

ORIGINAL PAPER

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Gender differences in the psychopathology of depressed inpatients

Received: 14 July 2003 / Accepted: 10 November 2003

Abstract In the last few years there has been increased scientific effort to describe the gender-specific psychopathological features of depression. Until now these studies have not been entirely conclusive, which could be the result of methodological difficulties. This report investigates sex differences in the symptom presentation in an inpatient population: 104 female and 113 male patients suffering from a depressive episode according to ICD-10 were admitted to the inpatient treatment at the Department of General Psychiatry in Vienna. A psychopathological rating according to the standardized documentation system of the AMDP (Association for Methodology and Documentation in Psychiatry) was performed at admission and discharge. At admission into the hospital women tended to show more affective lability ($p=0.025$), whereas men had higher scores in affective rigidity ($p=0.032$), blunted affect ($p=0.002$), decreased libido ($p=0.028$), hypochondriasis ($p=0.016$) and hypochondriac delusions ($p=0.039$). At discharge from the hospital women had significantly higher scores in dysphoria ($p=0.010$), while men were more prone to have compulsive impulses ($p=0.030$). Although our results were obtained in a selected sample of inpatients at a university hospital, they are indicative of psychopathological differences between men and women in the core symptoms of depression. These differences may influence diagnostic practice and gender specific treatment of depression.

Keywords gender differences · depressive symptoms · male depression · psychopathology · AMDP

Introduction

Epidemiological studies have consistently yielded differences in the lifetime prevalence of depression (Weissman and Klerman 1977; Kessler et al. 1994; Picinelli et al. 2000). It is widely accepted that the frequency of depressive disorder is about twice as high in females as in males in the general population. Biological, sociological and psychological explanations have been posited for these findings, but none of these explanations have been sufficiently supported by empirical data. However, it has been argued that these findings present an artifact and may be explained by differences in seeking professional help, different presentation of symptoms and different remembering of depressive episodes (Möller-Leimkühler 2002). It has also been proposed that diagnostic instruments meant to measure depressiveness are gender-biased due to a different quality of depressive symptoms between men and women (Young et al. 1990a; Wilhelm and Parker 1994; Weissman et al. 1997).

Up to now several studies have focused on differences in depressive symptomatology. It has been shown that the severity of depression seems to be fairly similar for men and women (Hammen and Padesky 1977; Williamson 1987; Frank et al. 1988; Steer et al. 1989; Maffeo et al. 1990; Young et al. 1990b). However, men tend to report fewer symptoms than women (Angst and Dobler-Mikola 1984; Mitchell and Abbott 1987; Young et al. 1990a; Ernst and Angst 1992), but there have been little or no differences in the quality of depressive symptoms (Frank et al. 1988; Steer et al. 1989; Maffeo et al. 1990; Young et al. 1990a; Fennig et al. 1993). Due to methodological limitations the results from these studies have been rather inconclusive, because mostly typical depressive symptoms have been examined. Atypical symptoms were not assessed, with the consequence that depression in males is probably underdiagnosed.

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The results of the suicide prevention program on the Swedish island of Gotland in the 1980s and follow-up studies in the 1990s by Rutz et al. (1995, 1999) shed new light on the hypothesis of a gender dimorphism in depressive disorder: In the 1970s Gotland had one of the highest suicide rates of Sweden. A systematic training of local doctors was able to lower the suicide rates in females, but it failed to reach the male patients, whose rates remained quite unaffected. Based on their research Rutz et al. have postulated a "male depressive syndrome" with sudden spells of anger, high irritability and lowered impulse control, so that depression is masked by these symptoms. Quite in line with these findings other authors have also reported that nonverbal hostility (Katz et al. 1993) and trait hostility (Fava et al. 1995) were more frequent in men.

The purpose of the present study was to investigate gender differences in the symptom presentation in a sample of inpatients suffering from depression. Secondly we wanted to examine a possible gender-specific association between severity of depression, duration of hospitalization and age with the psychopathological symptoms.

Materials and methods

The study sample consisted of 104 female and 113 male German-speaking patients suffering from (recurrent) major depressive disorder (296.2/3, F32/F33) according to the Diagnostic and Statistical Manual of Mental Disorders, 4th edition (DSM-IV) of the American Psychiatric Association (1994) and the International Classification of Diseases (ICD-10) of the World Health Organisation (1992). Patients were consecutively admitted to the inpatient treatment at the Department of General Psychiatry (University of Vienna) in the years 2000 to 2002. A psychopathological rating was performed by trained medical doctors with the help of the standardized documentation system of the AMDP (Association for Methodology and Documentation in Psychiatry) at admission and discharge. The AMDP system is based on traditional psychopathology and covers the entire range of psychopathological signs and symptoms (Bobon 1978; Sutter et al. 1978). It also contains a section on disturbances of sleep and appetite as well as a section on somatic (gastrointestinal, cardiac-respiratory, other autonomic and somatic disturbances) and neurological symptoms. Each item of the AMDP system can be quantified on a four-point scale (0: not present, 1: mild, 2: moderate, 3: severe). In Vienna 117 of 140 items were used: only some of the somatic symptoms (dry mouth, constipation, menstrual difficulties and conversion symptoms) were assessed.

Statistical analysis was carried out with SPSS for Windows, Release 11.0 (Copyright by SPSS Inc., 1989–2001) and with Microsoft Excel 2002 (Copyright by Microsoft Corporation 1985–2001). The Student's *t* test (*t*) for independent samples was used to test for gender differences in age, duration of hospitalization, AMDP total scores and AMDP symptom counts. The likelihood-ratio chi-square test (χ^2) was performed for differences in the severity of depression. The Mann-Whitney-U test (with the normal approximation *Z* derived from the test statistic *U*) was carried out to assess gender differences in the single AMDP items at admission into and discharge from the hospital. The Spearman Rank Correlation Coefficient (r_s) was calculated to correlate symptom scores with duration of hospitalization, age and severity of depression. Using the Fisher *r*-to-*Z* transformation, we calculated a value of *Z* that was applied to assess the significance of the difference between male and female correlation coefficients. The $p \leq 0.05$ level of significance was adopted. All statistical comparisons were two-tailed.

Results

Mean age of our patients was 50.3 ± 16.0 years, and no significant difference was observed between females ($f: 51.0 \pm 15.6$ years) and males ($m: 49.5 \pm 16.4$ years; $t = 0.686$, $df = 215$, $p = 0.494$). There were also no gender differences regarding the severity of depression as measured by the specifier of severity of the ICD-10/DSM-IV-diagnosis (frequency: mild: $f = 1$, $m = 4$; moderate: $f = 31$, $m = 41$; severe without psychosis: $f = 57$, $m = 49$; severe with psychotic features: $f = 15$, $m = 17$; $\chi^2 = 4.238$, $df = 3$, $p = 0.237$). The AMDP total scores at admission into ($f = 42.5 \pm 17.6$, $m = 46.0 \pm 19.8$; $t = -1.365$, $df = 215$, $p = 0.174$) and discharge from hospital ($f = 8.3 \pm 11.1$, $m = 10.1 \pm 12.5$; $t = -1.124$, $df = 215$, $p = 0.262$) did not differ significantly. Furthermore the AMDP symptom count at admission ($f = 23.5 \pm 8.5$, $m = 25.3 \pm 8.9$; $t = -1.559$, $df = 215$, $p = 0.121$) and discharge ($f = 7.0 \pm 7.4$, $m = 8.2 \pm 8.1$; $t = -1.134$, $df = 215$, $p = 0.258$) displayed no sex difference. The duration of hospitalization was not different for female (37.1 ± 28.1 days) and male patients (41.9 ± 34.5 days; $t = -1.126$, $df = 211$, $p = 0.261$).

At admission into hospital the mean scores in several psychopathological items differed between females and males (Fig. 1): Women displayed more affective lability than men ($f = 0.49 \pm 0.84$, $m = 0.27 \pm 0.68$; $Z = 2.245$, $p = 0.025$), whereas male patients obtained higher mean scores in affective rigidity ($f = 0.17 \pm 0.56$, $m = 0.39 \pm 0.83$; $Z = 2.143$, $p = 0.032$) and blunted affect ($f = 0.96 \pm 1.00$, $m = 1.43 \pm 1.07$; $Z = 3.169$, $p = 0.002$). Furthermore the scores of decreased libido ($f = 0.59 \pm 1.07$, $m = 0.88 \pm 1.09$; $Z = 2.199$, $p = 0.028$), hypochondriasis ($f = 0.17 \pm 0.54$, $m = 0.41 \pm 0.83$; $Z = 2.411$, $p = 0.016$) and hypochondriac delusions ($f = 0.01 \pm 0.10$, $m = 0.11 \pm 0.46$; $Z = 2.063$, $p = 0.039$) were significantly higher in males.

At discharge from the hospital (Fig. 2) our female patients had higher scores in dysphoria ($f = 0.12 \pm 0.32$, $m = 0.02 \pm 0.14$; $Z = 2.564$, $p = 0.010$), while men were more prone to have compulsive impulses ($f = 0.00 \pm 0.00$, $m = 0.06 \pm 0.28$; $Z = 2.164$, $p = 0.030$).

The correlation analysis of the psychopathological ratings at admission with duration of hospitalization, age and severity of depression yielded the following results (Table 1): Duration of hospitalization was positively correlated with circumstantial thinking ($Z = -2.361$, $p = 0.018$), perseverations ($Z = -2.405$, $p = 0.016$), flight of ideas ($Z = -2.136$, $p = 0.033$), phobias ($Z = -2.253$, $p = 0.024$) and feeling of loss of feeling ($Z = -2.217$, $p = 0.027$) in males but not in females. Secondly, age was positively associated with circumstantial thinking ($Z = -2.700$, $p = 0.007$) and pressured thinking ($Z = -2.419$, $p = 0.016$) in males whereas there was no significant linear interaction in female patients. Furthermore only male patients displayed a positive association between self-mutilation and severity of depression ($Z = -1.964$, $p = 0.050$). Mutism was negatively correlated

Fig. 1 Gender differences in symptoms at admission into the hospital. Shown are the mean scores in symptoms for 104 female and 113 male inpatients suffering from a depressive episode. The Mann-Whitney-U test was carried out to test for differences between the sample means (* $p \leq 0.05$; ** $p < 0.01$)

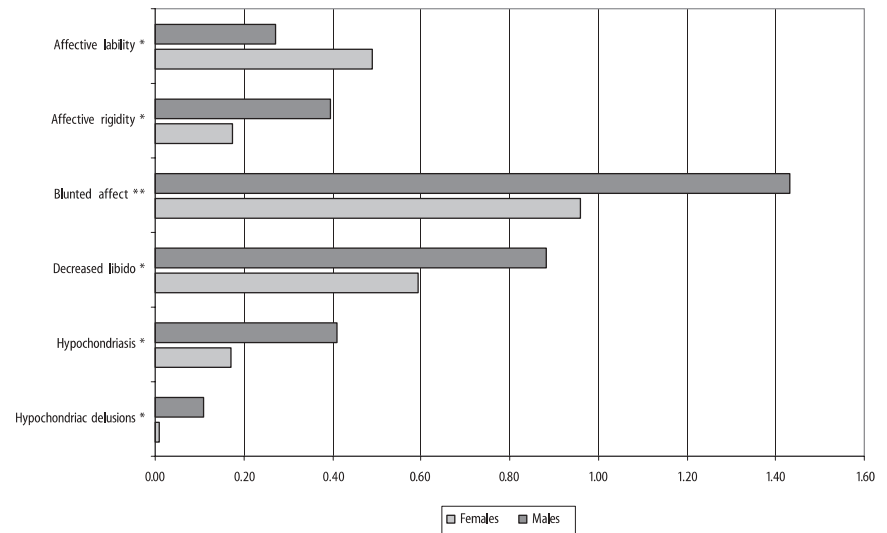


Fig. 2 Gender differences in symptoms at discharge from the hospital. Shown are the mean scores in symptoms for 104 female and 113 male inpatients suffering from a depressive episode. The Mann-Whitney-U test was carried out to test for differences between the sample means (* $p \leq 0.05$; no compulsive impulses were found in our sample of female patients at discharge)

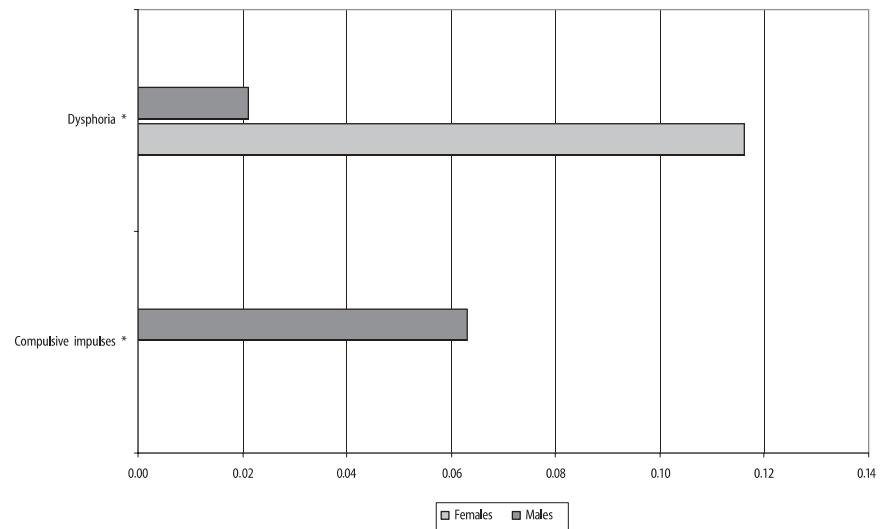


Table 1 Gender differences in correlation of symptoms with duration of hospitalization, age and severity of illness for 104 female (f) and 113 male (m) inpatients suffering from a depressive episode. Rating performed at admission into the hospital. Shown are the mean AMDP symptom scores (μ) and the standard deviation (σ) at admission, furthermore the Spearman Rank Correlation Coefficients (r_s) and their corresponding p-values. Z is the value derived to assess the significance of the difference (p) between r_s (f) and r_s (m). Only AMDP items with $p \leq 0.05$ in correlation between females and males are presented

Rating at admission	$\mu \pm \sigma$	r_s (f)	p (f)	r_s (m)	p (m)	Z	p
Circumstantial Thinking – Duration of hospitalization	0.58 ± 0.86	-0.076	0.468	0.269	0.006	-2.361	0.018
Perseverations – Duration of hospitalization	0.39 ± 0.77	-0.056	0.589	0.290	0.003	-2.405	0.016
Flight of ideas – Duration of hospitalization	0.06 ± 0.31	-0.119	0.252	0.197	0.047	-2.136	0.033
Phobias – Duration of hospitalization	0.22 ± 0.64	0.003	0.976	0.320	0.001	-2.253	0.024
Feeling of loss of feeling – Duration of hospitalization	1.00 ± 1.09	0.054	0.603	0.365	0.000	-2.217	0.027
Circumstantial Thinking – Age	0.58 ± 0.86	-0.098	0.345	0.292	0.002	-2.700	0.007
Pressured Thinking – Age	0.21 ± 0.62	-0.108	0.296	0.243	0.012	-2.419	0.016
Self-mutilation – Severity of depression	0.15 ± 0.57	-0.025	0.805	0.256	0.008	-1.964	0.050
Mutism – Age	0.10 ± 0.35	-0.244	0.014	0.056	0.564	-2.110	0.035

with age in female but not in male patients ($Z = -2.110$, $p = 0.035$).

When performing a correlation analysis with the AMDP scores at discharge (Table 2) we found a positive

gender-specific association of inhibited thinking ($Z = -2.867$, $p = 0.004$) and compulsive actions ($Z = -2.379$, $p = 0.017$) with duration of hospitalization in males. In addition severity of depression was posi-

Table 2 Gender differences in correlation of symptoms with duration of hospitalization, age and severity of illness for 104 female (f) and 113 male (m) inpatients suffering from a depressive episode. Rating performed at discharge from the hospital. Shown are the mean AMDP symptom scores (μ) and the standard deviation (σ) at discharge, furthermore the Spearman Rank Correlation Coefficients (r_s) and their corresponding p-values. Z is the value derived to assess the significance of the difference (p) between $r_s(f)$ and $r_s(m)$. Only AMDP items with $p \leq 0.05$ in correlation between females and males are presented

Rating at discharge	$\mu \pm \sigma$	$r_s(f)$	p (f)	$r_s(m)$	p (m)	Z	p
Inhibited Thinking – Duration of hospitalization	0.14 \pm 0.41	–0.222	0.040	0.217	0.034	–2.867	0.004
Compulsive actions – Duration of hospitalization	0.04 \pm 0.22	–0.111	0.307	0.255	0.014	–2.379	0.017
Delusional dynamics – Severity of depression	0.03 \pm 0.19	–0.138	0.200	0.286	0.005	–2.803	0.005
Feelings of impoverishment – Severity of depression	0.03 \pm 0.27	–0.106	0.330	0.212	0.041	–2.056	0.040
Pressured Thinking – Age	0.05 \pm 0.31	–0.213	0.049	0.154	0.131	–2.399	0.016

tively correlated with delusional dynamics ($Z = -2.803$, $p = 0.005$) and feelings of impoverishment ($Z = -2.056$, $p = 0.040$) specifically in men. Women displayed a negative correlation of pressured thinking at discharge with age, while there was no statistically significant interaction in men ($Z = -2.399$, $p = 0.016$).

We examined gender differences in the correlation of change in AMDP items during hospitalization with duration of hospitalization, age and severity of depression (Table 3): in male patients the duration of hospitalization was negatively correlated with the change in blunted affect ($Z = 2.169$, $p = 0.030$) and lack of drive ($Z = 2.433$, $p = 0.015$) whereas there was no significant correlation in women (i. e. longer hospitalization was associated with less change in these symptoms in men but not in women). The change in affective rigidity was positively correlated with age ($Z = -2.112$, $p = 0.035$) in male but not in female patients (i. e. older men had a significantly greater change in affective rigidity than younger men).

Discussion

Our results suggest that there are gender-differences in the core symptoms of depression, whereas the severity of illness estimated by several measures (specifier of severity, AMDP total scores, AMDP symptom count, duration of hospitalization) was equal for both sexes.

Men and women seem to differ in their manifestations of depressive affect. In part this is consistent with previous research: Hammen and Padesky (1977) found that, in measuring depressiveness by the Beck Depression inventory (Beck et al. 1961), crying was more prevalent in women than in men. Other studies in normal and

patient populations have also found that females tend to weep more often and with more intensity than males and that crying as a coping mechanism is more often used by females (Lombardo et al. 1983; Riessman and Gerstel 1989; Carroll and Shaefer 1994; Williams and Morris 1996). Our finding of higher affective lability in female patients and higher affective rigidity/blunted affect in males seems to be closely related to gender-bound role behavior in expressing sadness, a matter which has also been discussed by Möller-Leimkühler (2002).

Community surveys have shown that women report less interest in sexual activities and are less satisfied with their sexual life than men (e. g. Sievers et al. 1974; Murstein and Tuerkheimer 1998; Salokangas et al. 2002). Baldwin and Baldwin (1997) have proposed a model to explain how the interaction of different biological and social factors tilt males and females in different directions related to sexual interest. However, the knowledge of gender differences in regard to loss of libido as a symptom of depression is scarce in the available scientific literature. In our sample male patients experienced a more pronounced decrease in libido than females. It could well be that a reduction in sex drive in depressed men is often more noticeable because of higher libido in non-depressed states. Furthermore sexual functioning is more closely connected to self-esteem in men and thus even slight impairment due to depression is perceived as extremely disquieting.

Hypochondriacal features are quite prevalent in the general population (Rief et al. 2001) and can be a symptom of various psychiatric disorders including depression (Kenyon 1976). There are some reports dealing with hypochondriacal concerns in patient and normal samples (e. g. Hernandez and Kellner 1992; Ewald et al. 1994;

Table 3 Gender differences in correlation of change in symptoms with duration of hospitalization, age and severity of illness for 104 female (f) and 113 male (m) inpatients suffering from a depressive episode. The change in symptoms is defined as the difference between the score at discharge and that at admission. Shown are the mean scores of change in AMDP items (μ) and the standard deviation (σ), furthermore the Spearman Rank Correlation Coefficients (r_s) and their corresponding p-values. Z is the value derived to assess the significance of the difference (p) between $r_s(f)$ and $r_s(m)$. Only AMDP items with $p \leq 0.05$ in correlation between females and males are presented

Change in symptoms	$\mu \pm \sigma$	$r_s(f)$	p(f)	$r_s(m)$	p(m)	Z	p
Blunted affect – Duration of hospitalization	–0.82 \pm 1.05	–0.021	0.836	–0.320	0.001	2.169	0.030
Lack of drive – Duration of hospitalization	–1.25 \pm 1.04	0.039	0.697	–0.300	0.001	2.433	0.015
Affective rigidity – Age	–0.22 \pm 0.71	–0.108	0.277	0.189	0.045	–2.112	0.035

Rief et al. 2001), but these studies have only found small or no gender differences at all, whereas our results of marked gender differences in hypochondriasis and hypochondriac delusions are not in line with these findings.

Based on our findings we have no support for the hypothesis of a male depressive syndrome (Rutz et al. 1995; Rutz 1999) with predominant symptoms such as irritability or dysphoria. Interestingly females even exceeded male patients in scores of dysphoria at discharge from the hospital. This symptom seems to respond to treatment somewhat better in men, which could also be true for the lower scores in compulsive impulses in female patients at discharge, because AMDP scores for these items were not significantly different at admission. However, the AMDP system could lack sensitivity for the detection of a hypothetical male depressive syndrome with aggressive behavior. Furthermore our sample is highly selected and male patients with the atypical anger-driven depression (van Praag 1996) have probably not been diagnosed as suffering from depression by doctors in primary care and thus were not referred to an inpatient treatment. In addition men have a lower help-seeking behavior than women and rarely visit a doctor for psychological problems (Möller-Leimkühler 2002), which could also have influenced our results.

Our analysis of a linear association between the AMDP items on one hand and age, severity of illness and duration of hospitalization on the other showed gender-specific differences in several points (Tables 1–3). First, it is remarkable that some psychopathological symptoms displayed a positive correlation with the duration of treatment in hospital in men but not in women, thus acting as predictors for a long stay. Especially a high score of the item “feeling of loss of feeling” at admission and formal disorders of thought such as circumstantial thinking and perseverations, symptoms which were quite prevalent in our sample, seem to be important in that context, while other symptoms, such as flight of ideas, were encountered rather infrequently, thus being clinically rather insignificant. Second, some of the AMDP scores at discharge from the hospital (delusional dynamics and feelings of impoverishment) were found to be gender-specifically associated with the severity of depression in men. In addition male patients with high scores of inhibited thinking and compulsive actions at discharge were longer treated as inpatients compared to men with low scores, while female patients did not show such an association. Third, male but not female patients with a longer duration of hospitalization had a lower change in blunted affect and lack of drive. Interestingly, in male patients (but not in females) older age predicted a higher change in affective rigidity. From these results we are inclined to assume that there are some differences, not only in the psychopathology of male and female patients, but also in the response of several symptoms to treatment, in the prognostic role of some psychopathologic items and in the role of age in the manifestation and change of symptoms under therapy.

As for the limitations of our study we have to keep in mind that the sample under consideration is highly selected and inferences drawn to depressed patients in general have to be done with caution. This survey has identified gender differences in the symptom presentation of depression in a sample of mostly treatment refractory inpatients of a university hospital. Nevertheless, the subject of generalization of our findings deserves considerable attention. One of the drawbacks of many of the previous studies was that only a narrow scope of psychopathological symptoms was assessed. Future studies could therefore engage in replication of our results in less selected samples (e.g. depressed patients in primary care). It could be anticipated that what becomes known about the different manifestations of depression in men and women will contribute to develop gender-specific diagnostic tools and probably individual regimens of antidepressant therapy in order to improve the recognition and treatment of depressive disorder.

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