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Original article

How to early recognize mood disorders in primary care: A nationwide, population-based, cohort study

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ABSTRACT

Background: Mood disorders are managed predominantly in primary care. However, general practitioners' (GPs) ability to detect and diagnose patients with mood disorders is still considered unsatisfactory. The aim of the present study was to identify predictors for the early recognition of depressive disorder (DD) and bipolar disorder (BD) in general practice.
Methods: A cohort of 1,144,622 patients (605,285 women, 539,337 men) was investigated, using the Health Search IMS Health Longitudinal Patient Database. Predictors of DD or BD were identified at baseline encompassing somatization-related features, lifestyle variables, medical and psychiatric comorbidities. Patients were followed up as long as the following events occurred: diagnoses of DD or BD, death, end of the registration with the GP, end of the study period.
Results: We found an incidence rate of DD or BD of 53.61 and 1.5 per 10,000 person-years, respectively. For both the conditions, the incidence rate grew with age. Most of the lifestyle variables and medical comorbidities increased the risk of mood disorders. The strongest effect was found for migraine/headache (HR [95% CI] = 1.32 [1.26–1.38]), fatigue (1.32 [1.25–1.39]) irritable bowel syndrome (1.15 [1.08-1.23]), and pelvic inflammation disease (1.28 [1.18–1.38]).
Conclusions: Several predictors, in particular somatic symptoms, could be interpreted as an early sign of a mood disorder, and represent a valid indication for the GPs diagnostic process of mental disorders.

1. Abbreviations

DD	depressive disorder
BD	bipolar disorder
GPs	general practitioners
DSM	Diagnostic and Statistical Manual of mental disorders
ICD	International Classification Disease
LPD	Longitudinal patient database
SIMG	Italian College of General Practitioners
ISTAT	Italian National Statistical Institute
ESEMeD	European Study of the Epidemiology of Mental Disorders

2. Introduction

Mood disorders are the most prevalent, disabling, and costly mental disorders worldwide. They include depressive disorder (DD) and bipolar disorder (BD), with a 6.9% [1,2] and 1% [3] yearly prevalence, respectively. They account for more than 30% of the total costs of all mental disorders which is mostly due to social and occupational difficulties, as well as suicide attempts [1–3] psychiatric and medical comorbidities [4].

Mood disorders are managed predominantly in primary care, with general practitioners (GPs) providing the initial clinical

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contact and following most of the clinical course [5]. Primary care is considered to be more accessible, less stigmatizing, and more comprehensive as compared to specialized care [6]. General practitioners have therefore a key role in facilitating diagnosis, accessing specialist care, and providing continuing monitoring and support [4]. However, GPs' ability to detect and diagnose patients with mood disorders is still considered unsatisfactory. It has been reported that 30–70% of GPs' patients with mental disorders go undetected [7], and that the delay in diagnosis leads to a more severe or chronic form of depression and poorer outcomes for the patient [8].

So far, the information regarding factors that enable or hinder GPs' diagnosis of mental disorders are still scarce. The delay in receiving care was attributed to insight and motivation issues. For example, a consistent rate (almost 50%) of bipolar patients do not seek help, and in most of the cases, they are misdiagnosed and do not receive an adequate pharmacological treatment [3,4].

A controversial role in the delayed diagnostic process has been attributed to somatic symptoms. Many patients with depression initially present with painful physical symptoms (e.g., headache, musculoskeletal pain) [9,10], with reported co-occurrence rates of 30%–50% [9,11]. Conversely, affective disturbances involving alterations of mood, anxiety and irritability may be early symptoms of medical illnesses [12].

Some authors reported that painful symptoms might negatively affect the recognition of depression in primary care and represent a possible reason for poor detection or misdiagnosis of mood disorders [10]. The reason could be that GPs often fail to look for symptoms of depression in patients presenting with pain. Accordingly, it has been estimated that about half of all patients with depression may go undiagnosed because they present with somatic or physical symptoms, which are misinterpreted [13]. Furthermore, it is important to note that medical conditions represent significant predisposing factors for development of mood disorders [14] and about 50%–80% of patients with depression initially have somatic symptoms [15]. There is some evidence that concurrent pain and depression are associated with increased use of health care resources and costs compared with either condition alone [16].

2.1. Aims of the study

Few data are available regarding the incidence rates and early recognition of mood disorders in primary care. We therefore performed a study in attempt to estimate the incidence rates and identify predictors of mood disorders in general practice.

3. Materials and methods

3.1. Data source

We used the Health Search (HS) IMS Health Longitudinal Patient Database (LPD), which was set up by the Italian College of General Practitioners and Primary Care in 1998. It is the Italian largest computerized database of electronic medical records of patients in primary care. The database was build up from a network of 1000 GPs homogeneously distributed across Italy, who agreed to provide information in an electronic database referring to almost one-and-a-half million of patients. Each GP undergoes formal training for data entry and uses standard software to record data. A patient's encrypted identifier links demographic and prescription information, clinical events and diagnoses, laboratory data, specialist referrals, hospital admissions, and date of death. The diagnosis of certain diseases, such as DD and BD, which need a specialist's consultation, are expectedly coded by GPs whether confirmed by a specialist's referral.

Within this general practice population, 700 GPs were selected on the basis of the accuracy (completeness and consistency) of the information registered in order to perform epidemiological studies. It has been demonstrated that HS IMS Health LPD is representative of the Italian population after comparison with data from the Italian National Statistical Institute (ISTAT), where no significant difference was observed in terms of demographics (i.e., age and sex distributions; www.healthsearch.it, last accessed October 2014). The role of GPs in Italy should allow inferential hypotheses on the psychiatric population, as they generally act as gatekeepers to psychiatric services, even though patient's self-referral to private specialty services is also possible.

HS IMS Health LPD has been extensively used in previously published epidemiological studies that confirmed its research validity [17–19].

3.2. Study population

A cohort of patients (aged 18 years or older) attending the selected GPs was enrolled between January, 1, 2002 and June, 30, 2012. The index date was the first contact with the GP in the enrolment period. To be eligible, patients required to have at least one year of medical history prior to or on the index date. Exclusion criteria were subjects diagnosed with DD or BD preceding the index date. They were followed up as long as the following events occurred whichever came first: diagnoses of DD (event date) or BD (event date), death, end of the registration with the GP, end of the study period (June, 30, 2013).

3.3. Event definition

The event under study was the first diagnosis of DD – including ICD9CM diagnoses of DD, major depression single or recurrent episode (ICD9 codes: 311, 296.2, 296.3) – or BD (referred to both type I and II) – including ICD9CM diagnoses of manic disorder, single (ICD9 code: 296.0) or recurrent episode (ICD9 code: 296.1), bipolar affective disorder manic (ICD9 code: 296.4) or depressed bipolar affective disorder (ICD9 code: 296.5), mixed bipolar disorder (ICD9 code: 296.6), and unspecified bipolar disorder (ICD9 code: 296.7) -.

3.4. Predictors of mood disorders

Potential predictors of DD and BD were identified prior or on the index date. They included age and sex, along with somatization and lifestyle variables, medical and psychiatric comorbidities.

Somatization variables included somatic conditions, such as weight loss, joint pain, dizziness, migraine/headache, back pain, neck pain, amnesic syndrome, fatigue, psychalgia (i.e., chronic pain without a medical reason), irritable bowel syndrome, constipation, abdominal pain, pelvic inflammatory disease.

Lifestyle variables included smoking, alcohol abuse and related diseases, and obesity (body mass index higher ≥ 30 kg/m^2). For these variables, we adopted the last measurement recorded prior to or on the index date.

Medical comorbidities included congestive heart failure, ischemic heart disease, peripheral vascular disease, chronic respiratory disease, rheumatic diseases, peptic ulcer disease, mild liver disease, severe liver disease, diabetes with and without complications, hemiplegia or paraplegia, kidney disease (also referred to isolated proteinuria or hematuria; or proteinuria $>$ 200 mg/24 hours or $>$ 150 mg/L, the last measurement prior or on the index date); albuminuria or microalbuminuria ($\geq$ 30 mg/24 hours or $\geq$ 3 mg/mmol, the last measurement prior or on the index date); any value of GFR $<$ 60 mL/min/1.73 m^2 (last measurement prior or on the index date), dialysis and/or kidney