Recognition and Treatment Recommendations for Generalized Anxiety Disorder and Major Depressive Episode: A Cross-Sectional Study Among General Practitioners in Norway

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Objective: Undertreatment by general practitioners (GPs) of patients who have generalized anxiety disorder (GAD) and major depressive episodes (MDEs) is well known. Overtreatment by GPs of patients without these disorders has received little attention. The aim of this study was to estimate GPs' recommended overtreatment (recommendation of treatment to patients who, on the basis of diagnostic self-ratings, had neither GAD nor MDE) and undertreatment (not recommending treatment to patients who, on the basis of self-ratings, had GAD or MDE) and to describe patient variables associated with overtreatment.

Method: In a cross-sectional design (during 3 consecutive days in September 2001), 136 Norwegian GPs evaluated 1332 patients. Diagnostic reference standards were patients' ratings of validated DSM-IV criteria–based questionnaires. GPs identified somatic diseases and mental disorders according to all accumulated information. For their diagnoses of MDE and GAD, the Clinical Global Impressions-Severity of Illness scale was used as a supplement, and GPs suggested treatment for these disorders.

Results: The GPs recommended overtreatment in 11% (132/1245) of cases. The rates of undertreatment were 64% (18/28) and 49% (23/47) for GAD and MDE, respectively. For comorbid GAD and MDE the rate of undertreatment was 17% (2/12). Mental reason for patient's current visit and poor self-rated subjective health were strongly associated with overtreatment.

Conclusion: Our preliminary study indicates that overtreatment by GPs of patients who, according to self-rating, do not have GAD or MDE could represent a problem. Criteria-based diagnostic descriptions might be of limited relevance for the practice of GPs, and the issue of overtreatment should be investigated further in studies with improved design.

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An important task for general practitioners (GPs) is to recognize and treat common mental disorders like depression and anxiety disorders, since the prevalence of such disorders in primary care has been estimated to be 10% (range, 4%–29%) and 8% (range, 2%–19%), respectively.[1]

To diagnose is a probabilistic process,[2] and due to this fact GPs will identify both false-positive and false-negative cases in relation to reference diagnoses that usually are set through clinical interviews by psychiatrists or structured interviews by trained interviewers.[3] *Undertreatment* is defined as no or insufficient treatment to patients who fulfill the diagnostic criteria for mental disorders according to the reference standard, and is well documented for common mental disorders in primary care.[4–7]

Hardly any attention has been paid to the issue of overtreatment, which implies that GPs actively treat patients who do not have a mental disorder according to a reference standard. In this regard, overtreatment could include treatment of patients with subthreshold depression or anxiety symptoms or patients with a somatic illness misdiagnosed as anxiety disorder or depression. Kessler et al.[8] examined treatment of mental disorders during the past decade and reported that only half of those who received treatment had disorders that met diagnostic criteria.

When deciding on need for treatment, GPs will not only consider the patients' descriptive diagnoses, but also fac-

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tors like mental impairment, former mental disorders and their treatment, comorbid somatic illnesses, and social factors, as well as the natural course of depression and generalized anxiety disorder in general.[9,10] Studying overtreatment is relevant since getting a false positive diagnosis of a mental disorder can lead to worry and stigma in the patient, as well as unnecessary costs and side effects from nonindicated treatment. Overtreatment represents a waste of scant resources and longer waiting lists of the specialist services due to incorrect referrals.

In this preliminary study of potential overtreatment, we explored the treatment recommendations for patients by consulting a sample of Norwegian GPs. The aims of the study were to (1) describe the frequency of GPs' recommended treatment for patients who have neither a major depressive episode (MDE) nor generalized anxiety disorder (GAD) according to diagnostic self-ratings (overtreatment), (2) describe the frequency of GPs' no treatment recommendation to patients who have MDE or GAD (undertreatment), and (3) describe patient variables associated with overtreatment.

MATERIAL AND METHOD

Design and Material

This is a separate Norwegian substudy of a multinational study of GPs' evaluations and treatment recommendations regarding common mental disorders carried out in Germany, Sweden, Denmark, Finland, and Norway.[11,12] Essential features of the design were (1) The GPs' demographic and professional data were collected; (2) On 3 consecutive days in September 2001, all eligible patients consulting the participating GPs were invited to take part in the study and to fill in a questionnaire concerning demographic characteristics and somatic and mental health information, as well as to complete the Generalized Anxiety Questionnaire (GAS-Q) and the Depression Screening Questionnaire (DSQ); (3) Blind to the patients' self-ratings, the GPs filled in an evaluation form on which they registered the patients' mental disorders and somatic diseases. In addition they used the Clinical Global Impressions-Severity of Illness scale (CGI-S) as a tool to rate the severity of MDE, GAD, and somatic diseases, and they recorded how they intended to treat the patients whom they identified as having GAD or MDE. Detailed information concerning the design and method of the multinational study has been described elsewhere.[11]

Patients not eligible for the study were those who were younger than 16 years, had problems with the Norwegian language, were considered to require help with the questionnaire, or who only came for a prescription or for an emergency. Altogether, a total of 1781 patients were included. The number of patients not included due to fulfillment of exclusion criteria, declining to participate, or for other reasons was unknown.

Of the total sample, 1684 (95%) had valid ratings on the GAS-Q or the DSQ. The subsample of patients who already had received a diagnosis of GAD or MDE or were under treatment for other mental disorders, as well as those who were considered borderline cases of mental disorders by the GPs (N = 352), was excluded, and the remaining 1332 patients were included in the analyses. The multinational study was sponsored by the pharmaceutical company Wyeth, Ltd. In Norway this meant that the representatives of Wyeth Norway, Ltd. recruited a convenience sample of GPs all over the country. The representatives brought the study material to the GPs and collected the forms, but otherwise took no part in the study. The company paid the GPs a fee of €15 per patient as compensation for administration and time loss caused by the study. The procedural instructions to the GPs were given in writing, and no special training of the GPs was arranged for the study.

Instruments and Assessments: The General Practitioner's Evaluation Form

The GPs were allowed to use all their formerly accumulated information concerning their patients, such as records, laboratory reports, and information from staff and relatives when doing their ratings of somatic diseases and mental disorders. The GPs were blind to the patient-rated questionnaire data.

Presence of mental disorders. On the evaluation form, the GPs were instructed to consider the presence of the following mental disorders: MDE, GAD, other anxiety disorders, somatoform disorders, substance abuse/dependence, adjustment disorders, and other mental disorders. These disorders were rated as definitively present, borderline case, questionably present, and not present. In the analyses we only included definite cases of these disorders since the borderline cases were very few (range, 0.6%–6.3%).

Presence of somatic diseases. The GPs could check off the following somatic diseases: cardiovascular, respiratory, endocrine, rheumatoid, gastrointestinal, neurologic, back/joint/hip, and other.

The Clinical Global Impressions-Severity of Illness scale. The GPs' evaluation form included the CGI-S as a tool to rate the severity of somatic diseases, GAD, and MDE. The CGI-S is a standardized assessment tool that is widely used as an outcome measure in research.[13]

If the GPs identified a patient as suffering from MDE and/or GAD, they were asked how they planned to treat the patient. Four treatment alternatives were given and choosing multiple options was allowed. We grouped the treatment alternatives hierarchically as follows: (1) No treatment, (2) Counseling as the only intervention, (3) Pharmacologic treatment with or without counseling, and (4) Specialist referral as only intervention, or in combination with (2) or (3).

Instruments and Assessments: The Patient-Rated Questionnaires

Reasons for visit and evaluation of health. The patients identified the reasons for the visit from among 8 alternatives: 3 mental (depression, anxiety, sleep problems), 3 somatic (physically ill, pain, accident), control or renewal of prescriptions, and other reasons. The patients responded to 2 separate questions: "On how many days (during the last 4 weeks) have you been completely incapable of performing your work and everyday activities because of physical problems?" and "On how many days (during the last 4 weeks) have you been completely incapable of performing your work and everyday activities because of psychological problems?" In addition the patients noted their subjective health on the day of the visit on a 4-point Likert scale (excellent, good, poor, very poor), the number of visits to a GP in the previous year, and current or former treatment for mental disorders.

Mental health questionnaires. The GAS-Q was developed to diagnose GAD (DSM-IV) based on self-rating.[14] The GAS-Q consists of 20 items that are filled in only if the entry criterion (Criterion A of GAD in DSM-IV) is scored positively: "During the past 4 weeks, have you been bothered by feeling worried, tense or anxious most of the time?" The questionnaire maps patients' number of anxiety symptoms, different areas of worry, and problems of worry control, as well as impairment. According to Criteron C of GAD in DSM-IV, a patient must confirm at least 3 of 6 anxiety/tension symptoms in order to fulfill diagnostic criteria for a positive diagnosis.

In our study the GAS-Q showed an internal consistency of Cronbach's coefficient α of .91 and the test-retest reliability of the GAD diagnosis based on the GAS-Q showed a κ of 0.74.[11]

The DSQ was developed for the diagnosis of MDE (DSM-IV) based on self-rating.[15] The DSQ consists of 11 criteria-based items that are rated on a 3-point scale. Consistent with the DSM-IV definition, a diagnosis of MDE was assigned when at least 5 of the DSQ items were rated as positive. In our study the DSQ showed an internal consistency of Cronbach's coefficient α of .87. Test-retest reliability found a κ value of 0.82 for MDE.[7]

The presence of mental disorders in classification systems like DSM-IV is based on the presence or absence of diagnostic criteria. When a structured interview like the Composite International Diagnostic Interview (CIDI)[16] is used, the patients are asked for the presence or absence of such criteria by a trained lay interviewer, whereas by employing the GAS-Q and the DSQ, the patients respond to the same criteria posed as items of a questionnaire. Investigations have shown that the correlation adjusted for chance of the self-rating approach versus interview is high, with κ values of 0.72 for GAS-Q versus CIDI[11] and 0.89 for DSQ versus CIDI.[17] The diagnostic reference standards in this study were positive diagnoses of GAD based on the GAS-Q and of MDE based on the DSQ.

Statistical Methods

The statistical analyses were performed with SPSS for Windows, version 13.0 (SPSS, Inc., Chicago, Ill.). Differences in dimensional variables were analyzed with t tests and in categorical variables with χ^2 tests. Variables significant in the contingency tables were analysed in a univariate logistic regression with overtreatment as dependent variable. A multivariate logistic regression analysis was performed with variables significant from univariate analyses. All significance tests were 2-tailed, and values of $p < .05$ were reported as significant.

Ethics

The Committee for Medical Ethics of Health Region East of Norway approved the study. The leader of the multinational study, Professor Hans-Ulrich Wittchen, Ph.D., approved the Norwegian substudy. The patients delivered informed consent after reading written information about the study. Wyeth Norway, Ltd. laid no restriction on the authors as to the content of this publication.

RESULTS

General Practitioner Characteristics

Among 136 participating GPs, 133 (98%) gave demographic and professional data, and among them, 90 GPs (68%) were men and 43 (32%) were women. They had been working in primary care for a mean (SD) of 15 (7) and 11 (7) years, respectively, and 118 of them (89%) worked in group practice. Fifty-seven GPs (43%) had offices located in larger cities, 54 (41%) in small cities, and 22 (16%) in rural regions. The GPs consulted with a mean (SD) of 21 (5) patients on an average day, and they estimated that a mean (SD) of 24% (29%) of their patients had depressions or anxiety disorders. There were no significant differences between the genders of GPs concerning number of consultations or the frequency estimate of anxiety disorders and depressions. The GPs included a mean (SD) of 10 (4) eligible patients each in the study.

Patient Characteristics

Among the 1332 patient included in the analyses, 835 (63%) were women and 497 (37%) were men with a mean (SD) age of 45 (18) and 51 (18) years, respectively. Among the patients, 195 (15%) were on sick leave. The mean (SD) number of days (during the last 4 weeks) of impairment was 3 (7) due to somatic problems and 1 (4) due to mental problems. Cardiovascular (24%) and back/joint/hip diseases (22%) were the most prevalent among the somatic diseases, while rheumatoid disease showed the lowest prevalence (4%). Further patient characteristics are given in Table 1.

Table 1. Demographic and Clinical Characteristics of Outpatients Evaluated by General Practitioners in Norway

Variable	No Diagnoses (N = 1245)			MDE or GAD (N = 87)		
	Treatment (N = 132), Mean (SD)	No Treatment (N = 1113), Mean (SD)	p Value	Treatment (N = 44), Mean (SD)	No Treatment (N = 43), Mean (SD)	p Value
Age, y	50.4 (17.0)	47.4 (18.1)	.07	44.3 (17.2)	42.4 (17.3)	.61
Mental impairment[a]	1.7 (5.1)	0.2 (6.0)	.001	9.8 (11.2)	2.8 (7.0)	.001
Somatic impairment[b]	4.0 (7.7)	2.5 (6.0)	.03	10.1 (11.6)	7.9 (10.8)	.36
Sum GAD criteria met[c]	4.2 (1.5)	3.2 (1.6)	< .001	5.4 (1.0)	5.0 (1.0)	.13
Sum MDE criteria met[d]	4.1 (1.9)	2.5 (1.6)	< .001	7.3 (1.7)	6.6 (2.0)	.10
	N (%)	N (%)		N (%)	N (%)	
Gender			.02			.87
Male	38 (29)	434 (39)		13 (30)	12 (28)	
Female	94 (71)	679 (61)		31 (70)	31 (72)	
Civil status			.31			.04
Nonpaired	42 (32)	311 (28)		23 (52)	13 (30)	
Married or paired relationship	88 (67)	796 (72)		21 (48)	30 (70)	
Work status[e]			.03			.05
Working or homemaker	69 (54)	691 (63)		15 (34)	23 (55)	
Retired or other	60 (46)	401 (37)		29 (66)	19 (45)	
On sick leave[e]	21 (20)	156 (15)	.24	5 (13)	13 (33)	.04
No. of visits at GPs in previous year[e]			.06			.83
0–2	30 (37)	318 (48)		12 (33)	8 (31)	
3 or more	51 (63)	347 (52)		24 (67)	18 (69)	
Reason for current visit[f]						
Mental	37 (28)	38 (3)	< .001	18 (40)	8 (19)	.02
Somatic	63 (48)	569 (51)	.46	23 (52)	27 (63)	.32
Prescription or other	46 (35)	451 (41)	.21	11 (25)	10 (23)	.85
Subjective health today[e]			< .001			.14
Excellent or good	62 (51)	926 (86)		16 (40)	21 (57)	
Poor or very poor	59 (49)	146 (14)		24 (60)	16 (43)	
Somatic disease[f]						
Cardiovascular	41 (31)	272 (24)	.10	6 (14)	10 (23)	.25
Respiration system	15 (11)	149 (13)	.52	7 (16)	6 (14)	.80
Endocrine system	11 (8)	94 (8)	.96	4 (9)	3 (7)	1.00
Rheumatoid illness	11 (8)	41 (4)	.01	3 (7)	1 (2)	.62
Gastrointestinal illness	8 (6)	64 (6)	.89	2 (5)	3 (7)	.68
Neurologic illness	10 (8)	51 (5)	.13	2 (5)	1 (2)	1.00
Back/hip/joint illness	31 (23)	232 (21)	.48	18 (41)	11 (26)	.13
Other	26 (20)	275 (25)	.20	6 (14)	6 (14)	1.00
Severity of somatic disease[g]			< .001			.26
None or borderline	25 (19)	357 (33)		13 (30)	8 (19)	
Light or moderate	89 (69)	694 (63)		26 (61)	33 (76)	
Severe or extreme	16 (12)	46 (4)		4 (9)	2 (5)	
Former mental disorders[e]						
Effect of medication						
Not at all	2 (5)	12 (13)	.35	2 (8)	2 (15)	.81
Somewhat	17 (41)	33 (37)		16 (67)	8 (62)	
Much	22 (54)	45 (50)		6 (25)	3 (23)	
Effect of counseling						
Not at all	4 (8)	12 (10)	.02	4 (15)	3 (19)	.95
Somewhat	23 (45)	28 (25)		14 (54)	8 (50)	
Much	24 (47)	73 (65)		8 (31)	5 (31)	

[a]Patient self-rating of no. of days incapable of performing work and everyday activities because of psychological problems.
[b]Patient self-rating of no. of days incapable of performing work and everyday activities because of physical problems.
[c]Values based on patient self-rated responses to the Generalized Anxiety Questionnaire (3 of 6 symptoms needed for positive diagnosis of GAD).
[d]Values based on patient self-rated responses to the Depression Screening Questionnaire (5 of 11 symptoms needed for positive diagnosis of MDE).
[e]The total Ns for these domains may vary according to the number of patients who completed the item.
[f]Multiple options were allowed.
[g]The total N for this variable varies according to the number of GPs who completed the item.
Abbreviations: GAD = generalized anxiety disorder, GP = general practitioner, MDE = major depressive episode.

Table 2. Treatment Recommendations in Relation to Major Depressive Episode (MDE) and Generalized Anxiety Disorder (GAD)

Recommendation	No Diagnosis, N (%)	GAD, N (%)	MDE, N (%)	MDE + GAD, N (%)	Total, N (%)
No treatment	1113 (89)	18 (64)[a]	23 (49)[a]	2 (17)[a]	1156 (87)
Counseling only	72 (6)[b]	5 (18)	8 (17)	3 (25)	88 (7)
Psychopharmacology and counseling	42 (3)[b]	4 (14)	12 (26)	4 (33)	62 (5)
Specialist referral	18 (1)[b]	1 (4)	4 (9)	3 (25)	26 (2)
Total	1245 (100)	28 (100)	47 (100)	12 (100)	1332 (100)

[a]Undertreatment.
[b]Overtreatment.

Table 3. Patient Variables Associated With Recommended Overtreatment Among Outpatients Evaluated for Major Depressive Episode (MDE) or Generalized Anxiety Disorder (GAD) (N = 1245)

	Univariate			Multivariate		
Variable	Odds Ratio	95% CI	p Value	Odds Ratio	95% CI	p Value
Mental impairment	1.14	1.08 to 1.20	< .001	1.11	0.98 to 1.24	.09
Somatic impairment	1.03	1.01 to 1.06	.01	0.98	0.92 to 1.03	.39
Sum positive GAD criteria	1.52	1.26 to 1.83	< .001	1.29	0.98 to 1.70	.07
Sum positive MDE criteria	1.67	1.50 to 1.87	< .001	1.07	0.86 to 1.32	.54
Gender						
Male (reference)	1.00					
Female	1.59	1.07 to 2.35	.02	1.43	0.67 to 3.08	.35
Work status						
Working (reference)	1.00					
Retired or other	1.50	1.04 to 2.16	.03	0.73	0.35 to 1.49	.38
Mental reason for current visit	11.03	6.70 to 18.15	< .001	2.81	1.27 to 6.23	.01
Subjective health						
Excellent or good (reference)	1.00					
Poor or very poor	6.04	4.06 to 8.98	< .001	2.08	1.00 to 4.34	.05
Rheumatoid disease	2.38	1.19 to 4.75	.01	2.67	0.74 to 9.61	.13
Severity of somatic disease						
None or borderline (reference)	1.00					
Light or moderate	1.83	1.15 to 2.96	.01	0.79	0.34 to 1.82	.58
Severe or extreme	4.97	2.47 to 9.99	< .001	0.98	0.22 to 4.43	.98

Treatment Recommendations for No Diagnoses

Among 1245 patients who did not fulfill the criteria for MDE or GAD according to the reference standards, 132 (11%) were recommended treatment, and thereby fulfilled our definition of overtreatment (Table 2). Among the patients in the overtreatment group, 72 were recommended counseling; 42, pharmacotherapy; and 18, specialist referral.

Among the total of 62 patients who were recommended pharmacotherapy, 42 patients (68%) did not fulfill the criteria for MDE or GAD, and the same was found for 18 (69%) of the total of 26 patients recommended for specialist referral.

Treatment Recommendations for Positive Diagnoses

Altogether 87 patients (7%) fulfilled the diagnostic criteria for GAD and/or MDE based on the GAS-Q and the DSQ reference standards. Fifty-nine patients (4%) had MDE (47 with MDE alone and 12 comorbid with GAD), and 40 patients (3%) had GAD (28 with GAD alone and 12 comorbid with MDE). The GPs recommended treatment for 51% of the patients with MDE alone and for 36% of those with GAD alone, while in the case of comorbid GAD + MDE, 83% of the patients were recommended treatment. Rates of undertreatment were 49% and 64% for MDE and GAD, respectively. For comorbidity of the 2 disorders, the undertreatment rate was 17%.

Patient Variables Associated With Recommended Overtreatment

In univariate logistic regression analyses, mental reason for current visit, patient indication of poor or very poor subjective health, and a higher number of positive diagnostic criteria for GAD and MDE showed the strongest associations with overtreatment (Table 3). Overtreatment was also associated with the GPs' assessment of the patient having a severe (CGI-S score ≥ 5) somatic disease and with female gender.

In multivariate logistic regression analyses, overtreatment was significantly associated with mental reason for current visit.

Further consideration of the characteristics in the 132 patients who were treated in spite of having no diagnosis of GAD or MDE (on the basis of GAS-Q and DSQ scores) showed that 37 of them had noted "mental reason for current visit," and 43 had noted either "poor" or "very poor" subjective health. This subsample also had significantly higher scores on the positive GAS-Q diagnostic

criteria (4.2 vs. 3.2, $p < .001$) and on the DSQ criteria (4.1 vs. 2.5, $p < .001$) than the subsample not recommended for treatment.

DISCUSSION

This preliminary study of overtreatment by GPs in relation to presence or absence of mental disorders has several new findings. Among patients with neither MDE nor GAD, 11% were offered treatment for these disorders. The only variable associated with overtreatment in the multivariate analyses was "mental reason for current visit" ($p = .01$). We confirmed earlier findings that a considerable proportion (49% and 64%) of the patients with MDE or GAD according to reference standards did not get any treatment (undertreatment). Due to the high proportion of patients without a diagnosis of MDE or GAD, the 11% recommendation of overtreatment in this group represented 75% (132/176) of all treatment recommended by the GPs.

Mental symptoms as the reason for the current visit had the strongest association with the GPs' probability to recommend overtreatment. This finding could imply that GPs assess patients' complaints concerning mental symptoms in general, rather than according to specific criteria of MDE or GAD. We also found that overtreatment was more likely when patients regarded themselves to have poor or very poor health or the GPs assessed patients' somatic disease as severe or extreme. This finding is in contrast to other findings,[18] which pointed out that chronic somatic comorbidity decreased the likelihood of receiving a diagnosis for depression.

Our study reproduced former findings of undertreatment of MDE and GAD in general practice[4–7] and of a lower rate of recommended treatment in GAD than in MDE.[7] However, neither these studies nor ours have examined the association of factors other than reference diagnoses in patients eventually defined as undertreated. We presume that the patients' negative attitude toward treatment options, particularly psychopharmacologic ones, could be an important factor. Undertreatment of common mental disorders could have several negative consequences such as chronicity,[19,20] long-term sick leaves or disability pensions,[21] occurrence of comorbidity,[22] and risk of suicide.[23,24] Therefore, with regard to the relationship between diagnoses and the need for treatment,[25,26] some have argued that the treatment of subthreshold syndromes[27] and mild disorders[28] might be cost-effective and might prevent the onset of serious disorders in the future. Further studies are needed to clarify if undertreatment is real, or if other factors in the patients or the GPs preclude the institution of relevant treatments.

A major point of explanation for overtreatment could be that mental disorders as defined by DSM-IV or ICD-10 are less relevant for the way the GPs work with their patients. The World Organization of Family Doctors (WONCA) has developed the International Classification of Primary Care (ICPC) based on coding of patient encounters in "an episode of care" structure. Although it has been claimed that ICPC is not sufficiently detailed for adequate documentation of all patients' diagnoses, the system could very well be adequate for documentation of need for treatment in patients who do not fulfill the criteria for mental disorders according to DSM-IV or ICD-10. Nease and Aikens[29] have demonstrated that the DSM-IV criteria of depression and anxiety are not particularly helpful in guiding treatment decisions in primary care patients, and in a recent editorial, Nease et al.[30] also warned against confusing labels and descriptions with reality.

Whether undertreatment by GPs of patients fulfilling diagnostic criteria is a fact or a myth should be investigated further, since the findings of undertreatment are based on the assumption that all patients who have a mental disorder should get treatment. However, for overtreatment, as shown by us in the current study, many factors other than a positive diagnosis are relevant for the GPs' decision to offer treatment and the patients' decision to decline.

There is little knowledge concerning how self-report questionnaires perform in identification of mental disorders compared with structured interviews like the CIDI. A study from Norway found that only 46% of the interview-based CIDI diagnoses were identified by the Hopkins Symptom Checklist-25.[31] In this regard one should keep in mind that the Hopkins Symptom Checklist-25 describes mental symptoms in general, while the GAS-Q and the DSQ self-rate the same diagnostic criteria that are asked for in the CIDI interview. Our finding of overtreatment could imply that the GPs include treatment of patients with subthreshold depression or anxiety symptoms or patients with a somatic illness misdiagnosed as anxiety disorder or depression that the GAS-Q and DSQ do not catch.

Strengths and Weaknesses

The GPs of this study were recruited by a pharmaceutical company, which could have led to selection biases, particularly toward GPs who had a positive view of pharmacotherapy for mental disorders. We can object that our GP sample was representative of Norwegian GPs in general with regard to geography, working experience, and gender distribution.[32] The age and gender of the patients were representative for patients attending GPs in Scandinavia,[33] and the prevalence of MDE and GAD reported by them was in accordance with other prevalence studies from primary care.[1,4]

We do not know if our GPs' attitudes toward and knowledge about mental disorders differed from that of Norwegian GPs in general. The GPs were informed that the study focused on MDE and GAD and that their diag-

noses and treatment recommendations would be related to the patients' self-ratings. Since they agreed to participate, we might assume that their attention toward these disorders was increased, which could have inflated their rate of GAD and MDE diagnoses on the occasion of the study. Such an expectation bias could have reduced the rate of overtreatment. Expectation bias was also a reason for our choice of the patients' self-ratings of the DSM-IV criteria for GAD and MDE as diagnostic standard references. We are aware that such a design could be considered controversial, since reference standards regularly are based on clinical interviews by psychiatrists or structured interviews by trained lay persons.

An interviewer could introduce observer bias in the interpretation of symptoms, while the patients might have information bias. A comparison of different ways of identifying patients with mental disorders in general practice has highlighted the complexity of recognition of clinically significant disorders.[34] However, we argue that the patients' self-rating of ego-dystonic diagnostic criteria must have face validity, and that the high κ values of the GAS-Q and the DSQ in relation to CIDI represent considerable procedural validity. However, in admission of the reference standard issue of design, we consider our study as a preliminary one.

The fee paid by the pharmaceutical company covering administration and time loss for each patient, independent of any quality monitoring of their work, might invite to poor diagnostic practice just for money, leading to increased rates of both undertreatment and overtreatment. However, the influence of the company was restricted to the logistics of delivery and collection of forms. We cannot document the integrity of the GPs but just state that they were quite experienced and established in their professional working methods, so we assume that they did not deviate significantly from their usual practice during the day of the study.

The patients participating also received the information that the study focused on GAD and MDE. They might have worried about the stigma of getting a diagnosis and as a result might have underrated their symptoms and impairment. Minimizing symptom load and diagnostic criteria by the patients who represented the diagnostic reference standard could lead to inflation of the GPs recommended overtreatment.

Duration and course of symptoms are important factors in decision making for diagnoses and treatment interventions in general practice.[22] In the questionnaire, the GPs were forced to make a decision concerning active treatment or not. If the GPs had been given an opportunity to choose "wait and see," the frequency of overtreatment might have been still more reduced.

In sum, a study design sponsored by a pharmaceutical company motivating both GPs and patients to focus on mental disorders, together with a questionnaire that did not give GPs the possibility "to wait and see," in our opinion imply limitations that might give falsely high rates of recommended overtreatment by the GPs. However, important investigations of treatment trends have shown that half of those receiving treatment for mental disorders did not meet the diagnostic criteria for mental disorders.[8] In addition, a high rate of undertreatment in our study is seen as support for the validity of our design.

Conclusion

Our preliminary study indicates that overtreatment by GPs of patients who, according to self-rating, do not have GAD or MDE could represent a problem. However, criteria-based diagnostic descriptions might be of limited relevance for the practice of GPs, and the problem of overtreatment should be tested in studies with improved design.

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