

# Detection of Major Depressive Disorder in Chinese Americans in Primary Care

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## Abstract

**Objective:** To assess the prevalence of major depressive disorder in Chinese Americans in the greater Boston area.

**Patients and Methods:** Chinese American participants were recruited through 10 primary care clinics in greater Boston. Depression was determined by assessment on 2 screening instruments, the Mental Health Index-5 and Primary Care Screener for Affective Disorders for the first-stage survey and by Structured Clinical Interview for the Diagnostic and Statistical Manual of Mental Disorders, 4th edition for the second-stage interview.

**Results:** The prevalence of major depressive disorder among Chinese Americans attending primary care clinics (one-year prevalence of about 10%) appeared similar to the prevalence reported in other ethnic groups. The brief survey (Mental Health Index-5) performed as well as the lengthier one (Primary Care Screener for Affective Disorders). Few Chinese Americans with identified major depressive disorder had received antidepressant treatment from their primary care physician.

**Conclusion:** Cultural beliefs about mental health appeared as barriers to both detection and treatment in this study.

**Key words:** Chinese Americans, Major depressive disorder, Prevalence, Primary health care, Questionnaires

## Introduction

Depression is a common disorder in the USA. Between 5% to 12% of men and 10% to 25% of women have an episode of major depressive disorder (MDD) during their lifetime.<sup>1</sup> Depression is also a serious illness, leading to functional impairment, poor quality of life, loss of economic productivity, greater health care utilisation, and an increased risk for suicide and increased mortality.<sup>2-9</sup> It has been estimated

that MDD is associated with 20,000 suicides and \$44 billion in health care costs in the USA annually.<sup>10,11</sup> However, little is known about the prevalence of MDD among Asian Americans in the USA, despite the fact that they constitute one of the fastest growing sectors of the population over the last 30 years.<sup>12</sup>

It is widely acknowledged that Asian Americans shun mental health services,<sup>13</sup> as most ethnic minorities do.<sup>14</sup> There is evidence to indicate that Asian Americans under-utilise outpatient,<sup>15</sup> inpatient<sup>16</sup> and emergency<sup>17</sup> psychiatric services. Reasons for this may be complex but the stigma of mental illness is thought to be a major factor.<sup>18-21</sup> It is possible that the use of alternative methods of treatment (such as acupuncture) along with barriers to care (such as language and cost issues) may also have reduced the use of mainstream psychiatric services by Asian Americans.

Given the antipathy that Asian Americans appear to hold for mental health services, it seemed reasonable to speculate that Asians who are depressed may be more likely to seek treatment from primary care physicians (PCPs) than from psychiatrists. This may be particularly the case for individuals who experience and present with somatoform symptoms of MDD.<sup>22-24</sup> Research in this area is lacking, however. Despite the recent increase in research on MDD in primary care,<sup>25-28</sup> only one published study<sup>29</sup> was identified that focused specifically on the issue of MDD among Chinese Americans in primary care. A further study by Yeung and colleagues noted that consulting a PCP for symptoms

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related to MDD was considered more acceptable to Chinese Americans than consulting a psychiatrist.<sup>30</sup>

In a 14-nation survey conducted by the World Health Organization, rates of depression reported were the lowest in two Asian countries, China and Japan.<sup>31</sup> This finding is difficult to explain since China and Japan have suicide rates that are among the highest in the world.<sup>32</sup> It is possible that there is under-reporting of depression in such surveys because of the stigma attached.

This paper reports a two-stage survey to determine the prevalence of MDD in Chinese Americans in primary care conducted in metropolitan Boston. Chinese Americans were the focus of the survey because they constitute the largest group among Asians in Massachusetts.<sup>12</sup> The study was approved by the Human Institutional Review Committee of Tufts-New England Medical Center, and was designed to answer the following questions:

1. Is a simple screening instrument, the Mental Health Index-5 (MHI-5),<sup>33</sup> better or worse at detecting depression in primary care in Chinese Americans than the Primary Care Screener for Affective Disorders (PC-SAD),<sup>34</sup> a detailed screening instrument?
2. What is the estimated prevalence of depression in this population?
3. Do Chinese Americans diagnosed with MDD underutilise mental health services? If so which of the 3 factors that Rogler and colleagues<sup>14</sup> identified as reasons for mental health service underutilisation (cultural beliefs that impede use of services, use of alternative pathways of care, and actual barriers to care) are responsible for underutilisation in Chinese Americans?
4. What is the influence of the level of acculturation on the performance of the screening instruments, the prevalence of depression, and the pattern of service utilisation?

## Patients and Methods

### *Participants and Procedure*

The study was conducted at ten PCP offices in the metropolitan Boston area. Five of the PCPs belonged to the General Medical Associates of Tufts-New England Medical Center. The other 5 were private practitioners, 3 with offices in the Chinatown area, and 2 with offices in nearby towns (Quincy and Malden) with large Chinese immigrant populations. The questionnaire phase of the study was conducted between November 1999 and March 2000 and the interview phase from February 2000 to July 2000.

Chinese patients attending one of the 10 above-mentioned PCP clinics were approached for recruitment to the study. During the first 4 weeks of the recruitment phase, a study packet containing a one-page flyer describing the study, a copy of the consent form, the MHI-5 and PC-SAD were placed at the receptionist's counter at each clinic. All Chinese patients who came to register at the receptionist's counter were given the study packet by the receptionist. Those who expressed an interest in participating in the study were encouraged to call the research assistant (RA) at

Dr Hsu's office regarding study participation. The initial response was very poor and after 4 weeks, RAs trained by one of the authors on how to approach a patient for a research study, were stationed at each PCP clinic for 4 to 12 hours each week. The RA would approach each Chinese patient at the clinic and describe the study. The patient would complete the MHI-5 and PC-SAD after they had signed the consent form. The RA was present to answer any questions that the patient had regarding the questionnaires, but the questionnaires were not administered orally by the RA. Subjects were reimbursed \$5 for completion of the questionnaires.

### *Instruments*

The two questionnaires were: (1) MHI-5,<sup>33</sup> a subscale of the SF-36,<sup>35</sup> a 5-item general mental health screening instrument for psychiatric symptoms that have occurred in the past 4 weeks. The MHI-5 took 2 to 3 minutes to complete; and (2) PC-SAD, a 37-item self-administered questionnaire consisting of a 3-item pre-screener, a 26-item MDD section, and an 8-item dysthymia section. The pre-screener, designed to reduce respondent burden by terminating the questionnaire when all responses to the 3 items are negative, consists of 2 depression questions closely related to the World Health Organization depression screening tool<sup>36</sup> and one dysthymia question. The PC-SAD provides a breakdown of each of the Diagnostic and Statistical Manual of Mental Disorders, 4th edition (DSM-IV) MDD/dysthymia symptoms for the diagnosis of current MDD (sensitivity 87.2%, specificity 95%) and dysthymia according to DSM-IV criteria.<sup>34</sup> It takes 1 to 2 minutes to complete the PC-SAD pre-screener, but about 30 minutes for the full questionnaire if the individual answers "yes" to any of the pre-screening questions. To obtain a valid Chinese version of both questionnaires, the authors followed the guidelines for the cross-cultural adaptation of health measures.<sup>37</sup> The 2 questionnaires were translated into Chinese and then translated back into English. Equivalence in conceptual content for the Chinese and English versions of the two questionnaires was achieved after several revisions by discussion among the authors.

### *Second-stage Interview*

All subjects who had a positive score on the MHI-5 or PC-SAD were approached by telephone for an interview, as was a randomly chosen group (20%) of subjects with a negative score on both questionnaires. Every effort was made to conduct the interview as soon as possible after the questionnaire screening. Subjects were reimbursed \$50 for the interview. A trained and experienced assessor administered the Structured Clinical Interview for the DSM-III-R (SCID),<sup>38</sup> which had been translated into Chinese, and an Acculturation Questionnaire.<sup>39</sup>

### *Follow-up*

All subjects who were diagnosed as having MDD on interview were approached by telephone at 6 months for a telephone interview by one of the authors. Questions

on current mental status and service utilisation were administered over the telephone to those who consented to the telephone interview.

## Results

### Number of Subjects

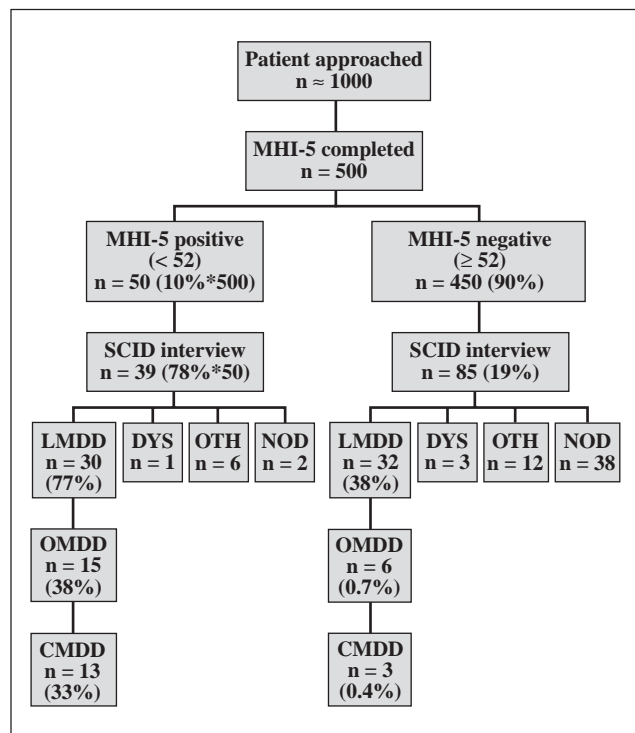
It was estimated that about 1000 patients were approached for the Phase I Study. An exact count was not possible because it was unclear how many patients received the study packet during the initial 4 weeks of the study. The number of subjects who participated at each stage of the study is summarized in Figures 1 and 2.

### First Phase: Screening

A total of 560 questionnaires were returned. Among the returned questionnaires, 500 MHI-5 (293 female, mean age [± SD] 44.8 ± 10.4 years; 207 male, mean age 45.9 ± 10.7 years) and 476 PC-SAD (282 female, mean age 44.9 ± 10.5 years; 194 male, mean age 46.0 ± 10.8 years) were usable. For the MHI-5, when a cut-off score of 52 was used (ie, a score of less than 52 was considered “depressed”, a score of 52 or above was considered not depressed), 50 out of 500 subjects (10%) had a positive score. For the PC-SAD, 45 of the 476 (9.5%) had a positive score. Therefore, both questionnaires identified about 10% of subjects as being depressed.

Figure 1. Screening for depression with the Mental Health Index-5 (MHI-5).

Abbreviations: SCID = Structured Clinical Interview for the Diagnostic and Statistical Manual of Mental Disorders-IV; LMDD = patients with lifetime major depression; OMDD = one-year major depression; CMDD = current major depression; DYS = dysthymia; OTH = other diagnosis; NOD = no diagnosis.



### Second Phase: Interview

Interviews with the SCID were conducted in person by one of the authors. Due to the one- to five-month gap between the questionnaire survey and the interview, subjects were asked specifically for: (1) the presence of depression around the time of the questionnaire survey, defined for the purpose of this study as current depression (CMDD) and specifically about why they had visited their PCP at the time; (2) presence of depression within the past 12 months (one-year depression, OMDD); and (3) lifetime depression (LMDD).

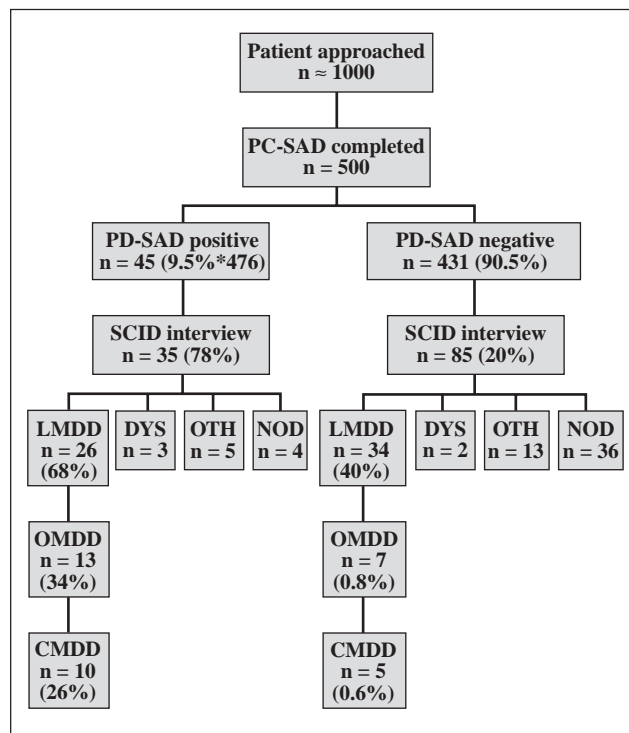
Thirty nine of the 50 MHI positive cases and 38 of the 45 PC-SAD positive cases were interviewed. Among the MHI-5 and PC-SAD negative cases, 85 of 110 approached were interviewed. The findings are summarised in Figures 1 and 2.

### Estimated Prevalence of Depression

The prevalence of current depression, as indicated by interview, was estimated as 6.5% of the 500 who provided usable MHI-5 and 7.8% of 476 usable PC-SAD results (Table 1). Since not all subjects were interviewed, these estimates are based on projecting the depression percentages of those interviewed to the full sample. The estimated one-year rate was 10.2% according to the MHI-5, and 10.7% according to the PC-SAD. The estimated lifetime rate was about 41% for both questionnaires.

Figure 2. Screening for depression with the Primary Care Screener for Affective Disorders (PC-SAD).

Abbreviations: LMDD = patients with lifetime major depression; OMDD = one-year major depression; CMDD = current major depression; DYS = dysthymia; OTH = other diagnosis; NOD = no diagnosis.



**Table 1. Performance of the Mental Health Index-5 (MHI-5) and Primary Care Screener for Affective Disorders (PC-SAD).**

	MHI-5	PC-SAD
Sensitivity	51.20	31.80
Specificity	92.90	92.40
Positive predictive value	33.30	26.30
Negative predictive value	96.50	94.10
Estimated prevalence of current depression	6.51%	7.81%
Estimated prevalence of one-year depression	10.20%	10.69%
Estimated prevalence of lifetime depression	41.57%	42.69%

### **Performance of Each Questionnaire for Detecting Current Depression**

The sensitivity, specificity, positive predictive value (PPV), and negative predictive value (NPV) of the MHI-5 and PC-SAD are presented in Table 1, as determined by the “gold standard” of interview with the SCID.

### **Level of Acculturation**

Of 126 subjects interviewed, 20 were at Level 1 (Very Chinese), 100 at Level 2 (Mostly Chinese), and only 4 at Level 3 (Bicultural). A further 2 subjects did not complete the acculturation scale.

### **Subsequent Treatment**

Eleven of the 16 CMDD patients identified by MHI-5 and SCID were interviewed by telephone at 6 months. Two patients returned to consult their PCP for their MDD, with neither receiving antidepressant medication. Two were treated at a mental health clinic with antidepressant medication. Two sought alternative treatment (Qigong, traditional Chinese medicine). All still had some residual symptoms at follow-up. The 5 patients who declined follow-up had received no treatment from their PCP. Therefore, most patients received no antidepressant treatment for their MDD.

### **Reasons for Mediocre Performance of Screening Questionnaires**

The authors were interested in identifying why both questionnaires had a relatively high false-negative rate and, particularly for the PC-SAD, a relatively higher false-positive rate.

The high false-negative rate was related to 2 issues. Many subjects reported a reluctance to endorse the presence of depressive symptoms on a self-report questionnaire. They expressed a fear that if they did they might be perceived to be abnormal or mentally ill. A second reason was a different conceptualisation of depression. Many would not accept that they were “depressed” (ie, that they had a depressive or mental disorder) as they believed their symptoms were explained by their personal circumstances. Therefore, depressive symptoms occurring in the context of a stressful

or traumatic life event such as immigration, the cultural revolution, or unemployment, they argued, were “natural” and not abnormal (“everyone gets depressed at such times”).

The high false-positive rate occurred primarily because our subjects failed to distinguish between current and past depression (ie, presence of lifetime depression but not within the past 4 weeks) on both screening questionnaires, and for the PC-SAD, to distinguish between current major depression and dysthymia. It appeared that subjects either did not understand the questions that specified a time-frame (eg, “In the past 4 weeks...”), or else did not consider the finer distinctions of symptoms occurring in different contexts to be important.

Finally, many complained predominantly of somatoform symptoms such as dizziness, palpitations, tinnitus, anorexia, insomnia and lack of strength. They believed that subjective dysphoria was a natural reaction to the somatoform symptoms (“Wouldn’t you be depressed if you had these symptoms?”). This interpretation precluded them from endorsing the presence of depression on the questionnaire.

## **Discussion**

This study found that the prevalence of 7% for current MDD among Chinese Americans in primary care was similar to that of other ethnic groups in a similar setting,<sup>40,41</sup> although lower than the 14.6% reported by Yeung et al.<sup>30</sup> About 10% of subjects had had an episode of MDD in the last 12 months, a rate that was comparable to that found in the National Comorbidity Survey,<sup>42</sup> but about 3 times higher than the 12-month rate of the respondents in the Chinese American Psychiatric Epidemiology Study conducted in Los Angeles.<sup>43</sup> Differences between samples and study methodology could have accounted for the disparate results across studies, but it seems unlikely that the prevalence of MDD among Chinese Americans is very different from that in the other ethnic groups. It may also be possible that Chinese Americans are more likely to experience depression in terms of somatic or somatoform symptoms.<sup>23,44,45</sup>

There were 3 methodological limitations with this study. The first was the fact that the questionnaire survey and the SCID interview were not conducted at the same time. The SCID interview, conducted on average 3 months after the screening questionnaire survey, could have yielded biased data because of problems of recall. The second problem was the non-random selection of subjects. Many factors might have determined who in the end chose to complete and return the questionnaire, or to participate in the interview. The third problem was that our subjects were Cantonese or Mandarin speaking. Chinese subjects that did not speak either of these languages were excluded. These findings therefore may not be applicable to the overall population of Chinese Americans attending primary care.

Taking into account these limitations, the study highlighted the difficulties encountered in the detection of depression in Chinese Americans in primary care. A review by

Mulrow and colleagues found that nine widely used depression screening instruments had an average sensitivity of 84% (range, 67% to 99%) and an average specificity of 72% (range, 40% to 95%).<sup>46</sup> The sensitivity data for the 2 screening questionnaires in this study were at the lower end of this range, although in terms of specificity they performed well. The mediocre performance of the questionnaires in this study seemed to be related to cultural factors: a fear of disclosure, a different conceptualisation of depression, unfamiliarity with screening instruments, and a somatoform symptom profile. Our findings therefore were in accord with those of Yeung and colleagues.<sup>30</sup> They reported that a brief face-to-face screening conducted by an experienced researcher was likely to be more effective than a paper-and-pencil screening procedure for the detection of MDD in Chinese Americans in primary care. It would be important to study the effectiveness of a two-question face-to-face case-finding interview in this population.<sup>47</sup>

That Chinese Americans would conceptualise major depression differently than current psychiatric thinking was not surprising,<sup>45</sup> and raised ontological issues regarding the nature of MDD which are beyond the scope of this study. From a pragmatic standpoint, the conceptualisation of depression resulted in a passive acceptance of the symptoms that remained largely untreated during the subsequent 6 months. Untreated depression has been identified as a major burden to the individual and to society,<sup>48</sup> leading to impaired physical, mental and social well-being, decreased productivity, and increased mortality.<sup>2-4,9,10</sup> Our findings highlight the need for vigorous detection and treatment of MDD in Chinese Americans.

Finally, cultural beliefs about mental illness appear to be the main impediment to mental health service utilisation among the Chinese Americans in this study. There was little evidence that alternative treatments or actual barriers to care prohibit the use of mainstream mental health services. As the majority of study subjects were traditionally Chinese in their cultural orientation, it could not be determined whether acculturation to Western beliefs about mental illness would improve the detection and treatment of MDD. This is an issue that future studies must explore. Unfortunately, many Chinese immigrants to the USA may still find the diagnosis of depression "morally unacceptable and experientially meaningless".<sup>44</sup>

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