Research Article

ANTIDEPRESSANT USE AMONG ASIANS IN THE UNITED STATES

Hector M. González, Ph.D.,[1]* Wassim Tarraf, M.A.,[1] Brady T. West, M.A.,[2] Domin Chan, Ph.D.,[3] Patricia Y. Miranda, Ph.D. M.P.H.,[4] and Fredrick T. Leong, Ph.D.[5]

Objectives: *We examined the prevalence and predictors of past-year antidepressant use in a nationally representative sample of Asian Americans and non-Latino Whites.* **Methods**: *Analyses of 12-month antidepressant medication use were based on data from the Collaborative Psychiatric Epidemiology Surveys that surveyed Asian (Chinese, Filipino, Vietnamese, and others; N = 2,284) and non-Latino White (N = 6,696) household residents ages 18 years and older in the 48 contiguous United States and Hawaii.* **Results**: *Prevalence rates for 12-month antidepressant use for Asians with major depression ranged from 8.7% among Vietnamese to 17% among Chinese respondents. Compared to non-Latino Whites (32.4%), all Asians (10.9%) meeting criteria for 12-month depressive and anxiety disorders, but especially Filipinos (8.8%) were less likely to report past-year antidepressant use.* **Conclusions**: *We found disparities in past-year antidepressant use among all the examined major Asian groups meeting criteria for 12-month depressive and anxiety disorders. These disparities were not explained by mental health need or socioeconomic factors that enable access to care. Depression and Anxiety 27:46–55, 2010.* © 2009 Wiley-Liss, Inc.

INTRODUCTION

Asian Americans are the fastest growing and perhaps most ethnically diverse group in the United States. Although depressive and anxiety disorders are leading causes of disability worldwide and major national and global public health problems, little is known about the prevalence of mental health services use by Asian Americans.[1] Chinese Americans represent the oldest and largest ethnic Asian American group in the US and overall have lower rates of depressive disorders than Whites; however, with more acculturation rates increase and begin to approximate rates for Whites.[2] Little is known about depressive disorders in other nationally representative samples of community-dwelling major Asian ethnic groups. Despite the rapid rise in use of antidepressants in the general population, national estimates of antidepressant use among Asians are nonexistent.[3]

As a largely immigrant population, Asians reportedly manifest various emotional and behavioral problems related to the immigrant experience.[4] The limited

[1]**Department of Family Medicine, Institute of Gerontology and School of Medicine, Wayne State University, Detroit, Michigan**
[2]**Center for Statistical Consultation and Research, University of Michigan, Ann Arbor, Michigan**
[3]**Department of Psychiatry and Behavioral Sciences, University of Washington, Seattle, Washington**
[4]**Department of Health Disparities Research, Center for Research on Minority Health, University of Texas M. D. Anderson Cancer Center, Houston, Texas**
[5]**Center for Multicultural Psychology Research, Michigan State University, East Lansing, Michigan**

research available on Asian Americans shows that despite these risk factors, Asian Americans report lower rates of mental health-related service use compared to the general population.[5–8] Explanations for this low mental health services use focus on several barriers to care: (1) cultural incompatibility of mental health services to needs (e.g., language, lack of patient–provider ethnic concordance);[7,9–11] (2) cultural barriers, such as stigma, differing causal beliefs;[11–13] (3) limited access to care (e.g., low rates insurance coverage);[14,15] and (4) lack of awareness of mental health problems or understanding of health-care services.[10,16]

A number of studies have documented that ethnic minority patients receive disparate mental healthcare.[17–19] However, it is often difficult to disentangle which ethnic groups in particular are at-risk for inequalities in care. More often than not, "lumping" or aggregating ethnically diverse Asian and Latino subgroups is seen in the research literature. Aggregating subpopulations does little to disentangle disparities in care, potentially masking differences that exist when ethnic subgroups are disaggregated.[20–22] This is especially consequential for Asian Americans considering the varied cultural, linguistic, and immigration histories that each ethnic group brings to this country.

First, several studies show that nativity, generational status in the US, and acculturation are important in understanding mental health services use among Asian Americans and why less acculturated Asians are less likely than non-Latino Whites to utilize specialty mental healthcare.[8,23,24] Less acculturated Asians are reportedly more reluctant to seek help for emotional problems and delay using mental health services until they are more severely ill compared to non-Latino Whites.[25,26] Many Asians report that emotional and personal problems result from a lack of will power or bad thoughts and emphasize self-control and solving one's own problems as solutions.[27] The existence of "culture-bound syndromes," such as neurasthenia among Chinese Americans, and the missing equivalence of native labels and diagnostic tools are likely to increase the risk of misdiagnosis by health professionals.[4] Many Chinese Americans will not report a depressed mood to their physicians and are unfamiliar that depression is a treatable emotional disorder.[28,29] It has been suggested that Asians are likely to suppress or deny expression of emotions, finding it more acceptable to somatize emotional distress or emphasize physical or behavioral symptoms.[9,28,30–32] Chung et al. argue that Asians, especially those with low acculturation levels may put the patient at risk for underdetection of psychiatric problems.[33] Correspondent with this general line of research, we expected that both Asian ethnicity and lack of acculturation would be associated with lower prevalence of mental disorders and negatively related to mental health services use.

Second, medical and psychiatric conditions, particularly those with vague symptoms, are difficult to diagnose in the general population and may be further complicated by cultural and language differences between clinicians and patients. Borowsky et al found that primary care doctors may not identify depression in their Asian American patients as much as they identify depression in White patients.[34] We expected that medical conditions, particularly those with psychiatric-like symptoms (e.g., fatigue in diabetes) and patient–provider cultural differences complicate the recognition and treatment of psychiatric disorders (i.e., prescribing antidepressants) and help explain disparities in mental healthcare for ethnic minorities.

The purpose of this study was to examine psychiatric and nonpsychiatric factors associated with 12-month antidepressant use in a nationally representative sample of community-dwelling Asian Americans. We focused on antidepressant pharmacotherapy for depressive and anxiety disorders. We compared past-year antidepressant use between Asians and non-Latino Whites while accounting for other factors thought to enable healthcare access. We used a version of the Andersen Behavioral model of health-care access modified for use with populations vulnerable to inequalities in healthcare.[35] We use the Behavioral model to frame our analytic approach to understanding factors that may influence antidepressant use among Asians in the US.[36]

METHODS

PARTICIPANTS

Data were analyzed from the National Institute of Mental Health, Collaborative Psychiatric Epidemiology Surveys (CPES). The sample consists of four subgroups (600 Chinese, 508 Filipino, 520 Vietnamese, and 656 respondents of other Asian ancestry) (*n* = 2,284) and non-Latino Whites (*n* = 6,696).

Sampling procedures, sample characteristics, and interview procedures have been previously reported.[37,38] Trained bilingual interviewers using computer-assisted interviewing software conducted in-person interviews unless the respondent requested a telephone interview or if an in-person interview was not feasible. CPES instruments were available in English, Vietnamese, Tagalog, Mandarin, and Cantonese and were translated and back-translated according to standard procedures. Data were collected between May 2002 and November 2003. Sampling weights were created at the University of Michigan to account for unequal probability of selection into the samples and nonresponse rates. The weighted data provides a nationally representative sample of Asians and Whites (ages 18 and older) in the noninstitutionalized population of the coterminous United States and Hawaii. Sampling weights were incorporated in all analyses presented in this study, allowing for the generation of population estimates by analyzing data specific to subpopulations of interest.

MAIN OUTCOME

Past-year antidepressant use was measured using self-reported responses to the question "Did you take any type of prescription medicine in the past 12 months for problems with your emotions,

substance use, energy, concentration, sleep, or ability to cope with stress?" Two board-certified psychiatrists and a masters-level psychiatric nurse specialist reviewed prescription antidepressant generic and trade names from pill bottle records collected during interviews and verified that the inventoried drugs were antidepressant agents before coding for the analyses.

PREDICTORS

Three Andersen model components of health-care access (predisposing, need, and enabling factors) were used to predict past-year antidepressant use.[36] First, predisposing factors included categorical variables for Asian subgroups (Chinese, Filipino, Vietnamese, and "Other Asians") and non-Latino Whites. We were interested in understanding whether and how cultural variation was related to antidepressant use in this mixed ethnicity subpopulation.[8,24,39] Therefore, we operationalized acculturation–nativity as a dichotomous indicator: high (for US-born respondents with one or two US-born parents, or foreign-born respondents with two US-born parents) and low (for foreign-born individuals with one or no US-born parents, or US-born ones with no US-born parents).[40] Gender and age (18–34, 35–65, and over 64 years) were included as covariates. Second, need factors included dichotomous indicators of: (1) 12-month mental disorders and (2) self-reported medical conditions. Mental disorders were assessed using the World Mental Health Composite International Diagnostic Interview (CIDI) administered by trained, nonclinical interviewers. In this study, we focused on Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV) criteria for 12-month major depression, dysthymia, and five specific anxiety disorders (agoraphobia without panic, generalized anxiety, panic, posttraumatic stress disorder and social phobia). DSM-IV diagnostic algorithms with medical condition exclusionary criteria were used. Self-reported medical conditions (high blood pressure, diabetes, stroke, and heart disease) associated with antidepressant use were also included as need factors. Finally, health-care access enabling factors included household income (<$18,000; $18,000–$31,999; $32,000–$54,999; and $55,000 or more), years of education (0–11; 12; 13–15; and 16 or more) and health insurance coverage (insured and uninsured). A question on financial difficulty paying monthly bills was included as a potential barrier to health-care access. Although financial stress in all likelihood "disables" health-care access and is not a traditional variable in the Anderson model, we believe that understanding financial stress is important to understanding health services among ethnic minorities, particularly in countries without universal health-care coverage.

DATA ANALYSIS

Statistical analyses were performed using commands available for the analysis of complex sample survey data using Stata software (Release 10.1; StataCorp, College Station, TX, 2008). All statistical analyses performed were design based in that they: (1) utilized the combined CPES sampling weights to account for individual-level unequal probabilities of selection into the samples, individual nonresponse, and additional poststratification to ensure population representation; and (2) accounted for the complex multistage clustered design of the sample when computing standard errors for the calculated estimates. Specifically, a Taylor Series Linearization approach to variance estimation was used.[41]

Univariate and bivariate analyses were conducted to calculate sample estimates of demographic, mental health, medical conditions, and other variables and the prevalence of antidepressant use in specific subpopulation of interest (along with 95% confidence intervals (CI)). Bivariate ordinary least squares, logistic, and ordered

logistic regression analyses were performed to examine simple associations between antidepressant use and individual-level characteristics, including diagnoses, depressive symptoms, demographics, and co-existing medical conditions. Multivariate logistic regression models were used to test the Anderson model components and estimate the relationships of the individual diagnoses, depressive symptoms, demographics, and co-existing medical conditions with the likelihood of an antidepressant use, when controlling for the effects of other covariates in the model. Odds ratios (OR) expressing the relative influences of the covariates on the odds of antidepressant use were calculated based on the multivariate logistic regression models, along with design-based 95% CI for the estimated ORs.

RESULTS

The demographic characteristics of the study sample by ethnic groups are shown in Table 1. Bivariate ordinary least squares regression analyses indicated that Vietnamese ($\beta = -3.2$; $P<.01$), Filipino ($\beta = -4.0$; $P<.01$), Chinese ($\beta = -4.1$; $P<.01$) and all other Asian ($\beta = -8.9$; $P<.01$) respondents were younger relative to non-Latino Whites. Bivariate ordered logit regression revealed that all Asian groups, with the exception of the Vietnamese, earned equal or higher incomes and had higher levels of education compared to non-Latino Whites. Vietnamese lagged non-Latino Whites in both income (OR = 0.51; $P<.01$) and education (OR = 0.50; $P<0.01$). Filipino respondents (OR = 1.63; $P<.01$) were 63% more likely to be placed in a higher income category and the all other Asian respondents (OR = 1.36; $P<.05$) were 36% more likely to be so relative to non-Latino Whites. Chinese and non-Latino white respondents did not significantly differ in their income classification (OR = 0.91; $P = .61$). Filipinos (OR = 1.58; $P<.01$), Chinese (OR = 1.64; $P<.01$), and all other Asians (OR = 2.99; $P<.01$) were more likely to have higher levels of education compared to non-Latino Whites.

Asians in general had lower health insurance coverage (86.3%) compared to non-Latino Whites (90%; $\chi^2 = 8.02$; $P<.01$). A greater proportion of Vietnamese respondents were uninsured compared to both non-Latino Whites and the other Asian groups ($\chi^2 = 4.41$; $P<.01$). Vietnamese respondents were less acculturated than other Asian ethnic groups ($\chi^2 = 22.69$; $P<.01$) and almost all had at least one foreign-born parent, indicating that they are newer immigrants than the other Asian subgroups examined. The most common vascular condition among Asians and Whites was hypertension. Hypertension was more common among Filipinos and non-Latino Whites compared to other groups ($\chi^2 = 13.26$; $P<.01$). Filipinos and non-Latino Whites reported similarly high prevalence rates of one or more vascular conditions, followed by Vietnamese respondents ($\chi^2 = 10.41$; $P<.01$).

The prevalence estimates of 12-month major depression ($\chi^2 = 5.55$; $P<.01$) and anxiety disorders ($\chi^2 = 19.89$; $P<.01$) were significantly higher among non-Latino Whites, often twice that of Asians. The prevalence rates of 12-month Dysthymia

TABLE 1. Demographic characteristics of the Asian and non-Latino white subpopulations of the collaborative psychiatric epidemiology surveys

	Vietnamese % (SE) n = 520	Filipino % (SE) n = 508	Chinese % (SE) n = 600	Other Asian % (SE) n = 656	non-Latino Whites % (SE) n = 6,696	Total % (SE) n = 8,980	χ^2 test
Income (US dollars)							
$0–17,999	31.7 (2.0)	14.8 (1.7)	24.5 (2.6)	15.9 (2.0)	16.4 (1.0)	16.6 (0.9)	P<.001
$18,000–31,999	14.3 (2.6)	8.0 (1.6)	7.9 (1.3)	6.4 (1.1)	13.1 (0.8)	12.8 (0.8)	
$32,000–54,999	18.3 (2.2)	14.9 (2.6)	17.9 (2.5)	21.3 (2.8)	22.4 (0.7)	22.1 (0.6)	
$55,000 and over	35.7 (2.7)	62.3 (4.0)	49.7 (3.7)	56.4 (3.3)	48.2 (1.6)	48.4 (1.5)	
Education (years)							
Less than 12	34.2 (2.9)	11.7 (2.2)	18.7 (2.8)	7.0 (1.5)	13.2 (1.0)	13.3 (0.9)	P<.001
12	21.3 (2.0)	19.8 (2.3)	16.7 (2.0)	14.9 (1.6)	31.7 (1.4)	30.9 (1.4)	
13–15	22.2 (1.9)	33.0 (2.1)	20.5 (2.6)	25.6 (2.3)	28.9 (1.1)	28.6 (1.0)	
16 and over	22.4 (3.6)	35.5 (3.7)	44.0 (3.7)	52.6 (3.0)	26.2 (1.4)	27.2 (1.3)	
Age (years)							
Young adult (18–34)	30.0 (2.2)	35.8 (2.6)	31.9 (2.9)	50.5 (2.9)	27.6 (1.4)	28.3 (1.3)	P<0.01
Adult (35–65)	57.8 (2.6)	51.4 (2.5)	57.5 (3.3)	42.4 (2.9)	52.9 (1.7)	52.8 (1.6)	
Older adult (65 and over)	12.2 (2.3)	12.8 (2.3)	10.6 (2.5)	7.1 (2.2)	19.4 (1.2)	18.89 (1.2)	
Sex							
Female	54.6 (1.9)	55.4 (2.2)	53.7 (2.0)	49.6 (2.3)	52.4 (1.1)	52.4 (1.0)	P=.35
Male	45.4 (1.9)	44.6 (2.2)	46.2 (2.0)	50.4 (2.3)	47.6 (1.1)	47.6 (1.0)	
Insurance							
Uninsured	18.3 (1.9)	12.1 (1.8)	13.9 (1.9)	12.7 (2.0)	10.0 (0.8)	10.2 (0.8)	P<.01
Insured	81.7 (1.9)	87.9 (1.8)	86.1 (1.9)	87.3 (2.0)	90.0 (0.8)	89.8 (0.8)	
Acculturation–Nativity							
Low	99.9 (0.1)	85.1 (2.1)	88.6 (2.5)	78.0 (3.4)	6.9 (0.8)	11.4 (1.0)	P<.001
High	0.1 (0.1)	14.9 (2.1)	11.4 (2.5)	22.0 (3.4)	93.1 (0.8)	88.6 (1.0)	
Medical conditions							
Heart disease	4.3 (1.3)	5.6 (1.2)	2.2 (0.5)	3.4 (1.4)	5.5 (0.6)	5.4 (0.5)	P=.09
Stroke	1.6 (0.6)	1.2 (0.5)	0.9 (0.4)	0.4 (0.3)	2.8 (0.3)	2.7 (0.3)	P<.001
Diabetes	8.8 (2.0)	8.4 (1.5)	5.0 (1.0)	7.4 (1.5)	6.9 (0.5)	6.9 (0.5)	P=.41
Hypertension	16.1 (2.0)	26.4 (3.0)	14.1 (2.0)	13.4 (1.7)	24.3 (0.7)	23.9 (0.7)	P<.001
One or more vascular disease	24.2 (2.8)	30.4 (3.0)	18.9 (2.2)	18.5 (2.4)	30.0 (0.8)	29.5 (0.8)	P<.001
12-month mental disorders[a]							
Major depressive disorder	4.2 (1.1)	4.2 (1.1)	4.6 (1.2)	5.6 (1.2)	8.6 (0.4)	8.4 (0.4)	P<.001
Dysthymia	1.2 (0.5)	1.0 (0.4)	0.5 (0.2)	2.5 (1.0)	2.4 (0.2)	2.4 (0.2)	P=.07
Anxiety[b]	4.5 (0.9)	6.4 (0.9)	6.4 (1.2)	6.6 (1.2)	13.5 (0.5)	13.1 (0.5)	P<.001
Any of the above	6.7 (1.1)	8.7 (1.2)	9.6 (1.8)	9.9 (1.6)	17.6 (0.6)	17.1 (0.6)	P<.001
None of the above	93.3 (1.1)	91.3 (1.2)	90.4 (1.8)	90.0 (1.6)	82.4 (0.6)	82.9 (0.6)	P<.001

[a]Based on the World Mental Health Composite International Diagnostic Interview.
[b]Includes agoraphobia with and without panic, generalized anxiety disorder, panic disorder, posttraumatic stress disorder, and social phobia.

($\chi^2 = 2.56$; $P=.069$), however, were only marginally significantly different.

PREVALENCE OF ANTIDEPRESSANT USE

Prevalence estimates of antidepressant use by ethnicity for different disorders are shown in Table 2, and bivariate logit OR comparisons relative to non-Latino Whites are presented in Table 3.

Regardless of mental disorders, 11.8% of sample respondents indicated past-year antidepressant use. Asians overall (2.7%) were much less likely to use antidepressant drugs relative to non-Latino Whites (12.3%; $\chi^2 = 128.60$; $P<.01$). Moreover, each Asian subgroup had significantly lower odds of antidepressant use compared to the non-Latino Whites.

The antidepressant use differential between Asians and non-Latino Whites extended to the subgroup of respondents meeting depressive disorder criteria. The overall prevalence of antidepressant use in this subpopulation among Asians was 13.2%, almost a third of the prevalence rate among non-Latino Whites meeting the same criteria (41.3%; $\chi^2 = 26.38$; $P<.01$). All our Asian subgroups had significantly lower odds of antidepressant use relative to non-Latino Whites.

Similar prevalence patterns were evident among the subgroups of respondents meeting criteria for (1) dysthymia; (2) anxiety disorders; and (3) any of the considered mental disorders (i.e., depression, dysthymia, and anxiety). Asian respondents meeting criteria for dysthymia (17.4%), anxiety disorders (11.8%), and any mental disorder (10.9%) had much lower rates of

González et al.

TABLE 2. Prevalence of past-year antidepressant drug use in a nationally representative sample of Asians and non-Latino Whites (N = 8,980) in the United States

	Estimated prevalence		
	(%)	SE	χ^2 test
All ethnic groups	11.8	0.5	
Vietnamese	2.5	0.7	P<.001
Filipino	2.1	0.5	
Chinese	2.5	0.5	
Other Asians	3.4	0.9	
Non-Latino Whites	12.3	0.6	
12-month mental disorders[a]			
Major depression	40.3	2.1	
8.7	8.7	5.3	P<.001
5.3ese			
Filipino	12.5	7.9	
Chinese	17.0	7.9	
Other Asians	12.2	5.2	
Non-Latino Whites	41.3	2.1	
Dysthymia	51.5	4.6	
Vietnamese	0.0	0.0	P<.001
Filipino	28.8	23.1	
Chinese	50.6	23.5	
Other Asians	12.6	5.2	
Non-Latino Whites	52.8	4.7	
Anxiety[b]	31.7	1.7	
Vietnamese	16.5	9.0	P<.001
Filipino	12.0	5.8	
Chinese	18.2	5.4	
Other Asians	6.1	3.1	
Non-Latino Whites	32.3	1.7	
Any mental disorder	31.8	1.6	
Vietnamese	14.5	6.0	P<.001
Filipino	8.8	4.6	
Chinese	14.7	3.1	
Other Asians	8.5	3.2	
Non-Latino Whites	32.4	1.6	
No mental disorders	7.6	0.5	
Vietnamese	1.6	0.6	P<.001
Filipino	1.5	0.5	
Chinese	1.2	0.4	
Other Asians	2.8	1.0	
Non-Latino Whites	8.0	0.6	

[a]Based on the World Mental Health Composite International Diagnostic Interview.
[b]Includes agoraphobia with and without panic, generalized anxiety disorder, panic disorder, posttraumatic stress disorder, and social phobia.

TABLE 3. Ethnic predictors of past-year antidepressant drug use in specific disorder groups from a nationally representative sample of Asians and non-Latino Whites (N = 8,980) in the United States

	Bivariate logit	
	OR	95% CI
All ethnic groups		
Vietnamese	0.18*	(0.10–0.31)
Filipino	0.15*	(0.09–0.24)
Chinese	0.18*	(0.12–0.28)
Other Asians	0.25*	(0.14–0.44)
Non-Latino Whites	1.00	–
12-month mental disorders[a]		
Major depression		
Vietnamese	0.14*	(0.04–0.51)
Filipino	0.20†	(0.05–0.86)
Chinese	0.29†	(0.09–0.90)
Other Asians	0.20*	(0.07–0.53)
Non-Latino Whites	1.00	–
Dysthymia		
Vietnamese	n/a	n/a
Filipino	n/a	n/a
Chinese	n/a	n/a
Other Asians	n/a	n/a
Non-Latino Whites	n/a	n/a
Anxiety[b]		
Vietnamese	0.41	(0.11–1.53)
Filipino	0.29†	(0.10–0.86)
Chinese	0.47†	(0.22–0.98)
Other Asians	0.14*	(0.05–0.41)
Non-Latino Whites	1.00	–
Any mental disorder		
Vietnamese	0.35†	(0.13–0.94)
Filipino	0.20*	(0.06–0.63)
Chinese	0.36*	(0.22–0.59)
Other Asians	0.19*	(0.08–0.44)
Non-Latino Whites	1.00	–
No mental disorders		
Vietnamese	0.18*	(0.09–0.38)
Filipino	0.17*	(0.09–0.33)
Chinese	0.14*	(0.07–0.26)
Other Asians	0.33*	(0.16–0.70)
Non-Latino Whites	1.00	–

[a]Based on the World Mental Health Composite International Diagnostic Interview.
[b]Includes agoraphobia with and without panic, generalized anxiety disorder, panic disorder, posttraumatic stress disorder, and social phobia.
*$P \le .01$; †$P \le .05$; ‡$P \le .10$.

antidepressants use compared with non-Latino Whites meeting similar criteria (52.8%; $\chi^2 = 13.96$; P<.01, 32.3%; $\chi^2 = 27.8$; P<.01, 32.4%; $\chi^2 = 53.0$; P<.01, consecutively). When individual Asian subgroups were considered separately, respondents meeting criteria for anxiety disorders, with the exception of the Vietnamese respondents, had lower odds of antidepressant use than non-Latino Whites. Among respondents meeting criteria for any depressive or anxiety disorders examined in this study, all the Asian subgroups had

significantly lower rates of antidepressant use compared to non-Latino Whites.

PREDICTORS OF ANTIDEPRESSANT USE

Table 4 reflects the three components of the modified Andersen behavioral model. Of the *predisposing* factors examined (model 1), all Asian subgroups had significantly lower odds of antidepressant use compared to non-Latino Whites. Adults (ages 35–65)

TABLE 4. Predictors of past-year antidepressant use in a nationally representative sample of Asians and non-Latino Whites (*N* = 8,980)

	Model 1[d]		Model 2[d]		Model 3[d]	
	OR	(95% CI)	OR	(95% CI)	OR	(95% CI)
Predisposing						
Ethnic groups						
Non-Latino Whites	1.00	–	1.00	–	1.00	–
Vietnamese	0.30*	(0.15–0.60)	0.35*	(0.18–0.68)	0.33*	(0.16–0.67)
Filipino	0.23*	(0.13–0.41)	0.25*	(0.14–0.44)	0.18*	(0.08–0.39)
Chinese	0.28*	(0.16–0.50)	0.31*	(0.18–0.52)	0.35*	(0.20–0.60)
Other Asians	0.40*	(0.21–0.76)	0.44[†]	(0.23–0.87)	0.46[‡]	(0.21–1.02)
Age (years)						
Young adult (18–34)	1.00	–	1.00	–	1.00	–
Adult (35–65)	1.77*	(1.42–2.22)	1.76*	(1.44–2.15)	1.69*	(1.28–2.22)
Older adult (65+)	0.85	(0.58–1.23)	0.97	(0.63–1.49)	0.76	(0.44–1.31)
Sex						
Male	1.00	–	1.00	–	1.00	–
Female	2.60*	(2.14–3.15)	2.37*	(1.91–2.93)	2.82*	(2.15–3.70)
Acculturation/Nativity						
Low	1.00	–	1.00	–	1.00	–
High	1.86*	(1.21–2.88)	1.62[†]	(1.05–2.50)	1.51[‡]	(0.94–2.44)
Need						
12-Month mental disorders[a]						
No disorders			1.00	–	1.00	–
Major depression, dysthymia, anxiety[b]			4.87*	(3.82–6.20)	4.25*	(3.23–5.59)
Medical conditions[c]						
No medical conditions			1.00	–	1.00	–
One or more condition			1.61*	(1.26–2.07)	1.61*	(1.20–2.17)
Enabling						
Education groups (years)						
<12					0.85	(0.56–1.29)
12					1.00	–
13–15					1.09	(0.79–1.52)
16 or more					0.95	(0.68–1.33)
Household income groups						
$0–$17,999					1.38	(0.83–2.30)
$18,000–$31,999					1.11	(0.72–1.73)
$32,000–$54,999					1.00	–
$55,000 or more					1.01	(0.75–1.35)
Health insurance coverage						
No					1.00	–
Yes					1.82[†]	(1.01–3.27)
Financial stress						
Not difficult					1.00	–
Difficult					1.47*	(1.26–1.73)

[a]Based on the World Mental Health Composite International Diagnostic Interview.
[b]Includes agoraphobia with and without panic, generalized anxiety disorder, panic disorder, posttraumatic stress disorder, and social phobia.
[c]Includes heart disease, stroke, hypertension, and diabetes.
*$P \leq .01$; [†]$P \leq .05$; [‡]$P \leq .10$.

were significantly more likely to use antidepressants relative to young adults (ages 18–34), but older adults (65 and older) did not significantly differ from young adults. Being female increased the odds of antidepressants use by 160% relative to male counterparts. In addition, respondents in the high acculturation–nativity group had significantly higher odds of use compared to less acculturated individuals. In model 2 (*need* factors), meeting criteria for depressive or anxiety disorders significantly increased the odds of past-year antidepressant use. Moreover, reporting one or more of the medical conditions was associated with higher odds of antidepressant use. Of the health-care access *enabling* factors (model 3), both being insured and reporting financial difficultly were associated with significantly higher odds of antidepressant use. Controlling for mental health and health *need* and *enabling* factors had marginal moderating effects, and in the case of Filipinos had an accentuating effect, on the significantly lower odds of utilization of antidepressants

among Asian subgroups compared to non-Latino Whites.

DISCUSSION

Few Asian Americans with recent depressive and anxiety disorders reported past-year antidepressant use. We found health-care disparities in antidepressant use for Chinese, Filipino, and Vietnamese subgroups compared to non-Latino Whites. The differences in antidepressant use were not explained by differences in need or other socioeconomic factors that influence or enable access to healthcare. Predisposing cultural differences, in the form of immigration histories, appear to have played a role in the antidepressant use differences we observed. Our findings have particular relevance as US health-care policymakers debate the merits of insuring immigrants. Consistent with previous findings, antidepressant use was associated with medical conditions independent of coexisting mental disorders,[42] and acculturation–nativity was associated with antidepressant use.

Inequalities in antidepressant use were found among Vietnamese, Filipinos, Chinese, and Asians of other ancestry compared to non-Latino Whites. Filipinos generally had the lowest rates of antidepressant use compared to other Asian ethnic groups, which is a new finding for Filipinos because Asian subgroups, like Latinos, are commonly "lumped" together in national studies.[20,21] Ethnic group "lumping" is a practice that is discouraged by the Surgeon General and the National Institutes of Health.[43] Additionally, we believe that the practice of combining ethnic Asian subgroups introduces false negative errors (i.e., Type II errors) in studies, as important ethnic group differences are potentially lost.[22] We argue that, when feasible, ethnic subgroups should be disaggregated to determine whether important differences are present. The additional information specific to each ethnic subgroup is essential for properly specifying and ultimately targeting policies and efforts aimed at reducing ethnic and racial disparities in care.

The low antidepressant use rates among Vietnamese, Filipinos, and Chinese with major depression, anxiety, and any mental disorder compared to non-Latino Whites with similar disorders likely indicates high unmet need in these ethnic populations. However, we did not assess other forms of treatment, such as psychotherapy and complimentary and alternative medicine, in this study. So, it is possible that Vietnamese, Filipinos, and Chinese are not undertreated for these mental disorders, if these respondents are indeed using other forms of mental healthcare not examined in our study.

Higher antidepressant use was positively associated with acculturation–nativity, and mirrors associations observed among Latino populations.[44] Age of immigration has been associated with the risk of mental disorders among Asian Americans and has been shown to moderate the relationship of subjective social status and mental health in immigrants.[45,46] Because our acculturation measure was largely dependent on nativity and age of immigration, the acculturation–treatment relationship we observed might reflect differential risk of mental disorders between immigrants and nonimmigrants associated with treatment use.[2,47] The relationships between antidepressant use, ethnicity, and acculturation were not strongly affected by socioeconomic status, insurance coverage, and financial stress, factors thought to "enable" better access to healthcare. Nevertheless, insurance coverage, which is higher among US-born Asians and Asians who immigrated early in life compared to recent immigrants, was associated with higher antidepressant use. Financial stress, which is higher among more recent Asian immigrants than their counterparts, was also associated with more antidepressant use. Combined, our findings suggest ethnicity and acculturation are important factors associated with access to mental healthcare, particularly antidepressant use. This suggests that cultural factors are related to antidepressant treatment use and that first and second generation immigrants may require more outreach efforts to encourage the use of mental health services.

Over half (53.7%) of all past-year antidepressant use was found among Asians and non-Latino Whites who did not meet criteria for recent depressive and anxiety disorders. This is consistent with previous work indicating the use of mental health services without current mental disorders.[44,48,49] To better understand this observation, medical conditions were examined. Of the medical conditions considered, medical histories of diagnoses of hypertension and heart disease increased the likelihood of antidepressant use. Further, antidepressant use among respondents with medical conditions was not completely explained by the presence of coexisting DSM-IV psychiatric disorders. Our findings indicate that antidepressant agents are often used for nonpsychiatric conditions. This finding could be explained by the appropriate use of antidepressants for other unmeasured medical conditions (e.g., neuropathic pain in diabetics, insomnia, or incontinence), or antidepressants prescribed for mood changes or previous depression that co-occurred with vascular conditions, and perhaps the mood problems were treated effectively and respondents were in remission. Nevertheless, our findings suggest it is essential to identify and subtract nonpsychiatric uses of antidepressants to avoid inappropriately inflating true utilization and costs of mental health services. Furthermore, this pattern of antidepressant use among respondents not meeting criteria for recent depressive and anxiety disorders suggests that further research is needed to examine the possible role that hypothesized factors (e.g., somatization) may play in understanding mental health problems among Asian Americans.[50]

The antidepressant use we reported is unique in that our estimates are based on a nationally representative

household sample. Respondents were selected into the sample regardless of medical care access, a feature that is distinct from earlier reports based on clinical records and medical claims data.[51] Nonelderly uninsured rates range from 12% among Japanese Americans to 21% for Vietnamese Americans.[52] Estimates of antidepressant treatment established in community samples, without necessarily requiring that the sample have access to care (as in the case of medical claims samples) are critical to understanding the health needs of this population, particularly when barriers to care vary between ethnic subgroups. Second, antidepressant medication use in this study was determined by both self-report and pill bottle inventories among respondents who met established criteria for mental disorders.[53] Pill bottle inventories limit underreporting drugs that were not recognized by respondents as psychiatric medications. Previous national estimates of disparities in mental healthcare have relied on self-reported mental conditions, which may introduce untoward bias into estimates from previous reports.[54]

Our results should be interpreted within the context of their limitations. First, the CPES surveys are cross-sectional community-based samples and excluded the homeless or institutionalized and may not reflect the true current need for depressive and anxiety disorders treatment in the United States. Second, underuse of antidepressants may be underestimated from systematic survey nonresponse and nonreporting.[41] Third, although the CPES surveys represent the largest psychiatric epidemiologic study to-date, disaggregated ethnic group data was limited in sample size. Fourth, classification of mental disorder in this study relied on self-reported information without the use of clinician-based interviewing. There is some controversy that DSM criteria may be culturally biased and inadequately capture psychiatric disorders among Asians.[55] To that degree, the CIDI is likely similarly culturally biased across race and ethnicity. Consequently, it is possible that some Asian psychiatric disorders were not detected and thus we could have overestimated the percentage of Asians without psychiatric disorders using antidepressants. Finally, because we were interested in comparing antidepressant use by Asians and non-Latino Whites, we were limited in our operationalization of acculturation, which was limited to only one aspect of acculturation. A more extensive and nuanced evaluation of acculturation and its relationship to understanding antidepressant use may be more informative and ultimately improve antidepressant use by those with psychiatric need among Asians.

This study has several implications for practice and future research. First, new practice models are needed to enhance detection of mental disorders and treatment initiation among Asian Americans while being culturally sensitive. Collaborative care depression interventions have the potential to detect and treat Asian patients in primary care where they are more likely to accept treatment in the context of comorbid medical disorders, and a bilingual/bicultural depression care manager could support patients and troubleshoot problems with side effects or needed dosage corrections for antidepressants.[56,57] Second, more research is needed on which cultural factors are associated with antidepressant use among Asian Americans. Future research could further explore the social and cultural factors that comprise the acculturation process and may be associated with antidepressant use, such as health knowledge or treatment beliefs and preferences by Asian ethnic groups. Third, research on patient–provider communication is needed to improve detection and accurate diagnosis and effective treatment of psychiatric disorders.

In summary, few Asians and non-Latino Whites meeting criteria for psychiatric disorders reported past-year antidepressant use. Regardless of ethnicity or factors enabling access to mental healthcare, all Asian groups examined had lower past-year antidepressant use compared to non-Latino Whites. Many of the antidepressant drugs used by Asians were by respondents without current psychiatric disorders or were related to medical conditions independent of comorbid psychiatric disorders.[42,44,48,49] Our results are evidence supporting a need for interventions that target the treatment of depressive and anxiety disorders among specific Asian populations.

REFERENCES

1. Murray CJL, Lopez AD, Harvard School of Public Health, World Health Organization, World Bank. The Global Burden of Disease: A Comprehensive Assessment of Mortality and Disability from Diseases, Injuries, and Risk Factors in 1990 and Projected to 2020. Cambridge, MA: Harvard School of Public Health on behalf of the World Health Organization and the World Bank; 1996. Distributed by Harvard University Press.
2. Takeuchi DT, Chung RCY, Lin KM, et al. Lifetime and twelve-month prevalence rates of major depressive episodes and dysthymia among Chinese Americans in Los Angeles. Am J Psychiatry 1998;155:1407–1414.
3. Zuvekas SH. Prescription drugs and the changing patterns of treatment for mental disorders, 1996–2001. Health Aff (Millwood) 2005;24:195–205.
4. Lin KM, Cheung F. Mental health issues for Asian Americans. Psychiatr Serv 1999;50:774.
5. Abel GA, Chen X, Boden-Albala B, Sacco RL. Social readjustment and ischemic stroke: lack of an association in a multiethnic population. Neuroepidemiology 1999;18:22–31.
6. Snowden LR. Use of inpatient mental health services by members of ethnic minority groups. Am Psychol 1990;45:347–355.
7. Sue S, Fujino DC, Hu LT, Takeuchi DT, Zane NW. Community mental health services for ethnic minority groups: a test of the

cultural responsiveness hypothesis. J Consult Clin Psychol 1991;59:533–540.

8. Abe-Kim J, Takeuchi DT, Hong S, et al. Use of mental health-related services among immigrant and US-born Asian Americans: results from the National Latino and Asian American Study. Am J Public Health 2007;97:91–98.

9. Zhang AY, Snowden LR, Sue S. Differences between Asian and White Americans' help seeking and utilization patterns in the Los Angeles area. J Community Psychol 1998;26:317–326.

10. Sadavoy J, Meier R, Ong AY. Barriers to access to mental health services for ethnic seniors: the Toronto study. Can J Psychiatry 2004;49:192–199.

11. Sanchez F, Gaw A. Mental health care of Filipino Americans. Psychiatr Serv 2007;58:810–815.

12. Leong FT, Lau AS. Barriers to providing effective mental health services to Asian Americans. Ment Health Serv Res 2001;3:201–214.

13. Yeh M, Hough RL, McCabe K, Lau A, Garland A. Parental beliefs about the causes of child problems: exploring racial/ethnic patterns. J Am Acad Child Adolesc Psychiatry 2004;43:605–612.

14. Abe-Kim JS, Takeuchi D. Cultural competence and quality of care: issues for mental health service delivery in managed care. Clin Psychol Sci Pract 1996;3:273–295.

15. Chin D, Takeuchi DT, Suh D. Access to health care among Chinese, Korean, and Vietnamese Americans. In: Hogue C, Hargraves MA, Collins KS, editors. Minority Health in America. Baltimore: Johns Hopkins University Press; 2000:77–98.

16. U.S. Department of Health Health and Human Services. Mental health: culture, race, and ethnicity (A Supplement to Mental health: a report of the surgeon general). Rockville, MD: U.S. Department of Health and Human Services, Office of the Surgeon General, Substance Abuse and Mental Health Services Administration; 2001.

17. Schraufnagel TJ, Wagner AW, Miranda J, Roy-Byrne PP. Treating minority patients with depression and anxiety: what does the evidence tell us? Gen Hosp Psychiatry 2006;28:27–36.

18. Mendelson T, Kubzansky LD, Datta GD, Buka SL. Relation of female gender and low socioeconomic status to internalizing symptoms among adolescents: a case of double jeopardy? Soc Sci Med 2008;66:1284–1296.

19. Alegría M, Chatterji P, Wells KB, et al. Disparity in depression treatment among racial and ethnic minority populations in the United States. Psychiatr Serv 2008;59:1264–1272.

20. Lauderdale DS, Kestenbaum B. Asian American ethnic identification by surname. Popul Res Policy Rev 2000;19:283–300.

21. Yu ESH, Liu WT. US national health data on Asian Americans and Pacific Islanders: a research agenda for the 1990s. Am J Public Health 1992;82:1645–1652.

22. Uehara ES, Takeuchi DT, Smukler M. Effects of combining disparate groups in the analysis of ethnic differences: variations among Asian American mental health service consumers in level of community functioning. Am J Community Psychol 1994;22:83–99.

23. Ying YW, Miller LS. Help-seeking behavior and attitude of Chinese Americans regarding psychological problems. Am J Community Psychol 1992;20:549–556.

24. Atkinson DR, Gim R. Asian-American cultural identity and attitudes toward mental health services. J Couns Psychol 1989;4:53–61.

25. Durvasula R, Sue S. Severity of disturbance among Asian American outpatients. Cult Divers Ment Health 1996;2:43–51.

26. Bui KV, Takeuchi DT. Ethnic minority adolescents and the use of community mental health care services. Am J Community Psychol 1992;20:403–417.

27. Leong FTL. Asian Americans differential patterns of utilization of inpatient and outpatient public mental health services in Hawaii. J Community Psychol 1994;22:82–96.

28. Yeung A, Chang D, Gresham Jr RL, Nierenberg AA, Fava M. Illness beliefs of depressed Chinese American patients in primary care. J Nerv Ment Dis 2004;192:324–327.

29. Yeung A, Kam R. Ethical and cultural considerations in delivering psychiatric diagnosis: reconciling the gap using MDD diagnosis delivery in less-acculturated Chinese patients. Transcult Psychiatry 2008;45:531–552.

30. Cheng TA. Symptomatology of minor psychiatric morbidity: a crosscultural comparison. Psychol Med 1989;19:697–708.

31. Kirmayer LJ, Robbins JM. Patients who somatize in primary care: a longitudinal study of cognitive and social characteristics. Psychol Med 1996;26:937–951.

32. Kleinman A. Depression, somatization and the "new cross-cultural psychiatry." Soc Sci Med 1977;11:3–10.

33. Chung H, Teresi J, Guarnaccia P, et al. Depressive symptoms and psychiatric distress in low income Asian and Latino primary care patients: prevalence and recognition. Community Ment Health J 2003;39:33–46.

34. Borowsky SJ, Rubenstein LV, Meredith LS, Camp P, Jackson-Triche M, Wells KB. Who is at risk of nondetection of mental health problems in primary care? J Gen Intern Med 2000;15:381–388.

35. Gelberg L, Andersen RM, Leake BD. The Behavioral Model for Vulnerable Populations: application to medical care use and outcomes for homeless people. Health Serv Res 2000;34:1273–1302.

36. Andersen RM. Revisiting the behavioral model and access to medical care: does it matter? J Health Soc Behav 1995;36:1–10.

37. Alegria M, Takeuchi D, Canino G, et al. Considering context, place and culture: the National Latino and Asian American Study. Int J Methods Psychiatr Res 2004;13:208–220.

38. Heeringa SG, Wagner J, Torres M, Duan N, Adams T, Berglund P. Sample designs and sampling methods for the Collaborative Psychiatric Epidemiology Studies (CPES). Int J Methods Psychiatr Res 2004;13:221–240.

39. González HM, Hinton L, Ortiz T, Haan MN. Antidepressant class and dosing among older Mexican Americans: application of geropsychiatric treatment guidelines. Am J Geriatr Psychiatry 2006;14:79–83.

40. Rumbaut RG. Ages, life stages and generational cohorts: decomposing the immigrant first and second generations in the United States. Int Migr Rev 2004;38:1160–1205.

41. Rust K. Variance estimation for complex estimators in sample surveys. J Official Stat 1985;1:381–397.

42. González HM, Croghan T, West B, et al. Antidepressant use in black and white populations in the United States. Psychiatr Serv 2008;59:1131–1138.

43. Alegría M, Canino G, Shrout PE, et al. Prevalence of mental illness in immigrant and non-immigrant U.S. Latino groups. Am J Psychiatry 2008;165:359–369.

44. González HM, Tarraf W, West BT, et al. Antidepressant use in a nationally representative sample of community-dwelling US Latinos with and without depressive and anxiety disorders. Depression and Anxiety; in press.

45. Breslau J, Chang DF. Psychiatric disorders among foreign-born and US-born Asian-Americans in a US national survey. Soc Psychiatry Psychiatr Epidemiol 2006;41:943–950.

46. Leu J, Yen IH, Gansky SA, Walton E, Adler NE, Takeuchi DT. The association between subjective social status and mental health among Asian immigrants: investigating the influence of age at immigration. Soc Sci Med 2008;66:1152–1164.

47. Alderete E, Vega WA, Kolody B, Aguilar-Gaxiola S. Effects of time in the United States and Indian ethnicity on DSM-III-R psychiatric disorders among Mexican Americans in California. J Nerv Ment Dis 2000;188:90–100.
48. Druss BG, Wang PS, Sampson NA, et al. Understanding mental health treatment in persons without mental diagnoses: results from the National Comorbidity Survey Replication. Arch Gen Psychiatry 2007;64:1196–1203.
49. Huskamp HA, Busch AB, Domino ME, Normand SL. Antidepressant reformulations: who uses them, and what are the benefits? Health Aff (Millwood) 2009;28:734–745.
50. Sue S. Mental Health of Asian Americans. San Francisco: Jossey-Bass; 1982.
51. Miranda J, Cooper LA. Disparities in care for depression among primary care patients. J Gen Intern Med 2004;19:120–126.
52. Census. Current Population Series. Washington, DC: US Government Printing Office; 2007.
53. Kessler RC, Abelson J, Demler O, et al. Clinical calibration of DSM-IV diagnoses in the World Mental Health (WMH) version of the World Health Organization (WHO) Composite International Diagnostic Interview (WMHCIDI). Int J Methods Psychiatr Res 2004;13:122–139.
54. Harman JS, Edlund MJ, Fortney JC. Disparities in the adequacy of depression treatment in the United States. Psychiatr Serv 2004;55:1379–1385.
55. Kurasaki K, Okazaki S, Sue S, editors. Asian American Mental Health: Assessment Theories and Methods. New York: Kluwer Academic/Plenum Publishers; 2002.
56. Gilbody S, Whitty P, Grimshaw J, Thomas R. Educational and organizational interventions to improve the management of depression in primary care: a systematic review. J Am Med Assoc 2003;289:3145–3151.
57. Unutzer J, Katon W, Callahan CM, et al. Collaborative care management of late-life depression in the primary care setting: a randomized controlled trial. J Am Med Assoc 2002;288:2836–2845.