Suffering in silence: studies on screening for major depressive disorder in primary care
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The prevalence of common mental disorders in a high-risk population in primary care


Submitted for publication
Abstract

Background
Three groups of psychiatric disorders have a high prevalence in primary care: depressive disorders, anxiety disorders, and somatoform disorders. Screening patients at high-risk for these disorders has been proposed as a solution for under-detection in primary care. Different high-risk groups have been proposed. We studied the prevalence of psychiatric disorders within three high-risk groups: (1) patients who frequently attend their GP; (2) patients attending the GP for mental health problems; and (3) patients with unexplained somatic complaints.

Methods
From 23 GPs 980 patients belonging to the high-risk groups were screened with the Patient Health Questionnaire (PHQ). Diagnosis of major depressive disorder (MDD), panic disorder (PD), other anxiety disorders (OAD) and/or undifferentiated somatoform disorder (USD) was validated with the Structured Clinical Interview for Axis I Disorders (SCID-I).

Results
26.1% of all patients were suffering from at least one psychiatric disorder. MDD was present in 12.6% of patients, PD in 5.7%, OAD in 11.1% and USD in 8.0% of patients. Patients with unexplained somatic complaints showed the highest psychiatric morbidity: 43.1% were suffering from at least one of these psychiatric disorders, of whom 29.4% suffered from MDD, PD or OAD and 13.7% from USD.

Conclusions
We conclude that the prevalence of common psychiatric disorders was high in our selected high-risk population, which could be a motivation to screen on psychiatric disorders.
Introduction

Epidemiological research has shown that recognition of psychiatric disorders by general practitioners (GP) is not optimal.\textsuperscript{1,2} The under-recognition of psychiatric disorders is caused by two factors. First, GPs' have difficulties in recognizing the disorder, and secondly, patients avoid bringing up the subject of mental health problems because they worry about stigma. Many patients do not seek psychological treatment, but consult their GP with (non-specific) physical complaints instead. This presentation is one of the major reasons for under-recognition of up to 50\% of patients suffering from major depressive disorder (MDD) and/or anxiety disorder (AD).\textsuperscript{1-3} The presence of an unrecognized psychiatric disorder, hidden or embedded in somatic symptomatology, could lead to unnecessary somatic diagnostic tests and ineffective treatments.\textsuperscript{4,5} In addition, when patients suffer from a chronic somatic disease like diabetes or heart failure, an untreated co-morbid psychiatric disorder has a negative influence on treatment compliance and on the course of somatic diseases.\textsuperscript{6}

Two scenarios have been proposed to improve this under-recognition: GP training in detecting psychiatric disorders and patient screening. A former study showed that GP training improved diagnostic skills for MDD, but others showed that the effect of training GPs on their detection skills did not persist.\textsuperscript{7-9} The other scenario, patient screening, seems an inexpensive and relatively simple approach. However, until now screening studies aimed at MDD in the unselected primary care population reported low efficiency because of relatively low prevalence of disorders and a low positive predictive value of the screening test.\textsuperscript{10-13} Screening could be more efficient in populations with a higher prevalence of psychiatric disorders, so-called selected high-risk groups.\textsuperscript{10} Several of these groups have been proposed: patients that frequently attend their GP; patients with unexplained somatic complaints and patients with mental health problems.\textsuperscript{14-19}

The high-risk group of frequent attenders (FA) consists of different subpopulations because patients have many different reasons for frequent GP visits. Not only chronic illnesses or other illnesses that need care on a regular basis, but also unexplained somatic complaints, or psychosocial problems can lead to frequent GP visits.\textsuperscript{20} Those with chronic somatic illnesses suffer from a diversity of diseases like diabetes, heart failure, myocardial infarction, rheumatic arthritis and chronic airway diseases. These patients have an increased likelihood of psychiatric disorders because of several mechanisms. Firstly, a somatic illness and its accompanying symptoms and disabilities are important stressors inducing anxiety and depression.\textsuperscript{21-23} Secondly, psychiatric disorders and the abovementioned chronic illnesses share common pathophysiological pathways (e.g. inflammatory, like raised C-reactive protein and interleukin-6), which could partly explain the
increased prevalence of psychiatric disorders in patients with somatic illnesses.\textsuperscript{6,24,25} And thirdly, psychiatric disorders are associated with behavior, that induces health risks such as smoking, sedentary lifestyle, and over-eating, which may increase the risk of developing somatic diseases.\textsuperscript{6}

The second high-risk group, patients with unexplained somatic complaints (USC), have an increased risk for psychiatric disorders, mainly depression, anxiety and somatization. They experience more psychological distress, more functional impairment and more social isolation and lower health related quality of life compared to other general practice patients.\textsuperscript{17,26,27} Patients with USC are at risk of unnecessary somatic diagnostic tests.\textsuperscript{4} The doctor-patient relationship is often difficult and strained. These patients more often feel that they are not taken serious by their GP or are not involved in treatment decisions.\textsuperscript{26}

The third high-risk population, patients with mental health problems (MHP), consult their GP with psychosocial stressors like social problems, financial problems, work-related problems or problems with children/parents/partner. These stressors could lead to psychological symptoms like soberness, anxiety, stress, sleeplessness and in some patients to a psychiatric disorder.\textsuperscript{18,19} However, in this group of patients it is possible that the registered problems are symptoms of a psychiatric illness that is not (yet) diagnosed as such by the GP.

In this study we aimed to study the prevalence of major depressive disorder (MDD), anxiety disorders (AD) and undifferentiated somatoform disorder (USD) within these three high-risk groups: frequent attenders, patients with unexplained somatic complaints and patients with mental health problems.

**Methods**

**Setting**
The study was conducted in primary care patients between 18 and 70 years of age, in two regions connected to Dutch academic centers: the Academic Medical Center Amsterdam and the Radboud University Medical Center Nijmegen. This study was part of a large disease management program aimed at screening, diagnosing and treatment of MDD in high-risk groups in primary care. Patients in these high-risk groups were screened for the presence of MDD, AD and USD. The study protocol has been approved by the institutional ethics review committee of both centers.

**Patients**
Three high-risk groups were defined as follows:
1. Patients frequently attending their GP (FA). The 10% most frequently consulting patients in two age groups (18-44 and 45-70 years), in the year preceding study allocation were selected. Computerized attendance data from all consultations were included, home visits and telephone consultations with doctors, nurses and other team members. The highest 10% was chosen separately for each GP to avoid confounding because of differences in practice styles.

2. Patients with unexplained somatic complaints (USC): USC were defined as (a) patients with somatic complaints that cannot be explained sufficiently in biological terms (to be determined by the GP) and (b) duration of these unexplained somatic complaints of at least 90 days. GPs checked their appointment lists during four weeks preceding study allocation and selected patients fulfilling both criteria.

3. Patients with mental health problems (MHP): patients who presented to their GP with a new mental health problem within the 3 months period prior to the selection date. Three months were chosen as a time frame because of the transitory nature of mental health problems. General practitioners in our sample coded all diagnoses or complaints with the International Classification of Primary Care classification (ICPC). With the use of chapters P and Z of the ICPC, individuals were identified with a psychological or social reason for seeing their GP or a mental health diagnosis. To identify all patients with possible mental health problems, the electronic patient database was also searched with the predefined free text-words: anxiety, worrying, sadness, stress, feeling down, and insomnia.

Exclusion criteria for the study were:

- Schizophrenia, psychosis or bipolar disorder.
- Specific somatic problems: terminal illness or mental retardation.
- Inability to read or communicate in Dutch or English.

**Procedures**

GP’s invited their patients by an explanatory letter, informed consent form and the Patient Health Questionnaire (PHQ; see below). If patients did not respond within two weeks, a reminder was sent.

**Instruments**

Patient Health Questionnaire: The PHQ is a short self-report version of the Primary Care Evaluation of Mental Disorders (PRIME-MD). The PHQ screens for the 5 most common mental disorders using DSM-IV criteria: MDD and dysthymia, anxiety disorders (panic disorder and other anxiety disorder), alcohol abuse, somatoform disorder, and eating disorders (bulimia nervosa and binge eating disorder). We only used the sections of major depressive disorder, panic disorder, other anxiety disorders and somatoform disorder.
Structured clinical interview for DSM-IV axis I disorders: the SCID-I is a semi-structured interview for diagnosing mental disorders on axis-I according to DSM-IV criteria. We administered the section MDD, all anxiety disorders (specified into panic disorder (PD) or any other anxiety disorder (OAD) according to the SCID-I) and undifferentiated somatoform disorder (USD). The hierarchical structure of the DSM-IV was followed and if anxiety or somatoform symptoms could fully be explained by the presence of a MDD than an anxiety disorder or somatoform disorder was not diagnosed. Researchers, who received SCID-I training from a trained psychiatrist, administered the SCID-I by telephone. Agreement between diagnosis gained from telephone and live administration of the SCID-I has been found to be excellent (Kappa 0.73 (with 90% agreement)).

Analysis
A two-stage design was used. Participants with a positive score on one of 4 PHQ-sections (MDD, PD, OAD, USD) according to standardized criteria were defined as cases. Thereafter, all cases and a random 20% selection of patients with a negative score on all PHQ-sections were invited for the reference standard, a Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-I) for formal diagnostic procedure.

The data were analyzed using SPSS 15.0. We performed descriptive analyses to present the characteristics of the participants. Furthermore we present the prevalence data of MDD, all anxiety disorders (AD) (specified into PD or OAD) and USD according to the SCID-I. Because of the selective validation procedure all prevalence data have been corrected with inversed probability weighing.

Results
Six health centers with 23 GPs and 31,915 enlisted patients participated. In total, 2659 patients (8.3%) fulfilled the criteria for frequent attending (FA; 1745), mental health problems (MHP; 1049) and/or unexplained somatic complaints (USC; 183) (see Flowchart 1). GPs excluded 345 (13.0%) patients because of severe psychiatric or somatic disorder or language problems. The PHQ was sent to the remaining 2314 patients (FA: 1474 (63.7%); MHP: 940 (40.6%); USC: 168 (7.3%)). The questionnaire was returned by 1029 patients (44.5%), of whom 980 (95.2%) gave informed consent for the study. Demographics of the participants are presented in table 1. From the 980 participants, all patients with a positive score on the mood, panic, anxiety or somatoform section of the PHQ and a random sample of 20% of patients with a negative score were selected (n=661). Of the 661 selected patients, 479 (72.5%) patients were reached by telephone and results for
SCID-I became available: 418 patients with a positive score and 61 patients with a negative score on the PHQ. After correction for the sampling procedure we present a total of 723 patients in the final analysis of psychiatric diagnoses.

Compared to patients that did not return the questionnaire or gave no informed consent for the study (n=1334), consenting patients (n=980) were older (mean age, 49.7 vs. 44.2 years, p<.05), were more often female (females: 64% vs 59%, p<.05) and belonged less often to the MHP group (38.2% vs 42.5%, p<.05).

**Psychiatric morbidity**

Of all patients, 26.1% were suffering from at least one psychiatric disorder (see table 2). MDD was present in 12.6% of patients, PD in 5.7%, OAD in 11.1% and USD in 8.0% of patients. A quarter of all FAs, 31.3% of all MHPs and 43.1% of USC patients were suffering from any of the mentioned psychiatric disorders. When patients belonged to more than one high-risk group the prevalence of disorders increased considerably. For instance, of all patients belonging to the FA as well as MHP-group (n=56), 50% (n=28) was suffering from any disorder (for more details see table 2). Considering the comorbidity between MDD, AD and USD, especially the combination of MDD and AD was highly present; 40 of 91 (44%) patients with MDD were also suffering from AD.
Figure 1. Flowchart of study population

Total selection 2659
    
Invited 2314
    
Response 1029 (44.5%)
    
Informed consent 980 (95.2%)
    
PHQ+ (depression, anxiety or somatoform disorder) 579
    
PHQ- (depression, anxiety or somatoform disorder) 400
    
Random sample 82 (21%)
    
Reached for SCID 418 (72%)
    
Analysis 418
    
Total 723

Exclusion 345
    
No response 1285
    
No informed consent 49

Missing 1

IPW* factor 5

*IPW: inversed probability weighting

- Psychotic/ bipolar disorder (43)
- Language problems (49)
- Somatic problem/ mental retardation (71)
- Other (objection GP, deceased) (182)

Invited 2314
    
Response 1029 (44.5%)
    
Informed consent 980 (95.2%)
    
PHQ+ (depression, anxiety or somatoform disorder) 579
    
PHQ- (depression, anxiety or somatoform disorder) 400
    
Random sample 82 (21%)
    
Reached for SCID 418 (72%)
    
Analysis 418
    
Total 723

*IPW: inversed probability weighting
Table 1. Demographics of high-risk groups (N=980)

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>FA</th>
<th>MHP</th>
<th>USC</th>
<th>FA+ MHP</th>
<th>FA+ USC</th>
<th>MHP+ USC</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N (%)</td>
<td>N (%)</td>
<td>N (%)</td>
<td>N (%)</td>
<td>N (%)</td>
<td>N (%)</td>
<td>N (%)</td>
</tr>
<tr>
<td>Total</td>
<td>980 (100)</td>
<td>643 (65.6)</td>
<td>374 (38.2)</td>
<td>70 (7.1)</td>
<td>80 (8.2)</td>
<td>23 (2.3)</td>
<td>7 (0.7)</td>
</tr>
<tr>
<td>Age, mean (SD)</td>
<td>50.8 (13.1)</td>
<td>50.4 (13.3)</td>
<td>48.5 (12.6)</td>
<td>49.4 (9.7)</td>
<td>48.4 (13.7)</td>
<td>53.6 (8.7)</td>
<td>50.4 (11.8)</td>
</tr>
<tr>
<td>Females, n (%)</td>
<td>624 (63.7)</td>
<td>380 (59.1)</td>
<td>255 (68.2)</td>
<td>58 (82.9)</td>
<td>48 (60.0)</td>
<td>18 (78.3)</td>
<td>7 (100)</td>
</tr>
<tr>
<td>Ethnicity (Dutch)</td>
<td>unknown (59)</td>
<td>639 (69.4)</td>
<td>410 (67.7)</td>
<td>253 (71.9)</td>
<td>33 (50.0)</td>
<td>44 (57.9)</td>
<td>10 (43.5)</td>
</tr>
<tr>
<td>Living situation:</td>
<td>together with partner (and child)</td>
<td>481 (49.9)</td>
<td>311 (49.3)</td>
<td>194 (52.4)</td>
<td>33 (47.8)</td>
<td>44 (55.7)</td>
<td>10 (43.5)</td>
</tr>
<tr>
<td></td>
<td>alone (with child)</td>
<td>440 (45.6)</td>
<td>291 (46.1)</td>
<td>161 (43.5)</td>
<td>32 (46.4)</td>
<td>32 (40.5)</td>
<td>12 (52.2)</td>
</tr>
<tr>
<td></td>
<td>other</td>
<td>43 (4.6)</td>
<td>29 (4.6)</td>
<td>15 (4.1)</td>
<td>4 (5.8)</td>
<td>3 (3.8)</td>
<td>1 (4.3)</td>
</tr>
<tr>
<td></td>
<td>unknown (16)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education:</td>
<td>lower education</td>
<td>275 (29.4)</td>
<td>195 (32.2)</td>
<td>85 (23.5)</td>
<td>24 (36.4)</td>
<td>19 (25.7)</td>
<td>9 (40.9)</td>
</tr>
<tr>
<td></td>
<td>middle/higher education</td>
<td>659 (70.6)</td>
<td>411 (67.8)</td>
<td>277 (76.5)</td>
<td>42 (63.6)</td>
<td>55 (74.3)</td>
<td>13 (59.1)</td>
</tr>
<tr>
<td></td>
<td>unknown (46)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Income:</td>
<td>paid work</td>
<td>537 (56.3)</td>
<td>328 (52.8)</td>
<td>227 (62.2)</td>
<td>39 (56.5)</td>
<td>44 (59.5)</td>
<td>10 (43.5)</td>
</tr>
<tr>
<td></td>
<td>benefit/no work</td>
<td>281 (29.5)</td>
<td>187 (30.1)</td>
<td>99 (27.1)</td>
<td>28 (40.6)</td>
<td>21 (28.4)</td>
<td>11 (47.8)</td>
</tr>
<tr>
<td></td>
<td>retirement</td>
<td>136 (14.2)</td>
<td>106 (17.1)</td>
<td>39 (10.7)</td>
<td>2 (2.9)</td>
<td>9 (12.2)</td>
<td>2 (8.7)</td>
</tr>
<tr>
<td></td>
<td>unknown (26)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

High-risk groups: FA: frequent attenders; MHP: patients with mental health problems; USC: patients with unexplained somatic complaints.
Table 2. Psychiatric morbidity according to the DSM-IV

<table>
<thead>
<tr>
<th>High-risk groups</th>
<th>Total N(%) (n=723*)</th>
<th>FA N(%) (n=495)</th>
<th>MHP N(%) (n=251)</th>
<th>USC N(%) (n=51)</th>
<th>FA+MHP N(%) (n=56)</th>
<th>FA+USC N(%) (n=16)</th>
<th>MHP+USC N(%) (n=4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any disorder</td>
<td>189 (26.1)</td>
<td>126 (25.5)</td>
<td>78 (31.3)</td>
<td>22 (43.1)</td>
<td>28 (50.0)</td>
<td>9 (56.3)</td>
<td>2 (50.0)</td>
</tr>
<tr>
<td>MDD</td>
<td>91 (12.6)</td>
<td>65 (13.1)</td>
<td>35 (13.9)</td>
<td>9 (17.6)</td>
<td>15 (26.8)</td>
<td>3 (18.8)</td>
<td>1 (25.0)</td>
</tr>
<tr>
<td>AD:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- PD</td>
<td>103 (14.2)</td>
<td>41 (5.7)</td>
<td>24 (4.8)</td>
<td>5 (7.8)</td>
<td>7 (10.9)</td>
<td>1 (25.0)</td>
<td>2 (50.0)</td>
</tr>
<tr>
<td>- OAD</td>
<td>80 (11.1)</td>
<td>48 (19.1)</td>
<td>19 (7.6)</td>
<td>10 (19.6)</td>
<td>19 (33.9)</td>
<td>19 (33.9)</td>
<td>1 (25.0)</td>
</tr>
<tr>
<td>USD</td>
<td>58 (8.0)</td>
<td>33 (6.7)</td>
<td>21 (8.4)</td>
<td>12 (23.5)</td>
<td>5 (8.9)</td>
<td>3 (18.8)</td>
<td>0</td>
</tr>
<tr>
<td>MDD + AD</td>
<td>40 (5.5)</td>
<td>29 (5.9)</td>
<td>17 (6.8)</td>
<td>4 (7.8)</td>
<td>9 (16.1)</td>
<td>1 (6.3)</td>
<td>1 (25.0)</td>
</tr>
<tr>
<td>MDD + USD</td>
<td>11 (1.5)</td>
<td>7 (1.4)</td>
<td>2 (0.8)</td>
<td>4 (7.8)</td>
<td>1 (1.8)</td>
<td>1 (6.3)</td>
<td>0</td>
</tr>
<tr>
<td>AD + USD</td>
<td>18 (2.5)</td>
<td>8 (1.6)</td>
<td>8 (3.2)</td>
<td>3 (5.9)</td>
<td>1 (1.8)</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

High-risk groups: FA: frequent attenders; MHP: patients with mental health problems; USC: patients with unexplained somatic complaints. *The amount of patients was corrected for sampling procedure with inversed probability weighing.35

Discussion

We studied the prevalence of MDD, AD and USD within three high-risk groups in primary care: frequent attenders, patients with unexplained somatic complaints and patients with mental health problems. We found that 26.1% of the participants suffered from any disorder (MDD, AD or USD) according to the strict DSM-IV criteria operated with the SCID-I. AD had the highest prevalence of 14.2%, MDD was present in 12.6% of all patients and USD in 8.0% of all patients. Patients with unexplained somatic complaints had the highest prevalence of psychiatric morbidity (43.1%). The overlap of psychiatric disorders was high, especially the combination of MDD and AD; 40 of 91 patients with MDD also suffered from AD (44%).

It is difficult to compare our prevalence data to other studies in the general population because studies use different diagnostic instruments. As far as we know, there are no Dutch cross-sectional studies available that used the same
diagnostic instruments (PHQ and SCID-I) as used in the present study. Most prevalence studies use the Composite International Diagnostic Interview that generates 12-month (or life-time) prevalence of disorders.\textsuperscript{36} This longer timeframe generates a higher prevalence of MDD compared to the SCID. Additionally, when the CIDI is compared to the SCID with adapted timeframe (12-month measurement), the CIDI overestimates the prevalence of mood disorders; a large concordance study about the CIDI reported that of the SCID-mood disorders 69% were detected by the CIDI, and of the CIDI-mood disorders, 49% were confirmed by the SCID.\textsuperscript{37} Overall, CIDI-based prevalence studies in the general Dutch population reported a prevalence of 5.2 - 7.3% MDD and 4.2% in the unselected European population.\textsuperscript{38-41} The prevalence of AD was 10.1% in the unselected Dutch population and 6.1% in the European population.\textsuperscript{38-41} One Dutch CIDI-based study among waiting-room patients from GP practices reported a 12-month prevalence of MDD as high as 13%.\textsuperscript{42}

Studying the prevalence of USD brings up another difficulty, namely the criterion that somatic complaints should be medically unexplained. This implicates that the diagnostic procedure should consist of a psychiatric interview as well as a physical examination (and/or additional diagnostic tests). In our study we asked GPs whether a medical explanation for the somatic complaint was registered, an approach that is also used in other studies on somatoform disorders, but the validity of this approach remains questionable.\textsuperscript{43} Moreover, the SCID, just like the DSM-IV has a hierarchical structure.\textsuperscript{32} The present study confined to this structure and a somatoform disorder was not diagnosed if the symptoms could be explained by MDD or AD. As far as we know the prevalence of somatoform disorders in the general population is unknown. Only 1 Dutch study, using the Schedules for Clinical Assessment in Neuropsychiatry interview (SCAN 2.1; World Health Organization, 1999) reported a prevalence of 13.1% undifferentiated somatoform disorders among waiting room patients.\textsuperscript{43}

Although the comparison of the prevalence in our high-risk groups with other populations is hampered by differences in diagnostic instruments, the pre-defined high-risk groups that were selected for this study were indeed at high-risk for MDD and AD. Considering the prevalence of USD the comparison is even more difficult because of the hierarchical structure of diagnostic instruments and difficulties in determining the absence or presence of a medical explanation for somatic complaints.

Our observation that the prevalence of psychiatric disorders was the highest among patients with USC has been reported before.\textsuperscript{17} Interestingly, some studies concluded that depressive and anxiety disorders characterized patients with USC even better than the label undifferentiated somatoform disorder (USD) according to
Although USD had the highest prevalence in the USC-group compared to other disorders in our study (23.5%, 12 of 51 patients), we confirmed the above finding; of all USC-patients with a mental disorder (n=22), only 7 (32%) patients were classified as solely USD without comorbid MDD or AD. Five patients were classified as a combination of USD and comorbid AD or MDD and 10 patients were classified as AD and/or MDD.

The presence of MDD or AD could be helpful for GPs in counseling patients with unexplained somatic complaints. A recent GP focus group study reported that GPs often feel incapable to explain the background of unexplained somatic complaints. They try to reassure patients in non-specific ways and focus on maintaining the doctor-patient relation by using ritual care. Until present it is difficult to motivate patients with unexplained somatic complaints to follow psychological treatment, but the presence of MDD or AD might be a stimulating indication.

Former studies reported that cognitive treatments by a multidisciplinary team consisting of a trained GP and a consulting psychiatrist or trained practice nurse were effective for patients with USC. Revealing underlying anxiety or depression and prescribing antidepressant medication were parts of this strategy. From the perspective of patients, major depressive disorder or anxiety disorder might be a more accepted indication for psychological treatment than somatically unexplained complaints. Revealing underlying disorders and offering evidence-based treatment to these patients might therefore facilitate more effective and acceptable treatment strategies for these patients.

**Strengths and limitations**

The present study was designed to help GPs in targeting diagnostic effort to identify ‘hidden’ psychiatric morbidity. Therefore 3 easily identifiable qualifications related to GP-consultation were used to select a population at high-risk for psychiatric disorders: frequent attenders, patients with mental health problems, and patients with unexplained somatic complaints. The observed prevalence of psychiatric disorders is highly reliable because disorders were diagnosed using the strict criteria of the DSM-IV operated with the comprehensive SCID-I.

Some studies, however, concluded that the DSM-IV classification system is poorly applicable to primary care patients because psychiatric symptoms of these patients are very heterogeneous, overlapping and also unstable over time. At one moment the symptoms of a specific patients could lead to the diagnosis of an anxiety disorder and later on the symptoms have changed into a depressive disorder or have been disappeared because of a favorable natural course. Recently, commonalities of the disorders seen in primary care patients were...
reported to supersede their differences.\textsuperscript{44,53} Probably, GPs paying attention to emotional distress of individual patients is more important than diagnosing a specific psychiatric disorder. More research is required to determine whether the current DSM-IV classification system has to be adapted to primary care patients.

A second limitation of this study is the screening response rate of only 44.5%. Other screening programs for MDD reported similar participation rates of 40 to 70\%.\textsuperscript{54,55} A problem of a low participation is the risk of selection bias, or the so-called ‘healthy screenee effect’.\textsuperscript{56} Participants (or the ‘worried well’) to screening programs are often healthier than non-participants and as a result the most severe MDDs might stay unrecognized.\textsuperscript{57} This phenomenon has not been studied in screening on MDD, but a study on schizophrenia reported that more non-participants were suffering from severe schizophrenia compared to participants.\textsuperscript{58}

**Implications for future research or clinical practice**

Data of this study suggest that psychiatric disorders are present in one-fourth of these 3 high-risk patient groups. The present study did not investigate the number of patients with psychiatric disorders that remain undetected by GPs, but detection rates of only 50\% of MDD have been reported.\textsuperscript{1,2} The high prevalence of psychiatric disorders in our 3 groups underscores the necessity to attentively explore the possibility of one or more psychiatric problems in these patients.

One option is to screen for psychiatric morbidity and combine this screening with diagnosis and treatment. The selection method of a population at risk for mental disorders resulted into a considerable increase prevalence of MDD, AD and USD. This high prevalence is one of the conditions for a screening program to be effective.\textsuperscript{10,13} Conversely, screening high-risk patients only on MDD seems not effective because the uptake of treatment was low.\textsuperscript{59} Possibly, a screening program, aimed at psychiatric morbidity, including depressive disorder, anxiety disorders and somatoform disorders, could be efficient because the prevalence of any disorder is much higher compared to the prevalence of MDD alone. On the other hand, the participation to screening is low and it is uncertain whether screening would reach patients that could benefit from treatment the most. In addition, the barriers to follow treatment after a positive screening result will be similar to a screening program on MDD alone. More research is necessary to determine how the detection of depressive, anxiety and somatoform syndromes could be improved and whether screening could have an additional benefit.

**Conclusions**

This cross-sectional psychiatric study measured the prevalence of major depressive disorder, panic disorder, other anxiety disorders and undifferentiated somatoform disorder in three groups in primary care with high medical
consumption: (1) frequent attenders; (2) patients with unexplained somatic complaints; and (3) patients with mental health problems. The results from this study showed that one-fourth of this high-risk population suffered from one of the four psychiatric disorders according to the DSM-IV. This high prevalence underscores the necessity to attentively explore the possibility of one or more psychiatric problems in these patients.
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