-IV criteria may be associated with female gender (Akiskal and Benazzi, 2005; Angst et al.,

2002; Novick et al., 2005; Parker et al., 2002), younger age (Akiskal and Benazzi, 2005; Novick et al., 2005), less illness severity (Henkel et al., 2004), less suicidality (Horwath et al., 1992) as well as with anxiety (Parker et al., 2002) and bipolarity (Akiskal and Benazzi, 2005). But an equal number of studies are contrasting most of these assumptions and rather support the following: an equal illness severity as assessed by HAMD (Novick et al., 2005; Parker et al., 2002; Posternak and Zimmerman, 2002b), no significant differences concerning suicidal ideation (Angst et al., 2002; Novick et al., 2005; Parker et al., 2002; Posternak and Zimmerman, 2002b) and no significant association with gender (Henkel et al., 2004; Parker et al., 2002; Posternak and Zimmerman, 2002b), nor younger age (Parker et al., 2002; Posternak and Zimmerman, 2002b; Robertson et al., 1996) nor with bipolarity (Parker et al., 2002; Posternak and Zimmerman, 2002a; Robertson et al., 1996). Our results show a significant association with female gender but no difference in age, HAMD total score, suicidal ideation nor an association with bipolar illness and are therefore in line with the results of the so-called “North American Study” by Posternak (Posternak and Zimmerman, 2002a) as well as with the “Australian Study” by Parker (Parker et al., 2002; Parker et al., 2005).

We separately analysed bipolar-I and bipolar-II patients. From 127 patients meeting DSM-IV criteria for atypical depression, 3 (2.4%) patients suffered from bipolar I and 3 (2.4%) had bipolar II disorder. In contrast, 31 out of 701 Non-AD patients had BP-I (4.4%) and 27 (3.9%) had BP-II indicating no significant association. A limitation of the presented results concerning bipolar disorder could be seen in the relatively low prevalence of 7.8% of bipolar disorder. Dorz and coworkers found up to 19% in inpatient samples with MDE (Dorz et al., 2003), which might reflect the well known phenomenon of underdiagnosis of bipolar disorder. As shown by Gaeami and colleagues about 40% of bipolar patients admitted to hospitals originally have been misdiagnosed as unipolar depressive (Ghaemi et al., 1999). Secondly, the sample size of patients with BP-II might have been too small to detect any significant associations.

If atypical depression defines a specific subtype of depressive disorder, distinct symptoms of “typical” melancholic depression should be found to a lower degree. The HAMD-21 melancholic features which correspond inversely to atypical symptoms like “loss of appetite”, “loss of weight” and “early insomnia” were significantly associated with Non-AD. These results were expected and validate our methodology using AMDP criteria for defining atypical depression. In addition, HAMD item 13 “somatic symptoms”, including the item for heaviness in

legs, back or head corresponding clearly to leaden paralysis, appeared significantly more often in AD patients.

According to Parker, AD symptoms, like rejection sensitivity and leaden paralysis, may share a common phenomenological base within anxiety (Parker et al., 2005). If so, both HAMD-21 anxiety items should be significantly more often found in AD patients. However, item 10 “psychic anxiety” showed no association. But item 11 “somatic anxiety” was closely related to AD (OR=1.66; $p=0.026$). High levels of anxiety in patients with AD may also be interpreted as link to seasonal affective disorder (SAD). Patients with SAD often exhibit AD symptoms like increased duration of sleep, increased appetite, weight gain and carbohydrate craving. Furthermore symptoms like anxiety or irritability occur in patients with SAD in about 80% each (Magnusson and Partonen, 2005).

The HAMD item 2 “Guilt” showed strong relation with AD (OR=2.24; $p=0.003$) even more associated were items 19 “depersonalisation” (OR=2.85; $p<0.001$) and item 20 “paranoid symptoms” (OR=2.58; $p<0.001$). From a psychological point of view, the high association of guilt might partly be explainable as consequence of high rejection sensitivity. Both, Australian and American researchers have also reported significantly more feelings of guilt in patients with AD (Parker et al., 2002; Posternak and Zimmerman, 2002a). Symptoms like depersonalisation and derealisation and suspiciousness have seldom been under particular investigation in patients with AD. Suspiciousness up to paranoid phenomena are measured by the HAMD-21 in severity grades, starting with “suspicious” (scoring 1 for item 20) and going up to “paranoia” (scoring: 3). Thus, our dichotomisation procedure might be debatable since suspiciousness and paranoid symptoms are probably different phenomena. Due to the exploratory nature of our study we did not consider severity grades of symptoms. Our findings of depersonalisation and derealisation as well as guilt and suspicious ideas are well consistent with the concept of “anxiety neurosis” as proposed by Roth and colleagues in their clusteranalytical approach (Roth, 1990). Thus, our results might indicate a relationship of AD to neurotic disorders as found by Roth and colleagues (Roth et al., 1972). In addition “suspiciousness” may be strongly related to interpersonal sensitivity and rejection sensitivity, which are psychopathological dimensions that are definitional in atypical depression.

5. Conclusion

We conclude that AD may be more prevalent in psychiatric inpatient populations than expected, although

clearly less prevalent than in outpatients. We found no significant association between mood reactivity and at least two DSM-IV B criteria for atypical depression, questioning the hierarchical position of mood reactivity in DSM-IV. Somatic symptoms, genital symptoms, and somatic anxiety were significantly associated with AD in our sample, supporting the link of AD to anxiety and somatoform disorders, which was already part of earlier concepts. Symptoms like depersonalisation and suspiciousness also seem to be related to AD.

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Conflict of interest

All authors declare that they have no conflicts of interest.

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