# The Effectiveness of Telepsychiatry-Based Culturally Sensitive Collaborative Treatment for Depressed Chinese American Immigrants: A Randomized Controlled Trial

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## ABSTRACT

***Objective:*** This study evaluates the effectiveness of a telepsychiatry-based culturally sensitive collaborative treatment (T-CSCT) intervention to improve treatment outcomes for depressed Chinese American immigrants.

***Methods:*** Participants were Chinese Americans recruited from primary care settings from February 1, 2009, to July 31, 2012, with *DSM-IV* major depressive disorder (MDD) identified by the Mini-International Neuropsychiatric Interview. Eligible patients were randomized to receive either T-CSCT or treatment as usual (TAU) for 6 months. T-CSCT involves (1) cultural consultation via videoconference and (2) care management. The primary outcome measure was the 17-item Hamilton Depression Rating Scale ($HDRS_{17}$); positive response was defined as a ≥ 50% decrease in $HDRS_{17}$ score, and remission was defined as $HDRS_{17}$ score ≤ 7. Secondary outcome measures were the Clinical Global Impressions-Severity of Illness (CGI-S) and Improvement (CGI-I) scales and the Quality of Life Enjoyment and Satisfaction Questionnaire (Q-LES-Q). Outcomes were compared using multivariate logistic regression and mixed-model for repeated measures methods.

***Results:*** Among participants (N = 190), 63% were female, and the mean (SD) age was 50 (14.5) years. They were randomized to T-CSCT (n = 97; 51%) or TAU (n = 93; 49%). Using multivariate logistic regression analyses, the odds of achieving response and remission were significantly greater for the T-CSCT group compared to the control group (odds ratio [OR] = 3.9 [95% CI, 1.9 to 7.8] and 4.4 [95% CI, 1.9 to 9.9], respectively). Multivariate general linear model analyses showed that patients in the T-CSCT group had significantly greater improvement over time in $HDRS_{17}$ ($F_{4,95} = 4.59$, $P = .002$), CGI-S ($F_{4,95} = 4.22$, $P = .003$), and CGI-I ($F_{4,95} = 2.95$, $P = .02$) scores.

***Conclusions:*** T-CSCT is effective in improving treatment outcomes of Chinese immigrants with MDD.

***Trial Registration:*** ClinicalTrials.gov identifier: NCT00854542

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## OVERVIEW

### Disparities in Treatment of Depression Among Chinese Americans

Ethnic minorities face both practical and cultural barriers to mental health care, a problem that is prominent for the growing population of Chinese Americans.[1] Chinese Americans, particularly recent immigrants, frequently hold stigmatizing beliefs regarding psychiatric illness, lack the resources to seek help, and encounter language barriers in the medical care system.[2,3] This stigma very likely contributes to underrecognition and undertreatment of mental illness, including depression, in this population.[4–6] When less acculturated Chinese immigrants are depressed, they tend to seek help from primary care physicians (PCPs), lay people, and alternative medical practices and infrequently utilize specialized mental health services.[7,8] An earlier study[9] in an urban primary care setting in Boston illustrated these issues: it showed that the prevalence of major depressive disorder (MDD) was 19.6% among underserved Chinese Americans, which is much higher than the 5%–10% prevalence reported in the mainstream population.[10] Furthermore, most of those depressed patients were untreated.[11]

### Culturally Sensitive Collaborative Treatment for Depressed Chinese Americans in Primary Care

Katon et al[12] proposed a collaborative model, with primary care physicians and psychiatrists working together to provide interventions for patients with depression. Subsequent development of the collaborative model, as demonstrated by the Improving Mood-Promoting Access to Collaborative Treatment (IMPACT) study,[13] emphasized the role of care managers as a link between patients and the medical team. A long term follow-up study[14] showed that depressed patients who had received collaborative care continued to have better depression outcomes 1 year after the IMPACT resources were withdrawn.

There are significant cultural barriers to implementing collaborative management of depression for Chinese American immigrants. Many members of this population are unfamiliar with the concept of depression, encounter language barriers in communicating their distress to their clinicians, and hold strongly stigmatizing beliefs regarding psychiatric disorders.[1]

To improve recognition and treatment engagement of depressed patients from diverse cultural backgrounds, our team designed an innovative program, the culturally sensitive collaborative treatment (CSCT) model for depression. CSCT adds a cultural component

**Clinical Points**

- Chinese American immigrants with depression generally seek help from primary care clinics, yet their depression is frequently unrecognized and untreated.
- A new, effective approach is to systematically screen for depression in primary care clinics, interview those who screen positive with the culturally sensitive Engagement Interview Protocol (which can be done via videoconferencing), and provide collaborative management of their depression.

to the collaborative care model by incorporating a culturally sensitive psychiatric consultation using the Engagement Interview Protocol (EIP),[15] a semistructured interview instrument designed to elicit patients' illness narratives, systematically assess illness beliefs, and introduce depression treatment in a way that is compatible with their belief systems. The CSCT model has been shown to be effective in communicating the concept of depression and resulted in a nearly 7-fold increase in treatment rate among depressed Chinese immigrants in primary care.[16]

### Telepsychiatry-Based CSCT Program

The telepsychiatry-based CSCT (T-CSCT) program adds teleconferencing technology to the CSCT program. The goal of T-CSCT is to increase capacity to provide culturally sensitive psychiatric consultation to clinics lacking access to mental health clinicians with the language or cultural expertise to serve ethnic minority patients. In a recent review, Hilty et al[17] pointed out that tele–mental health is effective for diagnosis and assessment across different age groups, ethnicities, types of psychiatric disorders, and patient settings, including emergency departments and home health, and that the outcomes appear to be comparable to in-person care. Innovative telepsychiatry programs, both in the United States and internationally, have gained growing acceptance for providing services to rural and underserved populations.[18–21] Given the shortage of culturally and linguistically compatible clinicians in the United States and the enormous need to extend mental health services to underserved ethnic populations, telepsychiatry has the potential to be an important tool for decreasing mental health treatment disparities.[22–24]

In our study (ClinicalTrials.gov identifier: NCT00854542), videoconferencing equipment was installed at recruitment sites in primary care clinics and then connected to consulting psychiatrists at a remote hospital using a wired network. Participants were randomly assigned to receive either T-CSCT or treatment as usual (TAU) for 6 months. We hypothesized that patients in the T-CSCT group would demonstrate improved depression treatment outcomes.

## METHODS

### Community Recruitment Site

South Cove Community Health Center (South Cove, Massachusetts) is a federally funded community health center and the largest health provider serving Asian Americans in the state of Massachusetts. The population served is predominantly Asian immigrants (> 96%), the majority of whom are Chinese Americans. Participants were recruited from South Cove's main primary care clinic in Boston's Chinatown and from its satellite primary care clinic located about 20 miles away in Quincy, Massachusetts.

### Remote Clinician Site

The research psychiatrists were affiliated with the Depression Clinical and Research Program at the Massachusetts General Hospital.

### Videoconferencing Setup

The Polycom VSX3000 system (Polycom, Inc) was installed at the South Cove recruitment sites and at Massachusetts General Hospital by an information technologist from Partners Connected Health Services. The Polycom VSX3000 system is a standards-compliant compact videoconference system that provides excellent audio and video quality. The systems were connected using Internet Protocol (IP) or Integrated Services Digital Network (ISDN) networking, which were available at all participating sites. All videoconferences were encrypted using Advanced Encryption Standard (AES) to provide security in data transmission. The transmissions were at 384 kbps with no audio delay. In 2011, 3 years into the study, the Polycom videoconferencing systems were replaced by Webcams when Web-based videoconferencing became available via Skype, a free videoconferencing platform. The Web-based system was inexpensive to install and required less technical support compared to the use of landlines and ISDN networking.

### Subject Recruitment

Participants were recruited from February 1, 2009, to July 31, 2012, through systematic depression screening at South Cove primary care clinics using the 9-item Chinese Bilingual Patient Health Questionnaire (CB-PHQ-9),[25] with a total score of 10 or above as the cutoff. In addition, we sought referrals by local primary care and mental health providers. Other recruitment methods included placing flyers in primary care clinics, advertising in community newspapers and Web sites, and sending group e-mails to local Chinese student groups.

### Inclusion/Exclusion Criteria

Patients were included if they (1) were monolingual Chinese American immigrants, meaning that primary language of choice is Cantonese or Mandarin; (2) were 18 years of age or older; (3) were competent to consent to study participation; (4) met *DSM-IV* criteria for MDD as diagnosed by the Mini-International Neuropsychiatric Interview (MINI)[26]; (5) received a score of 10 or greater on the CB-PHQ-9[25]; and (6) were willing to participate in phone interviews for symptom monitoring, as well as care management if randomized to the T-CSCT group.

Patients were excluded if they (1) presented with serious suicidal risk, (2) had an unstable medical illness with a significant likelihood of requiring hospitalization during the study period, (3) had comorbid severe mental disorders (eg, schizophrenia, substance abuse, bipolar disorder), or (4) had been treated by a psychiatrist in the past 4 months.

### Randomization

Enrolled patients were randomized using an online computerized program (www.randomization.com) into either the T-CSCT group or the TAU group.

***T-CSCT group.*** The T-CSCT intervention involved 2 major components:

Culturally sensitive psychiatric assessment. Patients in the T-CSCT group received a telepsychiatry-based assessment by a bilingual psychiatrist using the MINI plus culturally sensitive psychiatric consultation using the EIP. Patients were then instructed to receive follow-up treatment from their primary care physician. The PCPs received a letter informing them that their patient was enrolled into a research study to improve depression treatment and a copy of the psychiatric assessment and treatment recommendations from the research psychiatrist.

Collaborative care. Patients were also assigned a bilingual care manager who monitored their psychiatric treatment and also consolidated and streamlined the treatment efforts of the PCP and psychiatrist. The care managers' training consisted of a bachelor's degree in nursing or a master's degree in psychology or social work. They had received intensive training in the use of standardized rating scales, and they received weekly case supervision from the Principal Investigator (A.Y.). The first care management interview was a face-to-face meeting to establish rapport and to explain the roles of the care manager and blinded assessor (see below for details on the blind assessments). Subsequent visits were performed regularly through scheduled phone visits with patients at the 2nd, 4th, 6th, 9th, 12th, 15th, 18th, 21st, and 24th weeks. Care managers made additional phone calls if deemed clinically necessary or helpful to patients. The care managers monitored the patients' depressive symptoms, adherence to the MDD treatment protocol that their doctor(s) recommended, adverse events (for patients taking antidepressant medications), and patients' self-management of their depression. They served as the link between the patient, PCP, and consulting psychiatrist for a period of 6 months.

***TAU group.*** Participants in the TAU group received an initial telepsychiatry-based assessment with a psychiatrist using the MINI and usual care from their PCPs. The PCPs received a letter informing them that their patient was enrolled in a research study to improve depression treatment and a copy of the psychiatric assessment with treatment recommendations. Participants in this group did not receive culturally sensitive consultation with the EIP or care management.

Assessment by blinded interviewers. Patients in both the intervention and usual care groups were assessed by a bilingual interviewer blinded to patients' randomization status via phone call at weeks 6, 12, 18, and 24 after enrollment. Patients who received antidepressant treatment were assessed on their adherence to treatment and medication side effects.

### Instruments for Cultural Consultation and Outcome Assessments

***The Engagement Interview Protocol for cultural consultation.*** The EIP is a semistructured interview protocol used to explore patients' illness beliefs, assess medical and psychiatric history, and gather information regarding psychosocial background factors to facilitate the discussion of psychiatric diagnosis in a culturally sensitive manner, with the goal of improving engagement of patients in psychiatric treatment.[15]

***$HDRS_{17}$.*** The 17-item Hamilton Depression Rating Scale ($HDRS_{17}$) is the most widely studied clinician-administered instrument for quantifying the degree of depressive symptoms, and it has demonstrated high reliability and validity.[27–29] A decrease of 50% or more on the $HDRS_{17}$ is considered to be a positive response to treatment, while a score of 7 or less is considered typical of remission.[30] The Chinese-language version of the $HDRS_{17}$ has been shown to have adequate reliability and validity in an earlier study.[31]

***CGI-S and CGI-I.*** The Clinical Global Impressions-Severity of Illness (CGI-S) and Improvement (CGI-I) questionnaires[32] are completed by the clinician based on assessment of the patient's clinical status and are used to rate the severity of the disorder and the global improvement as compared to the beginning of the study.

***Q-LES-Q.*** Patients were administered the Chinese-translated version of the "short" form of the Quality of Life Enjoyment and Satisfaction Questionnaire (Q-LES-Q),[33] with higher scores representing better quality of life. The instrument has been demonstrated to have good reliability and validity among Chinese patients with psychiatric disorders.[34,35]

### Statistical Analyses

The data were analyzed following the completion of the study from 2012 through 2014.

***Preliminary analyses.*** Univariate analyses of the association between treatment assignment and each of the outcome measures were performed using $\chi^2$ tests and *t* tests (Table 1). To identify relevant confounding variables to be included in the multivariate logistic regression analyses (as described in the next paragraph), we performed bivariate analyses to assess for changes in the effect estimate and standard error of the treatment assignment variable. A ≥ 15% change in the effect estimate or standard error was set as the threshold[36] for determining confounding and collinearity, respectively.

***Primary outcome analyses.*** The primary outcome variables were the response and remission rates for depression; response was defined as having a 50% or greater improvement in $HDRS_{17}$ score at the last assessment compared to baseline, and remission was defined as having

an $HDRS_{17}$ score ≤ 7 at the last measurement.[30] Multivariate logistic regression analyses were performed to examine whether patients randomly assigned to the T-CSCT group exhibited improved treatment outcomes compared to the TAU group using a modified intention-to-treat (ITT) analysis (to include patients with ≥ 1 visit after their initial screening visits) and last observations carried forward. In the multivariate logistic regression analyses, response and remission status were the outcome variables of interest, and type of intervention (T-CSCT vs TAU) was the primary predictor of interest; baseline $HDRS_{17}$ score, age, and gender were entered as default confounders, and other confounding variables identified in the preliminary analyses process were added as covariates (Table 2).

***Secondary outcome analyses.*** For continuous outcomes such as the CGI scales and the Q-LES-Q, multivariate general linear models and mixed-model repeated measures (MMRM) methods were used to detect differences between the intervention and the TAU group.

The study protocol was approved by the Institutional Review Board at Partners Healthcare and has been published previously with a detailed description of the study design and data analysis plans[15] All patients provided consent to a research clinician who explained the contents of the study and answered any study-related questions raised by patients. Statistical analyses were conducted using SPSS software, version 20.0.[37]

## RESULTS

During the 42-month recruitment period, the CB-PHQ-9 was completed by 24,181 patients who visited South Cove primary care clinics, of whom 950 (3.9%) screened positive for MDD based on CB-PHQ-9 score ≥ 10. Among these, 520 (55%) declined psychiatric interview, 111 (12%) were receiving treatment for MDD, and 78 (8%) were ineligible based on inclusion/exclusion criteria. The remaining 241 (25%) were enrolled. Of these, 190 were confirmed to have MDD by MINI and were randomized, 93 (49%) to the intervention group and 97 (51%) to the TAU group (Figure 1).

### Preliminary Analyses

The demographic and clinical characteristics for both groups at baseline are listed in Table 1. Among the 190 depressed Chinese Americans who were enrolled in the study, 63% were female, and the mean (SD) age was 50 (14.5) years. The mean $HDRS_{17}$ score at baseline was 19.6 (4.2), which is in the range of severe depression.[26] There were no baseline differences in the distributions of age, gender, marital status, employment status, years of education, or mean $HDRS_{17}$, CGI-S, or Q-LES-Q scores between the intervention group and the usual care group. Age, gender, and baseline depression severity were included in the multivariate regression model according to precedent.[38] No other covariates met the predetermined threshold for confounding or collinearity of the hypothesized association between treatment assignment and any of the study outcomes.

### Primary Outcome Analyses

Univariate analyses based on ITT methods showed that patients in the T-CSCT group displayed significantly greater improvement in depressive symptoms compared to patients

**Table 1. Demographic and Clinical Characteristics of Chinese Americans With Major Depressive Disorder**

| | Total (N = 190) | | TAU (N = 97) | | T-CSCT (N = 93) | | |
|---|---|---|---|---|---|---|---|
| Variable | n | % | n | % | n | % | $P^a$ |
| Demographic | | | | | | | |
| Gender | | | | | | | .65 |
| Male | 71 | 37.4 | 38 | 39.2 | 33 | 35.5 | |
| Female | 119 | 62.6 | 59 | 60.8 | 60 | 64.5 | |
| Age, y[b] | | | | | | | .83 |
| 18–24 | 12 | 6.3 | 7 | 7.4 | 5 | 5.4 | |
| 25–34 | 23 | 12.2 | 9 | 9.5 | 14 | 15.2 | |
| 35–44 | 21 | 11.1 | 11 | 11.6 | 10 | 10.9 | |
| 45–54 | 56 | 29.6 | 27 | 28.4 | 29 | 31.5 | |
| 55–64 | 47 | 24.9 | 26 | 27.4 | 21 | 22.8 | |
| 65 or above | 30 | 15.9 | 15 | 15.8 | 13 | 14.1 | |
| Marital status | | | | | | | .88 |
| Married | 108 | 56.8 | 56 | 57.7 | 52 | 55.9 | |
| Unmarried | 82 | 43.2 | 41 | 42.3 | 41 | 44.1 | |
| Employment status | | | | | | | .52 |
| Full time | 52 | 27.4 | 27 | 27.8 | 25 | 26.9 | |
| Part time | 37 | 19.5 | 17 | 17.5 | 20 | 21.5 | |
| Homemaker | 34 | 17.9 | 20 | 20.6 | 14 | 15.1 | |
| Student | 12 | 6.3 | 5 | 5.2 | 7 | 7.5 | |
| Laid off | 18 | 9.5 | 11 | 11.3 | 7 | 7.5 | |
| Disabled | 6 | 3.2 | 1 | 1.0 | 5 | 5.4 | |
| Retired | 31 | 16.3 | 16 | 16.5 | 15 | 16.1 | |
| Continuous variables | Mean | SD | Mean | SD | Mean | SD | $P^c$ |
| Age, y | 50.0 | 14.5 | 50.8 | 14.4 | 49.1 | 14.7 | .4 |
| Years of education | 10.6 | 4.2 | 10.2 | 4.1 | 11.0 | 4.2 | .2 |
| Score at baseline | | | | | | | |
| $HDRS_{17}$ | 19.6 | 4.2 | 19.8 | 4.6 | 19.4 | 3.8 | .5 |
| CGI-S | 4.2 | 0.8 | 4.3 | 0.8 | 4.2 | 0.8 | .4 |
| Q-LES-Q total | 40.9 | 6.6 | 40.8 | 7.3 | 41.0 | 5.9 | .8 |

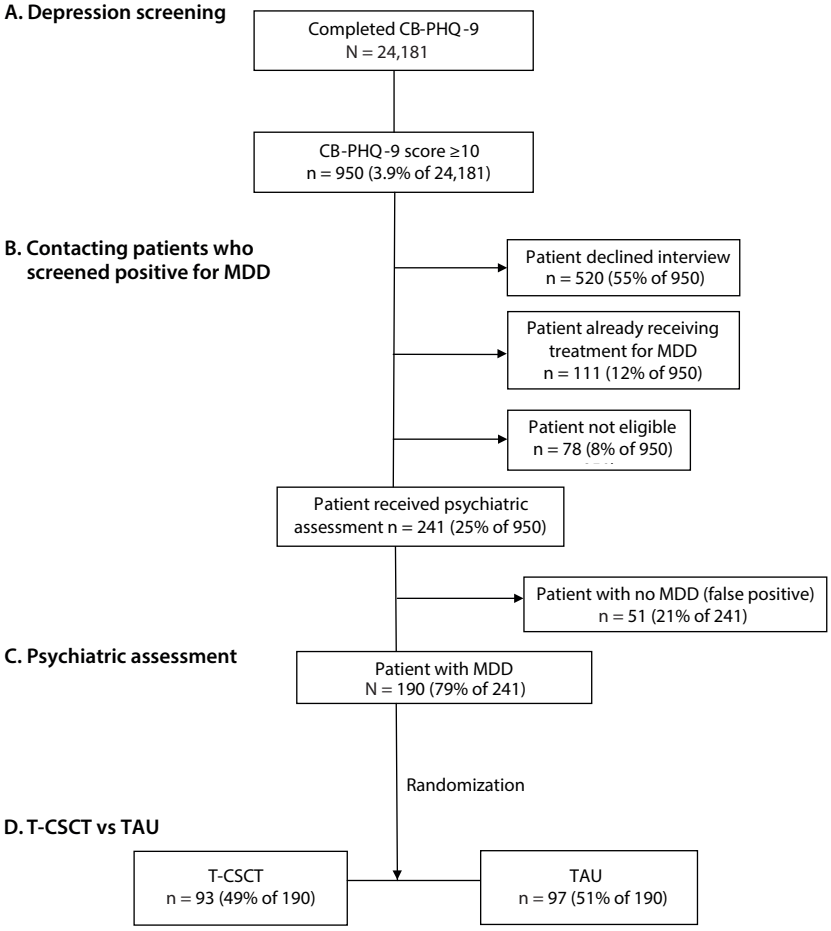
[a]$\chi^2$ test for TAU vs T-CSCT.
[b]Total: N = 187, TAU: n = 95 (missing data in 2 participants), T-CSCT: n = 92 (missing data in 1 participant).
[c]*t* test for TAU vs T-CSCT.
Abbreviations: CGI-S = Clinical Global Impressions-Severity of Illness scale, $HDRS_{17}$ = 17-item Hamilton Depression Rating Scale, Q-LES-Q = Quality of Life Enjoyment and Satisfaction Scale, TAU = treatment as usual (control group), T-CSCT = Telepsychiatry-Based Culturally Sensitive Collaborative Treatment (intervention group).

**Table 2. Multivariate Analysis of the Effects of T-CSCT (primary outcomes)**

| | Usual Care (n = 97) | | | Intervention (n = 93) | | | | Multivariate Logistic Regression Intervention vs TAU (N = 190) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Categorical Outcomes | Total N | n | % | Total N | n | % | $P^a$ | N | Odds Ratio | 95% CI | $P^b$ |
| Response | 94 | 16 | 17.0 | 92 | 41 | 45.0 | < .001 | 182 | 3.9 | 1.9–7.8 | < .001 |
| Remission | 96 | 10 | 10.4 | 93 | 30 | 32.3 | < .001 | 186 | 4.4 | 1.9–9.9 | < .001 |

[a]$\chi^2$ test.
[b]Multivariate logistic regression.
Abbreviations: TAU = treatment as usual (control group), T-CSCT = Telepsychiatry-Based Culturally Sensitive Collaborative Treatment (intervention group).

Figure 1. CONSORT Flow Diagram of Study Participants




Abbreviations: CB-PHQ-9 = 9-item Chinese Bilingual Patient Health Questionnaire, MDD = major depressive disorder, TAU = treatment as usual (control group), T-CSCT = Telepsychiatry-Based Culturally Sensitive Collaborative Treatment (intervention group).

who received TAU (response rate: 45% vs 17%, $\chi^2 = 16.6$, $P < .001$; remission rate: 32% vs 10%, $\chi^2 = 13.5$, $P < .001$). Using multivariate logistic regression analyses to adjust for baseline $HDRS_{17}$, age and gender, the odds of achieving response and remission were significantly greater for the T-CSCT group compared to the control group (odds ratio [OR] = 3.9 [95% CI, 1.9 to 7.8] and 4.4 [95% CI, 1.9 to 9.9], respectively).

### Secondary Outcome Analyses

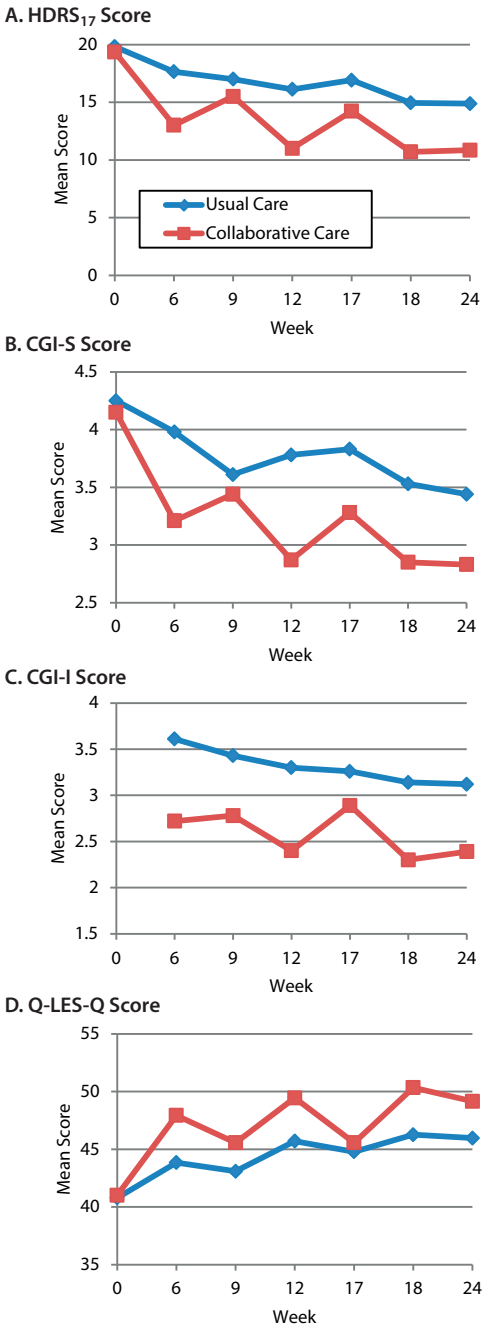
Tests of the time × treatment interaction effect from the general model for repeated measures found that patients in the T-CSCT group showed significantly greater improvement over time in $HDRS_{17}$ ($F_{4,95} = 4.59$, $P = .002$), CGI-S ($F_{4,95} = 4.22$, $P = .003$), and CGI-I ($F_{4,95} = 2.95$, $P = .02$) scores (Figure 2). However, there was no significant difference in slope between the 2 groups in the changes in their Q-LES-Q scores ($F_{4,95} = 1.35$, $P = .82$). We also tested the comparable time × multilevel treatment interaction via MMRM methods and found an identical pattern of significant and nonsignificant results.

## DISCUSSION

Our study demonstrated that T-CSCT is an effective way to deliver culturally sensitive collaborative care to depressed Chinese American immigrants. There has been a paucity of research on collaborative care for Asian Americans who suffer from mental disorders.[39] To our knowledge, this is the first randomized controlled trial on the use of a telepsychiatry-based collaborative treatment targeting Asian Americans, specifically Chinese American patients in primary care. The positive results of this trial confirm that CSCT can be delivered effectively through telemedicine. Such a model could alleviate the nationwide shortage of clinicians able to provide culturally appropriate treatment for ethnic minority and culturally diverse patients.

Our earlier study[16] demonstrated that the CSCT program, through active engagement of patients using culturally sensitive interview techniques, led to a 7-fold increase in the treatment rate for depressed Chinese Americans in primary care. However, the expansion

**Figure 2. Trajectory of Improvement in Outcome Measures Over 24 Weeks**




Abbreviations: CGI-I = Clinical Global Impressions-Improvement scale, CGI-S = Clinical Global Impressions-Severity of Illness scale, $HDRS_{17}$ = 17-item Hamilton Depression Rating Scale, Q-LES-Q = Quality of Life Enjoyment and Satisfaction Scale.

of the CSCT model faced a practical barrier: There is a tremendous shortage in bilingual and bicultural clinicians in many areas of the country, and language and communication barriers remain key reasons for health services disparities.[40,41] The T-CSCT model greatly increases the potential for disseminating CSCT by overcoming these barriers. The use of videoconferencing for psychiatric consultations eliminates the requirement of geographical proximity between patients and clinicians for the delivery of mental health care. Furthermore, the availability of low-cost Webcams and free Web-based Skype software make the T-CSCT program financially viable for large-scale dissemination to underserved populations in both urban and rural areas.

There are several limitations of the study. First, while most of the outcome measurements showed positive results from the intervention, the change in Q-LES-Q score was not statistically significant when potential confounders were included in the multivariate analysis. This finding could be a result of lack of satisfaction with physical health, family relationships, or treatment, or other items in the Q-LES-Q instrument specific to this population that lowered the overall quality of life and enjoyment outcomes based on this measure. Alternatively, improvement in depressive symptomatology may not be sufficient to result in significant improvement in perceived quality of life.

Second, the study targeted a group of Chinese Americans receiving primary care at a community health center. Future replication studies are needed before outcomes from this study can be generalized to other populations.

Third, outcome assessments by blinded raters over the phone could be biased by patients who wanted to offer socially desirable answers. In some instances, patients discussed their care management experience during blind assessment and unintentionally revealed their randomization status.

Lastly, some may question whether Skype provides adequate security for clinical encounters. Skype uses standards-based encryption algorithms that exceed the federal guidelines to transmit protected health information (PHI) at a minimal level of 128-bit encryption.[42] However, concerns have been raised that Skype does not state anywhere that its service is Health Insurance Portability and Accountability Act (HIPAA) compliant,[42] does not offer audit control tools for monitoring who has access to PHI, and does not provide notifications in the event of a privacy breach.[43] As communication technology continues to evolve at a rapid pace, the adoption of cutting-edge communication software that can adequately preserve patient confidentiality is essential for telepsychiatry to become a mainstream modality for health services delivery.

In summary, we have shown that CSCT can be implemented via videoconferencing. Future studies should explore how to propagate CSCT in clinics serving minority populations and how to organize clinicians at different geographic sites using telemedicine networks to deliver psychiatric services.

## CONCLUSIONS

T-CSCT improved treatment outcomes of depressed Chinese Americans in primary care. With the use of teleconferencing technologies, there is a potential for large-scale dissemination of CSCT to address disparities in the treatment of depression.

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***Role of the sponsor:*** The NIH monitored the conduct of the study in adherence to the proposed study design and timeline and encouraged publication of study outcomes.

***Disclaimer:*** The content is solely the responsibility of the authors and does not represent the official views of the NIH.

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