Incidence, patient characteristics and treatment initiated for GP-diagnosed depression in general practice: results of a 1-year nationwide surveillance study

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Background. Despite its public health significance, data about depression in general practice are often unavailable.

Objective. To study (i) the incidence of GP-diagnosed depression during 2008, (ii) associations between patient characteristics, appraised severity and initiated treatment, (iii) GPs’ usual care compared to diagnostic criteria from Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition guidelines and the newly developed practice guideline of the Society of Flemish GPs (2008) and (iv) GPs’ initiated treatments compared to the Flemish Guideline.

Methods. General practice-based data were collected on all patients of >18 years who were diagnosed by their GP with a new episode of depression in Belgian sentinel general practices (SGP) during 2008.

Results. Data on 1739 persons were recorded by 172 sentinel general practices. Incidence rates for GP-diagnosed depression were estimated at 719/100 000 men and 1440/100 000 women. Thirty-one per cent of patients had mild, 50% had moderate and 18% had severe GP-diagnosed depression. Although only 43% of the patients at risk for suicide were considered to have severe depression, having thoughts of death or suicide was the main factor associated with increased severity of depression. Seventy-five per cent of patients received a prescription for an antidepressive agent; 29% received a prescription for another psychoactive agent; in 36%, non-pharmaceutical support was initiated by the GP and 25% received a referral. In contrast with the Flemish GP guideline criteria: (i) 69% of patients with a new episode of mild or a first episode of moderate depression were prescribed an antidepressive agent and (ii) only 39% of the patients with severe depression were both prescribed an antidepressive agent and referred to a mental health service.

Conclusions. This study has yielded original data on the incidence and management of depression in Belgian general practice. Our findings show that efforts are needed to improve depression management in Belgian general practice.

Keywords. Depression, mental health, public health.

Introduction

Estimates of the 1-year prevalence of major depression in the general population in Belgium fall within the European range of 4–10%.1 As in other countries, these data are troubling to caregivers and health policymakers in Belgium. It is well known that most mental health care is delivered in primary care settings; in Belgium, 77% of people with a mental disorder who were seeking health care consulted a GP.2 Depression is a key risk factor for suicide, and an improvement of depression recognition and suicide risk evaluation by GPs has been found to be an important component of suicide prevention.3,4 The burden of depression in Belgian primary mental health care includes the increasing use of psychoactive agents, lack of collaboration
between mental health services, limited access for vulnerable and deprived persons and suboptimal clinical competencies. Despite its public health significance, data about the incidence, management and follow-up of GP-diagnosed depression are lacking on a nationwide and an international scale.

This paper reports on the surveillance of GP-diagnosed depression by the Belgian Network of sentinel general practices (SGP). Developed >30 years ago on the model of similar European Sentinel Networks, the Belgian SGP has proven to be a reliable surveillance system for a wide range of health-related data, especially for infectious diseases. In this article, we specifically report the incidence of GP-diagnosed depression, characteristics of patients considered depressed, treatments initiated and baseline compliance with diagnostic and therapeutic criteria from the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV) and the practice guideline developed by the Society of Flemish GPs (2008). Half-year follow-up findings on treatment continuation, depression status and actual treatment delivered are reported in a second article in this issue.

Notwithstanding the knowledge gaps about depression in general practice, its high public health significance and clear signs of interest from the sentinel GPs, we initially had doubts about the feasibility of surveillance. Indeed, the absence of a gold standard for the diagnosis of depression in general practice implied that we would not know how GPs diagnosed depression and appraised its severity. We agreed not to impose the sentinel GPs with the use of a diagnostic instrument, as this is not a common clinical practice. A final push towards surveillance came from the draft guideline on depression management by the Society of Flemish GPs and from several international publications, mostly peer-reviewed, on the epidemiology, patient characteristics and clinical management of GP-diagnosed depression. These studies and the draft guideline provided the conceptual framework for both a pilot study and the present study. The aforementioned studies were conducted both in samples and networks of GPs by using patient data extracted from electronic health records or by using purposively designed registration forms such as used in the SGP. The Flemish GP guideline is based on a biopsychosocial model, and it relies broadly on criteria of the DSM-IV. As in other general practice guidelines, the nine DSM-IV symptoms of depression are considered to be a diagnostic trigger (Box 1). The DSM-IV diagnosis of minor depression is labelled mild, whereas major depression is split into moderate and severe depression. Because this guideline was published halfway through the study and disseminated only in the Flemish region, we used the criteria merely to provide baseline data for future monitoring of depression management.

We aimed to study the prevalence of the two main DSM-IV criteria of major depression, i.e. the prevalence of (i) at least one of the two core symptoms (‘two core symptoms criterion’) and (ii) at least five symptoms, including one or two core symptoms (‘five symptoms criterion’). We included those key clinical features of patient’s medical history that are known risk factors of depression.

The clinical diagnosis of depression in primary care covers a wide range of problems in a heterogeneous and relatively healthy population, in contrast to its diagnosis in secondary and tertiary care. We thus hypothesized that a minority of patients would be diagnosed with severe depression. We expected to find associations between DSM-IV symptoms and other key clinical patient features and depression severity, throwing light on GPs’ diagnostic management. We also examined the Flemish GP diagnostic criterion, which states that an episode of depression should be considered to be severe if suicidal risk is present, i.e. in case of a previous suicide attempt or thoughts of death or suicide.

Concerning the treatment of depression, we used three quality criteria based on severity. Firstly, for mild depression, watchful waiting is considered to be the appropriate management approach. Secondly, patients with moderate depression should be referred to a mental health caregiver or should receive non-pharmacological support from the GP, while antidepressive agents should be prescribed only in case of relapse. Thirdly, patients with severe depression should be referred to a mental...
health caregiver and also prescribed an antidepressive agent. These criteria are comparable to international evidence-based and widely accepted guidelines.28,29

Therefore, this article addresses (i) the incidence of GP-diagnosed depression in the Belgian population during 2008, (ii) the prevalence of patient characteristics (age, gender, contact frequency, DSM-IV symptoms, key clinical features) and their associations with GPs’ severity appraisals and initiated treatments, (iii) baseline compliance with two DSM-IV diagnostic criteria and with a third diagnostic criterion concerning the severity appraisal of suicidal risk and (iv) baseline compliance with three treatment criteria that relate initiated treatment to GP-appraised depression severity.

Methods

Study design, setting and participants

This study analysed the general practice-based data that were recorded from 1 January 2008 until 31 December 2008 by SGP participants. The SGP covers 1%–1.8% of the Belgian population and is well spread across the districts. Annual surveys showed that the sentinel GPs are highly representative of age and gender in Belgium and its two main regions.30 The size of the patient population in the SGP is estimated yearly by the number of patient contacts.

Data collection

The study included all SGP patients of ≥18 years who were diagnosed during 2008 with depression either for the first time or with a new episode after a symptom-free period of at least 6 months. A standard registration form was developed to be returned weekly to the Institute of Public Health. The sentinel GPs received an instruction sheet with definitions, examples, inclusion criteria and a citation reference to the Flemish GP practice guideline in press and the DSM-IV. Depression was defined as ‘a mood disorder with a persistent depressed mood or loss of pleasure or interest and this almost daily and for most of the day, for at least 2 weeks’.

The baseline registration form covered patient characteristics as well as initiated treatment. Patient characteristics were age and gender, the number of contacts during the 8 weeks preceding the contact in which the diagnosis was made, severity of depression, DSM-IV symptoms of depression, psychiatric and (severe) physical co-morbidity, chronic pain, previous depression and suicidal behaviour, overuse of alcohol or drugs and recent life events/chronic problems.

No criteria were given for the diagnosis of depression and its severity. The diagnosis of depression in general practice is often unclear and not definitive.31 Therefore, we asked sentinel GPs to also record unclear cases because the diagnosis could be withdrawn on the 6-month follow-up form. If the diagnosis of depression was made by another professional caregiver, then the episode was only recorded if the GP had personal contact with the patient and if the diagnosis was <6 months old. A (severe) somatic disease was exemplified by acute myocardial infarct, cerebrovascular accident, cancer or another severe disease. Another mental disorder was described as ‘anxiety disorder, psychological stress, post-traumatic stress . . . ’. A stressful life event was described as ‘a recent unpleasant or major event, i.e. a change in daily life with negative repercussions for at least 2 weeks, for instance losing a job, failing an exam and divorce’. Chronic problems were described as ‘problems in work, health, family, relationships and so on, which have lasted at least 2 months and with negative consequences on one’s life, for instance long-term unemployment, noise nuisance, an addicted child’. The pilot study showed that these concepts were well understood. We asked GPs to record only those treatment interventions that the patient agreed with. Referral to mental health services was described as ‘a written or oral request addressed to another caregiver to treat a patient’. We used the expression of ‘non-pharmacological support by yourself’ without any explanation as this would involve overly complicated concepts.

Statistical analysis

Confidence intervals (CIs) for incidence rates were calculated using a Poisson distribution. To test univariate associations with severity of depression, 95% binomial proportion CIs were calculated for categorical independent variables and Kruskall–Wallis was used for continuous independent variables. Variables that had a significant univariate association with severity of depression at the level of P ≤ 0.25 were included in a generalized ordered logistic regression model with severity of depression as the dependent variable and adjustment for age group and sex. One odds ratio (OR) was computed to estimate the increase of severity if the association between an independent variable and the severity of depression met the proportional odds assumption. If the assumption was not met, two partial proportional ORs were computed with the first OR contrasting a mild level with a moderate or severe level of depression and the second OR contrasting a mild or moderate level with a severe level of depression. Clustered robust standard errors were calculated to account for clustering of the data within general practices. Variables that had a significant univariate association with the four initiated treatment interventions at the level of P ≤ 0.25 were included in the multivariate logistic regression models in order to investigate their independent predictive value. Interaction effects between independent variables were tested. Marginal generalized estimating equations models were used to account for clustering of the data.
within general practices. Data were analysed with SPSS 18.0 and Stata 10.

Results

Number of recorded cases
From January to December 2008, 214 GPs from 172 sentinel general practices recorded 1762 new episodes of depression in 1753 persons aged ≥18 years. Because two episodes of depression in 12 months occurred only in nine persons, we considered these as one period, and thus, we present person-based incidence rates. In 14 cases, the diagnosis of depression was revised after 6 months on the follow-up form, resulting in a baseline population of 1739 patients. The median number of included patients per GP was 8 [interquartile range (IQR) 4–14].

Incidence of GP-diagnosed depression
The incidence of episodes of GP-diagnosed depression was 719 per 100 000 persons in men and 1440 per 100 000 persons in women (Table 1). The highest incidence rates were found in men aged 45–64 years and in women aged 25–44 years.

Patient characteristics and univariate association with depression severity
Except for the 2% of patients with unknown depression severity (n = 38), 31% of 1701 remaining patients were diagnosed with mild depression, 50% with moderate depression and 19% with severe depression. Two of three depressed patients were women (Table 2). Overall median age was 45 years (IQR 35–57); this was 43 years in mild, 47 years in moderate and 46 years in severe depression (P = 0.033). Most patients (86%) were seen by the GP in the last 8 weeks, with 55% seen two or more times, on top of the consultation in which depression was diagnosed. Median contact frequency in the preceding 8 weeks increased from one contact in mild to two contacts in moderate or severe depression (P < 0.001). The two core symptoms criterion was met in 95% of patients, and the five symptoms criterion was met in 67% of patients.

Guideline compliance rates increased with severity of depression, as did the median number of DSM-IV symp- toms, with medians of four symptoms in mild, five in moderate and seven in severe depression (P < 0.001). The most prevalent non-core DSM-IV symptom (i.e. loss of energy) was not associated with severity of depression nor were mental co-morbidity, somatic disease or life event/chronic problems. Of 401 patients at risk for suicide (i.e. with suicidal ideation or a previous suicide attempt), 172 (43%) were considered to have severe depression.

Multivariate associations between patient characteristics and depression severity
Having thoughts of death or suicide was the DSM-IV symptom that had the largest association with increased severity (Table 3). Sleep disturbance, loss of energy and problems of concentration/indecision were not associated with increased depression severity. Chronic pain was only associated with an increase from mild to moderate or severe depression, and a previous suicide attempt was only associated with an increase from mild or moderate to severe depression.

Therapeutic interventions initiated by the GP
Prescription of an antidepressant agent was the most prevalent therapeutic intervention, and referral was the least prevalent (Table 2). Analysis of combinations of the four therapeutic interventions revealed that pharmacological treatment alone was initiated for 41% (718 of 1737 patients with treatment data), and that a mixed treatment (i.e. prescription of psychoactive agent(s) combined with a referral or non-pharmacological support by the GP) was initiated for 41% (715 of 1737 patients). In summary, 1433 of 1737 patients (83%) received a prescription for a psychoactive agent. Those who were not prescribed a psychoactive agent [161 (9%) of 1737 patients] tended to receive non-pharmacological support by the GP, and for some (n = 21), this was in combination with a referral. Seventy-eight of 1737 patients (4%) were referred without receiving any other intervention. Finally, 65 of 1737 patients (4%), none of them diagnosed with severe depression, received no treatment (yet) at the time of diagnosis.

Factors associated with initiated pharmacological interventions
The fully adjusted odds for prescription of an antidepressant agent increased with the severity of depression, anhedonia and a previous depression and decreased with the presence of a life event or chronic problems (Table 4). The odds for an antidepressive agent were only higher in severe (compared to mild) depression if there was no previous suicide attempt, the odds were lower for patients with previous suicidal behaviour.
The fully adjusted odds for prescription of another psychoactive agent were equally higher in moderate and severe depression, if the patient also had either symptoms of sleep disturbance or psychomotor changes, mental co-morbidity or depression relapse. In contrast to what was found for antidepressive agents, the fully adjusted odds for other psychoactive agents were lower when anhedonia was present. The odds for prescription of another psychoactive agent were not higher in case of life events/chronic problems unless there were also symptoms of sleep disturbance.

Factors associated with referrals and exclusively non-pharmacological support

The fully adjusted odds for a referral were much higher for patients with moderate or severe depression and for those with two DSM-IV symptoms (Table 5). Only severity of depression and depression relapse were negatively associated with the initiation of non-pharmacological support by the GP, after full adjustment for other factors. Specifically, the adjusted odds for non-pharmacological support by the GP were much higher in mild depression (OR 4.33, 95% CI 2.63–7.13).

Baseline compliance with three treatment criteria

Of patients diagnosed with mild depression (valid n = 522), the largest proportion received a prescription for a psychoactive agent (n = 364, 70%) and this tended to be an antidepressive agent (n = 301, 58%). For the remaining patients, non-pharmacological support by the GP was initiated (n = 98, 19%), for some (n = 10) in combination with a referral. Fifteen of 525 patients (3%) were referred without any other intervention. Finally, 45 patients (9%) had no treatment (yet) initiated. Almost half (403) of 859 patients (47%) with
GP-diagnosed depression

Table 3  Multivariate ordinal association between DSM-IV symptoms and key features in patients’ (medical) history and appraised severity of depression (n = 1659)

<table>
<thead>
<tr>
<th>DSM-IV symptoms</th>
<th>Partial OR for mild versus moderate to severe depression</th>
<th>Common OR for increasing severity</th>
<th>Partial OR for severe depression versus mild to moderate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depressed mood</td>
<td>2.29 (1.67–3.15)</td>
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<tr>
<td>Anhedonia</td>
<td>2.06 (1.52–2.79)</td>
<td></td>
<td></td>
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<tr>
<td>Appetite/weight disturbance</td>
<td>1.83 (1.43–2.35)</td>
<td></td>
<td></td>
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<tr>
<td>Sleep disturbance</td>
<td>n.s.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Psychomotor change</td>
<td>1.60 (1.21–2.13)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Loss of energy</td>
<td>n.s.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Worthlessness/excessive guilt</td>
<td>1.98 (1.54–2.54)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Concentration/indecision</td>
<td>n.s.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Death/suicidal thoughts</td>
<td>5.55 (4.05–7.60)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mental co-morbidity</td>
<td>1.54 (1.20–1.98)</td>
<td></td>
<td></td>
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<tr>
<td>Previous depression</td>
<td>1.79 (1.41–2.28)</td>
<td></td>
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<tr>
<td>Chronic pain</td>
<td>2.26 (1.46–3.49)</td>
<td>n.s.</td>
<td></td>
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<tr>
<td>Overuse alcohol/drugs</td>
<td>1.52 (1.03–2.23)</td>
<td></td>
<td></td>
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<tr>
<td>Somatic disease</td>
<td>1.50 (1.00–2.23)</td>
<td></td>
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<tr>
<td>Previous suicide attempt</td>
<td>n.s.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Life event/chronic problem</td>
<td>1.40 (1.09 1.79)</td>
<td></td>
<td>1.70 (1.06–2.74)</td>
</tr>
</tbody>
</table>

The final model (adjusted for sex and age groups) resulted in common OR for the covariates complying with the proportional odds assumption and in two partial ORs for two covariates that violated the proportional odds assumption.

n.s.: P > 0.05.

Table 4  Factors associated with Prescribing of antidepressive agents and other psychoactive agents

<table>
<thead>
<tr>
<th></th>
<th>Prescribing of antidepressive agents</th>
<th>Prescribing of psychoactive agents</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Fully adjusted OR</td>
<td>Fully adjusted OR</td>
</tr>
<tr>
<td>Moderate versus mild depression</td>
<td>4.28 (2.98–6.13)</td>
<td>1.64 (1.20–2.26)</td>
</tr>
<tr>
<td>Severe versus mild depression</td>
<td>3.99 (2.44–6.39)</td>
<td>3.09 (1.99–4.81)</td>
</tr>
<tr>
<td>DSM-IV symptoms</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Depressed mood (core)</td>
<td>n.s.</td>
<td>0.69 (0.53–0.92)</td>
</tr>
<tr>
<td>Anhedonia (core)</td>
<td>2.21 (1.55–3.14)</td>
<td>n.s.</td>
</tr>
<tr>
<td>Appetite/weight disturbance</td>
<td>–</td>
<td></td>
</tr>
<tr>
<td>Sleep disturbance</td>
<td>n.s.</td>
<td></td>
</tr>
<tr>
<td>Psychomotor change</td>
<td>n.s.</td>
<td></td>
</tr>
<tr>
<td>Loss of energy</td>
<td>n.s.</td>
<td></td>
</tr>
<tr>
<td>Worthlessness/excessive guilt</td>
<td>–</td>
<td>n.s.</td>
</tr>
<tr>
<td>Concentration/indecision</td>
<td>n.s.</td>
<td></td>
</tr>
<tr>
<td>Death/suicidal thoughts</td>
<td>n.s.</td>
<td></td>
</tr>
<tr>
<td>Mental co-morbidity</td>
<td>n.s.</td>
<td></td>
</tr>
<tr>
<td>Previous depression</td>
<td>1.73 (1.32–2.27)</td>
<td>1.52 (1.22–1.91)</td>
</tr>
<tr>
<td>Chronic pain</td>
<td>n.s.</td>
<td></td>
</tr>
<tr>
<td>Overuse alcohol/drugs</td>
<td>–</td>
<td>n.s.</td>
</tr>
<tr>
<td>Somatic disease</td>
<td>n.s.</td>
<td></td>
</tr>
<tr>
<td>Previous suicide attempt</td>
<td>–</td>
<td>n.s.</td>
</tr>
<tr>
<td>Life event/chronic problem</td>
<td>0.77 (0.61–0.98)</td>
<td>See: sleep disturbance</td>
</tr>
</tbody>
</table>

n.s. Not included in multivariate model.

*ORs with 95% CIs from multivariate logistic regression analysis included independent variables significantly related with prescribing in univariate analysis at the level of P ≤ 0.25. All models were adjusted for sex, age group, other therapeutic interventions and interactions. In the final model of prescribing antidepressive agents, a significant interaction between severe depression and non-pharmacological GP support is not described because of its clinical irrelevance.

*P < 0.05, **P < 0.01, ***P < 0.001, n.s.: P > 0.05.

Moderate depression were referred to a mental health caregiver or received non-pharmacological support by the GP without receiving an antidepressive agent unless they had a previous episode of depression. Conversely, 419 of 859 patients with moderate depression (49%) received an antidepressive agent without having
had a previous episode of depression. In summary, treatment with an antidepressive agent was initiated in 720 (69%) of 1047 patients who had either mild or a first episode of moderate depression. Of 318 patients with severe depression, 125 (39%) received an antidepressive agent and were also referred to a mental health service. Most patients with severe depression (n = 133, 42%) received an antidepressive agent alone, while 60 (19%) patients did not receive any antidepressive agent.

Discussion

Summary of main findings
We estimated the incidence of GP-diagnosed depression in Belgium in 2008 to be 719 per 100,000 men and 1440 per 100,000 women. According to sentinel GPs, one in three patients had mild depression, half had moderate depression and one in five had severe depression. Nearly all these patients showed at least one of two DSM-IV core symptoms, and 67% suffered from major depressive disorder according to the five DSM-IV symptoms criterion. Having thoughts of death or suicide was by far the main factor associated with severity of depression. Yet, of patients at risk for suicide (i.e. with suicidal ideation or a previous suicide attempt), only 43% were considered to have severe depression. More than four of five patients with a new episode of GP-diagnosed depression received a prescription for psychoactive medication, and for three of four, this was for an antidepressive agent. Considering the baseline compliance with the Flemish GP guideline, we found overprescribing of antidepressive agents for patients with a new episode of mild or a first episode of moderate depression as well as underprescribing of antidepressive agents combined with referral for patients with severe depression.

Study strengths and limitations
This is the first nationwide surveillance of therapeutic interventions initiated by Belgian GPs for patients that they diagnosed with a new episode of depression. In general, the incidence of depression in primary care has been much less studied than its prevalence. Part of this study’s value is that the data were not collected from electronic health records because GPs often do not record the diagnosis of depression.

A weakness of this study is that the Flemish practice guideline we used to describe depression management in Belgian general practice in 2008 was disseminated halfway through the study and only among Flemish GPs. Our baseline compliance data can thus only be understood as the first data of a (possible) series of studies to monitor depression management. Another study limitation is that we did not collect data on how depression was diagnosed. We know that GPs do not use specific diagnostic instruments but rather rely on their accumulated knowledge of patients, their clinical experience and possibly unstructured interviews. Leaving the ‘black box’ of diagnosis closed was the only feasible option to monitor actual diagnostic management and, most importantly, subsequent

### Table 5 Factors associated with referrals and non-pharmacological support by the GP exclusively

<table>
<thead>
<tr>
<th>Referral Fully adjusted OR*</th>
<th>Non-pharmacological support by GP exclusively Fully adjusted OR*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moderate versus mild depression 2.63 (1.83–3.77)</td>
<td>0.27 (0.16–0.44)</td>
</tr>
<tr>
<td>Severe versus mild depression 9.39 (5.92–14.88)</td>
<td>0.11 (0.05–0.28)</td>
</tr>
<tr>
<td>DSM-IV symptoms</td>
<td></td>
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<tr>
<td>Depressed mood (core) – n.s.</td>
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<tr>
<td>Anhedonia (core) n.s.</td>
<td></td>
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<tr>
<td>Appetite/weight disturbance n.s.</td>
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<tr>
<td>Sleep disturbance n.s.</td>
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<td>Psychomotor change n.s.</td>
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<tr>
<td>Loss of energy n.s.</td>
<td></td>
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<tr>
<td>Worthlessness/excessive guilt n.s.</td>
<td></td>
</tr>
<tr>
<td>Concentration/indecision 1.48 (1.11–1.98) –</td>
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<tr>
<td>Death/suicidal thoughts 1.73 (1.21–2.49) n.s.</td>
<td></td>
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<tr>
<td>Patient’s (medical) history</td>
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<tr>
<td>Mental co-morbidity n.s.</td>
<td></td>
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<tr>
<td>Previous depression n.s.</td>
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<tr>
<td>Chronic pain n.s.</td>
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<td>Previous suicide attempt n.s.</td>
<td></td>
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<tr>
<td>Life event/chronic problem n.s.</td>
<td></td>
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</table>

*ORs with 95% CIs from multivariate logistic regression analysis included independent variables significantly related with prescribing in univariate analysis at the level of P ≤ 0.25. All models were adjusted for sex, age group and other therapeutic interventions.

*P < 0.05, **P < 0.01, ***P < 0.001, n.s.: P ≥ 0.05.

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n.s. Not included in multivariate model.
therapeutic management in usual practice. We are aware of the gaps between GPs’ perceptions of depression and the results of diagnostic instruments.34 Moreover, recognition of depression by non-psychiatric physicians including GPs varies considerably, and thus, the resulting prevalence and incidence rates of formally diagnosed depression in general practice also vary considerably.32 Another specific limitation is that we did not ask GPs to record whether or not the diagnosis was made by another (specialised) caregiver, as the pilot study showed that this only occurred in 6% of cases.25 We also do not know what proportion of GP-diagnosed depression was confirmed by another professional caregiver. Another weakness of our study is its cross-sectional design. The influences of high-risk clinical features and symptoms upon the diagnostic and therapeutic management of depression cannot be measured, as they were assessed at the same time point.

Disease surveillance in sentinel general practices continues to be affordable, valid and easy, but its weakness is the forced brevity of data collection forms and their subcomponents. In an effort to go beyond this general information below, we briefly review some qualitative data collected by 66 sentinel GPs on 252 patients with a new episode of depression in our pilot study.25 The above quantitative results were largely consistent with those of the pilot study.

Comparison with pilot study and its qualitative findings
Our pilot study showed that the majority of psychoactive prescriptions (other than those for antidepressive agents) were for hypnotics and sedatives, mostly benzodiazepines. This is in line with our present finding that sleep disturbance and, to a lesser degree, psychomotor changes were associated with prescriptions for other psychoactive agents. The pilot study also revealed that life events or chronic problems tended to concern problems with partner (19%) or family members (18%), problems at work (17%), bereavement after death of a close relative (10%), social and financial problems (6%), serious disease of a close person (5%) and unemployment (3%). Our e-mail survey of 10 sentinel GPs who initiated non-pharmacological support in the pilot study confirmed that GPs use a variety of ways to interact with patients from a psychological perspective. This interaction may be limited to active listening, showing empathy, supporting, reassuring, advising, or may also include more specific psychological approaches such as psycho-education, counselling, problem-solving or cognitive-behavioural techniques.35,36

Comparison with existing literature
An overview of Dutch general practice morbidity systems resulted in incidence rates of depression and feeling depressed of 8/1000 men and 15/1000 women.37 Our overall incidence rate of 11/1000 inhabitants in Belgium is also somewhat lower than the incidence rates of diagnosed depression (14/1000 persons) and depressive symptoms (25/1000 persons) found in UK general practice in 2006 but higher than the rate of ~6/1000 reported in a Spanish regional sentinel primary care network in 2008.19 Highly similar rankings of DSM-IV symptoms were observed in the latter study and also in two studies in Dutch general practice.23,24 Guideline compliance with the two core symptoms criterion is high (95%), and our finding that only 67% of patients had major depression according to the five DSM-IV symptoms criterion is in line with the Spanish sentinel study (45%).19 Four studies of newly diagnosed general practice patients with depression report similar proportions of psychoactive prescribing and referrals, positive associations between benzodiazepine prescribing and mental co-morbidity and positive associations between severity of depression and both referrals and antidepressant prescribing.22–24,38

Study implications
We found several indications that GP-diagnosed depression is indeed less severe than defined by DSM-IV criteria of major depression. Our study revealed that the two core DSM-IV symptoms and the two psychological DSM-IV symptoms that are unique to depression (i.e. thoughts of death or suicide, and, to a lesser degree, feelings of worthlessness and guilt) were the main factors associated with depression severity as appraised by GPs.39,40 Highly prevalent physical DSM-IV symptoms, such as sleep disturbance and loss of energy, and impaired concentration or indecisiveness, which are also symptomatic of other mental disorders, were not associated with depression severity appraisals. One DSM-IV symptom with a relatively low prevalence and higher odds for a more severe appraisal was appetite or weight disturbance. Going through a life event or having chronic problems was only weakly associated with increased severity and reduced the odds for being prescribed an antidepressive agent. The high prevalence of life events or chronic problems deserves further discussion about how ‘normal’ distress may sometimes be considered by GPs as a mental disorder.15,16,38

In view of the high suicide rate in Belgium, special attention to suicide risk management is appropriate.41 The odds for being diagnosed with severe depression were much higher if there were symptoms of suicidal ideation but only slightly higher if there was a previous suicide attempt. Previous suicidal behaviour in severe depression reduced the odds for being prescribed an antidepressive agent. This might be in line with the Flemish GP guideline recommendation to limit the amount of available toxic drugs in case of suicide risk, although it seems more plausible that GPs leave treatment decisions to the mental health specialist. In fact, we found that 24 of 35 patients (69%) with previous...
suicidal behaviour and severe depression were referred compared to 25% in the total population.

The high rate of overprescribing of antidepressive agents is another key finding. Efforts should be made to reduce the prescribing of antidepressant agents for mild depression. One way to do so might be to enhance the availability of non-pharmacological therapeutic interventions in general practice. Preceding the 2010 Flemish Conference on Primary Health Care, a Mental Health Services work group reached a consensus on the introduction of primary care psychologists as a policy priority. This function should be implemented in general practice and in home care services to improve clinical competence in mental health, accessibility of care and collaboration with specialised mental health services and social services. Another policy option is the introduction of mental health consultation to family practice. Such consultations should last long enough to discuss patient expectations and hence result in more appropriate treatment.

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Declaration

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Conflict of interests: none.

References

27 Romeijnders AC, van Marwijk HW, Goudswaard AN. [Summary of the practice guideline ‘Depressive disorder’ first revision