Psychiatry Research 210 (2013) 315–322

Contents lists available at ScienceDirect

Psychiatry Research

journal homepage: www.elsevier.com/locate/psychres

Comparison of major depressive disorder onset among foreign-born Asian Americans: Chinese, Filipino, and Vietnamese ethnic groups

Sungkyu Lee [a,*], Sunha Choi [a], Jason Matejkowski [b]

[a] College of Social Work, University of Tennessee at Knoxville, USA
[b] School of Social Welfare, University of Kansas, USA

ARTICLE INFO

Article history:
Received 19 December 2012
Received in revised form
21 March 2013
Accepted 26 March 2013

Keywords:
Depression
Major depressive disorder onset
Risk factors of depression
Ethnic disparities
Asian Americans

ABSTRACT

Using a nationally representative sample of 1280 Asian Americans, we examined the extent to which major depressive disorder (MDD) onset differs by ethnicity and its associated factors for each of the three ethnic groups: Vietnamese, Filipino, and Chinese. We employed the Kaplan–Meier method to estimate the survival and hazard functions for MDD onset by ethnicity, and cox proportional hazards models to identify socio-demographic and immigration-related factors associated with MDD onset. Approximately 7% of the entire sample had experienced MDD onset in their lifetime. Filipino immigrants showed the highest survival function, followed by Vietnamese immigrants over time. Those who were never-married or divorced were more likely to experience MDD onset when compared to their married or cohabiting counterparts. Those who immigrated at a younger age were more likely to experience MDD onset than were those who immigrated at an older age. However, there were ethnic variations in terms of the risk factors that were associated with MDD onset across these three ethnic groups. Findings from this study signal the importance of understanding the differing experiences of MDD onset by ethnicity.

1. Introduction

Asian Americans are the fastest growing minority groups in the United States (Pew Research Center, 2012). Based upon the 43% increase between 2000 and 2010, Asian Americans are projected to make up over 10% of the US population by 2050, doubling the 5% estimated in the 2010 US Census (Barnes et al., 2008; Humes et al., 2011). Despite the rapid growth of this population, the mental health of Asian Americans has been poorly understood compared to that of other minority groups in the US mainly due to the sampling limitations of prior research (Frisbie et al., 2001). Specifically, heterogeneity within the Asian American population could not be adequately accounted for due to the small sample sizes of the various Asian subgroups in national data sets. This has limited our ability to identify potential health disparities across different Asian subgroups (Elliott et al., 2008). To date, there is no empirical study that examines ethnic variations in major depressive disorder (MDD) onset and the risk factors by ethnicity among Asian immigrants in the US. Using a nationally representative sample, the present study aimed to examine ethnic variations in MDD onset as well as risk factors associated with experiencing MDD onset among three Asian ethnic subgroups in the US: Vietnamese, Filipino, and Chinese Americans.

1.1. MDD among immigrants in the US

Depression is one of the most understudied conditions among Asian Americans. This is troubling as ineffective prevention and service efforts for MDD that result from a lack of research has serious public health consequences through elevated health care costs and reductions in the quality of lives of affected individuals and their families (Fox et al., 1995; Greenberg et al., 2003). Empirical studies of mental disorders among a variety of foreign-born individuals have provided mixed results.

The foreign-born population, which makes up over 77% of Asian American adults (Barnes et al., 2008), has been found to have lower rates of mental disorders, including anxiety, mood, and substance use disorders when compared to their native-born counterparts (Breslau et al., 2007; Grant et al., 2004; Takeuchi et al., 2007; Williams et al., 2007). These findings may reflect what is termed as the "healthy immigrant" effect. That is, foreign-born people tend to present with a better health status upon arrival compared to their US-born counterparts due to voluntary positive selection among immigrants, cultural buffering of native cultures, and legal barriers against entry by those in poor health (Akresh and Frank, 2008; Antecol and Bedard, 2006; McDonald and Kennedy, 2004). However, other researchers have demonstrated that foreign-born individuals are at greater risk of mental disorders due to the many

* Correspondence to: College of Social Work, University of Tennessee at Knoxville, 301 Henson Hall, 1618 Cumberland Ave., Knoxville, TN 37996-3333, USA. Tel.: +1 865 974 3164.
E-mail address: slee90@utk.edu (S. Lee).

0165-1781/$ - see front matter © 2013 Elsevier Ireland Ltd. All rights reserved.
http://dx.doi.org/10.1016/j.psychres.2013.03.030

traumas and stresses related to their immigration experience (e.g., problems with acculturating to their new residence) (Alegria et al., 2007; Pumariega et al., 2005; Riolo et al., 2005). For example, the stress-illness model hypothesizes that higher levels of stress related to adaptation among immigrants can lead to worse health outcomes compared with health outcomes among US-born counterparts (Lindesay et al., 1997).

1.2. Risk factors associated MDD

Risk factors associated with MDD among foreign-born individuals include socio-demographic, psychosocial, and immigration-related characteristics. Those who are female, younger, never married or divorced, poorer, unemployed, and have low educational attainment are more likely to experience MDD (Hsu et al., 2004; Hwang et al., 2005; Kessler et al., 2003; Lee, 2011; Mann and Garcia, 2005; Nadeem et al., 2009). Psychosocial factors including high levels of stress (particularly acculturative stress), family conflict and lack of local family and social support are related to high level of MDD among foreign-born individuals (Aroian and Norris, 2002, 2003; Crockett et al., 2007; Fenta et al., 2004; Heilemann et al., 2004). Immigration-related characteristics associated with MDD among foreign-born individuals include English proficiency, length of stay, and age at immigration (Hwang et al., 2005; Kaltman et al., 2010; Takeuchi et al., 2007).

Ethnicity is considered an important factor explaining variations in mental disorders among foreign-born individuals due to the unique socio-demographic characteristics and immigration histories associated with ethnicity. For example, using a nationally representative Latino sample in the US, Alegria et al. (2008) found that foreign-born Latinos had lower rates of mental disorders when compared to their US-born counterparts. However, when the Latino sample was disaggregated into different ethnic subgroups (i.e., Puerto Rican, Cuban, Mexican, and other), the disparity remained for only one ethnic subgroup (i.e., Mexican). As with the Latino population, Asian Americans are not a homogeneous group. Among other characteristics, Asian American subgroups differ in terms of immigration history, motivation for immigrating, education, and income. For example, although the majority of Vietnamese Americans arrived in the US after 1975 with refugee status, the major influxes of Chinese Americans date to the early 1900s (Tseng, 2009). This diversity underscores the importance of understanding variations in mental disorders among immigrant populations by ethnicity. Thus, the present study addresses the following research questions:

- To what extent does MDD onset differ by ethnicity?
- What factors are associated with MDD onset among Asian ethnic subgroups in the U.S.?

2. Methods

2.1. Data source and study sample

We analyzed data from the Collaborative Psychiatric Epidemiology Surveys (CPES). The CPES is a nationally representative survey. It is a combined data set that includes the National Comorbidity Survey Replication, the National Survey of American Life, and the National Latino and Asian American Study (NLAAS; Heeringa et al., 2004). Even though each survey includes unique modules, they share common survey instrumentation to address a common objective: to estimate the prevalence of mental disorders, impairments associated with these disorders, and their treatment patterns from diverse representative groups of the US adult population (Alegria et al., 2004; Heeringa et al., 2004).

The NLAAS, which provided the majority of the data used in the current study, aimed to survey a nationally representative and geographically diverse sample of Asian Americans. Respondents were screened and classified as belonging to one of three Asian nationality groups based on self-report: Vietnamese, Filipino, and Chinese. All other Asian Americans were classified as "Other Asian." To make a clear comparison among Asian immigrants based on their ethnicity, the sample for this study was limited to 1280 community-dwelling foreign-born individuals ages 18 and older from Vietnam ($n=486$), Philippine ($n=343$), and China ($n=451$). Considering that over three quarters of the Asian adult population in the US are foreign-born (Barnes et al., 2008), this study included foreign-born individuals only. The NLAAS survey was translated into relevant languages so that respondents not fluent in English could respond in their native languages.

2.2. Study variables

2.2.1. Dependent variable

Onset of the MDD was the dependent variable in the study. The World Mental Health (WMH) version of the World Health Organization Composite International Diagnostic Interview (WMH-CIDI) provided data on age of MDD onset (Gonzalez et al. 2010; Kessler and Ustun, 2004). The WMH-CIDI, administrated by a trained lay interviewer, provides acceptably reliable and valid diagnostic classifications congruent with the Structured Clinical Interview for DSM-IV (Kessler et al., 2004).

2.2.2. Socio-demographic characteristics

Socio-demographic characteristics included age, sex, ethnicity, education, marital status, household income, and poverty status. Age was employed as a continuous variable. Educational level was classified into three categories: less than high school, high school, and more than high school. Household income was log transformed to decrease large variations. Poverty status was based on the US Census 2001 income-to-needs ratio (coded as yes or no).

2.2.3. Immigration-related characteristics

Immigration-related characteristics included citizenship status, length of residence in the US, age at immigration, and English proficiency. Citizenship status was dichotomized as naturalized citizen versus noncitizen. Length of residence in the US was classified into less than 5 years, 5–10 years, 11–20 years, and more than 20 years. Age at immigration was classified into younger than age 13, age 13–17, age 18–34, and older than age 34. Self-reported English proficiency was dichotomized as either excellent or good versus fair or poor.

2.3. Statistical analysis

Descriptive statistics were provided for sample characteristics using SAS survey procedures to account for the complex survey design. We used survival analysis to examine variations in onset of MDD among the three groups. We used the Kaplan–Meier method to provide estimates of survival and hazard functions. Survival function estimates provide the probability of a person not experiencing MDD in a lifetime, while hazard function estimates indicate the rate of MDD onset at each point in time. The onset of MDD was measured by respondents' age of MDD onset. Respondents who reported no experience of MDD were right censored at the time of the interview. We used a SAS macro kernel smoothing technique to better present the hazard functions (Allison, 2011). The different patterns of survival and hazard functions for each ethnic group were also examined, separately and a series of Cox proportional hazards models were employed to explore socio-demographic and immigration-related factors associated with MDD onset among different Asian ethnic groups. To test ethnic variation in the models (i.e., the moderating effect of ethnicity on the relationships among covariates and MDD onset), we tested all potential interactions among ethnicity and covariates. Those interactions that were statistically significant were retained in the final model. An omnibus test was conducted by comparing the likelihood ratio statistics of two Cox proportional hazards models (one with and one without interactions; Parzen and Lipsitz, 1999). Then, separate Cox proportional hazards models were conducted for each ethnic group to better understand unique factors of MDD onset within each ethnic subgroup. Breslow's approximation was used to obtain partial likelihood estimations in the model. All statistical significance was based on a p value of <0.05. Considering the relatively small observed missing values, listwise deletion was conducted.

3. Results

Table 1 displays the socio-demographic and immigration-related characteristics of the sample. The mean age of respondents was 44.8 years. The majority of respondents was female (55.4%), married or cohabiting (75.1%), and had more than a high school education (59.5%). Slightly over one-quarter (26.1%) had family income below the poverty line. About two-thirds of respondents had lived in the US more than 10 years (66.2%) and 78.3% of respondents migrated to the US at age 18 or older. The majority of