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Research report

Gender differences in major depressive disorder: Results from the Netherlands study of depression and anxiety

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ABSTRACT

Background: Although an overall gender difference in prevalence of major depressive disorder (MDD) has been well established, several questions concerning gender differences in the clinical manifestation of depression remain. This study aims to identify gender differences in psychopathology, treatment, and public health consequences in patients with MDD.
Methods: Baseline data from the Netherlands Study of Depression and Anxiety (NESDA) were used, including 1115 participants (364 men, 751 women, mean age 41 years) with a DSM-IV diagnosis of current MDD. Characteristics studied included symptom profiles, comorbidity, treatment, and public health consequences.
Results: Women reported a younger age of onset of single (27.8 years vs. 31.6 years; $p=0.001$) and recurrent MDD (24.8 years vs. 27.6 years; $p=0.014$), a higher comorbidity of panic disorder with agoraphobia (24.9% vs. 17.3%; $p=0.006$) and life-time overall anxiety disorder (77.6% vs. 71.4%; $p=0.029$) than men. More men than women suffered from comorbid alcohol dependence or abuse (48.1% vs. 24.5%; $p<0.001$). An increased prevalence of atypical depression in women (24.6% vs. 17.3%; $p=0.009$) was found. Women were treated more frequently by an alternative caretaker (20.6% vs. 14.8%; $p=0.025$), men more often in mental health care organizations (61.0% vs. 53.7%; $p=0.025$). No gender differences in frequency of medication use or counseling were found.
Limitations: Cross sectional design.
Conclusions: Main gender differences in the clinical presentation of MDD concerned a younger age of onset, higher anxiety and lower alcohol use comorbidity and higher prevalence of atypical depression in women. These differences were accompanied by differences in health care use.

1. Introduction

Gender affects many aspects of psychopathology, such as prevalence of specific disorders, the expression of symptoms, the course of illness, help-seeking behavior, and response to treatment (Afifi, 2007). A gender difference in prevalence of Major Depressive Disorder (MDD) with twice as much women as men having a life time diagnosis of MDD, is well established in both community and clinical samples (Kessler et al., 1993; Kuehner, 2003). This difference has led to questions concerning gender effects on the clinical manifestation of depression. Previous reports using clinical and epidemiologic samples showed inconsistent findings. A few studies reported female preponderance in prevalence of atypical (Angst et al., 2002b; Lamers et al., 2010), anxiety (Clayton et al., 1991) and somatic (Silverstein, 2002) symptoms. However, in other studies no major differences between men and women in presentation of symptoms of MDD were found (Vedel Kessing, 2005; Carter et al., 2000). It thus remains unclear whether depressive symptoms differ systematically between men and women.

Regarding comorbidity, there are also some indications for gender differences. The STAR*D study reported that women with MDD showed significantly higher rates of comorbid generalized anxiety disorder, bulimia and somatization disorder, while men were more often afflicted with comorbid substance use disorder (Marcus et al., 2005, 2008). In the Netherlands Mental Health Survey and Incidence Study, significantly more women than men showed a 12-month prevalence of comorbid mood and anxiety disorder (de Graaf et al., 2002). Gender differences in the pattern

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of depressive symptoms and comorbidity may be relevant because these patterns have been associated with differences in severity, course and health consequences of MDD. For example, atypical symptoms (increased appetite, increased weight, hypersomnia, leaden paralysis, mood reactivity and interpersonal sensitivity) which appear to be more prevalent in women, have been associated with lower age of depression onset, longer episode duration, increased axis I comorbidity, higher suicide risk, and greater functional impairment (Agosti and Stewart, 2001; Matza et al., 2003; Posternak and Zimmerman, 2002). Furthermore, MDD patients diagnosed with comorbid anxiety have poorer outcomes as compared to those with either an anxiety or depressive disorder alone (Kessler et al., 1999; Wittchen and Essau, 1993).

Unfortunately, most clinical studies concerning gender differences in the clinical manifestation of MDD often used relatively small, single-site samples. The Netherlands Study of Depression and Anxiety (NESDA) offers the opportunity to examine gender differences in clinical presentation of depression in a large sample of subjects diagnosed with MDD. Some gender differences in the NESDA sample have been reported previously in the context of specific research questions (Boschloo et al., 2011; Lamers et al., 2010, 2011). In the present study, a broader array of gender differences is systematically described and analyzed. The aim of this study was to identify gender differences in *psychopathology* (symptom profile, severity and comorbidity), *treatment* (received form, medication use), and *public health consequences* (work productivity, health care use) in subjects diagnosed with MDD.

2. Methods

2.1. Procedure and sample

Data were derived from the baseline measurement of NESDA. NESDA was designed to describe the long-term course and consequences of depressive and anxiety disorders. NESDA is a multi-site longitudinal cohort study among 2981 subjects, aged between 18 to 65 years and recruited from the community ($n=564$, 19%), primary care ($n=1610$, 54%) and mental health organizations ($n=807$, 27%), in order to represent various settings and stages of psychopathology. Two exclusion criteria were used: (1) a primary clinical diagnosis of psychotic disorder, obsessive compulsive disorder, bipolar disorder, or severe addiction disorder, and (2) not being fluent in Dutch. Recruitment took place from September 2004 through February 2007. The NESDA cohort consists of subjects diagnosed with a current (6-month recency) first or recurrent depressive and/or anxiety disorder, subjects with remitted depressive and/or anxiety disorder, persons at risk because of subtreshold symptoms or family history, and healthy controls. The rationale and design of NESDA have been described in detail elsewhere (Penninx et al., 2008). The research protocol was approved by the Ethical Committee of participating universities and all participants provided written informed consent after full verbal and written information about the study. For the present study, all subjects with current MDD (6-month recency) were included ($n=1115$). The study sample comprised 86 participants recruited from the community, 412 participants from primary care and 617 subjects recruited from mental health organizations.

2.2. Measures

2.2.1. Demographic characteristics

Sociodemographic variables included age, nationality, level of education, partner status, household income and employment status.

2.2.2. Psychopathology

The Composite Interview Diagnostic Instrument (CIDI) – lifetime version 2.1. conducted by specially trained clinical research staff was used to establish MDD as well as comorbid dysthymia, anxiety disorders and alcohol abuse and dependency according to DSM-IV-TR criteria. CIDI, version 2.1 is a reliable and valid instrument for assessing psychopathology (Wittchen, 1994). Hierarchy free diagnoses were made to allow examination of comorbidity (de Graaf et al., 2002). The anxiety disorders included in NESDA were generalized anxiety disorder, social phobia, agoraphobia without panic disorder, and panic disorder with/without agoraphobia. The least prevalent anxiety disorders, i.e. post traumatic stress syndrome and obsessive compulsive disorder were not assessed. The life-time CIDI also allows for the determination of the number of MDD episodes and age of onset of MDD (Eaton et al., 1997).

The Inventory of Depressive Symptomatology – self report (IDS-SR30) scores at item level were used to assess symptom profile. This 30-item questionnaire is developed to measure the severity of depressive symptoms and uses a 7-day timeframe (Rush et al., 1986; Rush et al., 1996). The items are rated on a four-point Likert scale ranging from zero to three. The obtained total score ranges from 0 to 84 and can be categorized according to severity: 0–13, normal; 14–25, mild depression; 26–38, moderate depression; 39–48, severe depression and 49–84, very severe depression. The psychometric properties are satisfactory (Rush et al., 1996; Trivedi et al., 2004). IDS-SR30 assesses the DSM-IV core criterion diagnostic symptoms and associated symptoms of depression (e.g. anxiety, irritability) and symptoms needed to determine the presence of atypical and melancholic features. For this purpose an algorithm was used, defining atypical features as having mood reactivity and two or more of the following symptoms: hyperphagia, hypersomnia, leaden paralysis and interpersonal rejection sensitivity (Novick et al., 2005). The algorithm used to define the melancholic subtype is based on DSM-IV criteria, lacking mood reactivity and loss of pleasure in (almost) all activities, in addition to reporting three or more of the following symptoms: distinct quality of depressed mood, mood is worse in the morning, early morning wakening, psychomotor retardation or agitation, significant anorexia or weight loss and excessive or inappropriate guilt (Khan et al., 2006).

The Beck Scale for Suicide Ideation (SII) is a 19-item, clinical rating scale, conducted as a semi structured interview and designed to assess severity of suicidal ideation during the past week (Beck et al., 1979). The first five items of the SSI are used as a screening instrument and were included in this study. A positive score on one of the five items meant that a respondent was categorized in the NESDA study as a potential suicidal ideator.

A sixth item was used to assess suicide attempt and is operationalised by asking: “Have you ever made a serious attempt to end your life, for instance by harming or poisoning yourself or by getting into an accident?”

2.2.3. Treatment

To establish whether treatment consisted of pharmacotherapy or psychotherapy the Perceived Need for Care Questionnaire (PNCQ) was used. Psychotherapy/counseling was defined as conversations about causes of and dealing with emotional problems. Regarding pharmacotherapy respondents were asked whether they received medication for their mental problems during their contacts with health care professionals. Feasibility, reliability, and validity of the PNCQ are acceptable for epidemiological and health services research (Meadows et al., 2000). Current medication use was established by drug container observation.