

# CULTURALLY ADAPTED DEPRESSION ASSESSMENT FOR CHINESE AMERICANS: HOW TO REDUCE MENTAL HEALTH DISPARITIES AND IMPROVE ACCESS TO CARE

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**(she/her)**

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# CONTACT

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## Chinese American Depression Scale – 58 Items

### Ordered from Highest Severity to Lowest Severity

Symptom Dimension: PSY = Psychological; SOMA = Somatic; SOC = Social.

#### ==== VERY SEVERE =====

- |          |           |   |
|----------|-----------|---|
| 58. PSY  | Suicidal  | You think about killing yourself. 你想過自殺.                              |
| 57. PSY  | HurtSelf  | You have thoughts about hurting yourself. 你想過傷害自己.                    |
| 56. PSY  | Psychotic | You have auditory or visual hallucinations. 你有幻聽和幻覺.                  |
| 55. SOMA | Nausea    | Have you experienced: Nausea or throwing up? 你是否有以下感覺：作嘔惡心或嘔吐         |
| 54. SOMA | Hiccups   | Have you experienced: Hiccups? 你是否有以下感覺：打嗝                            |
| 53. SOMA | ColdSweat | Have you experienced: Cold sweat (due to fear)? 你是否有以下感覺：出冷汗（因害怕）     |
| 52. SOMA | Vision    | Have you experienced: Temporary unclear vision? 你是否有以下感覺：暫時性視覺模糊      |
| 51. PSY  | Crying    | You cry. 你哭.  |
| 50. SOMA | Throat    | Have you experienced: Throat discomfort or soreness? 你是否有以下感覺：喉嚨不適或疼痛 |
| 49. SOMA | Tinnitus  | Have you experienced: Tinnitus (ringing sound in ears)? 你是否有以下感覺：耳鳴   |
| 48. SOMA | Stomach   | You have stomach pains or discomfort? 你感到胃痛或胃不舒服.                     |
| 47. SOMA | Light     | Have you experienced: Sensitivity to light? 你是否有以下感覺：對光敏感             |
| 46. SOMA | Dizzy     | Have you experienced: Feeling faint or dizzy? 你是否有以下感覺：頭暈目眩           |

#### ===== SEVERE =====

- |             |              |  |
|-------------|--------------|--|
| 45. SOMA    | Indigestion  | Have you experienced: Stomach bloating, or poor or uncomfortable digestion?<br>你是否有以下感覺：胃氣脹，消化不良造成的不適            |
| 44. SOC     | Blaming      | You strongly blame your family members or partner for your life difficulties.<br>當你生活有困難，你強烈地埋怨家人或伴侶.            |
| 43. SOMA    | AppetiteLoss | You have poor appetite. 你感到沒有胃口.   |
| 42. SOMA    | HeavyHead    | Have you experienced: Feeling of heaviness in head? 你是否有以下感覺：頭重  |
| 41. SOMA    | ThinkUnclear | Have you experienced: Unable to think clearly? 你是否有以下感覺：頭腦不清醒  |
| 40. SOMA    | SexDesire    | Have you experienced: Low sexual desire or dysfunction? 你是否有以下感覺：性功能障礙   |
| 39. PSY-SOC | Burden       | You feel you are a burden to your family and society. 你覺得自己是家人和社會的負擔.  |
| 38. SOC     | Socialize    | You don't want to have contact with people, socialize, or go out at all.<br>你完全不想和別人接觸□交往□或外出.                   |
| 37. SOC     | LostFace     | You think you made your family lose face. 你感到讓親人丟臉.  |
| 36. SOC     | OwnFault     | You feel everything is your fault. 你感到所有問題都是自己的錯.  |
| 35. PSY     | Afraid       | You feel very afraid. 你感到很害怕.  |
| 34. SOC     | NoRespect    | You feel you don't have the kind of respect from work and family that you should have.<br>你覺得在家中和工作的地方得不到應該有的尊重. |
| 33. PSY-SOC | Meaningless  | You feel life is meaningless. 你感到做人沒有意思.   |
| 32. SOMA    | Heart        | You have heart palpitations or chest discomfort. 你感到心跳加速或胸悶.   |
| 31. SOC     | NotTalk      | You don't want to talk. 你不想說話.   |
| 30. PSY-SOC | Hopeless     | You feel hopeless. 你感到沒有希望.  |
| 29. SOMA    | Jointaches   | Have you experienced: Jointaches? 你是否有以下感覺：關節痛   |
| 28. SOC     | HideProbs    | You hide your life difficulties from other people. 你隱瞞自己生活有困難.   |
| 27. PSY     | Angry        | You have tantrums and get angry very easily. 你很容易發脾氣和發怒.   |

===== **MODERATE** =====

26. PSY-SOC	Useless	You feel useless. 你覺得自己沒用.
25. SOMA	Bodyaches	You have bodily aches and pains. 你感到渾身疼痛.
24. PSY	Irritated	You feel emotionally irritated. 你感到心煩氣燥.
23. SOMA	SleepDay	Have you experienced: Wanting to sleep during daytime? 你是否有以下感覺：白天想睡覺
22. PSY	Anhedonia	You have no interest in many things. For example, you used to like to exercise, go shopping, or go out for entertainment, but not anymore. 你對很多事情失去興趣。 例如：你從前很喜歡做運動，逛街或出外娛樂，但現在已經失去興趣.
21. PSY	Unhappy	You feel very unhappy. 你感到非常不開心.
20. SOC-SOMA	AbilityFear	You are afraid of losing your working ability completely one day. 你害怕有一天會完全失去做事能力.
19. SOC	NotGood	You feel like no matter how hard you try, you can't be as good as other people. 你感到不論你多努力都比不上別人.
18. PSY	Ruminate	You think about unpleasant things the whole day and cannot stop. 你整天不停地想起不愉快的事情.
17. SOMA	ThinkSlow	You feel that you are thinking very slowly. 你覺得自己思想很緩慢.
16. SOC	Lonely	You feel very lonely. 你感到很寂寞.
15. SOMA	GetStarted	It feels very hard to get started on doing things. 你感到做事總是提不起勁.
14. SOMA	Decisions	You have trouble making decisions. 你常拿不定主意.

===== **MILD** =====

13. PSY	Nervous	You are very nervous. 你感到很緊張.
12. PSY-SOC	Helpless	You feel very helpless. You feel you have no way to change your own fate. 你感到很無助。你感到沒有辦法改變自己的命運.
11. PSY-SOMA	HealthFear	You are very afraid of having health problems. For example, you might have cancer or heart disease. 你非常害怕自己健康有問題。例如□患癌症或心臟病.
10. SOMA	Memory	Your ability to remember things has worsened very much. For example, you forget where you put your keys, or your appointments. 你記性比以前差很多。例如□忘記帶鎖匙或約會時間.
9. SOMA	Concentrate	You are unable to concentrate well. 你難以集中精神.
8. PSY	Bored	You are very bored. 你感到很沉悶.
7. SOMA	Tired	Have you experienced: Feeling physically tired or having no energy? 你是否有以下感覺：體疲倦或疲乏無力
6. SOMA	SleepProbs	You are unable to sleep well. 你睡得不好.
5. SOMA	AbilityLoss	You feel your working & learning ability has decreased significantly. 你感到做事和學習能力明顯下降.
4. PSY	Worried	Many things make you feel very worried. 很多事情讓你感到很擔心.
3. PSY	Troubled	Many things make you feel very troubled or bothered. 很多事情讓你覺得很煩惱.
2. PSY	Stress	You feel heavy stress living in the US. 你在美國生活感到重大的壓力.
1. SOMA	Fatigued	You feel very fatigued. 你感到很疲累.

Item response analysis was used to model the structure of depression for Chinese immigrant adults as part of Rose Wong's dissertation research in the School of Social Welfare at U.C. Berkeley. The above 58 items formed a multidimensional model of depression consisting of psychological, somatic, and social dimensions of distress. The Chinese Community Health Care Association, National Institute of Mental Health (grant no. 5R36MH080607), and Fahs-Beck Fund for Research and Experimentation funded this research. For information, please contact Rose Wong, Assistant Professor of Social Work, California State University, East Bay at rose.wong@csueastbay.edu

# 美國華人移民心理健康問卷

## Chinese American Depression Scale (CADS-9)

姓名：NAME: \_\_\_\_\_ 日期：DATE: \_\_\_\_\_

在過去兩星期，你是否被以下事情所困擾？如果是，被困擾多少天？請閱讀每題並圈上最合適的答案。

Over the last two weeks, were you bothered by the following problems? If so, how many days? Please read each statement carefully and circle the most appropriate answer.

完全沒有/ 沒有一天 (0天) Not at all/ No days	非常少/ 幾天 (1-3天) A little bit/ A few days	有時/大約 一半時間 (4-10天) Quite a bit/ About half the days	經常是/差 不多每天 (11-14天) Extremely/ Nearly every day
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1. 很多事情讓你感到很擔心。 Many things make you feel very worried.	0	1	2	3
2. 你難以集中精神。 You are unable to concentrate well.	0	1	2	3
3. 你非常害怕自己健康有問題。 例如：患癌症或心臟病。 You are very afraid that you have health problems. For example, you might have cancer or heart disease.	0	1	2	3
4. 你感到非常不開心。 You feel very unhappy.	0	1	2	3
5. 你很容易發脾氣和發怒。 You have tantrums and get angry very easily.	0	1	2	3
6. 你隱瞞自己生活有困難。 You hide your life difficulties from other people.	0	1	2	3
7. 你感到很害怕。 You feel very afraid.	0	1	2	3
8. 你完全不想和別人接觸，交往，或外出。 You don't want to have contact with people, socialize, or go out at all.	0	1	2	3
9. 你想過傷害自己。 You have thought about hurting yourself.	0	1	2	3

合計：  
ADD COLUMNS:  +  +

總計：  
TOTAL:

## How to use CADS-9

### *Chinese American Depression Scale*

- ◆ **Eligibility:** CADS-9 is for adults, ages 21-60, who consider Chinese as their primary culture, or consider themselves as bicultural, and speak and understand Chinese fluently. It is intended for the screening of symptoms associated with depression in medical clinics and social services agencies.
- ◆ **Directions:** CADS-9 is a self-report instrument that may be administered by a health or social services provider, or self-administered by the patient or client. Read each item as written. For example, do not change “very worried” to “extremely worried.” Make sure that the respondent understands the meaning of the respective answers (0, 1, 2 and 3) in terms of the number of days over the past two weeks. Also, encourage the respondent to answer each item with his or her own understanding and judgment.
- ◆ **Cutoff Score:** A total score of 10 or more points for women, and 9 or more points for men, indicate risk of major depression or dysthymia. Use CADS-9 as an initial screen, rather than a means of clinical diagnosis.
- ◆ **Severity Levels:** Higher total scores indicate more severe depression.
  - ◆ Minimal symptoms: 5-9 *women*, 4-8 *men*.
  - ◆ Mild: 10-14 *women*, 9-13 *men*.
  - ◆ Moderate: 15-19 *women*, 14-18 *men*.
  - ◆ Severe: 20+ *women*, 19+ *men*.

Provide referral to mental health assessment and treatment to individuals who score “mild,” “moderate,” and “severe.” Provide education and follow-up to individuals who have “minimal symptoms.”

- ◆ **Other Information:** The first items indicate milder depression, and the last items indicate more severe depression. For example:
  - ◆ Mild: 1-*worry*, 2-*poor concentration*.
  - ◆ Moderate: 3-*health concerns*, 4-*unhappiness*, 5-*anger*, 6-*hiding difficulties*.
  - ◆ Severe: 7-*fear*, 8-*social avoidance*, 9-*self-harm*.

An individual may be at risk of major depression or dysthymia even if his or her total score is very low, such as below the cutoff score. Consider providing further screening and referral to anyone who answers:

- ◆ 2 (quite a bit) or 3 (extremely) to several of the nine items, or
  - ◆ 1 (a little bit), 2 (quite a bit), or 3 (extremely) to 8-*social avoidance* or 9-*self-harm*.
- ◆ **Scale Development:** CADS-9 was developed with a sample of 227 Chinese immigrant adults in the San Francisco metropolitan area during 2008-09. Study participants were persons diagnosed with major depression or dysthymia, and community members. As a new scale, CADS-9 will need to be researched with more samples to confirm its validity and effectiveness. The Chinese Community Health Care Association, the National Institute of Mental Health, and the Fahs-Beck Fund for Research and Experimentation provided research grants for the development of CADS-9. Donaldina Cameron House was the principal community study site. For information, please contact Rose Wong at [rosewong@csueastbay.edu](mailto:rosewong@csueastbay.edu).

**It is very common for teens to experience the emotional and physical symptoms listed on the other side.**

青少年經歷上頁列舉的心理和生理症狀是很普遍的。

**They are associated with a condition called “depression”.**

這些與心理有關的症狀稱作“憂鬱症”。

**Teens face many stressors that can lead to depression.**

青少年面對很多可以導致憂鬱症的壓力。

**Common stressors include:**

一些很普遍的壓力包括：

- Conflict with parents  
與父母有爭執
- Poor performance in school  
在學校表現差
- Difficulties dealing with two cultures and languages  
面對兩種文化和語言有困難
- Breakup or conflict with girlfriend or boyfriend  
和女朋友/男朋友有爭執或分手
- Living in a small, cramped space  
生活在狹小的空間
- Witnessing fighting in family  
目擊家庭成員之間的爭吵/打架
- Issues of self-image or identity development (gender, sexual, cultural, etc.)  
自我形象或身份問題(包括:性別,性取向,文化)
- Loss or death of a friend or family member  
失去一個重要的朋友或家庭成員
- Not fitting in with peers  
不合群
- Being bullied or pressured to bully  
被嘲笑或嘲笑他人

**Having these symptoms doesn't necessarily mean that you have depression. Get a professional evaluation to find out.**

有這些症狀不一定表示你有憂鬱症。  
需要作一個專業評估去確定。

**Symptoms will usually not go away on their own**

症狀通常不會自動消失

**Getting help is important and effective**

尋求幫助是非常重要的和有效的方法



**A Brighter Future Is Ahead!**

走出困境!光明在望!

**For more information, please contact:**

如需要更多資訊,請聯絡:

San Francisco Bay Area Chinese Community Depression Education Project  
Funded by Okura Mental Health Leadership Foundation &  
Dept. of Social Work, California State University, East Bay

**Physical & Mental Health Are Linked**

生理和心理健康是相關連的

**Stress Can Make Us Sick!**

壓力可以導致疾病!



**Know When You Need to Regain Your Health**

知道你在何時需要重新找回健康

**Help Yourself and Friends Find Hope**

幫助自己或你的朋友重拾希望

# Evaluate Your Physical and Mental Health

## Have You Experienced Any of These Symptoms in the Past Week?

評估你的生理和心理健康狀況。你最近幾個星期是否感到這樣？

- 1. Unhappy  
不開心
- 2. Feeling that you don't care about anything  
覺得你對任何事情再也不計較
- 3. Changed sleep pattern: Unable to sleep or sleeping a lot  
改變睡眠方式:不能入睡或睡很多
- 4. Frustrated that your parents don't understand you  
因父母不明白你而覺得沮喪
- 5. Hopeless - like there is no solution for your problems  
絕望 - 你的問題沒有解決方法
- 6. Low energy  
沒有精力
- 7. Feeling that your parents view you negatively  
覺得你的父母對你有負面的看法
- 8. Angry - holding it inside or showing it  
憤怒 - 將憤怒藏於內心或發洩出來
- 9. Changed eating pattern: Eating little or overeating  
改變進食方式:吃很少或吃很多
- 10. Feeling that life has no meaning  
覺得生活沒有意義
- 11. No interest in socializing  
對社交失去興趣
- 12. Thoughts of hurting yourself  
有傷害自己的想法

Do your symptoms make it difficult to fulfill your responsibilities at school, home or work?

有關生理和心理方面的症狀是否令你在履行學習、家庭或工作的責任時有困難？

- A. No 沒有
- B. A little bit 有一點
- C. A lot 有很多

## Who Can Help?

誰可以幫助你？

Get information and a referral to someone who can help you from these professionals: school nurse or counselor, teacher, family doctor, social worker, or mental health specialist. Show him or her this brochure with your symptoms checked off.

你可以與下列專業人員傾談並得到幫助:學校的護士、老師或輔導員、家庭醫生、社工或心理健康治療師。把你已填寫的症狀表交給專業人員。

**WARNING: If you are very distressed by your symptoms or you have thoughts of hurting yourself, get help from a professional or call the 24-hour Crisis Line immediately.**

請注意:當你的症狀令你感到極度不安或有傷害自己的想法,請你尋求專業人士的幫助或立刻致電24小時危機熱線。

San Francisco/三藩市: 415-781-0500  
National/全美: 1-800-273-8255

**Total symptoms:**   
症狀總數

## What do your answers mean?

### 6 or fewer symptoms

有六項或以下症狀

And you chose A or B

如果你選擇 A 或 B

Pay attention to your symptoms and get help if they become more severe. ←

要留意那些症狀:如果變得更嚴重時,要尋求幫助。

And you chose C

如果你選擇 C

You are probably experiencing physical and mental health changes that require professional care. ←

**Get help immediately from a professional.**

你極有可能正在經歷生理或心理健康方面的轉變,並需要專業人士的幫助。

立刻向專業人士尋求幫助。

### 7 or more symptoms

有七項或以上症狀

And you chose A

如果你選擇 A

Pay attention to your symptoms and get help if they become more severe. ←

要留意那些症狀:如果變得更嚴重時,要尋求幫助。

And you chose B or C

如果你選擇 B 或 C

You are probably experiencing physical and mental health changes that require professional care. ←

**Get help immediately from a professional.**

你極有可能正在經歷生理或心理健康方面的轉變,並需要專業人士的幫助。

立刻向專業人士尋求幫助。



## 有八項或以下症狀

### 如果你選擇 A 或 B

要留意那些症狀;如果變得更嚴重時,要尋求幫助。



### 如果你選擇 C

你極有可能正在經歷生理或心理健康方面的轉變。



**立刻向醫生尋求幫助。**

## 有九項或以上症狀

### 如果你選擇 A

要留意那些症狀;如果變得更嚴重時,要尋求幫助。



### 如果你選擇 B

你極有可能正在經歷生理或心理健康方面的轉變。



**你需要盡快告訴醫生。**

### 如果你選擇 C

你極有可能正在經歷生理或心理健康方面的轉變。



**立刻向醫生尋求幫助。**

有這些症狀不一定表示你有病  
請聯絡醫生作一個專業評估

在家庭衝突、工作環境困難、  
經濟問題、難以適應美國生活  
和缺少社會支持的壓力下,每一  
個人在生活的某個階段會經歷  
這些症狀是很平常的事。

症狀通常不會自動消失  
尋求幫助是非常重要的方法



**走出困境!光明在望!**

如需要更多資訊,請聯絡:

# 生理和心理健康 是相關連的

## 壓力可以導致疾病!



知道你在何時需要  
重新找回健康

幫助你的家人,  
朋友或自己重拾希望

# 評估你的生理和心理健康狀況

## 你最近幾個星期是否感到這樣？

- 1. 身體疲倦或疲乏無力
- 2. 睡得不好
- 3. 難以集中精神
- 4. 記憶力比以前差很多
- 5. 渾身疼痛
- 6. 心跳加速或胸悶
- 7. 頭腦不清醒
- 8. 沒有胃口
- 9. 胃氣脹,消化不良造成的不適
- 10. 頭痛
- 11. 頭暈目眩
- 12. 作嘔惡心或嘔吐
- 13. 很多事情讓你感到很擔心
- 14. 感到很寂寞
- 15. 非常害怕健康有問題
- 16. 感到非常不開心
- 17. 對很多事情失去興趣
- 18. 感到心煩氣燥
- 19. 感到前途沒有希望
- 20. 感到做人沒有意思
- 21. 覺得在家中和工作的地方得不到應該有的尊重
- 22. 完全不想和別人接觸, 交往,或外出
- 23. 覺得自己是家人和社會的負擔
- 24. 有傷害自己的想法

**請注意:**

當你的症狀令你感到極度不安,或有傷害自己的念頭,你應尋求專業人士幫助或立即致電24小時危機熱線求助。

三藩市: 415-781-0500

全美: 1-800-273-8255



一共有  項症狀

有關生理和心理方面的症狀  
是否令你在工作、學習、  
照顧自己或其他人上有困難？

- A. 沒有
- B. 有一點
- C. 有很多



(答案在下一頁)



在經歷喪偶、長期患病、  
缺乏家人關懷、經濟困難、  
難以融入美國生活和孤獨的  
壓力下，長者有這些症狀  
是很平常的事。

症狀通常不會自動消失  
尋求幫助是非常重要  
和有效的方法



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如需要更多資訊,請聯絡:

**生理和心理健康  
是相關連的**

**壓力可以導致疾病!**



**知道你在何時需要  
重新找回健康**

**幫助你的家人,朋友  
或自己重拾希望**

**有八項或以下症狀**

要留意那些症狀並  
告訴醫生。



**有九項或以上症狀**

你極有可能正在經歷  
生理或心理健康方面  
的轉變。



**立刻向醫生尋求  
幫助。**

# 評估你的生理和心理健康狀況

## 你最近幾個星期是否感到這樣？

- 1. 身體疲倦或疲乏無力
- 2. 睡得不好
- 3. 難以集中精神
- 4. 記憶力比以前差很多
- 5. 渾身疼痛
- 6. 心跳加速或胸悶
- 7. 頭腦不清醒
- 8. 沒有胃口
- 9. 胃氣脹,消化不良造成的不適
- 10. 頭重
- 11. 頭暈目眩
- 12. 作嘔惡心或嘔吐
- 13. 很多事情讓你感到很擔心
- 14. 感到很寂寞
- 15. 非常害怕健康有問題
- 16. 感到非常不開心
- 17. 對很多事情失去興趣
- 18. 感到心煩氣燥
- 19. 感到前途沒有希望
- 20. 感到無助
- 21. 完全不想和別人接觸,交往,或外出
- 22. 覺得自己是家人和社會的負擔
- 23. 時常想哭
- 24. 有傷害自己的想法



一共有  項症狀

### 請注意：

當你的症狀令你感到極度不安,或有傷害自己的念頭,你應尋求專業人士幫助或立即致電24小時危機熱線求助。

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全美：1-800-273-8255

## Physical & Mental Health Are Linked

生理和心理健康是相關連的

## Stress Can Make Us Sick!

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## Know When You Need to Regain Your Health

知道你在何時需要重新找回健康

## Help Yourself or Friends Restore Hope

幫助自己或你的朋友重拾希望

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### Evaluate Your Physical and Mental Health Condition

### Have You Experienced Any of These Symptoms in the Past Few Weeks?

評估你的生理和心理健康狀況。你最近幾個星期是否感到這樣?

- |  |   |
|--|---|
| 1. Physically tired or no energy<br>身體疲倦或疲乏無力                              | 13. Feeling worried about many things<br>很多事情讓你感到很擔心  |
| 2. Unable to sleep well<br>睡得不好  | 14. Feeling lonely<br>感到很寂寞   |
| 3. Unable to concentrate well<br>難以集中精神                                    | 15. Very afraid of having health problems<br>非常害怕健康有問題  |
| 4. Memory is worse than before<br>記憶力比以前差很多                                | 16. Feeling very unhappy<br>感到非常不開心   |
| 5. Bodily aches and pains<br>渾身疼痛  | 17. Loss of interest in many things<br>對很多事情失去興趣  |
| 6. Heart palpitations or chest discomfort<br>心跳加速或胸悶                       | 18. Feeling irritated<br>感到心煩氣燥   |
| 7. Mind is unclear or confused<br>頭腦不清醒                                    | 19. Feeling hopeless about the future<br>感到前途沒有希望   |
| 8. No appetite<br>沒有胃口   | 20. Feeling that life is meaningless<br>感到做人沒有意思  |
| 9. Stomach bloating or discomfort from digestion problems<br>胃氣脹,消化不良造成的不適 | 21. Feeling that you don't have the kind of respect at work and home like you should have<br>覺得在家中和工作的地方得不到應該有的尊重 |
| 10. Headaches<br>頭痛  | 22. Not wanting to have contact with people, socialize or go out at all<br>完全不想和別人接觸,交往,或外出                       |
| 11. Feeling dizzy<br>頭暈目眩  | 23. Feeling that you are a burden to your family and society<br>覺得自己是家人和社會的負擔                                     |
| 12. Nausea or vomiting<br>作嘔惡心或嘔吐  | 24. Having thoughts of hurting yourself<br>有傷害自己的想法   |

Total number of symptoms: \_\_\_\_\_

一共有\_\_\_\_項症狀

## Warning

If your symptoms make you feel very distressed or you have thoughts of hurting yourself, please obtain help from a professional or call the 24-hour Crisis Hotline immediately.

請注意: 當你的症狀令你感到極度不安或有傷害自己的想法, 請你尋求專業人士的幫助或立刻致電24小時危機熱線。

San Francisco/三藩市: 415-781-0500

National/全美: 1-800-273-8255

Have these physical and mental symptoms made it difficult for you to work, study or care for yourself or others?

有關生理和心理方面的症狀是否令你在工作、學習、照顧自己或其他人上有困難?

- |                 |     |
|-----------------|-----|
| A. No           | 沒有  |
| B. A little bit | 有一點 |
| C. A lot        | 有很多 |

---

## Eight or fewer total symptoms

有八項或以下症狀

### If you chose A or B

如果你選擇 A 或 B

Pay attention to your symptoms. Obtain help if they become more severe.

要留意那些症狀;如果變得更嚴重時,要尋求幫助。

### If you chose C

如果你選擇 C

You are very likely experiencing some physical and mental health changes.

Obtain help from a doctor immediately.

你極有可能正在經歷生理或心理健康方面的轉變。  
立刻向醫生尋求幫助。

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## Nine or more total symptoms

有九項或以上症狀

### If you chose A

如果你選擇 A

Pay attention to your symptoms. Obtain help if they become more severe.

要留意那些症狀;如果變得更嚴重時,要尋求幫助。

### If you chose B

如果你選擇 B

You are very likely experiencing some physical and mental health changes.

You should contact your doctor as soon as possible.

你極有可能正在經歷生理或心理健康方面的轉變。  
你需要盡快告訴醫生。

### If you chose C

如果你選擇 C

You are very likely experiencing some physical and mental health changes.

Obtain help from a doctor immediately.

你極有可能正在經歷生理或心理健康方面的轉變。  
立刻向醫生尋求幫助。

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Having these symptoms does not necessarily mean you are sick.

Please contact your primary care physician for an evaluation to find out.

有這些症狀不一定表示你有病。請聯絡醫生作一個專業評估。

It is very common for people to experience these symptoms at some time in their lives due to stressors such as family conflicts, difficulties related to their work, financial problems, difficulties adapting to life in the US, and lack of social support.

在家庭衝突、工作環境困難、經濟問題、難以適應美國生活和缺少社會支持的壓力下,每一個人生活的某個階段會經歷這些症狀是很平常的事。

Symptoms usually will not go away on their own. Seeking help is important and effective.

症狀通常不會自動消失。尋求幫助是非常重要的和有效的方法。

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- |  |   |
|--|---|
| 1. Physically tired or no energy<br>身體疲倦或疲乏無力                              | 13. Worry about many things<br>很多事情讓你感到很擔心  |
| 2. Unable to sleep well<br>睡得不好  | 14. Feeling lonely<br>感到很寂寞   |
| 3. Unable to concentrate well<br>難以集中精神                                    | 15. Very afraid of having health problems<br>非常害怕健康有問題                                      |
| 4. Memory is worse than before<br>記憶力比以前差很多                                | 16. Feeling very unhappy<br>感到非常不開心   |
| 5. Bodily aches and pains<br>渾身疼痛  | 17. Loss of interest in many things<br>對很多事情失去興趣  |
| 6. Heart palpitations or chest discomfort<br>心跳加速或胸悶                       | 18. Feeling irritated<br>感到心煩氣燥   |
| 7. Mind is unclear or confused<br>頭腦不清醒                                    | 19. Feeling hopeless about the future<br>感到前途沒有希望   |
| 8. No appetite<br>沒有胃口   | 20. Feeling that life is meaningless<br>感到做人沒有意思  |
| 9. Stomach bloating or discomfort from digestion problems<br>胃氣脹,消化不良造成的不適 | 21. Not wanting to have contact with people, socialize or go out at all<br>完全不想和別人接觸,交往,或外出 |
| 10. Feeling of heaviness in head<br>頭重                                     | 22. Feeling that you are a burden to your family and society<br>覺得自己是家人和社會的負擔               |
| 11. Feeling dizzy<br>頭暈目眩  | 23. Always wanting to cry<br>時常想哭   |
| 12. Nausea or vomiting<br>作嘔惡心或嘔吐  | 24. Having thoughts of hurting yourself<br>有傷害自己的想法   |

Total number of symptoms: \_\_\_\_\_

一共有\_\_\_\_項症狀

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## Eight or fewer total symptoms

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立刻向醫生尋求幫助。

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**It is very common for people to experience these symptoms at some time in their lives due to stressors such as losing a significant other, chronic illness, lack of care or support from family members, financial problems, difficulties adapting to life in the US, and lack of social support.**

在經歷喪偶、長期患病、缺乏家人關懷、經濟困難、難以融入美國生活和孤獨的壓力下，長者有這些症狀是很平常的事。

**Symptoms usually will not go away on their own. Seeking help is important and effective.**

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探測憂鬱症的雷達



**Video 2 (10 min.)**

影片二 (10分鐘)

**The Stressed Doctor**

肩負壓力的醫生



**Video 3 (13 min.)**

影片三 (13分鐘)

**The Zen Doctor**

禪定醫生



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影片四 (20分鐘)

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 Eliciting Ideation and Intent**

自殺的徵兆：探測自殺意念和意圖



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Mrs. Chu's Story (15 min.)  
 朱太的故事 (15分鐘)



Mr. Yip's Story (21 min.)  
 葉生的故事 (21分鐘)

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有關老年人憂鬱症的錄影

Cantonese and Mandarin versions available.  
 有廣東話或普通話版。



Mrs. Wong's Story (23 min.)  
 王太的故事 (23分鐘)

**View and download the videos at: 觀看及下載視頻:**  
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## Culturally Sensitive Depression Assessment for Chinese American Immigrants: Development of a Comprehensive Measure and a Screening Scale Using an Item Response Approach

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### Abstract

The present mixed methods study developed a comprehensive measure and a screening scale of depression for Chinese American immigrants by combining an emic approach with item response analysis. Clinical participants were immigrants diagnosed by licensed clinicians who worked in the community. Qualitative interviews with clinicians and clinical participants (N = 63) supported the definition of the construct of depression—which guided scale development—and a 47-item pilot scale. Clinical and community participants (N = 227) completed the pilot scale and measures of neurasthenia and acculturative stress, and the Patient Health Questionnaire Depression Module (PHQ-9). A Rasch Partial Credit Model of 42-items—representing psychological, somatic and interpersonal domains of distress—best fit the data. Twenty-three items overlapped with the DSM-IV symptoms of major depression. Twenty-seven items were biased by acculturation-related variables. Nine items appropriate for self-report screening in primary care and community organizations were chosen to form a brief scale. Both measures showed strong reliability and concurrent and convergent validity. The 9-item scale had better content validity than the PHQ-9. Implications regarding the impact of culture for assessment are highlighted.

### Keywords

depression; assessment; acculturation; immigrants; Chinese American

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Chinese Americans underutilize mental health services more than any other ethnic group in the U.S. (Abe-Kim et al., 2007). Immigrant Chinese Americans especially have little knowledge of mental illness, delay treatment until their condition is very severe, and seek help in primary care and the community rather than consulting mental health specialists (Hong, Lee, & Lorenzo, 1995; Kung, 2004). With regard to depression, a problem of poor recognition by health care providers (Chung et al., 2003) and low detection with translated self-report scales was observed (Huang, Chung, Kroenke, Delucchi, & Spitzer, 2006; Yeung et al., 2008). The current study combined an emic approach with item response analysis to develop a comprehensive measure of the construct of depression for research and education—the 42-item Chinese American Depression Scale (CADS-42)—and a 9-item scale (CADS-9) for screening in primary care and community organizations.

## Assessing Depression in Chinese Americans via Standard Measures

The authors of several widely used depression assessment instruments reported that their scales had adequate psychometric properties when assessing Chinese Americans. These include the PHQ-9, Beck Depression Inventory (BDI) and Center for Epidemiological Studies Depression Scale (CES-D).

### Patient Health Questionnaire Depression Module

The PHQ-9 is a DSM-IV criterion-based instrument for screening in primary care (Kroenke, Spitzer, & Williams, 2001). The PHQ-9 was evaluated in two studies of Chinese American immigrants (T. M. Chen, Huang, Chang, & Chung, 2006; Huang et al., 2006; Yeung et al., 2008). The first reported strong reliability ( $\alpha = .91$ ) and validity—including sensitivity of .81 and specificity of .98 (Yeung et al., 2008). The performance estimates, however, were likely biased due to exclusion of participants who obtained low scores ( $< 15$ ); these participants were not administered the semi-structured clinical interview. Correcting for this bias by extrapolating the rate of depression detected with the clinical interview to those who were excluded yields a revised sensitivity of .39.

The second study found satisfactory reliability ( $\alpha = .79$ ), but identified cultural differences between Chinese American immigrants and other U.S. ethnic groups (Huang et al., 2006). First, three items—sleep, appetite and psychomotor disturbances—showed differences in item functioning, suggesting that the symptoms had a different meaning or were poorly understood. Second, the PHQ-9 detected a suspiciously low rate of depression for Chinese, especially men.

Research conducted in Asia found similar indications of poor validity. Studies in Taiwan (Liu et al., 2011), Hong Kong (Lai, Tang, Lee, Yip, & Chung, 2010) and China (S. Chen et al., 2009) reported sensitivity from .85 to .92. These indicators, however, were also likely biased due to the exclusion of a part of the sample. The studies also found lower optimal cutoff scores for the PHQ-9 (S. Chen et al., 2009; Lai et al., 2010) and PHQ-2 (Liu et al., 2011), including a cutoff of only four points for men on the PHQ-9 (Lai?). These lower cutoff scores imply that Chinese endorsed fewer items overall or interpreted items unlike other respondents.

### Beck Depression Inventory

The BDI is a 21-item measure of the severity of depression (Beck, 1961). The Chinese version of the BDI (CBDI) was determined to be impractical for self-administration due to its length and complexity (Yeung, Howarth, et al., 2002). The instrument's sensitivity of .79, and its other reported favorable psychometric properties, were also likely biased upward due to the exclusion of many subjects who obtained low scores ( $< 16$ ); they were not given the

semi-structured clinical interview and not included in validity tests. Extrapolating the rate of depression detected with the clinical interview yielded a sensitivity of .62.

A sensitivity of .78 was also reported for a subset of the sample based on an empirically determined cutoff score ( $\geq 13$  points) (Yeung, Neault, et al., 2002). Again, this reported sensitivity was likely biased upward. Cases of depression detected by the clinical interview but “missed” by the CBDI, in addition, were clustered in a very mild range. These findings suggest a manifestation of depression in the mild range that is not captured by the instrument.

Studies conducted in Asia also showed the CBDI’s poor content validity. A study in China found seven items that correlated poorly with total scores (Y. Zheng, Wei, Goa, Zhang, & Wong, 1988). A study in Hong Kong detected five items that did not function equally well in the CBDI vs. the BDI when administered to bilingual college students (D. W. Chan, 1991). Factor analyses in China, furthermore, found un-interpretable factors, whereas the Hong Kong study—of college students with exposure to Western culture—extracted factors similar to those found among European Americans.

### Center for Epidemiologic Studies Depression Scale

The 20-item CES-D measures depressive symptoms and is designed for use in the general population (Radloff, 1977). Although good reliability among Chinese American immigrants—.77 (Y.-W. Ying, 1988) and .92 (Rankin, Galbraith, & Johnson, 1993)—was reported, poor validity was observed. First, factor analyses suggested low construct validity (Gupta & Yick, 2001; Kuo, 1984; Y.-W. Ying, 1988). Depressed affect and somatic items, and depressed affect and interpersonal items, loaded together to form mixed, un-interpretable factors. Lower validity was also associated with lower acculturation; factors derived for bilingual college students were similar to those found for U.S. samples (Y. Ying, Lee, Tsai, Yeh, & Huang, 2000). A second indication of low validity is that positive affect and positive self-concept items had little cultural relevance (Cheung & Bagley, 1998; Kuo, 1984; Y.-W. Ying, 1989). Research in Asia also found evidence for mixed factors rather than clearly differentiated factors and for invalid items (Boey, 1999; Cheung & Bagley, 1998; Yen, Robins, & Lin, 2000).

### Cultural Expressions of Depression and Scales Adapted to Accommodate Cultural Differences

In China, the majority of key terms drawn from U.S. depression assessment scales were found not to have fully-equivalent Chinese terms (Y. Zheng, Xu, & Shen, 1986). Study participants, as they interpreted key symptoms, demonstrated a cultural style of expression. They emphasized behavior- or mind-focused descriptions of functioning, philosophical and descriptive statements, and somatic and interpersonal expressions: “Uncomfortable inside heart” expressed “depressed”, and “intolerable inside heart” expressed “agitated”. Interpersonal expressions—referring to being judged, social comparisons and cutoff relationships—expressed psychological terms: “Feel less capable than others” expressed “failure”, and “no one understands or cares about me” and “friendless” expressed “hopelessness”. Key terms such as “weight loss” and “suicidal interest”, also, largely lacked equivalence.

The psychometric properties of measures were improved by removing invalid items and adding culture-specific ones. The newly introduced content included symptoms of somatic and interpersonal distress (T.-A. Cheng & Williams, 1986; Lin, 1989) as well as psycholinguistically equivalent expressions (B. Chan, Parker, Tully, & Eisenbruch, 2007; Y. Zheng & Lin, 1991). The lone culturally adapted measure tested in the U.S., the 48-item

Chinese Depression Inventory (Y. Zheng & Lin, 1991), performed similarly to the CBDI, but both scales were unsuited for self-report due to patients' unwillingness to complete them (Yeung, Neault, et al., 2002). The authors noted, furthermore, that research assistants may have introduced bias by assisting respondents to understand the items.

## Phenomenological Research for Describing Depression in Chinese Americans

Immigrants' explanatory models of illness—intertwining psychological, somatic and interpersonal causes and symptoms—point to a construct with multiple domains (Yeung, Chang, Gresham, Nierenberg, & Fava, 2004; Y.-W. Ying, 1990). Female community-based participants gave explanations that contained interpersonal triggers and consequences, whether they were more psychological or more somatic (Y.-W. Ying, 1990). Primary care patients, similarly, explained depression in terms of physical complaints, but attributed its cause to stress and psychological problems related to interpersonal difficulties (Yeung et al., 2004). Patients with lower acculturation, furthermore, presented stronger levels of somatic symptoms and did not acknowledge depressed mood spontaneously.

Research on somatization clarified the role of somatic complaints in a mild stage of depression and the symbolic function of somatic expressions. Chinese patients' somatic emphasis and psychological de-emphasis are associated with milder depression (H. Chen, Guarnaccia, & Chung, 2003) and lower acculturation and education (W. Mak & Zane, 2004; Parker, Chan, Tully, & Eisenbruch, 2005). Research on the metaphorical qualities of Chinese language supported this interpretation, showing that commonly used expressions with body words communicate psychological and interpersonal difficulties (Tung, 1994).

Epidemiological research also pointed to an influence of acculturation on symptom expression and the relevance of neurasthenic, somatic and anxiety-based expressions. The national survey of Asian Americans found complex patterns of risk based on immigration-related factors and gender that suggested differences in the experience or report of depression. A large-scale community survey of Chinese American immigrants found that depression overlapped significantly (23.1%) with neurasthenia (Y.-P. Zheng et al., 1997)—a DSM-IV culture-bound syndrome considered a predecessor of depression in Chinese societies (Parker et al., 2005). Immigrants with depression, in addition, scored very high on somatization and as high on measures of anxiety, interpersonal sensitivity, obsessive-compulsiveness and paranoid ideation as immigrants with anxiety disorders.

Self-construal research highlighted the centrality of socially based distress. Asian Americans, especially immigrants, were shown to have high levels of interdependent self-construal and low levels of independent self-construal, which changed slowly with acculturation (Kwan, Bond, & Singelis, 1997; Singelis, Bond, Sharkey, & Lai, 1999). Interdependent self-construal was associated with a cognitive focus on social relations (Diener & Diener, 1995) Kwan et al., 1999), social anxiety and distress (Okazaki, 1997), with less importance given to individually oriented self-esteem concepts (Singelis et al., 1999).

Independent self-construal was recognized as a premise in the CES-D and BDI, based on the negative relationship of independent self-construal and depression scores (Norasakkunkit & Kalick, 2002; Okazaki, 2000). Interdependent self-construal, also, was indirectly related to depression via a social personality variable and anxiety. Specifically, it predisposed a person for sociotropy—a trait of high relational dependence, need to please and social threat—which was related to depression via heightened anxiety (W. W. S. Mak, Law, & Teng, 2011).

## Purpose of the Present Study

Consistent with the view that mental illness manifests itself uniquely in each culture (Marsella, Kinzie, & Gordon, 1973), the current study sought to gain knowledge of the cultural manifestation of depression in Chinese American immigrants. Ascertaining culture-based symptoms and differences among immigrants also was a precursor to evaluating the goodness-of-fit and efficacy of Western measures and adapting assessment for cultural sensitivity. The comprehensive measure would support research on depression and its correlates from an emic perspective. It would also serve for developing short, unbiased scales and for educating clinicians and the community. The screening scale, as a first 'indigenous' measure, would be a tool in interventions that promote linkage to care. With these considerations, the study aimed to quantify the impact of culture on assessment of less acculturated Chinese in the U.S.

## General Method

### Overview

The research is described in three parts. Study 1 describes the development of a construct map and pilot items using qualitative methods. Study 2 describes the development of CADS-42 using item response analysis. Study 3 describes the development and initial validation of CADS-9, constructed of items from CADS-42. Study 1 employed a qualitative sample ( $N = 60$ ) of clinical participants and clinicians. Studies 2 and 3 employed an empirical sample ( $N = 227$ ) of clinical and community participants, non-overlapping with the qualitative sample.

The research was conducted in the region of San Francisco. Participants had oral fluency in Chinese, study materials were in Chinese and English, and procedures were conducted in Chinese unless otherwise noted. Research assistants were university students with oral and written fluency in Chinese and English. The institutional review board of the University of California, Berkeley approved all study procedures.

### Emic Approach: Insuring Cultural Awareness

The study's emic approach considered the manifestation of depression in natural settings in three ways. First, the samples were diverse and the criterion was diagnosis of major depression (MD) or dysthymia by clinicians experienced with treating Chinese American immigrants in the community. Second, expert-based qualitative inquiry was the basis of defining the theoretical construct and constructing a large pool of pilot items in Study 1. A group of eight experts, clinicians who participated in Study 1, provided qualitative analyses and consultation for all studies. Third, concurrent validity was assessed by relating the scales to the criterion—clinical diagnosis by culturally aware clinicians.

### Emic Approach: Item Response Evaluation

The study applied Wilson's (2005) item response approach, a bottom-up method of scale development based on the use of item response analysis. Following its four logical steps ensured the development of measures from an emic perspective. These first three steps concern Study 1. The first step was to define the construct based on the population's conceptualization of illness. The definition, presented visually in a construct map, consisted of a description of the persons who experience depression and the content that represented their experience along a continuum of severity. The definition also considered the scale's purpose—to detect clinically relevant risk in the community.

The second step was to design items according to the description of content. The third step was to define the ‘outcome space’, a set of responses to items that was meaningful to respondents and provided adequate information to separate respondents by their levels of depression severity. The fourth step was to use Rasch analysis to fit a model to the data that represented the defined construct (Study 2), and then fit another model to the data that met the purpose of screening (Study 3).

Rasch (1960) analysis was suited to the study’s objectives because of its utility for understanding the role of items in levels of severity, detecting differences between socio-demographically and culturally-defined groups, and in developing unbiased and efficient scales. Rasch analysis estimates the locations of items on a continuum of severity and it detects, with the analysis of differential item functioning (DIF), differences in the endorsability of items between subgroups after controlling for their levels of depression. DIF captures differences in experience, willingness to report, interpretation, or other factors concerning the relevance of the symptom to each socio-demographic or cultural subgroup. With this information, it is possible to determine whether, for example, an item assessing suicidal ideation represents the same level of depression severity for immigrants with better and poorer English proficiency. It also becomes possible to choose unbiased items—selecting the fewest conceptually non-repetitive items that cover the clinically relevant range—to form an efficient assessment instrument. The choice of items can also target a specific purpose—such as to screen for somatic presentations of depression.

For other reasons too, Rasch analysis was suited to studying the population of concern—a minority group that is difficult to reach due to the stigma of mental illness. With an assumption of the local independence of responses to items, a reliable model with objective measures—which are not dependent on the instrument or the participants of the study—can be obtained with a small, unrepresentative sample (Bond & Fox, 2001). Rasch modeling, in addition, assumes unidimensionality for the practical purpose of creating a useful measurement model (Smith, 1996). All items that form the instrument support the measurement of the latent trait under study.

## Study 1 – Construct Map and Pilot Items

### Method

**Sample**—The pilot scale was developed with 34 clinical participants and 29 clinicians. The clinical participants (18 women, 16 men, age range: 25–59) had diagnoses of depression (26 MD, 8 dysthymia) given by licensed health and mental health providers in the community. The median of years in the U.S. was 15; the median of years of education was nine. Six participants reported co-morbid diagnoses (3 anxiety disorder, 2 schizophrenia, 1 bipolar disorder).

The clinicians (16 women, 13 men) were 9 clinical social workers, 8 psychiatrists, 5 primary care and internal medicine physicians, 3 TCM physicians, 2 family therapists, and 2 psychologists. They had 5–27 years of post-licensure clinical experience with Chinese American immigrants. All provided treatment in Chinese except for two who used translators. All, also, were immigrants except for three who were U.S.-born children of immigrants.

**Interviews**—Clinical participants and clinicians gave an explanatory model of illness (20 clinical participants, 9 clinicians) or an item generation (14 outpatients, 20 clinicians) interview. This study used Kleinman’s (1986) nine-question semi-structured explanatory model interview, which elicits the name of illness, cause, impact, chief problem, severity, most feared consequence, course, appropriate treatment and desired outcome. Two questions



eliciting interpersonal distress (“How do you get along with your family members now?” and “How do you get along with other people in your life?”), added by Ying (1990), were also used. The nine clinicians who gave explanatory model interviews were interviewed about the explanatory models of 14 clinical participants who were their patients.

The item generation interview entailed evaluating a list of 60 symptom concepts in English drawn from the CES-D (Y.-W. Ying, 1988); BDI (Yeung, Neault, et al., 2002), PHQ-9 (Huang et al., 2006), and four culturally adapted scales (T. A. Cheng, Wu, Chong, & Williams, 1990; Lin, 1989; North East Medical Services, 1999; Y. Zheng & Lin, 1991). Clinical participants identified their current symptoms, symptoms at the onset of their first depressive episode, and symptoms from the list that they had not named spontaneously. The interviewer noted the symptom expressions they used. Clinicians first rated each concept as *uncommon*, *common* or *very common* for their clients and provided typical Chinese language expressions, then identified relevant concepts not listed and concepts with differential usage by gender.

A master-level research assistant conducted interviews with clinical participants in Cantonese or Mandarin. She took notes during interviews and wrote transcripts of explanatory models after interviews. Clinical participants received US\$25 for 30–45 minute one-on-one interviews. The PI conducted one-on-one interviews with clinicians, who were not remunerated, in English and Cantonese. Data was collected April of 2007 to January of 2008.

**Analysis of data**—First, to define the construct map, the PI and the master-level research assistant formulated descriptions of persons and items based on the explanatory model interviews. The description of items focused on the nature of the psychological, somatic and interpersonal (or social) domains of distress. The description of items also included experts’ assignment of pilot items into domains and levels of severity, which would represent their theoretical understanding of the role of items.

Second, to generate pilot items, the PI and five undergraduate research assistants developed a system for coding symptom concepts in explanatory model interviews, coded independently, then met to resolve differences by consensus. Concepts common to at least three participants were retained. For item generation interviews, symptom concepts that at least one-half of clinicians endorsed as *uncommon* or *very common* or at least two clinical participants cited were retained. A group of three experts, with information from interviews provided by the research assistant and PI, chose Chinese expressions for 47 retained concepts to comprise a pilot scale, CADS-47. They were instructed to choose commonly used expressions—understandable to speakers of Cantonese and Mandarin—that could be self-administered by a person with some middle school education. The PI and research assistant translated items to English. CADS-47 was pre-tested with eight community members and five social workers.

With the pilot items, five experts completed the theoretical description of items by independently classifying them into domains and levels of severity. The PI then communicated with each expert to share discrepant classifications and request reclassifications to achieve consensus. The PI also independently identified items that overlapped with the DSM-IV definition of MD. Experts confirmed the face validity of the final construct map.

Third, to define the response set, the focus group adapted the Likert scale of the PHQ-9. The PHQ-9 was chosen to maintain consistency and the possibility of comparison with a measure that operationalizes the DSM-IV construct of depression.

## Results

**Construct map**—Figure 1 shows the construct map. Four characteristics described persons with depression. “Reduction in efficiency and functional activity” referred to losses in efficiency with regard to work, study, maintaining family and social relationships, home and self-care, and daily life tasks. “Maladaptation to environment” referred to the impact of difficulties in social, economic, cultural, physical, and religious or spiritual adjustment in the U.S., especially with regard to immigration and past traumas such as the Cultural Revolution and the loss or separation of family members. “Doubt and despair concerning social role and existence” referred to painful experiences of self-criticism, hopelessness, poor social belonging, and self-destructive impulses. Finally, “likelihood of family history of depression” concerned a genetic component of illness.

Regarding the description of items, the psychological domain concerned emotional and cognitive disturbances, with strong concern over one’s loss of ability to control disturbances. Emotional states included anxiety focused on interpersonal concerns (e.g., fear of losing one’s ability to provide for family). The somatic domain covered a range of experiences regarding diminished physical, mental and psychosocial functioning. The social domain included negative cognitions and affective and behavioral experiences regarding difficulties in social relationships and fulfilling one’s social role.

**Item generation**—The item generation procedure produced 47 items—with 23 items overlapping with DSM-IV symptoms of MD. For some DSM-IV items, the focus group chose expressions that were common idiomatic terms (26-*useless*, 18-*unhappy* and 17-*as-good*) and incorporated examples to assist understanding (20-*interest* and 9-*memory*). For items related to social withdrawal, the group chose terms that communicated the avoidance of interpersonal distress (35-*socialize* and 28-*talk*). For worthlessness, the expressions referred to failure in one’s social role (36-*burden*, 26-*useless*, 17-*as-good*). Experts had most difficulty with finding easy-to-understand expressions for psychomotor retardation and mental impairment (19-*thinking*, 16-*started* and 15-*decisions*).

Among items that did not overlap with DSM-IV symptoms of MD, many idiomatic expressions and culturally based concepts were employed. 7-*bored* and 3-*troubled*, with poor translations in English, are common expressions of mild distress. 34-*face* and 12-*fate* are concepts central to Chinese culture. 22-*ability-fear* and 14-*lonely* concern strong interpersonally based responsibilities and needs, respectively, but their English translations may be interpreted as self-focused emotional states. 29-*afraid*, 10-*nervous* and 4-*worry*, also, concern anxiety arising directly from interpersonal problems, but the English expressions also reflect self-focused states.

Large numbers of pilot items were assigned to each domain. The experts classified the 47 items as: 16 psychological, 14 somatic, 10 social, 5 psychological-social, 1 psychological-somatic, and 1 somatic-social. With regard to severity, they easily agreed on the severe and mild items but showed some disagreement on moderate severity items. The final classification showed psychological and social items falling along the whole continuum and somatic items mostly occupying the moderate range. The experts also predicted that men more easily expressed 23-*angry*, 7-*bored* and 32-*respect* and that women more easily expressed 9-*memory*, 39-*crying*, 33-*fault* and 30-*meaning*.

**Outcome space**—Qualitative descriptors and numbers of days were added to the Likert scale of the PHQ-9 to promote clarity and define distinct options, as required by an item response approach. The resulting response options were: 0 (*not at all/no days/0 days*), 1 (*a little bit/several days/1–3 days*), 2 (*quite a bit/about half the days/4–10 days*) and 3 (*extremely/nearly every day/11–14 days*). The focus group strongly recommended

dichotomous response options over the Likert scale and inquiring about symptoms over a one-week rather than two-week period to promote understanding. The researchers, however, rejected dichotomous response options because they likely would not provide enough information to discriminate adequately among respondents. The researchers also opted for two weeks for the purpose of comparisons with the PHQ-9.

The pre-testing of CADS-47 led to minor modifications. Three items were revised to increase their discriminability (e.g., from “lonely” to “very lonely”).

## Discussion

Findings supported the hypothesized culture-based construct of depression with multiple domains of distress. The item generation procedure produced ample items regarding each domain—and most items did not overlap with DSM-IV symptoms of MD. Idiomatic expressions, also, were most appropriate for communicating some of the DSM-IV concepts. Items that were culture-specific in the social and psychological domains, furthermore, reflected an interdependent self-construal. Overall, findings supported the need of empirical modeling to examine the quantitative impact of culture-based expressions of depression on assessment.

## Study 2 – Comprehensive Measure

### Method

**Participants**—The sample was designed to include a broad representation of the community, similar numbers of clinical and community men and women, and people with all levels of depression severity. The inclusion criteria were: immigrant, oral Chinese fluency, and 21–60 years of age. Clinical participants had a current diagnosis of MD or dysthymia given by a licensed clinician in the community. Participants with comorbid psychiatric diagnoses were not excluded. People at risk of severe distress due to participation were excluded.

Twenty-three clinicians and service providers who worked in 12 study sites (7 clinical, 5 community) were recruiters. Clinicians recruited clients to be clinical participants. Service providers recruited clients and others associated with their organizations to be community participants. In a snowballing procedure, community participants recruited their acquaintances. Recruiters did not disclose participants’ identifying or health information. Participants thus self-reported their diagnoses, which were not confirmed by recruiters or by independent assessment.

**Analysis of Data**—The Rasch (1960) partial credit model (PCM)—appropriate for analyzing Likert-scale response sets of psychological phenomena (Embretson & Reise, 2000)—was used to analyze the data (Masters & Wright, 1996). In Rasch analysis, the probability a person will respond in a certain way to a particular item is modeled as a logistic function of the relative distance between the item and person locations on the latent trait (Bond & Fox, 2001). Maximum likelihood estimation is used to transform ordinal raw scores into linear, interval scale measurement units called *logits* (logarithm of odds). Item difficulty and person ability are thus placed on the same logit scale.

Empirical models were derived through a process of item reduction and recalibration to improve measurement properties. For each calibration, item fit, the proper usage of response options and overall fit were evaluated (Smith, 2000). Infit and Outfit item fit statistics are based on mean squared standardized residuals between observed responses and the model probability. With a mean of 1.0, values of .66 to 1.33 were considered to fit the model (Wilson, 2005); a more lenient rule of .5 to 1.5 was applied when justified substantively.

(Linacre & Wright, 1994). Higher fit statistics indicate poorer fit and lower statistics indicate closer fit than expected. Primary importance was given to Infit—weighted estimates that give more value to on-target observations (Linacre, 2002). Outfit statistics—unweighted estimates that show the influence of off-target observations—were applied if more information to determine item exclusion was needed. Verifications of the usage of response option followed standard procedures (Masters & Wright, 1996). Improvements in the overall fit of models were indicated by reductions in total deviance and increases in reliability. Rasch reliability coefficients, conceptually analogous to Cronbach's alpha (Bond & Fox, 2001), were considered adequate from .80 to .90 and optimal if greater than .90 (Traub, 1994). Reliability coefficients based on expected a posteriori/plausible values rather than maximum likelihood estimation were reported given their higher accuracy for small sample sizes.

A substantive evaluation of the final model was conducted by comparing a mapping of the estimated distributions of items and persons, called a *Wright map*, and the construct map. Observations were made regarding differences in the locations of items, the number of items per level of severity and per domain, and the number of items that overlap with the DSM-IV definition of MD.

DIF was analyzed by gender, age, education, English and years in the U.S. The latter three variables, as proxies for acculturation, were interpreted as a unit. For English proficiency, an average score of self-report questions on reading, writing and speaking was calculated. Subgroups for each variable were determined by substantive rationale or empirical analysis of cutoff values that maximized the detection of items with statistically significant DIF. In DIF analysis, separate models are estimated for each subgroup to observe the size of differences between item estimates. Differences in item difficulty were tested for significance at  $\alpha = 0.05$  by using the joint standard errors to calculate a *t*-statistic. Differences of item estimates, called *effect sizes*, were classified as large ( $>.638$ ), intermediate (.426–.638), or small ( $<.426$ ) (Longford, Holland, & Thayer, 1993). Intermediate and large effect sizes were considered an important source of bias; small effect sizes were considered a minimal source (Paek, 2002).

Item response analyses were conducted with ACER ConQuest Version 2.0 (Wu, Adams, Wilson, & Haldane, 2007). All other analyses were conducted with PASW Statistics 18 (SPSS Inc., 2009).

**Instruments**—Three instruments were used to assess convergent validity: Neurasthenia Questionnaire (NTQ), Acculturative Stress Questionnaire (ASQ-14) and PHQ-9.

Acculturative stress is considered a proximal risk factor of depression

NTQ is a diagnostic measure of current neurasthenia based on the criteria of the Chinese Classification of Mental Disorders, 2<sup>nd</sup> edition (Chinese Medical Association, 1995). For this study, two master-level research assistants translated and back-translated an English version (Paralikar, Sarmukaddam, Agashe, & Weiss, 2007). A diagnosis is given if at least three of five groups of symptoms (weakness, emotional, mental agitation, nervous pain, and sleep disturbance) are present over three months and one of three conditions (interference with daily activities, significant and persistent distress, and help or treatment sought) is met.

ASQ-14 was a new measure developed in the current study with the analytic procedure described for empirical modeling with the PCM. Its reliability was .87. Although ASQ-14 was not validated outside of the current study, it served as secondary culture-based construct with which to assess convergent validity considering that acculturative stress is a proximal

risk factor for depression (Hwang & Ting, 2008). The scale encompasses social, cultural, biological, and environmental variables associated with acculturative stress (Berry, Kim, Minde, & Mok, 1987). It inquires about: cultural differences, language, one's own work or study, family's work or study, housing and safety, transportation, finances, maintaining health, illness, health care, missing native country, missing family and friends, social support and racial discrimination. Response options range from 0 (*not at all*) to 3 (*always*).

The PHQ-9 has one item stem that inquires about symptom occurrence over the preceding two weeks. Items are scored from 0 (*not at all*) to 3 (*nearly every day*) (Kroenke et al., 2001). The cutoff score is 15 for a provisional diagnosis of MD. Severity ranges are: minimal symptoms (< 10), moderate symptoms or minor depression (10–14), moderately severe MD (15–19), and severe MD (≥ 20).

A participant questionnaire gathered sociodemographic, language, immigration, and mental illness information. The questionnaire assessed English proficiency with questions on reading, writing and speaking, with options from 0 (*very poor*) to 3 (*excellent*). It also asked for a self-evaluation of current depression symptoms, with options of *mild*, *moderate* and *severe*.

**Procedures**—Research assistants administered instruments in Cantonese, Mandarin, or Toishanese. The first was either CADS-47 or PHQ-9, which were switched randomly. The order of remaining measures was NTQ, ASQ-14 and the participant questionnaire. Research assistants did not explain CADS-47 and PHQ-9 items when asked, but encouraged participants to apply their own understanding. They noted difficult-to-understand items, which became the object of *think aloud* investigations in which later participants were asked to talk aloud about their thoughts while responding (American Institutes for Research, 2000). Participants received \$40 for 30–90 minute interviews. Data was collected from April 2008 to April 2009. It concluded once the sample size was sufficient for model estimation, which, for item response analysis, in general, is when every response option obtains a minimum count of five or six (Linacre, 1994).

**Assessment of Validity**—Concurrent validity was assessed with the point biserial correlation of CADS-42 scores with the study's criterion standard. Convergent validity was assessed with point biserial correlations of CADS-42 scores with diagnoses given by NTQ and PHQ-9 and Pearson product-moment correlations of CADS-42 scores with ASQ-14 scores. Raw scores were used for all correlations.

## Results

**Participant characteristics**—Table 1 shows participants' characteristics. Participants were born in China (74.4%), Hong Kong (17.6%), Taiwan (4.8%) and other countries (2.7%). Primary dialects were Cantonese (70.9%), Mandarin (18.9%), and other dialects (10.1%). Cantonese speakers also spoke Mandarin (75.9%) and vice versa (41.8%). Those who spoke other dialects also spoke Mandarin (52.2%) or Cantonese (47.8%). Clinical participants' self-reported diagnoses were: MD (41.7%), dysthymia (8.7%), “don't know the name” (40.8%), and “no diagnosis” (8.7%). Participants with comorbid diagnoses (34.3%) reported anxiety disorder (13.7%), schizophrenia (12.7%), bipolar disorder (3.9%), “don't know the name” (2.0%), and neurasthenia (1.0%).

Estimated recruitment success rates were: 70.0% of community women, 55.0% of clinical women, 45.0% of community men and 25.0% of clinical men. The final two months of data collection were dedicated to recruiting clinical men. Dropout of recruited participants was low. Four missed interview appointments; one did not complete the interview due to poor concentration. No participants were excluded due to incomplete data. The sample had a low

representation of immigrants with higher acculturation and socioeconomic status due to failing to obtain a health maintenance organization as a study site.

**Estimation of model**—Beginning with CADS-47, four calibrations were conducted to arrive at a 42-item full model (see Figure 2 and Table 2). Five items were removed due to Infit values above 1.33. These items were: “You always want to sleep and don’t want to get out of bed”, “You have headaches”, “You drink or gamble to make yourself feel comfortable”, “You are severely bothered by family relationships or matters”, and “You have stomach pains or discomfort”. 38-*appetite* also had Infit (1.35) beyond the desired range, but was retained given that appetite disturbance is a basic indicator of emotional distress across cultures and a DSM-IV symptom of MD. The 42-item model had significantly better overall fit than the 47-item model ( $\chi^2_{diff} = 2176.10$ ,  $df = 15$ ,  $p < 0.01$ ) and similar reliability (.98 both models). There was, also, no misuse of response options.

**Substantive evaluation of model**—A comparison of the Wright map (Figure 2) with the construct map (Figure 1) showed that CADS-42 represented the global construct adequately. First, in the Wright map, items were located in the upper half of the distribution of persons as expected. Second, estimated item locations matched theorized locations fairly well. Eighteen items matched on estimated and theorized severity levels. Sixteen items were nearly matched, with estimated severity levels one level from theorized levels. Only eight items were poorly matched, with estimated severity levels two levels from their theorized levels. The majority of poorly matched items, also, were social items whose severity levels were underestimated by experts. There was also an overall tendency of experts to underestimate the severity of items—the Wright map showed more items in the upper half of the continuum than theorized and fewer items in the lower half of the continuum than theorized.

With regard to the distribution of items by domain, eliminating five items with poor fit (3 somatic, 1 psychological, 1 social) changed the distribution of items very little. The 42 items were distributed as: 15 psychological, 11 somatic, 9 social, 5 psychological-social, 1 psychological-somatic, and 1 somatic-social. A pattern, also, was observed regarding each domain. First, psychological items occupied the entire continuum as theorized, yet there was only one strictly psychological item in the moderate-to-severe range. Second, social items were not present on the entire continuum as theorized, but occupied the moderate and moderate-to-severe levels exclusively. Third, the somatic domain generally occupied a moderate range as theorized, but this range was very broad, extending into the mild range.

Two items were object of think aloud investigations. First, for 40-*psychosis*, which 23.2% of participants affirmed, respondents expressed their mental confusion about whether an experience had occurred or had been imagined or dreamt; they also cited revisiting a dreamt experience when awake and imagination and fantasy. They thus used this item to communicate a problem of poor mental functioning. Second, for 25-*irritated*, difficulties with answering this item were due to poor understanding of the concept by some people with very little education.

**Assessment of validity**—The strong correlation of CADS-42 with the criterion standard ( $r_{bp} = .61$ ) demonstrated concurrent validity. The correlations of CADS-42 with NTQ ( $r_{bp} = .73$ ) and ASQ-14 ( $r = .69$ ) demonstrated its convergence with emic constructs. The correlation of CADS-42 with PHQ-9 ( $r_{bp} = .91$ ) showed its convergence with the Western construct of depression.

**Analysis of DIF**—Subgroups by age (34.4% 40 years, 65.6% > 40 years), education (26.9% less than high school, 73.1% high school or more), and English (45.1% very poor,

54.9% fair or better) were based on five experts' evaluations of ability to acculturate. The younger, more educated and those with stronger English were expected to acculturate more quickly. The cutoff for years in U.S. (41.0%  $\leq$  7 years, 59.0%  $>$  7 years) was established empirically. (Items with statistically significant DIF are referred to as *biased* items.)

The impact of DIF was broad. Thirty of 42 items (71.4%) showed statistically significant DIF by one or more variables (see Tables 3 and 4). Twenty-four items had small effect sizes; five items had intermediate effect sizes; one item had a large effect size. DIF, also, affected every domain. Fourteen of 20 (70.0%) psychological items were biased. Eleven of 13 (84.6%) somatic items were biased. Eleven of 15 (73.3%) social items were biased.

The influence of acculturation-related variables was very strong. By one or more of the acculturation-related variables, 27 items (64.3% of items) were biased, with 5 having intermediate or large effect sizes. The impact of gender and age was weaker. By gender, nine items (21.4% of items) were biased, with one item having a large effect size. By age, eight items (19.0% of items) were biased, with one item having a large effect size.

Experts' predictions of DIF by gender were correct for 39-*crying*, 30-*meaning* and 9-*memory*, which were easier for women and for 32-*respect* and 7-*bored*, which were easier for men. Their predictions were incorrect, however, for 33-*fault* and 16-*angry*, which were unbiased.

## Discussion

A valid and reliable comprehensive measure was created based on a construct defined in the community. The measure revealed the role of Chinese and Western symptom concepts and expressions in the manifestation of depression. Culturally based social and somatic symptoms, as well as anxiety and irritation concepts, were a significant part of the construct. Core DSM-IV psychological concepts were also valid—but communicated with Chinese expressions. Also, while some social symptom concepts appear to overlap with Western symptoms, there are also social items that do not overlap. Whether the identified domains or certain culture-specific symptoms have utility for improving the cultural sensitivity and accuracy of assessment are questions for future research.

DIF results clarified the challenge and complexity of accurate detection for Chinese American immigrants. A short instrument containing two or three items with intermediate and large effect sizes—or containing many items with small effect sizes—would likely be sufficient to create potential bias in total scores and over- or under-detection. The less acculturated, furthermore, appeared to risk under-recognition with U.S. scales due to their stronger difficulty with endorsing DSM-IV psychological (42-*suicidal*, 41-*self-harm*, 28-*talk*, and 20-*interest*) and somatic (38-*appetite*, 1-*fatigued*, and 9-*memory*) concepts. DIF analysis thus highlighted the extreme care and empirical testing required for developing a sufficiently unbiased scale and rule out the need of separate instruments for subgroups.

## Study 3 – Screening Scale

### Method

Study 3 uses the methods of Study 2 regarding sample, data analysis, and instruments. The strategy for choosing items and scale validation are described below.

**Strategy for choosing items**—DIF findings in Study 2 influenced the strategy for choosing items for a short scale. Considering the difficulty of eliminating bias by acculturation-related variables, the main focus of CADS-9 was to minimize bias by gender and age—and by acculturation secondarily. The Wright Map was used to choose several sets

of nine items that covered the upper severity range relevant to clinical depression. For each set of items, the selection criteria for items were: not repetitive conceptually nor in location, no display of DIF by gender or age, minimization of DIF by acculturation-related variables, and, if possible, overlapping with DSM-IV symptoms of MD.

Seven experts independently selected the set of items with highest content validity for screening. This final set of items, CADS-9, was calibrated. DIF was also analyzed although its results were unreliable because CADS-9 was not administered as a stand-alone measure. For comparison, one of the alternate 9-item scales, CADS-9A, was also calibrated and evaluated.

**Assessment of validity**—Several methods were used to validate CADS-9 in addition to those applied in Study 2. First, concurrent validity was assessed with receiver operating characteristic (ROC) analysis (Swets, 1995). Gender-specific optimal cutoff scores were derived to calculate area under the ROC curve (AUC) and performance indicators. Second, also in support of concurrent validity, participants' self-evaluated depression severity levels were compared with exploratory severity levels based on CADS-9 scores. Third, content validity was based on experts' evaluations and information from research assistants who administered study instruments. CADS-9, CADS-9A and PHQ-9 were also compared.

## Results

**Choice of items**—Experts considered the following set of items to have the highest acceptability for screening: 41-*self-harm*, 35-*socialize*, 29-*afraid*, 24-*hide*, 23-*angry*, 18-*unhappy*, 11-*health*, 8-*concentrate*, and 4-*worried*. Four of these items, 42-*self-harm*, 35-*socialize*, 18-*unhappy*, and 8-*concentrate*, overlapping with DSM-IV symptoms of MD. Two items had DIF by acculturation-related variables. 23-*angry* was chosen due to a lack of other available items in the moderately severe range and to its small DIF effect size. Experts, also, noted that men were willing to disclose anger. 41-*self-harm*, with an intermediate DIF effect size, was chosen because it had the smallest DIF effect size among the three items located at the highest severity. It was also more culturally acceptable for screening than 42-*suicidal*.

**Estimation of model and DIF**—All items had acceptable Infit (.77–1.24). Verifications of the proper usage of response options were met. CADS-9 showed strong reliability (.90). There was, also, no statistically significant DIF by gender and age. Four items (41-*self-harm*, 35-*socialize*, 23-*angry*, and 11-*health*) showed DIF by acculturation-related variables with small effect sizes (.216–.404).

**Assessment of validity**—The moderately strong correlation of CADS-9 with the criterion standard ( $r_{bp} = .58$ ) supported concurrent validity. The strong correlations of CADS-9 with NTQ ( $r_{bp} = 0.71$ ), ASQ-14 ( $r = .69$ ), and PHQ-9 ( $r = .89$ ) supported convergent validity.

ROC-derived optimal cutoff scores were nine points for men and ten points for women. With these cutoffs, CADS-9 showed moderately strong rates of correct classification (.77 overall, .77 men, .76 women), sensitivity (0.79 overall, .79 men, 0.79 women), specificity (.75 overall, .76 men, .74 women), positive predictive value (.72 overall, .65 men, .77 women), and negative predictive value (.81 overall, .86 men, .75 women). AUC was also moderately high (.84 overall, .84 men, .83 women). These performance indicators are likely biased downward due to the unknown numbers of clinical participants who were asymptomatic at time of participation and community participants who were symptomatic but undiagnosed.



Figure 3 shows the distribution of CADS-9 scores. Nearly one-quarter (24.3%) of the clinical sample scored below the cutoff scores; one-quarter (25.0%) of the community sample scored above the cutoff scores. Among clinical participants, men had lower mean scores ( $M = 13.9$ ,  $SD = 6.70$ ) than women ( $M = 14.7$ ,  $SD = 6.04$ ). Among community participants, men also had lower mean score ( $M = 5.68$ ,  $SD = 5.02$ ) than women ( $M = 6.74$ ,  $SD = 5.90$ ).

The comparison of participants' self-evaluated severity levels (see Table 1) and severity levels based on CADS-9 scores showed high concordance, providing additional support for concurrent validity. Exploratory severity levels were created for CADS-9 based on the severity levels of PHQ-9, which considers every five points as one level of severity. The levels for men and women, respectively, on CADS-9 were thus: Insignificant symptoms ( $< 4$  and  $< 5$ ), minimal symptoms (4–8 and 5–9), minor depression (9–13 and 10–14), moderately severe MD (14–18 and 15–19), and severe MD (19 and 20). Applying these levels, only small proportions of self-evaluations (13.9% clinical, 11.7% community) did not match their CADS-9 severity groups within one level. Also, only small proportions of participants (8.9% clinical, 10.0% community) were detected as more severe by CADS-9 than self-predictions.

**Comparison with PHQ-9**—Overall, the reliability and validity indicators between CADS-9 and PHQ-9 were very similar. The reliability of PHQ-9 (.91) was slightly higher than that of CADS-9. PHQ-9 also correlated a little more strongly with the criterion standard ( $r = .62$ ) than CADS-9. PHQ-9, however, converged more weakly than CADS-9 with NTQ ( $r_{bp} = .68$ ) and ASQ-14 ( $r = .59$ ).

With nine points as the ROC-derived optimal cutoff score for men and women, PHQ-9 showed slightly better performance for men but equal performance for women compared with CADS-9. Two differences in scoring patterns between PHQ-9 and CADS-9 were observed. First, the difference in mean scores on the PHQ-9 between men in the clinical sample ( $M = 15.2$ ,  $SD = 7.02$ ) and the community sample ( $M = 5.15$ ,  $SD = 4.72$ ) was larger than on CADS-9. Second, contrary to CADS-9 results in the clinical sample, men's mean score was higher than women's mean score ( $M = 14.7$ ,  $SD = 6.72$ ) on the PHQ-9.

**Comparison with CADS-9A**—The alternative scale was comprised of items that assessed the higher severity range more closely than CADS-9. Its items were: 41-*self-harm*, 37-*blaming*, 36-*burden*, 34-*lostface*, 33-*ownfault*, 31-*heart*, 26-*useless*, 12-*fate*, and 5-*ability-loss*. All items had acceptable fit statistics and response option verifications were met.

CADS-9A showed slightly higher performance indicators than CADS-9 and PHQ-9. CADS-9, however, converged more strongly with NTQ and ASQ-14 than CADS-9A. CADS-9A, in comparison with PHQ-9, converged more weakly with NTQ, but more strongly with ASQ-14.

**Content Validity**—Experts evaluated CADS-9 as having had higher content validity than CADS-9A and PHQ-9. CADS-9 covered topics commonly shared in daily social life, required easily accessible levels of self-awareness, and excluded more shameful and stigmatized experiences. The items of CADS-9 were also easier to understand and more appropriate due to emphasizing a mild and moderate range of depression severity. CADS-9A was inappropriate for screening due to its emphasis on critical cognitive evaluations about oneself and one's social relationships, which requires a deeper level of reflection and willingness to disclose.

The PHQ-9 contained four problematic items: "Feeling down, depressed, or hopeless", "Trouble falling asleep or staying asleep, or sleeping too much", "Poor appetite or

overeating”, and “Moving or speaking so slowly that other people could have noticed. Or, the opposite—being so fidgety or restless...” Regarding the first three items, some participants, especially those with little education, were unsure how to answer when they experienced only one of two or three concepts contained in these items. From an item response perspective, also, is not possible to evaluate the validity of these items because they contain more than one concept—since it is unknown which one the respondent affirmed. Regarding the fourth question, participants commonly asked, “How do I know what others are thinking?” Experts, also, viewed overeating and agitation as invalid concepts—because Chinese do not consider these as problems—and the term “depressed” as inappropriate for people with little education.

## Discussion

A reliable and valid screening tool was developed from a comprehensive measure of the culture-based construct of depression. The stronger convergence of CADS-9 than PHQ-9 with constructs of neurasthenia and acculturative stress show that constructs operationalized in these two scales diverge. CADS-9, also, with only culturally relevant concepts and expressions, had stronger content validity than PHQ-9. Whether CADS-9 will provide higher accuracy and cultural sensitivity than the PHQ-9 requires testing in the field. CADS-9, however, is expected to be more culturally sensitive even though its content overlapped with DSM-IV symptoms of MD.

Health care providers may require training to understand the meaning of the culture-specific concepts. 29-*afraid* and 4-*worry* are anxiety symptoms, but, in the Chinese lens of depression, can signify a state of interpersonal distress that is intimately associated with depression. Talking to a patient about his or her objects of fear and worry may lead to understanding the interpersonal context that surrounds the person’s depressed state. The use of anxiety symptoms to assess depression, also, is opportune given that the presentation of anxiety is little stigmatized and not biased by method of report for Asian Americans (Okazaki, 2000). 23-*angry* signifies, for Chinese, distress associated with the loss of control of one’s mind and emotions and with one’s poor fit with the social environment.

In the process of developing and validating CADS-9, important observations were gained about screening instruments and the task of screening. First, many sets of nine items could have been drawn from the comprehensive measure to develop a scale that performs comparably with CADS-9 and PHQ-9. CADS-9A, for instance, with mostly culture-specific content, performed slightly better than CADS-9 and PHQ-9. Second, the clinical status of individuals who are moderately or severely depressed, also, can easily be detected given that it is very easy for this group to score beyond the cutoff. A screening measure, thus, must perform well in the mild range, near the cutoff value. Third, the validity indicators found for CADS-9 and PHQ-9 may not be as favorable as they appear. A small group of clinical participants (16.8%) scored below the CADS-9 cutoff but self-evaluated as having mild or moderate symptoms. With these observations, a next of research is to explore assessment needs and forms of manifestation in the low severity range.

## Concluding Discussion

The study demonstrated the utility of the item response approach, coupled with ethnographic methods, for generating detailed knowledge of a culturally based mental illness construct and for identifying the sociocultural factors that influence its expression. The study also showed the practical utility of item response techniques for creating unbiased and efficient measures with a small sample size. With these methods, it was possible to confirm the cultural nuances of the Chinese American manifestation of depression and to provide an empirical model with which to further examine how assessment can be improved.

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Appendix A

美國華人移民心理健康問卷  
Chinese American Depression Scale (CADS-9)

姓名：NAME \_\_\_\_\_

日期：DATE \_\_\_\_\_

在過去兩星期，你是否被以下事情所困擾？如果是，被困擾多少天？請讀題並圈上最合適的答案。  
Over the last two weeks were you bothered by the following problems? If so, how many days? Please read each statement carefully and circle the most appropriate answer.

	完全沒有/ 沒有一天 (0天) Not at all/ No days	非常少/ 幾天 (1-3天) A little bit/ A few days	有時/大約 一半時間 (4-10天) Quite a bit/ About half the days	經常是/差 不多一天 (11-14天) Extremely/ Nearly every day
1. 很多事情讓你感到很擔心。 Many things make you feel very worried.	0	1	2	3
2. 你難以集中精神。 You are unable to concentrate well.	0	1	2	3
3. 你非常害怕自己健康有問題。例如，患癌症或心臟病。 You are very afraid that you have health problems. For example, you might have cancer or heart disease.	0	1	2	3
4. 你感到非常不開心。 You feel very unhappy.	0	1	2	3
5. 你很容易發脾氣和發怒。 You have tantrums and get angry very easily.	0	1	2	3
6. 你隱瞞自己生活有困難。 You hide your life difficulties from other people.	0	1	2	3
7. 你感到很害怕。 You feel very afraid.	0	1	2	3
8. 你完全不想和別人接觸、交往或外出。 You don't want to have contact with people, socialize, or go out at all.	0	1	2	3
9. 你想過傷害自己。 You have thought about hurting yourself.	0	1	2	3

合計：  
ADD COLUMNS: [ ] + [ ] + [ ]  
總計：  
TOTAL: [ ]

CADS-9 may be used and duplicated freely. The development of CADS-9 was funded by the National Institute of Mental Health (R36MH080607), Chinese Community Health Care Association of San Francisco, and Fahn/Beck Fund for Research and Experimentation.

How to use CADS-9 Chinese American Depression Scale

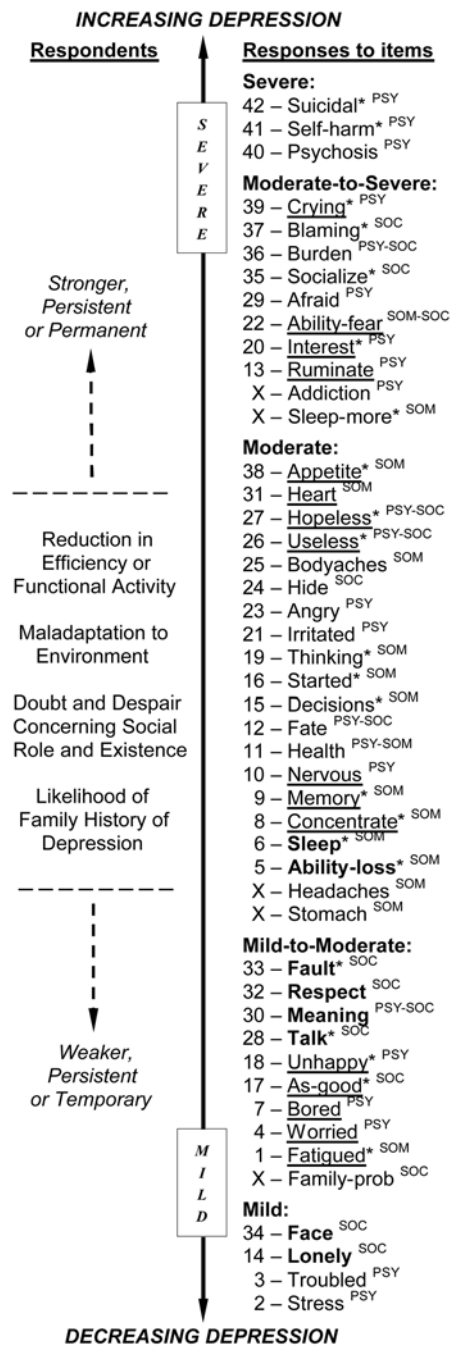
- **Eligibility:** CADS-9 is for adults, ages 21–60, who speak and understand Chinese fluently. It is intended for the screening of symptoms associated with depression in medical clinics and social services agencies.

- **Directions:** CADS-9 is a self-report instrument that may be administered by a healthcare or social services provider, or self-administered. Read each item as written. For example, do not change “veryworried” to “extremely worried”. Make sure that the respondent understands the meaning of the respective answers (0, 1, 2 and 3) in terms of the number of days over the past two weeks. Encourage the respondent to answer each item with his or her own understanding and judgment.
- **Cutoff Score:** A total score of 10 or more points for women and 9 or more points for men indicate risk of major depression. Use CADS-9 as an initial screen, rather than a means of clinical diagnosis.
- **Severity Levels:** Higher total scores indicate more severe depression.
  - Minimal symptoms: 5–9 *women*, 4–8 *men*.
  - Mild: 10–14 *women*, 9–13 *men*.
  - Moderate: 15–19 *women*, 14–18 *men*.
  - Severe: 20+ *women*, 19+ *men*.
  - Provide education and follow-up to people who have “minimal symptoms”. Provide referral to mental health assessment and treatment to people who score “mild”, “moderate”, and “severe”.
- **Other Information:** The first items indicate milder depression, and the last items indicate more severe depression. For example:
  - Mild: 1-*worry*, 2-*poor concentration*.
  - Moderate: 3-*health concerns*, 4-*unhappiness*, 5-*anger*, 6-*hiding difficulties*.
  - Severe: 7-*fear*, 8-*social avoidance*, 9-*self-harm*.

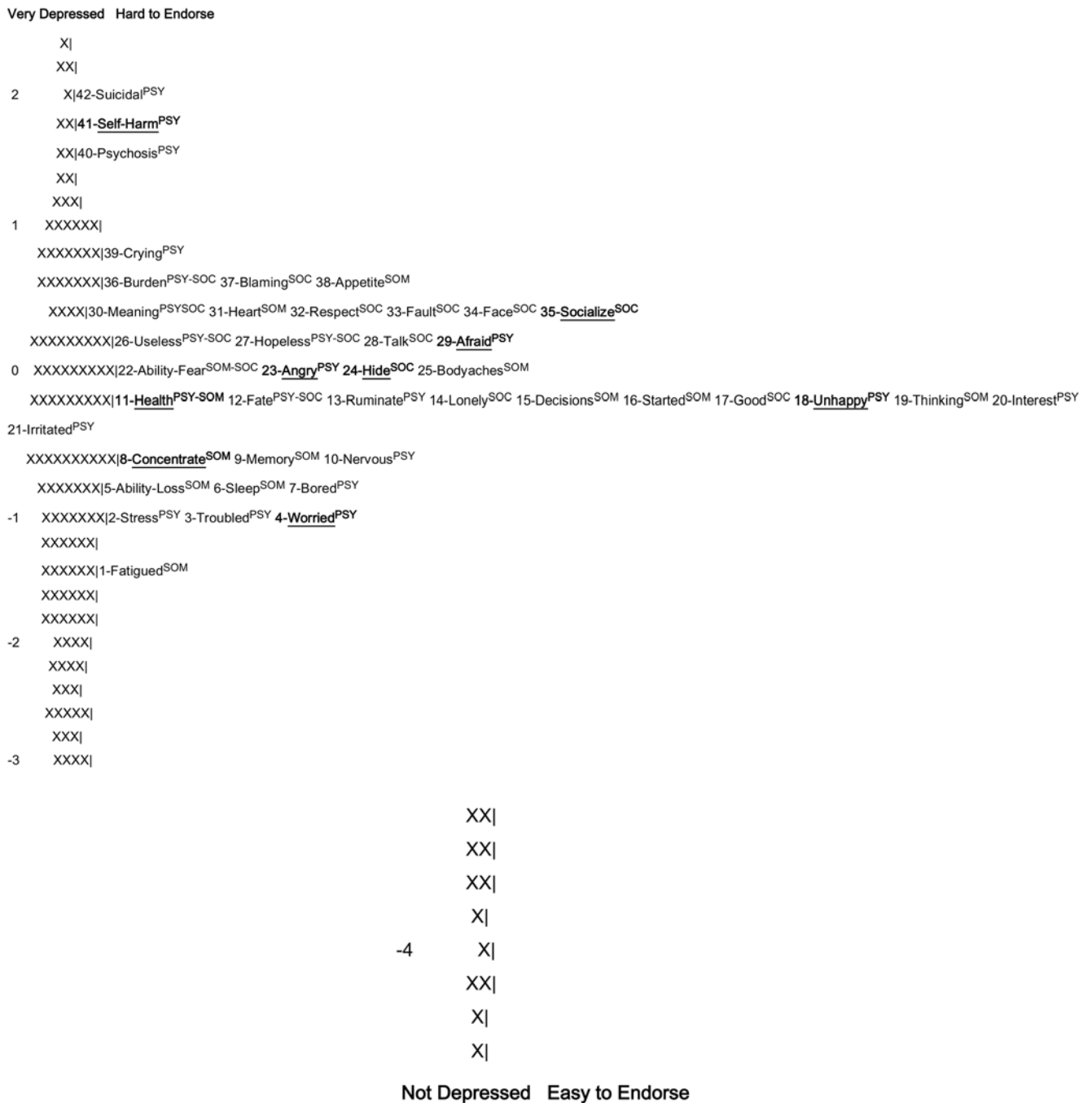
An individual may be at risk of major depression even if his or her total score is very low or below the cutoff score. Consider providing further assessment and referral to anyone who answers:

- 2 (quite a bit) or 3 (extremely) to several of the nine items, or
  - 1 (a little bit), 2 (quite a bit), or 3 (extremely) to 8-*social avoidance* or 9-*self-harm*.
- **Scale Development:** CADS-9 was developed with a sample of 227 Chinese immigrant adults in the San Francisco metropolitan area during 2008–09. Study participants were immigrants diagnosed with major depression or dysthymia, and community members. As a new scale, CADS-9 will need to be researched with more samples to confirm its validity. The National Institute of Mental Health (R36MH080607), Chinese Community Health Care Association of San Francisco, and Fahs-Beck Fund for Research and Experimentation provided research grants for the development of CADS-9. Donaldina Cameron House was the principal community study site.

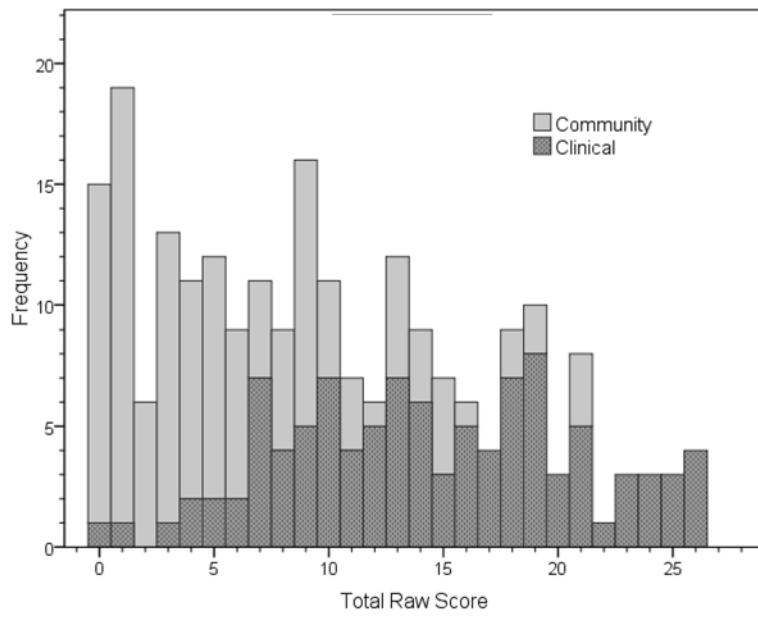




**Figure 1.** Construct map with theoretical description of respondents and 47 pilot items. Item numbers come from results of modeling (see Study 2, Table 2). Higher numbers indicate higher severity and ‘X’ indicates items that were removed due to poor fit. Underlined items were estimated as one level away from theorized levels. Bolded items were estimated as more than one level away from theorized levels. \*Items that overlap with DSM-IV symptoms of major depression. <sup>PSY</sup>Psychological item, <sup>SOM</sup>Somatic item, <sup>SOC</sup>Social item.



**Figure 2.** A Wright map for the 42-item Chinese American Depression Scale. Items chosen for the 9-item Chinese American Depression Scale are bolded and underlined. Each ‘X’ represents 1.5 persons. PSY, Psychological; SOM, Somatic; SOC, Social.



**Figure 3.** Distribution of CADS-9 scores by clinical and community samples.

Table 1

Socio-demographic, recruitment and clinical characteristics of participants

	Total	Clinical	Community
Sample <i>n</i> (%)	227 (100.0)	103 (45.4)	124 (54.6)
Men	96 (42.3)	38 (36.9)	58 (46.8)
Women	131 (57.7)	65 (63.1)	66 (53.2)
Age, mean (SD)	44.6 (10.9)	45.3 (10.6)	44.0 (11.2)
Immigration, mean (SD)			
Age <sup>**</sup>	32.7 (12.5)	30.2 (13.0)	34.8 (11.7)
Years in US <sup>***</sup>	11.9 (9.7)	15.1 (10.6)	9.2 (8.0)
Personal income <sup>*</sup> %			
< US\$20000	69.8	80.6	61.3
US\$20000–US\$39999	20.3	12.2	26.6
US\$40000	9.9	7.2	12.1
Education <sup>*</sup> %			
Elementary	9.3	12.6	6.5
Middle school	17.6	20.4	15.3
High school	49.3	42.7	54.8
College ( ≥ 2 years)	23.3	23.3	23.4
English (self-report) <sup>a*</sup> %			
Very Poor	37.9	37.6	38.2
Fair	44.2	38.6	48.8
Very good/Excellent	17.8	23.7	13.0
Very Poor	37.9	37.6	38.2
Recruitment sites %			
Mental health <sup>b</sup>	—	53.4	14.5 <sup>c</sup>
Non-profit medical	—	14.6	1.6
Non-profit community	—	8.7	75.0
Private TCM <sup>d</sup>	—	6.8	4.8
Private psychotherapy	—	1.9	—
Other	—	14.6 <sup>e</sup>	4.0
Scores on study instruments			
ACC-US-11 mean (SD)	15.5 (5.3)	15.5 (6.1)	15.5 (4.7)
ASQ-14 <sup>***</sup> mean (SD)	22.2 (9.3)	25.7 (8.5)	19.3 (9.0)
NTQ % diagnosed	48.9	80.4	26.8
PHQ-9 % diagnosed	49.8	80.6	24.2
Self-evaluated depression severity <sup>f</sup> %			
Never <sup>g</sup>	34.8	—	64.2
None	9.0	7.9	10.0
Mild	36.7	51.5	24.2

	Total	Clinical	Community
Moderate	14.5	29.7	1.7
Severe	5.0	10.9	0.0

Note.

<sup>a</sup>Mean of questions on speaking, understanding and reading English.

<sup>b</sup>Public and non-profit.

<sup>c</sup>11.3% were parents of children receiving care in a developmental center.

<sup>d</sup>Traditional Chinese medicine.

<sup>e</sup>6.8% were community members who disclosed clinical status. ACC-US-11 = Acculturation to US Scale; ASQ-14 = Acculturative Stress Questionnaire; NTQ = Neurasthenia Questionnaire; PHQ-9 = Patient Health Questionnaire Depression Module.

<sup>f</sup>Severity of symptoms at time of interview.

<sup>g</sup>Never had depression symptoms.

\*  
 $p < .05$ ;

\*\*  
 $p < .01$ ;

\*\*\*  
 $p < .001$ .

Table 2

The Chinese American Depression Scale (CADS-42) item labels and texts, dimensional and cultural classifications, and item parameters obtained with a Partial Credit Model

No.	Label	Dimension <sup>a</sup>	Culture <sup>b</sup>	English and Chinese Text <sup>c</sup>	Item Parameters		
					Estimate	Infit	Outfit
<b>Severe</b>							
42	suicidal	Psy	W	You think about killing yourself. 你想過自殺。	1.985	1.16	1.04
41	self-harm	Psy	W	You have thoughts about hurting yourself. 你想過傷害自己。	1.860	0.92	0.71
40	psychosis	Psy	C	You have auditory or visual hallucinations. 你有幻聽和幻覺。	1.639	1.24	1.74
39	crying	Psy	W	You cry. 你哭。	0.872	1.06	4.21
<b>Moderate-Severe</b>							
38	appetite	Som	W	You have poor appetite. 你感到沒有胃口。	0.652	1.35	1.33
37	blaming	Soc	W	You strongly blame your family members or partner for your life difficulties. 當你生活有困難,你強烈地埋怨家人或伴侶。	0.582	1.12	1.09
36	burden	Psy-Soc	C	You feel you are a burden to your family and society. 你覺得自己是家人和社會的負擔。	0.516	1.10	0.88
35	socialize	Soc	W	You don't want to have contact with people, socialize, or go out at all. 你完全不想和別人接觸,交往,或外出。	0.381	0.97	0.83
34	face	Soc	C	You think you made your family lose face. 你感到讓親人丟臉。	0.333	1.00	0.88
33	fault	Soc	W	You feel everything is your fault. 你感到所有問題都是自己的錯。	0.325	0.89	0.73
32	respect	Soc	C	You feel you don't have the kind of respect from work and family that you should have.	0.303	1.26	1.43

No.	Label	Dimension <sup>a</sup>	Culture <sup>b</sup>	English and Chinese Text <sup>c</sup>	Item Parameters		
					Estimate	Infit	Outfit
31	heart	Som	C	你覺得在家中和工作的地方得不到應該有的尊重。 You have heart palpitations or chest discomfort. 你感到心跳加速或胸悶。	0.286	1.14	1.22
30	meaning	Psy-Soc	C	You feel life is meaningless. 你感到做人沒有意思。	0.283	0.73	0.58
29	afraid	Psy	C	You feel very afraid. 你感到非常害怕。	0.208	0.72	0.64
28	talk	Soc	W	You don't want to talk. 你不想說話。	0.202	1.21	1.17
27	hopeless	Psy-Soc	W	You feel hopeless. 你感到沒有希望。	0.184	0.72	0.58
26	useless	Psy-Soc	W	You feel useless. 你覺得自己沒用。	0.051	0.82	0.74
<b>Moderate</b>							
25	bodyaches	Som	C	You have bodily aches and pains. 你感到渾身疼痛。	0.032	1.25	1.20
24	hide	Soc	C	You hide your life difficulties from other people. 你隱瞞自己生活有困難。	0.015	1.18	1.14
23	angry	Psy	C	You have tantrums and get angry very easily. 你很容易發脾氣和發怒。	-0.063	1.31	1.34
22	ability-fear	Som-Soc	C	You are afraid of losing your working ability completely one day. 你害怕有一天會完全失去做事能力。	-0.139	1.00	1.17
21	irritated	Psy	C	You feel emotionally irritated. 你感到心煩氣燥。	-0.169	0.78	0.76
20	interest	Psy	W	You have no interest in many things. For example, you used to like to exercise, go shopping or go out for entertainment, but not anymore. 你對很多事情失去興趣。例如：	-0.208	1.09	0.99

No.	Label	Dimension <sup>a</sup>	Culture <sup>b</sup>	English and Chinese Text <sup>c</sup>	Item Parameters		
					Estimate	Infit	Outfit
19	thinking	Som	W	你從前很喜歡做運動, 逛街或出外娛樂, 但現在已經失去興。 你從前很喜歡做運動, 逛街或出外娛樂, 但現在已經失去興。 You feel that you are thinking very slowly. 你覺得自己思想很緩慢。	-0.231	0.90	0.85
18	unhappy	Psy	W	You feel very unhappy. 你感到非常不開心。	-0.266	0.67	0.64
17	as-good	Soc	W	You feel like no matter how hard you try, you can't be as good as other people. 你感到不論你多努力都比不上別人。	-0.270	0.83	0.75
16	started	Som	W	It feels very hard to get started on doing things. 你感到做事總是提不起勁。	-0.272	0.88	0.80
15	decisions	Som	W	You have trouble making decisions. 你常常拿不定主意。	-0.285	1.15	1.15
14	lonely	Soc	C	You feel very lonely. 你感到非常寂寞。	-0.294	0.94	0.89
13	ruminate	Psy	W	You think about unpleasant things the whole day and cannot stop. 你整天不停地想起不愉快的事情。	-0.327	0.77	0.79
12	fate	Psy-Soc	C	You feel very helpless. You feel you have no way to change your own fate. 你感到非常無助。你感到沒有辦法改變自己的命運。	-0.365	0.80	0.67
11	health	Psy-Som	C	You are very afraid of having health problems. For example, you might have cancer or heart disease. 你非常害怕自己健康有問題, 例如患癌症或心臟病。	-0.373	1.16	1.43
<b>Mild-Moderate</b>							
10	nervous	Psy	C	You are very nervous. 你感到非常緊張。	-0.382	0.74	0.71
9	memory	Som	W	Your ability to remember things has worsened very much. For example, you forget where you put your keys, or your appointments. 你記性比以前差很多, 例如忘記帶鑰匙或約會時間。	-0.419	1.09	1.12
8	concentrate	Som	W	You are unable to concentrate well.	-0.511	0.83	0.75



No.	Label	Dimension <sup>a</sup>	Culture <sup>b</sup>	English and Chinese Text <sup>c</sup>	Item Parameters		
					Estimate	Infit	Outfit
<b>Mild</b>							
7	bored	Psy	C	You are very bored. 你感到很沉悶。	-0.589	1.10	1.11
6	sleep	Som	W	You are unable to sleep well. 你睡得不好。	-0.598	1.31	1.32
5	ability-loss	Som	W	You feel your working & learning ability has decreased significantly. 你感到做事和學習能力明顯下降。	-0.705	1.03	1.01
4	worried	Psy	C	Many things make you feel very worried. 很多事情讓你感到很擔心。	-0.919	0.77	0.76
3	troubled	Psy	C	Many things make you feel very troubled or bothered. 很多事情讓你覺得很煩惱。	-0.940	0.81	0.81
2	stress	Psy	C	You feel heavy stress living in the US. 你在美國生活感到重大的壓力。	-0.969	1.31	1.32
1	fatigued	Som	W	You feel very fatigued. 你感到很疲累。	-1.415	1.08	1.12

Note. Psy = Psychological; Som = Somatic; Soc = Social. C = Chinese culture-specific; W = overlapping with a DSM-IV symptom of major depression.

**Table 3**

Analysis of Differential Item Functioning of the Chinese American Depression Scale (CADS-42) by Gender and Age: Ease of Endorsability and Effect Size

No.	Item	Gender	Age
Easier to endorse for males or younger adults			
7	bored <sup>PSY</sup>	0.376	0.214
28	talk <sup>SOC</sup>	0.288	
32	respect <sup>SOC</sup>	0.252	
38	appetite <sup>SOM</sup>	0.252	
6	sleep <sup>SOM</sup>	0.242	
14	lonely <sup>SOC</sup>	0.220	0.216
1	fatigued <sup>SOM</sup>		0.236
16	started <sup>SOM</sup>		0.224
Easier to endorse for females or older adults			
39	crying <sup>PSY</sup>	<b>0.724</b>	
9	memory <sup>SOM</sup>	0.260	
30	meaning <sup>SOC/PSY</sup>	0.222	
40	psychosis <sup>PSY</sup>		<b>0.792</b>
25	bodyaches <sup>SOM</sup>		0.354
5	ability-loss <sup>SOM</sup>		0.268
12	fate <sup>SOC/PSY</sup>		0.224

*Note.* Effect sizes are in logits. Bolded text indicates a large effect size greater than .638 logits. PSY = Psychological; SOM = Somatic; SOC = Social.

**Table 4**

Differential Item Functioning of the Chinese American Depression Scale (CADS-47) by Education, English, and Years in U.S.: Ease of Endorsability and Effect Size

No.	Item	Education	English	Years in U.S.
Easier to endorse for more acculturated				
32	respect <sup>SOC</sup>	0.420	0.412	
2	stress <sup>PSY</sup>	0.318		
20	interest <sup>PSY</sup>	0.300	0.216	
31	heart <sup>SOM</sup>	0.238		
38	appetite <sup>SOM</sup>	0.224		
1	fatigued <sup>SOM</sup>	0.222		
28	talk <sup>SOC</sup>	0.220	0.246 <sup>a</sup>	
42	suicidal <sup>PSY</sup>		<b>0.616</b>	
41	self-harm <sup>PSY</sup>		<b>0.452</b>	0.270
40	psychosis <sup>PSY</sup>			<b>0.526</b>
34	face <sup>SOC</sup>			0.416
9	memory <sup>SOM</sup>			0.216
Easier to endorse for less acculturated				
36	burden <sup>SOC/PSY</sup>	<b>0.552</b>		
40	psychosis <sup>PSY</sup>	0.418		
19	thinking <sup>SOM</sup>	0.322	0.318	
22	ability-fear <sup>SOM/SOC</sup>	0.254	0.250	
13	ruminant <sup>PSY</sup>	0.252		
17	as-good <sup>SOC</sup>	0.242		
25	bodyaches <sup>SOM</sup>	0.236		
30	meaning <sup>SOC/PSY</sup>	0.232		
5	ability-loss <sup>SOM</sup>		<b>0.570</b>	
26	useless <sup>SOC/PSY</sup>		0.288	
12	fate <sup>SOC/PSY</sup>		0.230	
27	hopeless <sup>SOC/PSY</sup>		0.222	
15	decisions <sup>SOM</sup>			0.418
7	bored <sup>PSY</sup>			0.366
2	stress <sup>PSY</sup>			0.312
14	lonely <sup>SOC</sup>			0.284
23	angry <sup>PSY</sup>			0.282

Note. Effect sizes are in logits. Bolded text indicates a large effect size that is greater than .638 logits. Bolded and italicized text indicates an intermediate effect size that is .426–.638 logits. PSY = Psychological; SOM = Somatic; SOC = Social.