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Epidemiology and natural history of depressive disorders in primary care

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KEY MESSAGES

1. In Hong Kong's primary care setting, the estimated prevalence of screen-positive depression is 10.7%, the 12-month incidence is 5.3%, and 12-month remission rate is 60.3%.
2. One in four patients with positive screening scores are identified as having depression by the primary care doctor. Patients with a history of depression or other mental health problems or who are non-Chinese are more likely to be identified by a doctor. Fortunately, most cases of depression are mild and self-limiting, and doctor identification does not appear to have any significant effect on resolution of symptoms or health-related quality of life at 1 year. Improvement in mental health-related quality of life is significantly greater in those who are identified by a doctor.
3. 12-month service utilisation rates for primary care doctors, psychiatrists, and psycho-social services are raised in patients who screen positive for depression and over the period of 12 months, at least one in five patients consulted a psychiatrist or psychiatric clinic.
4. Around 50% of patients identified as having depression by a doctor are treated with psychotropic medications. Over 1 year, one third of patients with positive screening scores for depression took psychotropic medications.
5. Counsellors appear to play an important adjunctive role in depression care. Improved access to psycho-social counselling services may help facilitate doctors to better manage depression, reduce the burden on specialist services, and potentially reduce medication use.

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Introduction

The prevalence of depressive disorders in primary care has been estimated to be 10 to 20% worldwide, of which only half are diagnosed by doctors, and only one third are documented in patient records. The primary care setting is a key entry point into the health care system, and primary care physicians are well placed to be the central service provider for patients with depressive disorders. This study aimed to examine the prevalence, incidence, and natural history of depressive disorders in adult patients attending primary care clinics in Hong Kong, and factors that may influence diagnosis, management, and outcomes.

Methods

This cross-sectional and longitudinal cohort study was conducted from October 2010 to January 2013. The sample size for prevalence of depressive disorders was estimated to ensure an error of <2% for an anticipated prevalence of 20%. The sample size for 12-month incidence of depressive disorders was calculated to ensure an error within 1% for a conservatively estimated incidence of 3%. The sample size for 12-month resolution rate was calculated to ensure an error within 5% for a resolution rate of 30%. Taking into account the design effect secondary to cluster sampling, a response rate of 50% for the cohort study, and an attrition rate of 30% over 12 months, a minimum of 7500 subjects at baseline were required.

The 9-item Patient Health Questionnaire (PHQ-9) was used for screening, diagnosing, monitoring, and measuring severity of depression. Scores ranged from 0 to 27; a score of >9 was used to define a positive screen for depression. The 20-item Center for Epidemiologic Studies Depression Scale (CES-D 20) was used to measure the existing level of depressive symptomatology. A PHQ-9 score of <5 together with a CES-D score of <16 was used to define remission from a depressive episode. The 12-item Short-Form Health Survey Version 2.0 (SF-12v2) was used to assess health-related quality of life. The mental component score (MCS) and the physical component score (PCS) each averages at 50 for the general population; higher scores indicate better health. Self-reported items on socio-demography, history of depression or other psychological problems, co-morbidity, service use, and help-seeking behaviour were also assessed.

Results

A total of 10 179 patients were recruited from the waiting rooms of 59 primary care physicians to the cross-sectional study (response rate, 81%). Of these, 4358 entered the longitudinal study (response rate, 43%) and were followed up at 12, 26, and 52 weeks by telephone interview (Fig).

The cross-sectional prevalence of depression was 10.7% (95% confidence interval [CI], 9.7%-11.7%). Patients who had a self-reported history of depression, were unemployed, had visited a western doctor more than twice in the previous 4 weeks, or had two or more co-morbidities had the highest likelihood of screening positive for depression (Table 1). 23.1% of patients with positive screening scores were identified as having depression by doctors, whereas 58.6% of patients identified as having depression had negative screening scores. Patients with a self-reported history of depression or other mental illness, or who were non-Chinese were the most likely to be identified by doctors as having depression. The 12-month incidence of depression in patients with no history of depression was 5.3% (95% CI, 3.9%-6.6%), and the 12-month remission rate was 60.3% (95% CI, 54.1%-66.5%).

In subjects who screened positive at baseline, mean PHQ-9 and mean SF-12v2 scores returned to near normal over 12 months, and SF-12v2 PCS and MCS improved by over 10% and 30% respectively, with more significant improvements occurring in patients who had been detected by the doctor. Doctor detection had no effect on remission of depressive symptoms.

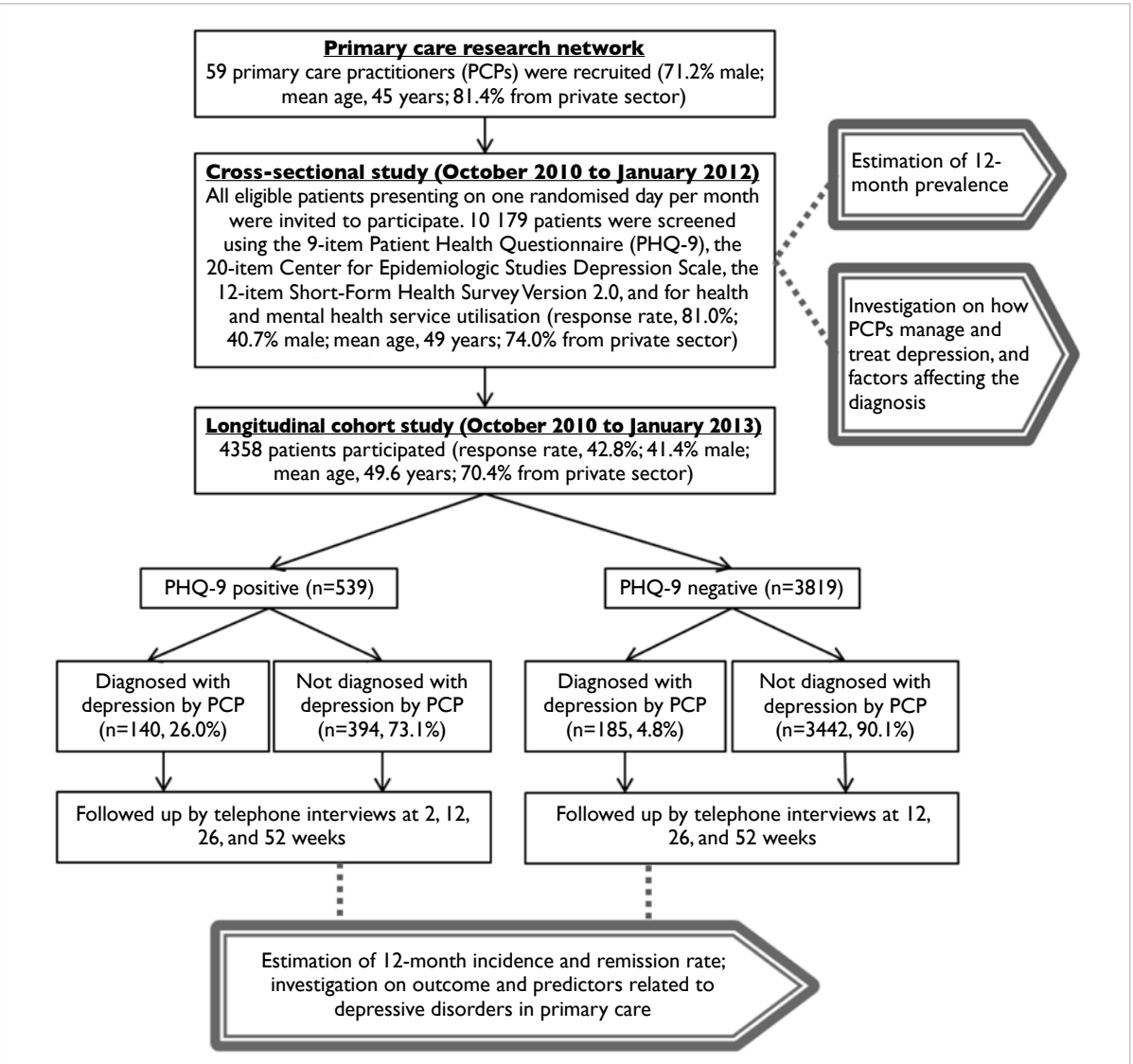

FIG. Study design and recruitment rates

Management of depression was documented for 618 subjects: 50.6% (31.8% in public sector and 58.3% in private sector) received psychotropic medication; 41.9% received counselling; and 8.6% were referred to another health professional (34.0% to counsellor, 22.6% to Hospital Authority psychiatric services, 13.2% to psychologist, and 7.5% to private psychiatrist). Patients with a history of depression or living on Hong Kong Island (relative to Kowloon) were more likely to be prescribed psychotropic medications. Doctors practising in the private sector were also more likely to prescribe psychotropic medications.

Over 12 months of observation, subjects who had positive depression screening scores at baseline reported consistently elevated levels of psychotropic medication and health service use including from primary care doctors, psychiatrists, social workers, psychologists and counsellors (Table 2). At 12 months, 19.7% had consulted a specialist psychiatrist in the past 3 months; 8.9% had received other professional psychological services in the past 3 months; and 37.5% had taken psychometric medications in the past 12 months.

When asked who they would seek help for depression, subjects reported a preference for friends and family (49.1%) over a psychiatrist (26.1%) or a primary care physician (20.1%). Overall men and older patients were less likely to seek any professional or non-professional help. In screened positive subjects, 9.5% reported receiving mental health services from a primary care physician, 7.4% from a psychiatrist and 4.1% from a psychologist.

Discussion

In this study, the participating doctors had an interest in mental health and were aware that their patterns of diagnosis and management were being studied. Nonetheless, detection rates were still lower than international standards suggesting that factors aside from clinician skill may contribute to the low identification of depression. Excessively low sensitivity for accurate detection of depression may result in inadequate provision of care.

Diagnosing depression in the primary care setting is challenging, particularly in Chinese patients who have low uptake of mental health services. Chinese patients with depression often conceal or deny their mood-related symptoms or express the symptoms more somatically. Many elderly Chinese perceive having low mood to be part of normal ageing, and do not report depressive symptoms to their doctor. Studies in Europe and America have reported lower detection rates in patients of Chinese descent.[1] This is consistent with our findings that Chinese patients were half as likely to be identified with depression by the doctor than non-Chinese patients.

TABLE 1. Patient and doctor factors associated with predictive outcome

Associated with positive screening of the Patient Health Questionnaire-9 (PHQ-9) at baseline
Patient factors
Female
Younger age
Not married (single, divorced, widowed, or separated)
Household income ≤HKD$30 000 per month
Unemployed (versus employed)
Smoker
No exercise habit
≥2 co-morbidities
Family history of mental illness
History of depression or other psychological problems
Seen a western doctor in the previous month
Seen a traditional Chinese medicine practitioner in the previous month
Doctor factors
Younger doctor
Associated with developing depression over 1 year among PHQ-9 negative cohort (12-month incidence)
Patient factors
Not married (single, divorced, widowed, or separated)
Smoker
≥2 co-morbidities
Family history of mental illness
≥2 western doctor visits in the previous month
Received a diagnosis of depression by the study doctor
Doctor factors
Public sector
Not trained in either family medicine or psychological medicine
Associated with receiving a clinical detection of depression
Patient factors
Female
Older age
Non-Chinese
Homemaker (versus employed)
No exercise habit
Family history of mental illness
History of depression or other psychological problems
Seen a western doctor in the previous month
Higher baseline PHQ-9 score
Lower baseline Short-Form Health Survey Version 2.0 (SF-12v2) mental component score (MCS)
Doctor factors
Working on Hong Kong Island (instead of Kowloon)
Older doctor
Associated with remission at 12 months among PHQ-9 positive cohort
Patient factors
Higher chance of remission
Retired (versus employed)
Lower chance of remission
≥2 co-morbidities
Seen a traditional Chinese medicine practitioner in the previous month
Associated with quality of life at 12 months among PHQ-9 positive cohort
Patient factors
Lower 12-month SF-12v2 physical component scores (PCS)
No exercise habit
Co-morbidity
≥2 western doctor visits in the previous month
Seen a traditional Chinese medicine practitioner in the previous month
Lower 12-month SF-12v2 MCS
≥2 co-morbidities
≥2 western doctor visits in the previous month
Taken psychotropic medication in the past year
Higher 12-month SF-12v2 MCS
Retired (versus employed)
Doctor factors
Higher 12-month PCS scores
Trained in family medicine
Trained in both family medicine and psychological medicine
Private sector

TABLE 2. Primary care service utilisation rates stratified by baseline Patient Health Questionnaire-9 (PHQ-9) screening outcome

Primary care service utilisation	No. (%) of participants		
	Baseline		
	PHQ-9 positive	PHQ-9 negative	P value
Taken antidepressants, psychotropic drugs, sleeping pills, or tranquilisers in the past year	198 (37.7)	396 (10.5)	<0.01
Consulted a psychiatrist or psychiatric clinic in past 3 months	92 (17.4)	144 (3.8)	<0.01
Received professional psychological treatment or counselling in past 3 months			
From doctor	86 (16.3)	124 (3.3)	<0.01
From psychologist	34 (6.5)	29 (0.8)	<0.01
From social worker	33 (6.3)	34 (0.9)	<0.01
From other people	20 (3.9)	31 (0.8)	<0.01
Seen a doctor in the past 4 weeks	365 (67.7)	1907 (50.0)	<0.01
Seen a traditional Chinese medicine practitioner in the past 4 weeks	167 (31.0)	646 (16.9)	<0.01

The incidence of depression enables estimation of new cases for future service and resource planning. Usually, incidence rates are derived using retrospective or prospective general practitioners' case record reviews, and in previous studies have ranged from 6 to 25/1000 in Europe and UK.[2] In this study, the higher 12-month incidence of 5.25% was likely to be because symptom scale survey instruments were used for case detection rather than relying on doctor detection to define a case.

In this study, primary care physicians were able to exclude depression in most people who were not depressed, but 58.6% of patients identified as having depression had negative screening scores. Many of these patients subsequently became PHQ-9 positive indicating the added value of a primary care physician consultation over screening questionnaires in identifying patients who may require therapeutic intervention.[3] Previous studies have shown that patients experiencing a major depressive episode are more likely to be identified and treated than those with minor depression or dysthymia. Similarly, those with greater functional impairment are more likely to be identified and treated.[3] Consistent with this, baseline MCS scores and baseline to 6 months PHQ-9 scores were significantly worse in patients who had been identified as having depression by doctors.

Over the 1-year follow-up, most patients who had screened positive for depression at baseline had a reduction in the severity of depressive symptoms and a return to normal in health-related quality of life. Diagnosis by doctors did not have any effect on remission rates, 12-month PHQ-9 scores, change in PHQ-9 scores from baseline to 12 months, or the mean SF-12v2 scores at 12 months. Improvement in mental health-related quality of life from baseline to all time points was significantly better in patients who had been identified as having depression by the doctor. Poor 12-month prognosis was associated with higher rates of health service use and more co-morbidity. Retirement was the only protective factor associated with higher remission rates and better quality of life at 12 months which may be a reflection of the stressful nature of the Hong Kong working environment. A meta-analysis of remission rates from untreated major depression in adult primary care patients estimated 23% of cases of untreated depression will remit within 3 months, 32% within 6 months, and 53% within 12 months.[4] This was consistent with our estimates for 12-month remission rate of 60.3%, which included both treated and untreated cases. PHQ-9 levels remained >9 at 12 months in the remaining 39.7%.

In this study, over 50% of patients diagnosed with depression received psychotropic medications. Examination of doctors' management patterns found over 50% of patients diagnosed with depression were prescribed psychotropic medications. Doctors in the private sector had a 6.7-fold increased likelihood of prescribing psychotropic medications than doctors in the public sector. According to World Health Organization guidelines, antidepressants can be a very effective form of treatment for moderate-to-severe depression but are not recommended as first-line treatment for mild or sub-threshold depression. In Hong Kong, drugs are dispensed by the doctor rather than through a pharmacy, which in association with a lack of access to psychosocial services, are likely to be key reasons for the high rates of prescribing. Another reason may be the doctor's perception of patient expectations for medication. In a telephone survey of Hong Kong Chinese community members, although only 40% of respondents believed they always needed drugs to treat an illness, 76% expected to receive a prescription

No. (%) of participants								
12-week follow-up			26-week follow-up			52-week follow-up		
Baseline PHQ-9 positive	Baseline PHQ-9 negative	P value	Baseline PHQ-9 positive	Baseline PHQ-9 negative	P value	Baseline PHQ-9 positive	Baseline PHQ-9 negative	P value
112 (36.8)	249 (9.0)	<0.01	97 (35.8)	307 (10.0)	<0.01	147 (37.5)	289 (9.3)	<0.01
40 (13.3)	77 (2.8)	<0.01	44 (16.2)	99 (3.2)	<0.01	77 (19.7)	124 (4.0)	<0.01
31 (10.3)	36 (1.3)	<0.01	17 (6.3)	21 (0.7)	<0.01	13 (3.3)	17 (0.5)	<0.01
5 (1.7)	12 (0.4)	0.022	6 (2.2)	12 (0.4)	<0.01	10 (2.6)	15 (0.5)	<0.01
11 (3.6)	11 (0.4)	<0.01	8 (3.0)	14 (0.5)	<0.01	6 (1.5)	13 (0.4)	0.014
4 (1.3)	9 (0.3)	0.033	1 (0.4)	11 (0.4)	1.00	6 (1.5)	5 (0.2)	<0.01
101 (62.7)	1504 (52.2)	<0.01	113 (70.2)	1582 (49.6)	<0.01	119 (69.6)	1700 (51.3)	<0.01
52 (16.9)	434 (15.7)	0.557	49 (17.8)	455 (14.7)	0.177	68 (17.3)	460 (14.8)	0.179

every time they saw a doctor. In almost 100% of cases, during their most recent doctor visit, at least one medication had been prescribed. It is possible that doctors in Hong Kong over-estimate patients' expectation for medications, and their prescribing habits may have produced a high expectation for medications by patients.[5] At 12 months, over one third of patients who screened positive at baseline reported to have taken psychotropic medications in the previous year, but it is not known how these medications were obtained. A more focused study is needed to closely examine doctor's prescribing practices and their perception of what constitutes best practice for managing primary care patients with depression, as well as to study patients' drug-seeking behaviours.

In this study, fewer than 10% of patients were referred to other mental health care services, most commonly to counsellors. Despite this, at 12 months, 19.7% of those positive at baseline reported consultation with a psychiatrist or psychiatric clinic in the past 3 months, and 8.9% had received other forms of professional psychological services. In Hong Kong, access to psychosocial services is very limited and specialist psychiatrists are few. In 2005, the population-to-specialist ratio was 1:44 202, far higher than that of 1:16 836 in the UK.[6] In addition, patients can directly consult specialists in the private sector without referral. Patients may bypass the gate-keeping function of the primary care doctor and contribute to excessive demands on already stretched specialist services.[6]

Although doctor factors did not seem to have any significant effect on outcomes, there were some interesting findings noted. Firstly, patients who screened positive for depression were more likely to have consulted a younger doctor; however, doctors who were older were more likely to diagnose a patient as being depressed. Secondly, screened-negative patients who attended doctors in the private sector or doctors who had training in both family medicine and psychological medicine had a lower risk of incidence of depression. Similarly, the health-related quality of life of screened-positive patients was better at 12 months in those who had attended a doctor in the private sector or who had training in family medicine. It is difficult to prove a causal effect, but it appears attending a doctor with training in family medicine or psychological medicine has positive benefits on wellbeing.

One limitation of our sampling strategy was the lack of a comprehensive registry of primary care providers in Hong Kong. Doctors who provide primary care but are not members of the Hong Kong College of Family Physicians were not sampled. Doctors' participation in this study was voluntary, and there was a bias towards doctors with a mental health interest. Our results may reflect a 'best-case scenario' indicating better detection rates and more optimal treatment. The low referral rates may be a result of sampling bias, as a high proportion of the doctors had post-graduate training in psychological medicine and may have felt more capable of providing adequate care than doctors without such training.

The patient sample was self-selected which incurs a risk of self-selection bias. In terms of demographics they were only marginally older (49.6 vs 49 years) than the baseline cohort; marginally more educated (75% vs 73.2% with secondary or tertiary education); and there was a slightly larger proportion of Chinese patients (96.7% vs 95.7%). Screening for depression was based on a subjective, self-reported instrument and was not confirmed by a clinical diagnostic interview, which is the gold standard for diagnosis of depression.

Conclusions

Diagnosing depression in the primary care setting is challenging, particularly in Chinese patients. Remission at 12 months from depressive symptoms does not appear to be affected by doctor identification, but recovery of health-related quality of life occurs more rapidly in patients who receive a diagnosis of depression from the doctor. Patients who consulted a doctor trained in family or psychological medicine appear to be better protected from developing depressive symptoms. Health service use is persistently increased over a 12-month period in patients with depressive symptoms. Patient-reported utilisation rates for specialist psychiatric services are higher than doctor referral rates, indicating that patients may refer themselves to psychiatrists in the private sector directly. Enhanced access to counselling services may help facilitate doctors to better manage depression in primary care, reduce the burden on specialist services, and possibly reduce medication use.

Follow-up studies are needed to examine doctor's prescribing practices and their perception of what constitutes best practice for managing primary care patients with depression. Further exploration of the health behaviours of primary care patients with depressive symptoms, particularly in relation to medication use and seeking help from specialists. Long-term studies are needed to study relapse and chronicity of depressive disorders.

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