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|--|---|
| <p>病・ホルモン疾患の患者と家族のために<br/>         内分泌糖尿病心理行動研究会編<br/>         232-237. (東京) 2008</p>  | <p>が必要とされる患者への対応 一般医<br/>         と精神科医の連携の必要性。 月刊保<br/>         団連 1015. 11-16. 2009</p> |
| <p>5. 石蔵文信。 高齢者のうつ病をめぐって<br/>         心疾患のある高齢者の抑うつ患者<br/>         への対応。 Geriatric Medicine<br/>         (老年医学) 47. 1489-1491.<br/>         2009</p> | <p>学会発表<br/>         なし</p>   |
| <p>6. 石蔵文信。 現代日本の“こころ”<br/>         と精神科医療の現状 専門医への紹介</p>  | <p>H. 知的財産権の出願・登録状況<br/>         なし</p>   |

別添1（送付したアンケート内容）

OG-Pネットに参加される以前と変わった点に丸をつけてください。

全員へ

1. 知り合いの一般医または精神科医は？

かなり増えた・ 少し増えた・ あまり変わらない・ 減った

2. 一般医から精神科への紹介の頻度は？

かなり増えた・ 少し増えた・ あまり変わらない・ 減った

○ 一般医の先生への質問

3. 08年4月から精神科への紹介で保険の加点できるようになりましたが、その制度を

よく利用している・ 時々利用している・ 全く利用していない

4. G-Pネットでは紹介状の見本を作りましたが、

利用している・ 利用していない・ 存在を知らない・ 自分の紹介時に参考にしている

5. 気分・不安障害患者さんの治療は（以前と比べて）

あまり変わらない・ かなり積極的・ 少し積極的・ むしろ消極的 になった

○ 精神科の先生への質問

6. 08年4月から精神科への紹介で保険の加点できるようになりましたが、その制度を

利用した、一般医からの紹介状は？

全くない・ ほとんどない（1回/月以下）・ 時々ある（3回程/月）・ かなりある（4回以上/月）

7. 一般医からの紹介は（以前と比べて）

あまり変わらない・ かなり適切・ 少し適切・ むしろ不適切 になった

8. 一般医の治療方針は（以前と比べて）

あまり変わらない・ かなり適切・ 少し適切・ むしろ不適切 になった

別添 2 (送付したアンケート内容の結果)

	全員へ	かなり増えた	少し増えた	あまり変わらない	減った
1	知り合いの一般医または精神科医は？	1	15	25	0
		かなり増えた	少し増えた	あまり変わらない	減った
2	一般医から精神科への紹介の頻度は？	2	13	28	0
	一般医の先生への質問				
		よく利用している	時々利用している	全く利用していない	
3	精神科への紹介に関する保険の加点	3	2	26	
		利用している	利用していない	存在を知らない	自分の紹介時に参考になっている
4	G-Pネットで作製した紹介状の見本	2	14	11	5
		あまり変わらない	かなり積極的	少し積極的	むしろ消極的
5	気分・不安障害患者さんの治療は	10	4	15	2
	精神科の先生への質問				
		全くない	ほとんどない(1回/月以下)	時々ある(3回程/月)	かなりある(4回以上/月)
6	一般医からの紹介状は	1	3	6	1
		あまり変わらない	かなり適切	少し適切	むしろ不適切
7	一般医からの紹介は(以前と比べて)	9	1	1	0
		あまり変わらない	かなり適切	少し適切	むしろ不適切
8	一般医の治療方針は(以前と比べて)	5	3	2	1

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分担研究報告書

一般診療科医師の意見を反映した実践的な地域医療連携モデルの検討

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研究要旨 自殺総合対策大綱にも謳われているように、近年、かかりつけ医機能を担う内科等の身体科診療科においてうつ病患者を適切な治療に導入する役割が期待されつつある。しかし、近年の我が国の内科を受診する外来患者中におけるうつ病有病率および主治医によるうつ病認識率や治療実態は明らかでない。そこで本研究では、地方郡部に位置する、精神科の設置されていない一般病院の内科外来において、うつ病の有病率、うつ病患者に対する主治医の精神障害の認識率および向精神薬の処方率を明らかにすることを目的とした。

2009年6月の6日間、地方郡部に位置する病院内科外来において受診患者を連続的に調査した。うつ病の有無は自記式質問紙調査票であるPatient Health Questionnaire (PHQ)を用いて評価した。主治医による患者の精神障害の認識はうつ病評価の結果をブラインドの状態に診察後に回答を得た。向精神薬の処方率は診察日後にカルテから調査した。対象者には書面および口頭で研究の内容を説明し同意を得た。本研究は国立精神・神経センターの倫理委員会の承認を得て行った。

コンタクトミス、同意拒否、脱落は7.1%で対象者は312名であった。平均年齢は72.9歳であった。大うつ病の有病率は8.7%、その他のうつ病を含めた全気分障害の有病率は16.7%であった。主治医は大うつ病患者の77.8%に対して何らかの精神障害があると認識していたが、気分障害と認識した割合は11.1%であり、半数以上を不眠と認識していた。大うつ病患者のうち、主治医から抗うつ薬が処方されていたのは7.4%であり、59.3%は抗不安薬・睡眠薬が処方されていた。40.7%は向精神薬が処方されていなかった。

高齢者の多い、地方の内科においてうつ病はまれな疾患でない。わが国では内科等の診療科でうつ病治療のどこまでを担うかについてはコンセンサスが得られていないが、少なくともうつ病を発見し、適切なケアにつなげる必要があると考えられる。

#### A. 研究目的

うつ病は稀な疾患ではなく慢性の経過を辿ることも多い。WHO の報告によると、障害調整生命年をもとに計算した結果、中高所得国では 2004 年時点で既にうつ病が、他の疾患と比較しても最も負担の大きい疾患となっている。2030 年には低所得国を含めた全ての国をあわせてもうつ病が他の疾患と比較して最も負担の大きな疾患となると予想されている。うつ病は、生命の質を大きく障害し、時に自殺という深刻な結果とも関連する。しかし、未だに多くのうつ病患者が適切な治療を受けていない。そのため、うつ病患者を早期に発見し適切な支援を提供することが重要だと認識されはじめた。実際、我が国の自殺総合対策大綱や様々な国の精神保健政策においてもうつ病患者の発見と適切な支援の提供および支援へのアクセスの改善が課題とされている。

英国や米国のようなプライマリケアシステムや General Practitioner (GP) 制度を採用している国では、これらプライマリケアや GP がうつ病の発見と治療に重要な役割を担うことが期待されている。プライマリケア場面における性能の高いうつ病スクリーニング法が開発され、効果的なくうつ病治療の枠組みとして collaborative

care の有効性が無作為化比較試験、クラスター無作為化比較試験さらにはメタアナリシスで実証されている。プライマリケアシステムを採用していない我が国ではこのモデルをそのまま適応することはできない。我が国では患者は直接精神科を受診することが可能なため、海外の研究結果をそのまま利用することができない。しかし、かかりつけ医機能を持つ内科等の身体科診療場面において類似の治療枠組みモデルの作成・運用が可能かもしれない。我が国に適したモデルを作成する場合、残念ながら、そのモデル作成のために必須な情報である、これらかかりつけ医場面におけるうつ病の有病率、かかりつけ医によるうつ病の認識・診断率、治療導入率等は不明である。20 年近く前に実施された我が国の調査では、中規模都市の市中総合病院のうつ病有病率と医師のうつ病認識・診断率に関する調査が行われているが、その病院は精神科が診療科として標榜されていること、20 年近く前の情報であることなどから、精神科医療資源の乏しい地方郡部の病院等とは状況が異なると考えられる。さらに、我が国ではここ数年の間にうつ病による外来受診患者が急増しており、状況は大きく異なっている。

近年の調査報告では、地域のうつ病患者の多くは医療機関を受診しておらず、医療機関を受診していた患者の約 1/3 は精神科ではなく一般診療科を受診していた。うつ病の症状としての身体症状のために内科等を受診したり、精神科に対する偏見等により内科等を受診した可能性も推測される。また、慢性身体疾患患者におけるうつ病有病率は地域住民のうつ病有病率よりも高いことが知られており、内科等の身体科診療科におけるうつ病の認識・診断は、適切な支援を受けていないうつ病患者へケアを提供するためにも重要である。

高齢者は慢性の身体疾患有病率が高く、そのことを考慮すると、精神科の診療可能な量を増やし、その診療の質を増加させる政策を前提として、一般的に高齢化率が高く、精神科医療資源が乏しい地方郡部のかかりつけ医機能を有する内科等の身体科診療科において、うつ病患者を発見し、適切な支援を提供することを可能とする仕組みづくりも重要であろう。

そこで、本研究では、地方郡部に位置する、精神科診療部門を有さない病院内科の外来を受診する患者のうつ病有病率を調査した。

## B. 研究方法

本研究は、対象者に書面および口頭で研究の内容を説明し同意を得た。本研究は国立精神・神経センターの倫理委員会の承認を得て行った。

調査は地方郡部に位置する精神科診療部

門を有さない病院内科外来で行った。その病院は、内科に加えて、整形外科、外科、歯科の外来診療を行っており、約 50 床の入院病床を有する。内科外来では午前中に内科医師 2 名、午後に内科医師 2 名、最大 4 名が 1 日の診療にあたる。一日の内科外来受診患者数は約 70 名程度である。

対象者の取り込み基準は、20 歳以上、外来受診のうえ主治医の診察を受ける患者とした。除外基準として、認知機能障害、日本語を理解できない、調査に参加出来ないほどの身体または心理状態とした。認知機能障害は精神科医師、精神科看護師、または訓練を積んだ研究者が、半構造化した質問（日付、来院理由）等により判断した。連続する 10 日のうちの、任意の 6 日を調査日とし、調査日に来院した患者全員の適格基準を確認し、適格の場合には調査への参加を依頼した。

Patient Health Questionnaire (PHQ) 日本語版を使用して、大うつ病およびその他のうつ病うつ病を調査した。大うつ病とその他のうつ病うつ病をあわせて、全ての気分障害と定義した。パニック障害を Brief PHQ 日本語版、アルコール障害を PHQ 日本語版、全般性不安障害を Generalized Anxiety Disorder Questionnaire-7 を用いて調査した。

PHQ の結果をブラインドにし、各患者の診察が終了した時点で、診察した主治医に対し、患者の主病名、精神科診断の有無、精神科診断有りの場合にはその精神科診断名または症状名を尋ねた。

また、電子オーダリングシステムを用いて、過去1年間の処方履歴をもとに、診察日に患者が服用可能な向精神薬が処方されていたか否かを調べた。また、過去6ヶ月以上の精神科への紹介・精神科からの紹介について調査した。

大うつ病、全ての気分障害有病率を計算し95%信頼区間を算出した。大うつ病患者および全ての気分障害患者のうち、どれぐらいの割合の患者に対して主治医が精神疾患を認識したか、正しく気分障害と認識したかの計算を行った。気分障害と正しく認識していない場合には、どのような精神科診断(症状)と認識したかについての各割合の記述を行った。また、大うつ病患者および全ての気分障害患者のうち、どれぐらいの患者が精神科へ紹介・精神科から紹介されたかの割合を算出した。

### C. 研究結果

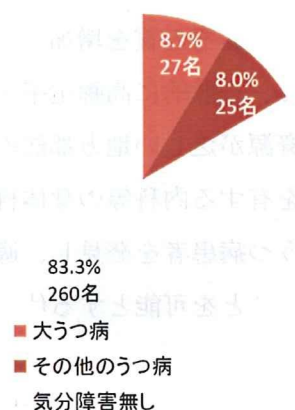
調査期間中に427名の受診があった。319名が適格基準を満たした上で調査への参加に同意した。この内3名は、大うつ病または全ての気分障害を診断するためのPHQ項目が欠損しており除外した。また、主治医からの精神科診断の有無のデータが欠損した4名は、解析から除外した。結果、コンタクトミスのため調査できなかった患者は10名(3.0%)、脱落・欠損は14名(4.2%)であり、適格基準を満たした患者の92.9%で解析可能な調査結果が得られた。

この312名中、193名(61.9%)が女性

であった。平均年齢は72.9歳(標準偏差12.5歳)、年齢の中央値は75歳(範囲21-98歳)であった。主治医の答えた内科外来における主診断は、高血圧(52.9%)が最も多く、ついで、高脂血症(11.9%)、糖尿病(10.6%)であった。5名の患者(1.6%)が精神的な問題が主診断として内科外来主治医に認識されていた。

312名中、大うつ病患者は27名(8.7%)、その他のうつ病を合わせた全ての気分障害患者は52名(16.7%)であった。パニック障害は3名(1.0%)、アルコール障害は23名(7.4%)、全般性不安障害が16名(5.2%)であった。

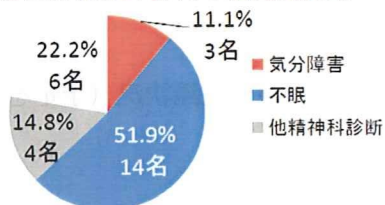
うつ病有病率(%)



大うつ病患者27名の内、主治医が何らかの精神障害が存在すると答えた人数は21名(77.8%)であった。その21名の内、14名に対して主治医は不眠とのみ診断しており、正しく気分障害と診断された患者は3名のみであった。全ての気分障害患者52名の内、主治医が何らかの精神障害が存在すると答えた患者の人数は31名(59.6%)であった。その31名の内、18名に対して主治医は不眠とのみ診断してお

り、正しく気分障害と診断された患者は 7 名であった。

主治医の気分障害(うつ病)診断(%)



大うつ病患者 27 名の内、抗うつ薬が処方されていたのは 2 名で、16 名に抗不安薬・睡眠薬が処方されていた。抗うつ薬が処方されていた 2 名にも抗不安薬・睡眠薬は処方されていた。11 名には向精神薬は処方されていなかった。また、全ての気分障害患者 52 名の内、抗うつ薬が処方されていたのは 5 名で、22 名に抗不安薬・睡眠薬が処方されていた。29 名には向精神薬は処方されていなかった。

また、主治医が臨床判断として気分障害があると判断した患者は 15 名で、そのうち 3 名が大うつ病、4 名がその他のうつ病という診断であった。また、この主治医が診療判断として気分障害があると判断した患者 15 名の内 4 名 (26.7%) に抗うつ薬が処方されていた。

#### D. 考察

現状で、地方郡部の内科外来において、うつ病は稀な疾患ではなかった。しかし、うつ病患者の多くがうつ病と診断されていなかった。主治医は、うつ病患者の多くに何らかの精神障害があると臨床的に判断していたが、気分障害と正しく判断しておらず、不眠と診断していた。実際、うつ病患

者の多くに抗不安薬・睡眠薬が処方されていた。

これらのことから内科外来においてもうつ病は稀ではなく、海外のプライマリケア治療モデルを我が国の状況に適する形で導入する意義は有る。

#### E. 結論

現状では、かかりつけ医機能を有する内科等の身体科診療科において、適切にうつ病をスクリーニング、診断、治療導入するためには解決すべきいくつかの問題が存在する。

#### F. 健康危険情報

特記すべきことなし。

#### G. 研究発表

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露華、村松公美子、斉藤顕宜、山田光  
彦 . まごころ病院内科外来における

うつ病有病率と主治医によるうつ病認  
識率. 地域医療研究会「秋季集会」.  
盛岡. 平成21年11月.

H. 知的財産権の出願・登録状況（予定を  
含む。）

1. 特許取得  
なし。
2. 実用新案登録  
なし。
3. その他  
なし。

## 研究成果の刊行に関する一覧表

研究成果の刊行に関する一覧表

1. 論文等

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RESEARCH ARTICLE

Open Access

# Multiple barriers against successful care provision for depressed patients in general internal medicine in a Japanese rural hospital: a cross-sectional study

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## Abstract

**Background:** A general internist has an important role in primary care, especially for the elderly in rural areas of Japan. Although effective intervention models for depressed patients in general practice and primary care settings have been developed in the US and UK medical systems, there is little information regarding even the recognition rate and prescription rate of psychotropic medication by general internists in Japan. The present study surveyed these data cross-sectionally in a general internal medicine outpatient clinic of a Japanese rural hospital.

**Methods:** Patients were consecutively recruited and evaluated for major depressive disorder or any mood disorder using the Patient Health Questionnaire (PHQ). Physicians who were blinded to the results of the PHQ were asked to diagnose whether the patients had any mental disorders, and if so, whether they had mood disorders or not. Data regarding prescription of psychotropic medicines were collected from medical records.

**Results:** Among 312 patients, 27 (8.7%) and 52 (16.7%) were identified with major depressive disorder and any mood disorder using the PHQ, respectively. Among those with major depressive disorder, 21 (77.8%) were recognized by physicians as having a mental disorder, but only three (11.1%) were diagnosed as having a mood disorder.

Only two patients with major depressive disorder (7.4%) had been prescribed antidepressants. Even among those ( $n = 15$ ) whom physicians diagnosed with a mood disorder irrespective of the PHQ results, only four (26.7%) were prescribed an antidepressant.

**Conclusions:** Despite a high prevalence of depression, physicians did not often recognize depression in patients. In addition, most patients who were diagnosed by physicians as having a mood disorder were not prescribed antidepressants. Multiple barriers to providing appropriate care for depressed patients exist, such as recognizing depression, prescribing appropriate medications, and appropriately referring patients to mental health specialists.

## Background

Depression is a common and chronic psychiatric disorder. It is estimated that depression will become the leading cause of disability worldwide in 2030 [1]. In middle-income and high-income countries including Japan, depression was the leading cause of disability in 2004 [1]. Depression is associated with impaired quality of life, yet many depressed patients do not receive appropriate care [2]. The importance of early detection and appropriate

care for depressed patients has only recently been recognized.

In the United States and United Kingdom, primary care physicians and general practitioners (GPs) have an important role in diagnosing and treating depressed patients [3,4]. In countries with a primary care system, the importance of developing effective depression management models for primary care settings has been emphasized to provide appropriate care for depressed patients. Collaborative care has emerged as a potentially effective intervention for improving the quality of primary care and patient outcomes, primarily in the US. The effectiveness of collaborative care has been shown in a

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meta-analysis of US and UK studies [5]. Effective depression management models have been developed and introduced on site in these countries. These models are developed based on situation-specific parameters such as prevalence of depression, recognition rate of depressed patients by physicians, prescription rate of antidepressants to depressed patients, and referral rate to mental health specialists. However, little information necessary for developing effective intervention models is available in Japan.

In Japan, there are few specialists for primary care or general practice because the Japanese medical system has no clear definition regarding the role of primary care and the specific provider responsible. Patients do not need to consult with assigned primary care providers as in the UK medical system. In the Japanese system, patients select hospitals using their own judgment and usually consult general internists, as well as any other specialist, directly. In rural areas, most patients consult a general internist who plays a role similar to that of a primary care physician in the UK. It has been reported that depressed patients in Japanese communities tend to consult not only mental health specialists, but also other specialists such as a general internists because of their somatization in addition to the stigmatization of psychiatric disorders and services [6,7]. The importance of primary care provided by general internists in the management of depressed patients has been stated recently in the Comprehensive Suicide Prevention Initiative published by the Japanese Government. This publication was based on effective intervention models and guidelines for depression care in primary care settings and general practice developed in the US and UK medical systems [8].

A survey examining the prevalence of depression and the recognition rate of depressed patients by physicians was performed nearly 20 years ago. The survey was conducted at general internal medicine outpatient clinics in general hospitals in medium-sized cities of Japan and the patients in the survey were 15-65 years old. The recognition rate of depression by physicians in this survey was lower than in other countries at 19.3% [9]. However, the situation has changed recently as the number of depressed patients receiving medical care has increased [10]. Because of this change in situation, there are no usable data suitable for developing intervention models reflecting the role of primary care in a general internal medicine outpatient clinic in Japanese rural areas.

Meanwhile, the prevalence of chronic medical illness in the elderly is high. Given that a higher prevalence of depression has been reported in patients with chronic medical illnesses [11], general internists have an important role in diagnosing depression among older people, especially in rural areas with a high population aging rate.

Also from this perspective, information regarding general internal medicine in rural areas is important.

In the present study, we conducted a survey investigating the prevalence of depression in addition to the ability to recognize depression and rates of psychotropic prescription at a general internal medicine outpatient clinic in a rural hospital. These rates are important indices of each step - diagnosis, judging the care that is necessary, and treating and/or referring the patient to mental health specialists - in the provision of appropriate care for depressed patients by general internists in Japanese rural areas.

## Methods

### Setting

This study was approved by the ethics committee of the National Center of Neurology and Psychiatry in Japan. The researchers provided all participants with detailed information of the study in the form of a written document. The study was performed after obtaining the patients' oral informed consent.

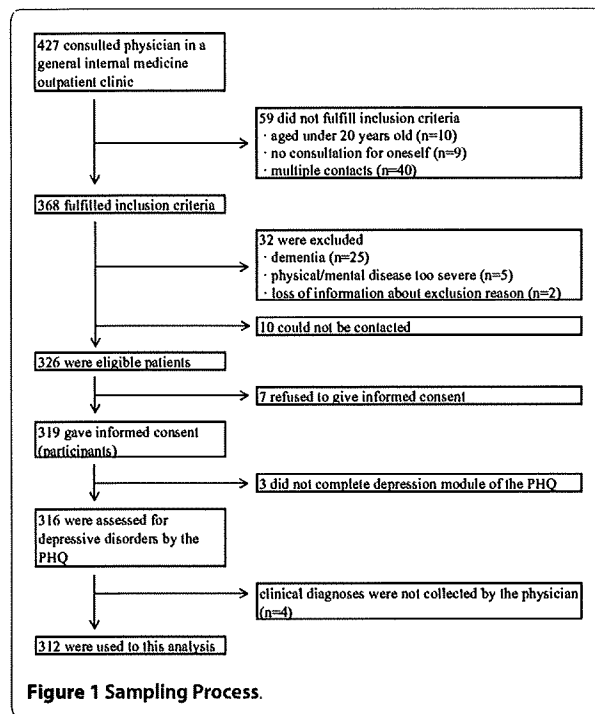
This study was conducted on 6 of 10 consultation days between June 15 and 26, 2009, at a general internal medicine outpatient clinic in a general hospital having no mental health services. This hospital is located in Oshu City, Iwate Prefecture in the Tohoku region of Japan. The hospital is functioning as a regional public hospital and is funded by the National Health Insurance Society at Oshu City. Oshu City is a typical rural area about 500 km north of Tokyo with low influx and efflux of the population. There are high proportions of elderly people and people engaged in primary industry [12].

### Participants

All patients aged 20 or older who visited the outpatient clinic to consult a physician were recruited consecutively. Visitors who consulted for family members or others and patients who had already participated in the survey were excluded. Patients with significant cognitive impairment, those who were unable to understand Japanese, and those who had physical or mental conditions too severe to participate in the survey were excluded. Cognitive impairment was judged by research staff (trained psychiatric nurses, psychiatrists, or trained investigators), based on a semi-structured interview that including asking patients questions such as, "What is the date today?" and "Did you come here by yourself?". The staff sometimes conducted an additional interview regarding the patients' life style and history of dementia if accompanying persons were present.

Figure 1 shows the number of patients included and excluded at each stage of the present study. Of 427 patients who consulted the general internal medicine





outpatient clinic during the survey period, 319 patients fulfilled the inclusion criteria and gave informed consent. Three patients had deficits in one or several items of the Patient Health Questionnaire (PHQ; described below) that were needed to evaluate depressive disorders. The questionnaires regarding physician recognition of mental disorders (described below) could not be collected for 4 patients. As a result, we used information from 312 patients in our analyses. The number (%) of patients who could not be contacted, and the number of patients who refused to participate or dropped out from the study were 10 (3.0%) and 14 (4.2%), respectively. The information about sex and age of patients who refused to participate was not collected. Among the seven patients who dropped out from the study, five (71.4%) were female. Age of one patient was unknown, and the mean (standard deviation; SD) age of the six patients was 73.2 (8.4) years.

Five male physicians (mean (SD) age, 44.4 (10.6) years), all of whom had their clinical duties at the outpatient clinic, examined patients at the general internal medicine department in the hospital. Each day, two physicians worked at the routine outpatient clinic in the morning and two others worked there in the afternoon. Each physician saw approximately 15-20 patients, with the four physicians seeing a total of about 60-80 patients in one day.

#### Procedure

We approached outpatients visiting the department of general internal medicine during the survey days listed

above. Candidate participants who provided informed consent answered several self-report questionnaires during the waiting period for consultation as described in the Measures section below. These questionnaires were used to assess psychiatric disorders, and to survey sociodemographic information and treatment history of mental disorders. Physicians who were blinded to the results of the questionnaires were asked about the diagnosis of primary illness and recognition of mental disorders for each patient after consultation. The history of psychotropic medicine prescription for each patient was collected after the consultation day.

#### Measures

##### *Clinical diagnosis of primary illness*

The clinical diagnosis of primary illness for each patient was made by physicians using a questionnaire that allowed multiple answers and the freedom to provide description.

##### *Recognition of mental disorders by physicians*

We evaluated the recognition of mental disorders by physicians for each patient using a questionnaire. If any mental disorders were recognized by the physician, a clinical psychiatric diagnosis and the impression of severity were determined by the physician using the following procedure. Clinical psychiatric diagnoses were selected from the following terms: mood disorder, anxiety disorder, alcohol-related disorder, insomnia, dementia, other, and uncategorizable. Multiple selections were allowed. The "other" category included psychiatric disorders or symptoms other than those listed above, and "uncategorizable" indicated that physicians could not clinically diagnose the psychiatric disorder. These terms were determined during a discussion among physicians and researchers prior to the survey period. Because recognition of mental disorders by physicians was intended to reflect clinical diagnoses used daily, not only clinical psychiatric diagnoses but any psychiatric symptoms observed were included as recognition of mental disorders. We defined the severity of mental disorders as the degree of influence on daily life, similar in concept to the Global Assessment of Functioning (GAF) scale in the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV) [13]. The physician's judgment concerning the severity of mental disorders was recorded using a 5-point scale ranging from "5 = extremely severe" to "1 = mild," with patients having no mental disorders scored as a zero.

##### *Prescription of psychotropic medicine*

Data regarding history of psychotropic medicine prescription for all patients on the consultation (survey) day and during the previous 6 months were collected from medical records after the consultation day by two researchers including a psychiatrist (MI and TO).

### **Referral to mental health specialists**

History of referral to mental health specialists during the previous 6 months was surveyed from medical records after the consultation day for all patients evaluated as having any mood disorder using the PHQ described below.

### **Depressive disorders and other psychiatric comorbidities**

We used the Japanese version of the Patient Health Questionnaire (PHQ) to assess depressive disorders [14]. The PHQ is a self-report version of the Primary Care Evaluation of Mental Disorders (PRIME-MD) [15] that was developed as a primary care screening tool for common mental disorders, including major depressive disorder and probable alcohol abuse or dependence [16,17]. The PHQ has been used in studies all over the world [18,19]. The Japanese PHQ was developed and its validity was assessed using the Mini-International Neuropsychiatric Interview-Plus [14]. We used a 9-item depression module of the Japanese PHQ to assess major depressive disorder and other depressive disorders. Clinical significance of major depressive disorder and other depressive disorders was assessed using a categorical algorithm for the PHQ depressive module. Patients were assessed as having major depressive disorder if they responded "more than half the days" or higher to five or more of the nine items (Questions 1a-1i). Question 1i was included in this total if their response was at least "several days." In addition, the five items had to include either Question 1a or 1b. A patient was considered to have another depressive disorder if they responded with at least "more than half the days" to two, three, or four of the nine items. Again, Question 1i was included in the total items if it received at least "several days", and one of the items had to include either Question 1a or 1b. Patients were considered to have "any mood disorder" when evidence for both major depressive disorder and another depressive disorder was present. The sensitivity and specificity of major depressive disorder were 84% and 95%, respectively [14]. The sensitivity and specificity of any mood disorder were 75% and 94%, respectively (unpublished data analyzed from the data set used in the reference [14]). The severity of depressive disorder was assessed using the summary score (0-27) of each item of the depressive module of the PHQ.

As additional information, we assessed three psychiatric comorbidities: panic disorder, alcohol-related disorder, and generalized anxiety disorder. We used the panic disorder module of the brief PHQ, a simplified version of the PHQ, to assess panic disorder [16]. Although a Japanese version of the brief PHQ has been developed by reverse translation, the validity data have not been reported. We used the probable alcohol abuse or dependence module of the PHQ to assess alcohol-related disorder. The sensitivity and specificity of probable alcohol

abuse or dependence in Japanese were 100% and 95%, respectively [14]. We used the Japanese version of the 7-item generalized anxiety disorder scale (GAD-7) to assess generalized anxiety disorder. The GAD-7 is a brief self-report questionnaire used as a screening tool for GAD in clinical practice [20]. Similar to the PHQ, the Japanese version GAD-7 has been developed by reverse translation. Sensitivity and specificity of the Japanese version GAD-7 are 88% and 82%, respectively [21].

### **Analysis**

We calculated the prevalence and 95% confidence intervals of major depressive disorder and any mood disorder. The recognition rate of mood disorder by physicians and the prescription rate of psychotropic medicine were each calculated as a ratio among patients evaluated as having major depressive disorder and any mood disorder using the PHQ.

We assessed the relationship between the severity of depressive disorder evaluated by the PHQ and the severity of mental disorders based on the physician's judgment using Pearson's correlation coefficient. A two-sided *P*-value < 0.05 was considered significant. We performed statistical analyses using SPSS version 17.0J (SPSS Japan Inc.)

### **Results**

#### **Characteristics of the patients who participated in the present study**

Among the 312 patients, 193 (61.9%) were female. The median (range) and mean (SD) age were 75 (21-98) and 72.9 (12.5) years. The most common diagnosis of primary illness was hypertension, followed by hyperlipidemia and diabetes (Table 1). Five patients consulted the physician only for mental disorders.

The number and prevalence of patients with major depressive disorder and any mood disorder as assessed by the PHQ are shown in Table 2. The number and prevalence of patients diagnosed with panic disorder, alcohol-related disorder, and GAD were 3 (1.0%), 23 (7.4%), and 16 (5.2%), respectively.

The number and prevalence of patients with major depressive disorder comorbid with panic disorder, alcohol-related disorders, and GAD were 2 (7.7%), 1 (4.0%), and 5 (19.2%), respectively. For patients with any mood disorder comorbid with panic disorder, alcohol-related disorders, and GAD, the number and prevalence were 2 (4.0%), 3 (6.4%), and 9 (18.4%), respectively.

#### **Recognition of mental disorders by physicians**

Physicians clinically diagnosed 85 patients as having a mental disorder. The clinical psychiatric diagnoses (number of patients) made by the physicians included the following: mood disorder (15), anxiety disorder (17),

**Table 1: Clinical diagnosis of primary illness (n = 312).**

Diagnosis	n	% of patients
Hypertension	165	52.9
Hyperlipidemia	37	11.9
Diabetes	33	10.6
Reflux Esophagitis	17	5.4
Gastritis/Gastric ulcer	14	4.5
Other	132	42.3

Multiple clinical diagnoses were allowed for each patient. The total number of clinical diagnosis for all patients was 398. Five mental disorders as the primary illness are included in "Other".

alcohol-related disorder (5), insomnia (48), dementia (6), other (13) and uncategorizable (4).

Among the 27 patients identified with major depressive disorder using the PHQ, physicians recognized 21 patients (77.8%) as having a mental disorder. The clinical psychiatric diagnoses made by the physicians for these 21 patients are shown in Table 3. Among the 27 patients with major depressive disorder, only three patients (11.1%) were correctly recognized by physicians as having a mood disorder. Many patients with major depressive disorder were clinically diagnosed with insomnia by physicians.

Meanwhile, among the 52 patients diagnosed with any mood disorder using the PHQ, physicians recognized 31 patients (59.6%) as having a mental disorder. The clinical psychiatric diagnoses made by the physicians for these 31 patients are shown in Table 4. Among the 52 patients with any mood disorder, physicians recognized only seven patients (13.5%) as having a mood disorder.

Among the 85 patients who were recognized by physicians as having a mental disorder, the physicians judged the severity of the mental disorders (number of patients) as follows: extremely severe (1), moderately severe (7), moderate (20), moderately mild (30), or mild (24). The severity scores for three patients were blank.

Among patients identified with any mood disorder using the PHQ, the relationship between depression

**Table 2: Prevalence of depressive disorders.**

	n	%	95% CI
Major depressive disorder	27	8.7	5.5-11.8
Any mood disorder	52	16.7	12.5-20.8

Major depressive disorder and any mood disorder, which was defined to include both major depressive disorder and other depressive disorders, were assessed by the PHQ. CI: confidence interval

severity using the PHQ summary score and the severity of the mental disorder as judged by the physician was significant (Pearson's correlation coefficient  $r = 0.346$ ,  $p = 0.012$ ). Among the 27 patients with major depressive disorder, 12 patients had moderately severe depression (summary score of the PHQ: 15-19) or severe depression (20-27). Among these, physicians judged seven patients (58.3%) as having a moderately mild or a mild mental disorder, or no mental disorders. In short, physicians underestimated the severity of their disorders.

#### Prescription of psychotropic medicine by physicians

The survey of psychotropic prescription history showed that 13 (4.2%) patients were prescribed any antidepressant including sulpiride, which is permitted by insurance as a drug for depression in the Japanese health system, and 72 (23.1%) were prescribed an anxiolytic or hypnotic. Two patients had been prescribed an antiepileptic. The numbers (%) of psychotropic medicine prescriptions in patients identified with major depressive disorder and any mood disorder using the PHQ are shown in Table 5. Among the 27 patients with major depressive disorder, only one patient had been prescribed an antidepressant by a physician and another patient was prescribed an antidepressant by another outpatient clinic (orthopedic department) in the same hospital. In addition to the two patients prescribed antidepressants by physicians, one patient had been prescribed an antidepressant from another hospital. As a result, only three patients with major depressive disorder had received any antidepressants.

Even among those who were clinically diagnosed as having mood disorders by physicians irrespective of the PHQ depression score ( $n = 15$ : three with major depressive disorder, four with other depressive disorder, and eight without any mood disorder), only four (26.7%) were prescribed an antidepressant.

Additionally, according to medical records, none of the patients identified with any mood disorder using the PHQ had been referred to a mental health specialist.

#### Discussion

PHQ results from patients visiting a general internal medicine outpatient clinic of a rural hospital showed that the prevalence of major depressive disorder and any mood disorder were 8.7% and 16.7%, respectively, in this population. However, among the patients with major depressive disorder, the physician recognition rate of mood disorder was 11.1%. The prescription rate of antidepressants to patients with major depressive disorder was 7.4%. Even in patients who were clinically diagnosed by physicians as having a mood disorder, the prescription rate of antidepressants was only 26.7%.

### Prevalence

In a survey performed nearly 20 years ago using the Composite International Diagnostic Interview (CIDI) at general internal medicine outpatient clinics in Japanese general hospitals, the prevalence of depression was 3.0% [9]. The prevalence of major depressive disorder in the present study was higher than that in the previous study. The previous survey included patients 15-65 years old, while most of the participants in this study were older (mean age: 72.9 years old). In addition, the study sites of the previous survey were located in medium-sized cities in Nagasaki Prefecture, but the present study was performed in a rural hospital. These differences in patient characteristics and hospital settings may partly explain the higher prevalence of depression in the present study.

A meta-analysis of several studies in other countries showed that the prevalence of depression in primary care settings for people aged 65 or older is 15.9% [22]. The prevalence of major depressive disorder in this study was 8.7%, lower than in other countries. This may be partially due to a difference in medical systems because patients can directly consult mental health specialists in Japan rather than being required to consult primary care physicians, as is common in other countries. Meanwhile, in a previous epidemiological study of people in a Japanese community, the 12-month prevalence of major depressive disorder was 2.9% [23]. The lower prevalence in the community may be reflective of the lower prevalence of depression diagnosed in a general internal medicine outpatient clinic. Although a direct comparison is limited by differences in response rate, age distribution, and survey method, the prevalence of depression in a general internal medicine outpatient clinic of a rural hospital in the present study was higher than the prevalence in the community. This is consistent with results reported from the US and UK showing the prevalence of depression in primary care settings is higher than in the community [22,24]. This means that depressed patients who have not received appropriate treatment have consulted general internists in spite of Japan's medical system that allows direct consultation to specialists. It is important that physicians appropriately recognize depressed patients and treat and/or refer them to mental health specialists. These physicians can play a role in gatekeeping unrecognized and untreated depressed patients to provide them with appropriate care.

### Recognition

The recognition rate (11.1%) of major depressive disorder in the present study was lower than the rate of depression reported in the previous Japanese study (19.3%) [9]. Hospitals in the previous study had their own psychiatric units, and thus physicians in those hospitals may have frequently examined patients with psychiatric disorders

and become proficient in diagnosing depression. However, the hospital in the present study did not have a psychiatry department and no mental health services were provided by mental health specialists. Despite this difference between the Japanese studies, both recognition rates in Japan were much lower than those in other countries as shown by a meta-analysis (47.3%) [22]. Therefore, as a first step, it is necessary to increase the recognition rate of depressed patients by physicians in Japan. Effective screening of depression [18,19] may be a key activity for improving depression care.

A simulation in the meta-analysis suggested that when the prevalence is 10%, there are more false positives ( $n = 16.8$ ) than either missed ( $n = 5$ ) or identified cases ( $n = 5$ ) for every 100 unselected cases seen in primary care. There was concern that false positives would increase as the prevalence decreased [22]. In the present study, not only the physician recognition rate of depressed patients was low, but also the false positive rate of was low (3.1%). This may mean that physicians do not pay attention to depressive disorder. General internists may think that care of depression is not "their business" in the Japanese medical system and that depressed patients should directly consult mental health specialists. To introduce an effective screening system, education to increase awareness and to change physician attitudes toward depression may be important.

Although the severity of mental disorders judged by physicians correlated with the severity of depression assessed by the PHQ (Pearson's correlation coefficient  $r = 0.346$ ,  $p = 0.012$ ), more than half of the patients with severe depression were misjudged as having depression of mild to moderate severity, or having no mental disorder (58.3%). This result suggests that appropriate care for depression was not provided even to severely depressed patients who really needed care. In addition to constructing and implementing a system of screening for depression, a referral system to mental health specialists and/or an increase in physician diagnostic and treatment skills is needed.

Many patients identified with major depressive disorder using the PHQ were recognized as having a mental disorder by physicians, but physicians often clinically diagnosed the disorder as insomnia, which is a common symptom of depressive disorders. The higher physician recognition rate of any mental disorder, such as insomnia, may be useful in prompting the suspicion of depression. When a physician notes insomnia and/or a mental disorder in a patient, they should at least screen for depression using a validated screening tool. This step will increase the recognition rate of probable depression by physicians.

Of patients with major depressive disorder, only two were prescribed antidepressants and many were prescribed anxiolytics or hypnotics. This may be creating a