

**Social and Cultural Contributions to Mental Health Service**  
**Utilization for Asian Americans:**  
**Expanding Andersen's Behavioral Model**

by

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# **Social and Cultural Contributions to Mental Health Service Utilization for Asian Americans: Expanding Andersen's Behavioral Model**

## **Abstract**

Research suggests that Asian Americans underutilize mental health services, but there has not been sufficient examination of the multiple factors within Asian American culture that could contribute to underutilization. Much research on racial/ethnic disparities in mental health service utilization adopt the framework of Andersen's Behavioral Model, categorizing the barriers into need factors, enabling factors, and predisposing factors. While this framework has helped to understand the mental health service use of Asian Americans, much variance is left unexplained.

The purpose of this study is to examine the impact of understudied social cultural factors on Asian American's utilization of mental health services. Asian Americans have a unique culture with features that might affect mental health service use. Asian Americans who tend to be collectivistic view themselves in relation to social roles and obligations. Thus, the important relationships may influence their decision to seek services.

The NLAAS enables us to operationalize family cohesion, social support, ethnic identity, and social cohesion. In this study, 370 Asian Americans who had mental health needs were analyzed. First, each variable was examined to determine whether it made a criterion using univariate logistic regression. Second, variables that met the criterion are examined in a stepwise logistic regression where the previously known variables were tested in step one, and the social relationship factors were added in step two.

Findings show that only one-third of the Asian Asians with mental health needs used any type of mental health service. Contrary to predictions and previous research, only perceived

discrimination, ethnic identity, and social cohesion met the criterion in the univariate analyses. In the multivariate analysis, only social cohesion was positively associated with mental health service use.

This study reveals that, while underutilization of mental health service among Asian Americans with needs is evident, it is still unclear what the predictors are. The results show that the mental health service use models should include more cultural factors unique to Asian culture that may explain their help-seeking behaviors. This includes developing sociocultural constructs to measure collectivistic values accurately as well as exploring for new factors.

*Keywords:* mental health service use, Asian Americans, NLAAS; Andersen's Behavioral Model, collectivism, family cohesion; social support, ethnic identity, social cohesion

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## I. INTRODUCTION

### 1. SCOPE OF PROBLEM

A substantial body of research has consistently demonstrated the underutilization of mental health services among Asian Americans compared to Whites and other racial/ethnic minorities (Abe-Kim et al., 2007; Le Meyer, Zane, Cho, & Takeuchi, 2009; Sungkyu Lee, Laiewski, & Choi, 2014; Substance Abuse and Mental Health Services Administration, 2014; Xu et al., 2011; Zhang, Snowden, & Sue, 1998). The overall rate of mental health service utilization among Asian Americans was significantly lower than that of the general population, and only about one-third of Asian Americans who are in need sought for any type of official service (Abe-Kim et al., 2007; Wang et al., 2007). While Asian Americans have unmet needs in mental healthcare, there is scant information about why they seek mental health services. As Asian Americans comprise about 5 percent of the total population and are one of the fastest growing populations in the U.S. (U.S. Census Bureau, 2012), this disparity highlights a need for an improved understanding of the underutilization of mental health services within this group.

Though research shows that Asian Americans may have less need for mental health services, Asian Americans are also less likely to visit mental health centers, psychiatric outpatient clinics, or any other medical services to address mental health issues. National studies have consistently found that Asian Americans have the lowest rates of psychiatric disorders within the general population (Burnett-Zeigler, Bohnert, & Ilgen, 2013; Gavin et al., 2010; Harris, Edlund, & Larson, 2005; Hasin, Goodwin, Stinson, & Grant, 2005; Woodward et al., 2012). However, even after controlling for their needs, less than half of Asian Americans with diagnosable psychiatric disorders used mental health services, which is the lowest rate of mental

health service utilization compared to other racial/ethnic groups (Abe-Kim et al., 2007; Ahmedani et al., 2015; G. Kim, Loi, et al., 2011; S. Y. Lee, Martins, Keyes, & Lee, 2011). Thus, despite a clear need for mental health services, Asian Americans underutilize these services in comparison to other racial/ethnic groups.

Since the U.S. Surgeon General's report (U.S. Department of Health and Human Services [DHHS], 2001) which underlined that 'race and ethnicity matter when it comes to mental health' (Atdjian & Vega, 2005; Mays, Cochran, & Barnes, 2007; Newhill, 1990; Snowden & Yamada, 2005), many studies have focused on verifying factors related to help-seeking processes for mental health services. Yet the unique aspects of Asian American culture have been relatively overlooked in the research on their underutilization of mental health services (T. Chang & Subramaniam, 2008; Ihara, Chae, Cummings, & Lee, 2013; M. Lee et al., 2017).

Some studies suggest that Asian Americans' mental health service utilization may be associated with cultural and social network factors (i.e. relationship variables) that are highly valued in the Asian culture (Abe-Kim et al., 2007; Eisenberg, Golberstein, & Gollust, 2007; M. Lee et al., 2017; Leong & Lau, 2001; Rosenthal & Wilson, 2008). While such factors have not been the focus of previous studies, this study addresses the impact of the sociocultural factors of Asian Americans on their mental health service utilization, using a national database.

Andersen's behavioral model (ABM) is the most comprehensive and widely applied healthcare utilization model, and it provides a useful framework for the analysis of features related to mental health service utilization among Asian Americans (Andersen, 1968, 1995). The model suggests that factors driving health and mental health service utilization fall in three categories:

- 1) Need factors are conditions that health care providers or the corresponding individuals recognize as requiring medical treatment (diagnosis of psychiatric disorders, perceived need of treatment),
- 2) Enabling factors are the characteristics that facilitate or obstruct use of services (health insurance status, financial resource, etc.), and
- 3) Predisposing factors are the existing characteristics that predispose people to use or not use services even though they are not directly connected to use (demographic factors, perceived discrimination, etc.).

While help-seeking for mental health concerns is a process involving a complex collection of psychosocial, cultural, and demographic factors, the traditional ABM leaves out the unique aspects of the Asian American culture (Pescosolido & Boyer, 1999). Much research on mental health service utilization applying ABM has focused on the need and enabling factors that are universal to the general population (Abe-Kim & Takeuchi, 1996; Alegría et al., 2006; Alegría et al., 2012; Chow, Jaffee, & Snowden, 2003; Derose, Bahney, Lurie, & Escarce, 2009; Smedley, Stith, & Nelson, 2003), leaving a great amount of variance unexplained.

The approach focusing on need factors failed to answer why Asian Americans with mental health needs are less likely to seek services (Abe-Kim et al., 2007). Asian Americans are more likely to be insured and have higher median income than the other racial/ethnic minority groups (U.S. Census Bureau, 2017a, 2017b), yet do not use service at higher rates as the Andersen model would predict. This study seeks to examine whether unexamined cultural factors contribute as predisposing factors that predict mental health service use in Asian Americans.

Clearly, there are distinct aspects of Asian American culture that could contribute to decisions regarding mental health services. Recently, several studies have discussed the role of contextual factors in help-seeking behaviors of Asian Americans. Indigenous beliefs about the etiology of mental illness and attitudes towards mental health services were reported as cultural barriers to mental health services (T. Chang & Subramaniam, 2008; J. E. Kim & Zane, 2015; Leong & Lau, 2001; D. Nguyen & Bornheimer, 2014; Okazaki, 2000). Likewise, immigration factors such as English language proficiency and perceived discrimination were closely related to mental health service use (G. Kim, Loi, et al., 2011; Sentell, Shumway, & Snowden, 2007; Snowden, Masland, Peng, Wei-Mien Lou, & Wallace, 2011; Woodward, 2011). However, these studies tend to focus on the influence of individual-level contextual factors.

In collectivist cultures such as the Asian culture, important decisions such as using mental health services are prompted and influenced by intimately related people (S. Sue & Zane, 2009). Therefore decisions are not made individually but collectively. These relationships include immediate family members, relatives, members of the same group, and close friends. This study incorporates the factors of these social relationships into ABM to deepen our understanding of the mental health service utilization pattern in Asian Americans. To date, less is known about how social relationship factors account for mental health-seeking behaviors of Asian Americans.

While some literature suggests being others-oriented, having strong family cohesion and higher levels of social support may serve as a stimulant for Asian Americans' mental health service use (Akutsu, Snowden, & Organista, 1996), counterarguments have been made. Asian Americans who strongly endorse collectivistic values may find using mental health services threatening because of the potential of shame or disgrace of family or group (Sunmin Lee et al.,

2009). Therefore, Asian Americans who hold a strong identity of ‘being a member of a group’ may be less likely seek help with mental issues. In Asian culture where mental illnesses are highly stigmatized, cohesive families may want to keep the mental health issue of a member within the family to avoid embarrassment and protect the ‘face of the family’ (Leong & Lau, 2001; Zane & Yeh, 2002). These familial factors potentially impede service utilization (Ta, Holck, & Gee, 2010).

Moreover, stronger social networks may not necessarily encourage mental health use in Asian Americans. Asian Americans prefer informal solutions for their mental health problems, seeking the support of friends or relatives, and therefore may delay seeking professional help (Chu & Sue, 2011; Kearney, Draper, & Barón, 2005; Zhang et al., 1998). The relationships between the sociocultural factors and mental health service use in Asian Americans has been explored (Abe-Kim, Takeuchi, & Hwang, 2002; J. Chang, Natsuaki, & Chen, 2013; M. Lee et al., 2017; Ta et al., 2010; Villatoro, Morales, & Mays, 2014), but not in a comprehensive perspective within the entire social context. Moreover, the role of sociocultural factors were examined among the general Asian American population, not among those with mental health needs.

The National Latino and Asian American Studies (NLAAS) dataset provides an opportunity to examine how these additional sociocultural factors that may affect the mental health service utilization of Asian Americans. The NLAAS is the first national epidemiological household survey that collected information on the mental health service use of Asian Americans. It also included numerous factors related to the lives of the respondents. By using the NLAAS, this study attempts to find the sociocultural determinants that may hinder or encourage Asian Americans with mental health needs to use mental health services.

## **2. STUDY PURPOSE**

The primary purpose of this study is to examine whether additional social relationship factors inform whether Asian Americans with psychiatric issues use mental health services, after the major variables in the traditional Andersen's Behavioral Model have been accounted for.

The goals of this study are to:

- 1) Understand how predisposing factors (age, sex, ethnic subgroup, marital status, education level, religion, acculturation stress and perceived discrimination), enabling factors (health insurance, household income, and English language proficiency), and need factor (self-rated mental health) that were previously examined under Andersen's Behavioral Model independently influence the mental health service utilization of Asian Americans with mental disorders.
- 2) Assess whether social relationship factors (family cohesion, social cohesion, ethnic identity, and social support) independently influence the mental health service utilization of Asian Americans with mental disorders controlling for the above-mentioned factors.

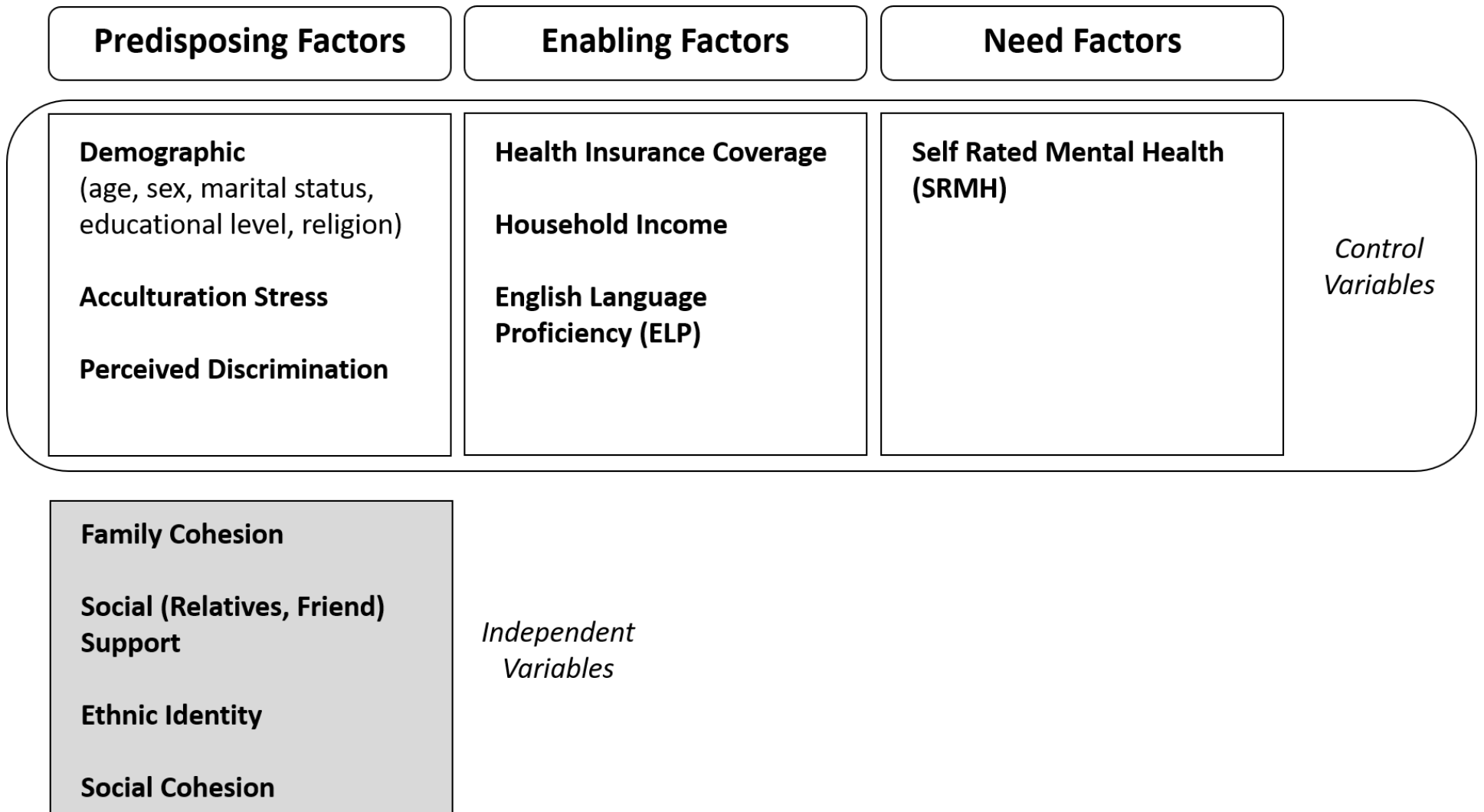
The study addresses the following hypotheses:

Hypothesis 1: Lower level of family cohesion will be associated with the higher utilization of mental health services.

Hypothesis 2: Lower level of social (relatives, friends) support will be associated with higher utilization of mental health services.

Hypothesis 3: Lower level of ethnic identity will be associated with higher utilization of mental health services.

Hypothesis 4: Higher level of social cohesion will be associated with higher utilization of mental health services.



**Figure 1.1 Research Model**



## **II. LITERATURE REVIEW**

This chapter will demonstrate the condition of Asian Americans' underutilization of mental health services by reviewing the prevalence studies of Asian Americans psychiatric disorder and service use rates. The review provides a general picture of the mental health status and mental health service utilization of Asian Americans. Furthermore, this chapter will introduce the concept of collectivism in Asian culture that may affect help-seeking behaviors.

### **1. PREVALENCE OF PSYCHIATRIC DISORDERS IN ASIAN AMERICANS**

With limited national data including Asian Americans, there was a relative dearth of empirical research on the prevalence of psychiatric disorders in the population group (Hong, Walton, Tamaki, & Sabin, 2014). This section reviews the 16 studies that have investigated the prevalence of psychiatric disorders among Asian Americans in the national level or with large sample sizes (more than 1,000) since late 1990s. Tables 1 and 2 display the 12-month and lifetime prevalence of Asian Americans' psychiatric disorders reported in the studies. The studies had diverse samples in terms of race/ethnicity, age, and immigration status. Some studies examined the prevalence rates for overall psychiatric disorders, while others focused on specific disorders. In sum, national studies consistently show that Asian Americans are less likely to have mental than the general population.

Table 2.1 shows that the 12-month prevalence of Major Depressive Disorders (MDD) in Asian Americans ranged from 2.0 to 6.7 percent. The Chinese American Psychiatric Epidemiological Study investigated that approximately 3.4 percent of Chinese American adults in Los Angeles were diagnosed with MDD within a year term (Takeuchi et al., 1998). There was

no comparison group in this study. Hasin et al. (2005) compared the prevalence of MDD across different racial/ethnic groups with the National Epidemiologic Survey on Alcohol and Related Conditions (NESARC). In this study, Asians were combined with Pacific Islanders (PI). Asian Americans and Pacific Islanders had less 12-month MDD occurrence (4.1%) than Whites (5.5%), but as much as African Americans (4.5%) and Latinos (4.3%). Burgess and colleagues (2008) used the SHAPES (Survey of the Health of Adults, the Population and Environment) data collected in Hennepin County, Minnesota, and reported that Southeast Asians (6.7%) have lower 12-month prevalence of MDD compared to Whites, African Americans, and Latinos. Gavin et al. (2010) used the Collaborative Psychiatric Epidemiologic Surveys (CPES) combining the NLAAS with the National Comorbidity Survey-Replication (NCS-R) and National Study of American Life (NSAL) and verified the lowest MDD rates in Asian Americans. Consistent findings were found in the elderly group within the same sample (Jimenez, Alegría, Chen, Chan, & Laderman, 2010). In another study using the NLAAS, Asian American elderly immigrants had considerably lower prevalence rate of MDD (2.8%) than their Latino counterparts (10.7%) (G. Kim, Jang, Chiriboga, Ma, & Schonfeld, 2010).

The pattern of lower prevalence rates in Asian Americans was consistent in other types of psychiatric disorders. Within the CAPES, less than 1 percent (0.9%) of Chinese Americans in L.A. were diagnosed with dysthymia during a year period (Takeuchi et al., 1998). A study on CPES reported the lower prevalence rate of dysthymia in Asian American elderly compared to their counterparts (Jimenez et al., 2010).

The 12-month prevalence of any anxiety disorders was measured with the NLAAS in two different studies. Takeuchi et al. (2007) showed a 5.8 percent anxiety disorder prevalence in the general Asian American population while Jimenez et al. (2010) captured a lower rate in Asian

American immigrants (4.8%). These rates were far below the U.S. population estimates, such as the 18.1 percent reported in an earlier study using the NCS-R data (Kessler, Chiu, Demler, & Walters, 2005). G. Kim and colleagues (2010) examined the prevalence of anxiety disorders in the elderly immigrants, comparing Asian Americans to Latinos. While 9.7 percent of Latino elderly immigrants were diagnosed with any type of anxiety disorder, only 6.2 percent of Asian Americans were. Meanwhile, in a study using the CPES, elderly (age of 60 or older) Asian Americans had the highest rate (7.0%) of anxiety disorders compared to Whites (5.6%), African Americans (5.6%), and Latinos (6.8%).

Marques et al. (2011) analyzed the CPES to examine the prevalence rate of eating disorders across racial/ethnic groups. It was shown that Asian Americans' rates of eating disorders were as high as those of other racial/ethnic groups. For most of the types of eating disorders, Asian Americans had higher prevalence rates than Whites.

For substance disorders, 1.3 percent of Asian American adults and 0.7 percent of Asian American immigrants have been diagnosed with any type of DSM-IV substance disorder during the past 12 months (Takeuchi et al., 2007). These rates were far lower than that of the estimation of the general population (Kessler et al., 2005). For the elderly, Asian Americans (0.2%) had a higher rate of substance disorder diagnoses than Whites (0.1%), but lower than the African Americans (0.6%) and the Latinos (0.3%).

The National Survey on Drug Use and Health (NSDUH) showed that Asian Americans had the lowest prevalence rate of Severe Mental Illness. Only 3.8 percent of Asian Americans had at least one 12-month DSM-IV disorder (excluding substance disorders) along with "serious impairment," while 6.5 percent of Whites, 5.3 percent of African Americans, and 5.0 percent of Latinos did (Harris et al., 2005).

Similarly, when populations were examined for the prevalence of any disorder, the overall rate of any psychiatric disorder was lowest in Asian Americans. In the NLAAS, 9.5 percent of Asian Americans and 8.4 percent of Asian American immigrants were diagnosed with any type of mental illness during the 12-month frame (Takeuchi et al., 2007). The rates were significantly lower than the 26.2 percent estimated for the general population (Kessler et al., 2005). The result was consistent in a NSDUH study (Harris et al., 2005). However, the CPES verified that elderly Asian Americans (7.8%) have a higher mental illness prevalence rate compared to their White (7.3%) and African American (6.1%) counterparts (Jimenez et al., 2010).

Table 2.2 shows the studies on the lifetime prevalence of mental disorders among Asian Americans. The CAPES showed that 6.9 percent of Chinese Americans had been diagnosed with MDD during their lifetime (Takeuchi et al., 1998). This rate was much lower than the rates in the NCS (17.1%) or ECA<sup>1</sup> (4.9%) which were conducted around the same time. A study of the NESARC showed that Asian Americans have a lifetime MDD prevalence rate of 8.8 percent which is as high of that of African Americans (8.9%), but lower than those of Whites (14.6%) or Latinos (9.6%) (Hasin et al., 2005). Jimenez et al. (2010) studied the elderly who are at the age of 60 years or older and found that Asian American elderly have higher MDD lifetime rates than African Americans but not than Whites or Latinos. The result was consistent for adults of the age of 55 years or more (Woodward et al., 2012). The second wave of the NESARC, which was conducted from 2004 to 2005, showed that Asian Americans (15.5%) have lower MDD lifetime rate than African Americans (18.5%) and Latinos (20.0%) (Burnett-Zeigler, Bohnert, & Ilgen, 2013).

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<sup>1</sup> Epidemiological Catchment Area study

The lifetime prevalence of Dysthymia had a similar pattern as MDD. While the prevalence rate for Chinese Americans in L.A. was 5.2 percent (Takeuchi et al., 1998), the rate of Asian American elderly was higher than that of African Americans in CPES (Jimenez et al., 2010; Woodward et al., 2012). The second wave of NESARC revealed that the lifetime prevalence rate for Bipolar I/II was lower in Asian Americans (6.8%) compared to African Americans (11.1%) and Latinos (8.2%).

Takeuchi et al. (2007) found 9.8 percent of Asian Americans and 8.8 percent of Asian American adults born outside of the U.S. in the NLAAS had been diagnosed with any anxiety disorder during their lifetime. These rates were much lower than the estimated rate for the general population (28.8%) in NCS-R (Kessler et al., 2005). The lifetime prevalence rate of any anxiety disorder was the lowest compared to other racial/ethnic groups in the later studies using CPES and the second wave of NESARC (Jimenez et al., 2010; Woodward et al., 2012; Burnett-Zeigler et al., 2013). Woodward et al. (2012) reported the lowest prevalence rate of any Affective Disorders in Asian Americans as well.

For substance disorders, Takeuchi reported 4.0 percent lifetime prevalence among Asian Americans and 2.3 percent among Asian American immigrants (Takeuchi et al., 2007), compared to the U.S. population estimate of 14.6 percent (Kessler et al., 2005). Savage and Mezuk (2014) found 4.1 percent of Asian Americans meeting criteria for lifetime alcohol/drug use disorders, significantly lower than 9.6 percent of Latinos. Asian American elderly also had lower rates of substance disorder prevalence (1.3%) compared to Whites (5.9%), African Americans (8.0%), and Latinos (4.5%). The second wave of the NESARC showed same results for both Alcohol Disorder and Drug Disorder (Burnett-Zeigler et al., 2013). Meanwhile, the prevalence rates for eating disorders showed similar rates across different racial/ethnic groups

(Marques et al., 2011). Wu and colleagues (2013) analyzed a private dataset, MindLinc EHR, and reported that Asian Americans of age 12 and more have lower rates of Substance Use Disorders (11.3%) than their Native Hawaiian and Pacific Islander counterparts (20.1%).

The lifetime prevalence of any psychiatric disorder was 17.9 percent (15.7% for immigrants), reported in the NLAAS (Takeuchi et al., 2007). This rate was far lower than 46.4 percent of the general population in the NCS-R (Kessler et al., 2005). However, within the elderly population, Asian Americans had a higher lifetime psychiatric disorder prevalence (14.6%) over African Americans (11.7%).

S. Y. Lee, Martins, & Lee (2015) examined the prevalence of mental disorders across Asian American subethnic groups in the United States using the first wave data of NESARC. Southeast Asian showed the highest prevalence of having any type of psychiatric disorders including mood, anxiety, and substance related disorders compared to East and South Asians. The results of the studies indicate that Asian Americans should not be treated as a homogeneous group (Gee, Spencer, Chen, Yip, & Takeuchi, 2007; S. Y. Lee et al., 2011; Xu et al., 2011). Noteworthy is that U.S. born Asian Americans are more likely to experience psychiatric disorders compared to immigrants. Hong and her colleagues (Hong, Walton, Tamaki, & Sabin, 2014) analyzed the NLAAS to find that U.S. born Asians have higher rates of any mood disorder (8.3% vs. 13.4%), any substance use disorder (2.2% vs. 9.7%), and any mental disorder (15.9% vs. 25.7%).

The general consensus found in these studies is that fewer Asian Americans suffer from psychiatric disorders, thus have less needs to use mental health services compared to other racial/ethnic groups. However, the supposition that low mental health service use among Asians is the result of their having fewer mental health needs remains questionable because of several

reasons. First, compared to other racial/ethnic groups, well-designed studies about mental health service utilization among Asian Americans are insufficient (Hong et al., 2014; S. Y. Lee et al., 2011; Okazaki, Kassem, & Tu, 2014). Second, it could be inversely hypothesized that underutilization of mental health services reinforces the low prevalence rates of mental disorders in Asian Americans. A mental disorder diagnosis is made after the assessment using the DSM which requires an initial encounter with the professional. Empirical studies have claimed that the troublingly low rates of mental health service utilization in Asian Americans remain even after accounting for the low prevalence rates of psychiatric disorders (Abe-Kim et al., 2007; Ahmedani et al., 2015; G. Kim, Loi, et al., 2011; S. Y. Lee et al., 2011).

Table 2.1 Studies on 12-Month Mental Disorder Prevalence of Asian Americans

Study	Race/ Ethnicity	Age	Data	Results				
				Asian Americans	Whites	African Americans	Latinos	
<b>MDD</b>								
Takeuchi et al. (1998)	Chinese Americans	Adults	CAPES -L.A.	3.4%	-	-	-	
Hasin et al. (2005)	Multiple	Adults	NESARC	4.1% <sup>2</sup>	5.5%	4.5%	4.3%	
Burgess et al. (2008)	Multiple	Adults	SHAPES*	6.7%*	12.2%	14.7%	12.2%	*Southeast Asians
Gavin et al. (2010)	Multiple	Adults	CPES <sup>3</sup>	4.6%	10.6%	6.3%	8.1%	
Jimenez et al. (2010)	Multiple	60 and older	CPES <sup>2</sup>	2.0%	2.9%	2.7%	7.3%	
G. Kim et al. (2010)	Multiple	60 and older	NLAAS	2.8%	-	-	10.7%	Immigrants
<b>Dysthymia</b>								
Takeuchi et al. (1998)	Chinese Americans	Adults	CAPES -L.A.	0.9%	-	-	-	
Jimenez et al. (2010)	Multiple	60 and older	CPES <sup>2</sup>	0.6%	1.1%	1.0%	2.4%	
<b>Any Depressive Disorders</b>								
Gong et al. (2011)	Asian Americans	Adults	NLAAS	4.2%	-	-	-	Immigrants

<sup>2</sup> Asian Americans and Pacific Islanders

<sup>3</sup> Combined subjects from NCS-R (Whites, African Americans, Latinos, Asian Americans), NLAAS (Whites, African Americans) and NLAAS (Asians and Latinos) and analyzed as a single dataset.



Table 2.1 (continued 1)

Study	Race/ Ethnicity	Age	Data	Results				
				Asian Americans	Whites	African Americans	Latinos	
<b>Any Anxiety Disorders</b>								
Takeuchi et al. (2007)	Asian Americans	Adults	NLAAS	5.8%	-	-	-	U.S. population estimates: 18.1%
G. Kim et al. (2010)	Multiple	60 and older	NLAAS	6.2%	-	-	9.7%	Immigrants
Jimenez et al. (2010)	Multiple	60 and older	CPES <sup>2</sup>	7.0%	5.6%	5.6%	6.8%	
Gong et al. (2011)	Asian Americans	Adults	NLAAS	4.8%	-	-	-	Immigrants
<b>Eating Disorders</b>								
Marques et al. (2011)	Multiple	Adults	CPES <sup>4</sup>	0.05%	0.03%	0.06%	0.03%	Anorexia Nervosa
				0.58%	0.16%	0.60%	1.01%	Bulimia Nervosa
				0.70%	0.55%	0.68%	1.11%	Binge Eating
				2.32%	1.04%	2.13%	2.72%	Any Binge Eating

<sup>4</sup> Asian Americans and Latinos from NLAAS, Whites from NCS-R, and African Americans from NSAL

Table 2.1 (Continued 2)

Study	Race/ Ethnicity	Age	Data	Results				
				Asian Americans	Whites	African Americans	Latinos	
<b>Substance Disorders</b>								
Takeuchi et al. (2007)	Asian Americans	Adults	NLAAS	1.3%	-	-	-	U.S. population estimates : 3.8%
				0.7%	-	-	-	Immigrants
Jimenez et al. (2010)	Multiple	60 and older	CPES <sup>2</sup>	0.2%	0.1%	0.6%	0.3%	
<b>Severe Mental Illness</b>								
Harris, Edlund, and Larson (2005)	Multiple	Adults	NSDUH	3.8%	6.5%	5.3%	5.0%	
<b>Any Mental Disorders</b>								
Takeuchi et al. (2007)	Asian Americans	Adults	NLAAS	9.5%	-	-	-	U.S. population estimates : 26.2%
				8.4%	-	-	-	Immigrants
Harris, Edlund, and Larson (2005)	Multiple	Adults	NSDUH	12.9%	19.6%	16.5%	15.7%	
Jimenez et al. (2010)	Multiple	60 and older	CPES <sup>2</sup>	7.8%	7.3%	6.1%	12.1%	

Table 2.2 Studies on Lifetime Mental Disorder Prevalence of Asian Americans

Study	Race/ Ethnicity	Age	Data	Results				
				Asian Americans	Whites	African Americans	Latinos	
<b>Any Mood Disorders</b>								
Hong et al. (2014)	Asian Americans	Adults	NLAAS	8.3%	-	-	-	Immigrants
				13.4%	-	-	-	US Born
S. Y. Lee, Martins, & Lee (2015)	Asian Americans	Adults	NESARC (Wave 1)	13.4%	-	-	-	East Asians
				16.9%	-	-	-	Southeast Asians
				13.1%	-	-	-	South Asians
<b>MDD</b>								
Takeuchi et al. (1998)	Chinese Americans	Adults	CAPES -L.A.	6.9%	U.S. population estimates: NCS (17.1%), ECA (4.9%)			
Hasin et al. (2005)	Multiple	Adults	NESARC	8.8% <sup>1</sup>	14.6%	8.9%	9.6%	
Jimenez et al. (2010)	Multiple	60 and older	CPES <sup>2</sup>	7.5%	11.6%	5.6%	15.7%	
Woodward et al. (2012)	Multiple	55 and older	CPES <sup>3</sup>	6.3%	13.2%	5.1%	12.7%	
Burnett-Zeigler et al. (2013)	Multiple	Adults	NESARC (Wave 2)	15.5%	-	18.5%	20.0%	
<b>Dysthymia</b>								
Takeuchi et al. (1998)	Chinese Americans	Adults	CAPES -L.A.	5.2%	-	-	-	
Jimenez et al. (2010)	Multiple	60 and older	CPES <sup>2</sup>	2.4%	2.4%	1.7%	2.9%	
Woodward et al. (2012)	Multiple	55 and older	CPES <sup>3</sup>	2.2%	3.2%	1.6%	3.3%	

Table 2.2 (continued 1)

Study	Race/ Ethnicity	Age	Data	Results				
				Asian Americans	Whites	African Americans	Latinos	
<b>Bipolar I/II</b>								
Burnett-Zeigler et al. (2013)	Multiple	Adults	NESARC (Wave 2)	6.8%	-	11.1%	8.2%	
<b>Any Anxiety Disorders</b>								
Takeuchi et al. (2007)	Asian Americans	Adults	NLAAS	9.8%	-	-	-	U.S. population estimates: 28.8%
				8.8%	-	-	-	Immigrants
Jimenez et al. (2010)	Multiple	60 and older	CPES <sup>2</sup>	10.9%	13.5%	11.7%	15.3%	
Woodward et al. (2012)	Multiple	55 and older	CPES <sup>3</sup>	7.9%	16.8%	11.1%	15.2%	
Burnett-Zeigler et al. (2013)	Multiple	Adults	NESARC (Wave 2)	17.7%	-	23.8%	21.3%	
S. Y. Lee, Martins, & Lee (2015)	Asian Americans	Adults	NESARC (Wave 1)	11.4%	-	-	-	East Asians
				13.4%	-	-	-	Southeast Asians
				11.4%	-	-	-	South Asians
<b>Any Affective Disorders</b>								
Woodward et al. (2012)	Multiple	55 and older	CPES <sup>3</sup>	12.3%	23.5%	14.7%	22.8%	

Table 2.2 (continued 2)

Study	Race/ Ethnicity	Age	Data	Results				
				Asian Americans	Whites	African Americans	Latinos	
<b>Substance Disorders</b>								
Takeuchi et al. (2007)	Asian Americans	Adults	NLAAS	4.0%	-	-	-	
				2.3%	-	-	-	Immigrants
Jimenez et al. (2010)	Multiple	60 and older	CPES <sup>2</sup>	1.3%	5.9%	8.0%	4.5%	
Burnett-Zeigler et al. (2013)	Multiple	Adults	NESARC (Wave 2)	14.6%	-	26.2%	26.1%	Alcohol
				6.3%	-	10.4%	9.1%	Any Drug
Wu et al. (2013)	Multiple	12 and older	MindLinc EHR	11.3%	Native Hawaiians/Pacific Islanders: 20.1%			
Savage and Mezuk (2014)	Multiple	Adults	NLAAS	4.1%	-	-	9.6%	
Hong et al. (2014)	Asian Americans	Adults	NLAAS	2.2%	-	-	-	Immigrants
				9.7%	-	-	-	US Born
S. Y. Lee, Martins, & Lee (2015)	Asian Americans	Adults	NESARC (Wave 1)	13.1%	-	-	-	East Asians
				16.7%	-	-	-	Southeast Asians
				11.1%	-	-	-	South Asians
<b>Eating Disorders</b>								
Marques et al. (2011)	Multiple	Adults	CPES <sup>3</sup>	0.10%	0.39%	0.15%	0.08%	Anorexia Nervosa
				1.50%	0.51%	1.31%	2.03%	Bulimia Nervosa
				1.24%	1.41%	1.48%	2.11%	Binge Eating
				4.74%	2.53%	4.83%	5.60%	Any Binge Eating

Table 2.2 (continued 3)

Study	Race/ Ethnicity	Age	Data	Results				
				Asian Americans	Whites	African Americans	Latinos	
<b>Any Mental Disorders</b>								
Takeuchi et al. (2007)	Asian Americans	Adults	NLAAS	17.9%	-	-	-	
				15.7%	-	-	-	Immigrants
Jimenez et al. (2010)	Multiple	60 and older	CPES <sup>5</sup>	14.6%	23.9%	11.7%	26.8%	
Hong et al. (2014)	Asian Americans	Adults	NLAAS	15.9%	-	-	-	Immigrants
				25.7%	-	-	-	US Born
S. Y. Lee, Martins, & Lee (2015)	Asian Americans	Adults	NESARC (Wave 1)	22.5%	-	-	-	East Asians
				34.6%	-	-	-	Southeast Asians
				24.5%	-	-	-	South Asians

## **2. PREVALENCE OF MENTAL HEALTH SERVICE UTILIZATION IN ASIAN AMERICANS**

This section considers the literature on mental health service utilization in Asian Americans. Some studies were conditioned on mental health needs such as having psychiatric disorder diagnosis or reporting of having mental health problems. Many other studies were not, that is, they examined mental health service use in Asian Americans without considering whether people had mental health needs. The first part of the section mentions the studies conditioned on needs, and the latter part describes the studies not conditioned with needs.

Research has consistently shown that Asian Americans, regardless of different methodology and study populations, are less likely to seek help for mental health problems than other racial demographic groups, and at lower rates than their representation in the US population (Abe-Kim et al., 2007; Chu & Sue, 2011; U.S. DHHS, 2001; Zhang et al., 1998).

Early studies on the prevalence of mental health service utilization in Asian Americans, prior to 2000, examined convenience samples (Q. C. X. Nguyen & Anderson, 2005; Tabora & Flaskerud, 1997) including mental health clients in hospital and clinic settings (Jew & Brody, 1967; Kitano, 1969; S. Sue & McKinney, 1975; Ying & Hu, 1994) or students from college settings (Akutsu, Lin, & Zane, 1990; Kearney et al., 2005; Liao, Rounds, & Klein, 2005; Masuda, Suzumura, Beauchamp, Howells, & Clay, 2005). Although the findings of these studies were meaningful, they cannot be generalized, and are not considered in this review.

Only a few studies compared the mental health service utilization of Asian Americans to other racial/ethnic groups, especially for those with mental illness. Table 2.3 shows the stemming results from nation-wide community-based studies which examined patterns of mental health service use among Asian Americans in the past two decades conditioned on mental health needs

(Abe-Kim et al., 2007; Ahmedani et al., 2015; G. Kim, Loi, et al., 2011; S. Y. Lee et al., 2011). The data used in the studies were from the NLAAS (as part of CPES), NESARC and the Health Maintenance Organization (HMO).

Abe-Kim and colleagues (2007) demonstrated that the 12-month prevalence rate of mental health service use among Asian Americans with any *Diagnostic and Statistical Manual, Fourth Edition* (DSM-IV) (American Psychiatric Association, 1994) diagnosis was 34.1 percent, compared to 41.1 percent among the general population in the National Comorbidity Study (Abe-Kim & Takeuchi, 1996; Wang et al., 2005).

The lifetime prevalence of mental health service use among Asian Americans with DSM-IV affective, anxiety, or substance use disorders in the study of Le Meyer et al. (2009) was 28.5 percent for specialty care (psychiatrist, psychologist, counselor, and other mental health professional), 16.5 percent for primary care services (general practitioner, nurse, occupational therapist, and any other medical doctor or health professional), and 11 percent for alternative care services (religious or spiritual advisor, healer, oriental medicine doctor, chiropractor, and spiritualist). In an earlier study with the NCS-R, 54 percent of Americans with the same disorders used any type of mental health services (Le Meyer et al., 2009; Wang et al., 2005). This study also discovered that the U.S.-born Asian Americans with mental disorders use mental health services of any type more than Asian Americans who were born outside the U.S. territory (22.7%).

S. Y. Lee et al. (2011) reported the estimates of lifetime prevalence of mental health service use across the four racial/ethnic groups (Asian Americans, Whites, African Americans, and Latinos) from the NESARC. The study found that Asian Americans with mental disorders underuse mental health services compared to other groups. For example, the prevalence of



lifetime mental health service use among people with any type of mental disorder was lower in Asian Americans (25.0%) than other groups (42.8% among Whites; 33.6% among African Americans; 37.7% among Latinos). The lifetime prevalence of mental health service use among Asian Americans with mood disorders (34.2%) was significantly lower than that of Whites (61.7%), Hispanics (47.0%), and Native Americans (63.7%) (S. Y. Lee et al., 2011). In the same sample, Asian Americans with any type of lifetime anxiety disorder had lower mental health service use rate (24.3%) than Whites (36.2%) and Latinos (29.6%). For substance abuse disorders, Asian Americans (9.8%) used any mental health service as much as Whites (9.5%) but not as much as African Americans (11.2%) or Latinos (12.4%). The study also found that the odds of mental health service use for mood disorders was significantly lower among Asian Americans compared to Whites, Hispanics, and Native Americans, after adjusting for severity of mental illness and socio-demographic factors (S. Y. Lee et al., 2011).

G. Kim et al. (2011) compared the specialty mental health service use of Asian American and Latino immigrants. Overall, Asian Americans used less specialty mental health services (psychiatrist, psychologist, other mental health professional, and crisis hotline), compared to Latinos (13.8% vs. 22.1%). The study stated that the mental health service utilization for Whites in a previous study was 21.2 percent. Asian Americans, compared to Latinos, had lower rates of using psychiatrists (9.8% vs. 18.1%), psychologists (4.9% vs. 9.6%), and other mental health professionals (3.3% vs. 5.2%).

Ahmedani and his colleagues (2015) tracked the HMO data from 2009 to 2011 finding that among those who were in mental health risk (such as having suicidal ideation), Asian Americans were least likely to make any type of mental health care visits. Only half of Asian

Americans used any type of mental health services compared to the 80 percent of non-Hispanic Whites and 65 percent of African Americans and Latinos.

S. Y. Lee, Martins, & Lee (2015) examined the lifetime rates of any type of mental health service utilization across different Asian American subethnic groups. Although there was not a noticeable difference among the groups, Southeast Asians were less likely to use any type of mental health services regardless of the type of psychiatric disorders. It is notable that fewer Southeast Asians use mental health services while they have the highest prevalence of mental disorders.

Nguyen and Bornheimer (2014) compared the utilization of mental health specialists and general medical services between U.S.-born and foreign-born Asian Americans with any type of psychiatric disorders. Asian Americans with psychiatric disorders generally prefer to visit mental health specialists rather than general medical practitioners. Foreign-born Asian Americans sought more specialty services (15.2%) compared to their U.S.-born counterparts (14.0%), while they sought general medical services less (foreign born 2.9% vs. U.S. born 6.1%).

The rates of mental health service utilization among Asian Americans with mental disorders differ by the period of diagnosis or service use (12-month, lifetime), type of services (specialty, primary, alternative), type of psychiatric disorders (affective, anxiety, impulse control, substance abuse disorders), and by how missing data were handled. However, despite these variations, these studies consistently indicate that among people with mental health related needs (disorders), Asian Americans underuse service compared to other racial/ethnic groups. The results strongly assert that the underutilization of mental health services does not completely arise from the lower population need.

Another group of studies (see Table 2.4) looks at the mental health service utilization of Asian Americans not conditioned on mental illness. The use of mental health services was examined without considering whether the participants were diagnosed with any type of psychiatric disorder or reported having mental health issues. Only a few of them compared the utilization rates of Asian Americans with those of other racial/ethnic groups.

Zhang and colleagues (1998) analyzed the first wave of the ECA study in order to determine the use of mental health service of Asians and Whites in the Los Angeles area. The results showed that no Asian Americans used services from any mental health center or psychiatric outpatient clinic. Within the same sample, 6.2 percent of Whites used mental health centers and 4.1 percent of Whites used psychiatric outpatient clinics. While 1.6 percent of Whites went to outpatient clinics in psychiatric hospitals, only .6 percent of Asian Americans did. This study was meaningful for capturing the mental health service utilization of Asian Americans both with and without mental illness. However, this study is limited in presenting generalizable data that is representative of all Asian Americans. The study was restricted to a single city area with a comparatively high Asian population, and Asian Americans and Pacific Islanders were combined into one group while each population group has significant differences in culture and historical backgrounds. As respondents were asked to report service use for a short period frame (six months), the rates of service utilization are low compared to other studies. Spencer and Chen (2004) investigated the second wave of CAPES to discover that only ten percent of Chinese Americans have used any type of mental health service during their lifetimes.

Other studies after the release of NLAAS continues to demonstrate the underutilization of mental health services in the population. Abe-Kim and colleagues (2007) found out that within the 12-month period 8.6 percent of Asian Americans used any type of mental health service

which includes alternative services provided by spiritualists, oriental medicine doctors, herbalists, and chiropractors. The 12-month rate for the general population reported in an earlier study from NCS-R was 17.9 percent (Wang et al., 2005). Only 3.1 percent and 4.3 percent of Asian Americans in the data used specialty mental health services and general medical services, respectively (Abe-Kim et al., 2007).

Huang and colleagues (2013) examined the mental health service utilization of Asian American men across the different ethnic groups. The study discovered that the utilization rates of any type of mental health services were only 5.8 percent for 12-month and 12.3 percent for lifetime. While no significant difference was found in the 12-month utilization rate across the four ethnic groups, there was a significant variation in the lifetime utilization rates. During their lifetimes, Chinese Americans (8.9%) and Vietnamese Americans (7.6%) were less likely to use mental health services compared to Filipino Americans (15.1%) and other Asian Americans (14.9%).

S. Lee et al. (2014) studied non-U.S. citizens within the NLAAS comparing Asian Americans and Latinos. Their findings were not consistent with previous studies that show low utilization rates among Asian Americans. Instead, the study found that Asian Americans without U.S. citizenship had higher rates of using any mental health service (8.0%), any specialty service (1.7%), and any general medical service (2.4%) compared to Latinos (4.9%, 1.5%, and 2.3% respectively). Insurance coverage may be suggested as a reason for such result as the study also found that the non-U.S. citizens with health insurance used mental health services compared to those without. More than half (54.9%) of the Latinos in the study were uninsured compared to 20 percent of Asian Americans (Lee, Laiewski, and Choi, 2014).

Examining the prevalence of use of mental health services not conditioned on mental disorders has its own meaning. The findings in the studies show that Asian Americans, in general, are less likely to seek for professional help than other racial/ethnic groups for their mental health issues, regardless of their objective needs. Particularly, the results reflect the tendency of Asian Americans' delay of using mental health services. Studies have shown that Asian Americans may wait to seek treatment for their psychiatric conditions until they get worse and therefore are more likely to be diagnosed with a psychiatric disorder than their White counterparts at the time of admission (Okazaki, 2000; Snowden & Cheung, 1990; S. Sue, Fujino, Hu, Takeuchi, & Zane, 1991). As diagnoses of psychiatric disorders come after the initial contact with mental health services, it may be inferred that the low prevalence rates of psychiatric disorders among Asian Americans result from underutilization of service.

Table 2.3 Studies on Mental Health Service Utilization of Asian Americans with Mental Health Needs

Study	Period	Data	Type of Service	Disorders	Results				
					Asian Americans	Whites	African Americans	Latinos	
Abe-Kim et al. (2007)	12-month	NLAAS	Any Service	Any Psychiatric Disorder	34.1%	General Population :41.1% <sup>5</sup>			
Le Meyer et al. (2009)	Lifetime	NLAAS	Specialty	Affective, Anxiety, Substance Use Disorders	39.5%	General Population :54% <sup>4</sup>			US-born
					22.7%				Foreign-born
			Primary		18.8%				US-born
					15.3%				Foreign-born
			Alternative		18.2%				US-born
					7.7%				Foreign-born
S. Y. Lee et al. (2011)	Lifetime	NESARC	Any Service	Any Psychiatric Disorder	25.0%	42.8%	33.6%	37.7%	
				Any Mood Disorder	34.2%	61.7%	42.6%	47.0%	
				Any Anxiety Disorder	24.3%	36.2%	24.7%	29.6%	
				Any Substance Use Disorders	9.8%	9.5%	11.2%	12.4%	
G. Kim et al. (2011)	12-month	CPES	Any Service	Any Psychiatric Disorders	13.8%	(21.2% <sub>*</sub> )	-	22.1%	Immigrants
Ahmedani et al. (2015)	52-week	HMO Virtual Data Warehouse	Any Service	Suicide Attempt Individuals	54.7%	79.5%	64.2%	66.4%	

<sup>5</sup> Result from NCS-R (Wang et al., 2005)

Table 2.3 (Continued)

Study	Period	Data	Type of Service	Disorders	Results				
					Asian Americans	Whites	African Americans	Latinos	
S. Y. Lee, Martins, & Lee (2015)	Lifetime	NESARC (Wave 1)	Any Service	Any Psychiatric Disorder	28.7%	-	-	-	East Asians
					25.0%				Southeast Asians
					30.1%				South Asians
				Any Mood Disorder	37.9%	-	-	-	East Asians
					36.6%				Southeast Asians
					41.0%				South Asians
				Any Anxiety Disorder	27.0%				East Asians
					21.5%				Southeast Asians
					29.4%				South Asians
				Any Substance Use Disorders	9.4%	-	-	-	East Asians
					11.1%				Southeast Asians
					24.2%				South Asians
Nguyen and Bornheimer (2015)	12-month	NLAAS	Mental Health Specialist	Any Psychiatric Disorder	14.0%	-	-	-	US-born
					15.2%	-	-	-	Foreign-born
			General Medical		6.1%	-	-	-	US born
					2.9%	-	-	-	Foreign born

Table 2.4 Studies on Mental Health Service Utilization of Asian Americans Not Conditioned on Illness

	Period	Data	Type of Service	Results				
				Asian Americans	Whites	African Americans	Latinos	
Zhang, Snowden, and Sue (1998)	6-Month	ECA -L.A.	MH Center	0.0%	6.2%	-	-	
			Psychiatric Outpatient Clinic	0.0%	4.1%	-	-	
			Outpatient Clinic in Psychiatric hospital	0.6%	1.6%	-	-	
Spencer and Chen (2004)	Lifetime	CAPES - L.A. 2nd wave	Any Service	9.5%	-	-	-	Chinese Americans
Abe-Kim et al. (2007)	Lifetime	NLAAS	Any Service	8.6%	General Population: 17.9% <sup>4</sup>			
			Specialty MH Service	3.1%	-	-	-	
			General Medical	4.3%	-	-	-	
Huang et al. (2013)	12-Month	NLAAS	Any Service	5.2%	(Overall)		-	Men
				6.6%	(Chinese)			
				4.5%	(Filipino)			
				4.3%	(Vietnamese)			
				5.8%	(Others)			



Table 2.4 (continued)

	Period	Data	Type of Service	Results			
				Asian Americans		Latinos	
Huang et al. (2013)	Lifetime	NLAAS	Any Service	12.3%	Overall	-	Men
				8.9%	Chinese	-	
				15.1%	Filipino	-	
				7.6%	Vietnamese	-	
				14.9%	Others	-	
Lee, Laiewski, and Choi (2014)	12-Month	NLAAS	Any Service	8.0%	-	4.9%	Non-U.S. Citizen Adults
			Specialty MH Service	1.7%	-	1.5%	
			General Medical	2.4%	-	2.2%	
			Other	4.4%	-	2.9%	

### 3. COLLECTIVISM IN ASIAN AMERICAN CULTURE

This section describes how aspects of Asian American culture may influence help-seeking decisions and behaviors. Culture is known to influence mental health help-seeking behavior, since it shapes values and beliefs about mental illnesses that range from interpreting symptoms (Guarnaccia & Rogler, 1999; Marsella & Yamada, 2000) to determining appropriate treatments (Olafsdottir & Pescosolido, 2009; Tata & Leong, 1994). Therefore, addressing Asian culture can contribute to the understanding of mental health service utilization of Asian Americans. Past research provides some important insights into the role of Asian culture on help-seeking in Asian Americans but lacks focus on “whole cultural systems” and their influence on help-seeking more generally (Olafsdottir & Pescosolido, 2009).

Considering Asian Americans as a homogeneous group may promote stereotyping and overgeneralizations. However, despite the ingroup diversity, Asian Americans share broad cultural characteristics that are distinguishable from other major racial/ethnic groups in the U.S. (B.S.K. Kim et al., 1999; Ng, 1999; Zane, Morton, Chu, & Lin, 2008). The shared cultural values include: collectivism, conformity to norms, deference to authority figures, emotional restraint, filial piety, hierarchical family structure, humility, maintenance of interpersonal harmony, indirect expression, formality, and harmony with nature (B.S.K. Kim et al, 1999; B.S.K. & Omizo, 2005). Many of these values mostly stem from a tradition in Confucian and Taoist philosophy that has long shaped the culture of Asian countries throughout the history (B. S. K. Kim et al., 1999; Phuong\_Mai, Terlow, & Pilot, 2005).

Collectivism is a personal pattern of behavior and attitudes that recognize the group or society as the basic unit of survival therefore values group goals over individual goals (Tata & Leong, 1994; Triandis, Bontempo, Villareal, Asai, & Lucca, 1988). Hui and Triandis (1986)

defined collectivism as (1) concern by a person about the effects of actions or decisions on others, (2) sharing of material benefits, (3) sharing of nonmaterial resources, (4) willingness of the person to accept the opinions and views of others, (5) concern about self-presentation and loss of face, (6) belief in the correspondence of own outcomes with the outcomes of others, and (7) feeling of involvement in and contribution to the lives of others. When faced with a situation that requires a choice between benefit of the self and benefit of the group, people who are collectivist will tend to choose that which is of greater benefit to their group (Tata & Leong, 1994). On the other hand, individualistic values place a stronger emphasis on the needs of the individual over the needs of a given group.

#### **A) Collectivism and Help-seeking in the Social Relationship Context**

Human behavior is a function of both the person and the environment, and people differ in the extent of relationship with others and social groups. In decision making processes, there is a wide range of independence and interdependence. of others. While individualistic values result in behaviors based mostly on one's own decision, collectivistic values encourage more inclusion of the others. Thus, people who hold collectivistic values have different pattern of decision making from those who are individualistic.

Leong and Lau (2001) argued that those who are collectivistic tend to avoid mental health help-seeking for fear of negative consequences on members of their group. Some empirical studies found a negative relationship between the subscription to collectivistic cultural values and help-seeking attitudes. Asian Americans who were more adherent to Asian cultural values showed more negative attitude towards help-seeking (T. Chang & Subramaniam, 2008; B. S. K. Kim, 2007; Liao et al., 2005). While previous service utilization models have focused on

individual level factors this study suggests expanding the framework to include social-relationship factors that are valued importantly in collectivistic Asian culture.

In collectivistic Asian cultures, critical issues such as using mental health services are not considered solely in the individual level. An Asian American may decide to seek or not seek help for mental health issues based on the needs or goals of the group, or there may be cases where group members participate in the decision process. Either way, relationships with others may be a profound determinant for help-seeking behaviors (M. Lee et al., 2017). While there is a strong social stigma around mental illness in Asian American communities (Atkinson & Gim, 1989; Augsberger et al., 2015; J. Chang et al., 2013; Han & Pong, 2013) the relationships with members in the group may buffer or facilitate the impact of stigma on impeding the use of mental health services. For example, someone with close, intimate, and cohesive relationships with group members may perceive disclosure of personal problems as bringing shame or disgrace to the members and the group (Ho, 1984). Some studies paid attention to the impact of social relationship factors (e.g. family factors, social network factors) on help-seeking behaviors in Asian Americans (Abe-Kim et al., 2002; Au, 2017; J. Chang et al., 2013; Guo et al., 2015; Han & Pong, 2015; M. Lee et al., 2017; P. Y. Kim & Lee, 2014; Tata & Leong, 1994; Ta et al., 2010; Yeh, Inman, Kim, & Okubo, 2006). However, the pattern of how collectivistic value in relationships affect Asian Americans' help-seeking behaviors is yet not well studied.

Collectivism and individualism were originally conceptualized as opposing anchors on a continuum (Hofstede, 1991), however more recent research suggests that they are instead independent of each other (Bhawuk and Brislin, 1992; Triandis, 1995) and influenced by social context. Thus, a person may be both highly individualist and highly collectivist, and it is the context which is most responsible for determining whether a person displays collectivist or

individualist behavior. In other words, collectivism varies in its application dependent on the setting or people, such as the workplace or an educational setting, or with friends or family (Hui, 1988). Therefore, relationship factors from various groups (i.e. family, relatives, friends, ethnic group, and neighbor) of Asian Americans should be examined in a comprehensive scope. In general, the collective for Asian Americans is circumscribed by familial and kinship lines including relatives and close friends. For immigrants, other members of their cultural group or neighbors may complement the lack of relatives and friends.

The nature of relationships may either increase or decrease help-seeking behaviors depending on the cultural context, but studies examining the impact of social-relationship factors on mental health services use involving comprehensive framework and nationally representative samples of Asian Americans are notably scarce (J. Chang et al., 2013; M. Lee et al., 2017; Nicdao, Hong, & Takeuchi, 2008; Ta et al., 2010). This study examines the impact of relationships in different social groups that are the center of the lives of Asian Americans; family, relatives and friends, ethnic group, and neighbors.

Collectivistic values emphasize maintaining harmony within each relationship. Harmony is found in the maintenance of an individual's "face", meaning one's dignity, self-respect, and prestige (Hofstede, 1988). In Asian American cultures, to maintain harmony, relations should be conducted in such a way that everybody's face is maintained. Concerns of "losing the face of the group" or bringing shame to the group may motivate individuals to avoid disclosing emotional distress and seeking psychological services that are strongly stigmatized in Asian American cultures (Atkinson & Gim, 1989; Au, 2017; Augsberger et al., 2015a; Chang, Natsuaki, & Chen, 2013; P. Y. Kim & Lee, 2014; Shea & Yeh, 2008; Ting & Hwang, 2009).

Another prevailing relational concern of using mental health services is the issue of burdening others. Asian Americans who are experiencing mental disturbance tend not to seek for professional help because of worries about overburdening others with one's problem (Augsberger, Yeung, Dougher, & Hahm, 2015; Jang, 2015; Root, 1985). Asian Americans who anticipate the financial and emotional burden accompanied by using mental health services may sacrifice their treatment for the interest of the group members. In some cases, Asian Americans may even conceal their mental disturbance from others. In a focus group study, J. Chang (2015) stated that Asian American college students tend to cope with their stress by themselves rather than burdening their families or friends. In another qualitative study, Asian American women with a history of depression and suicide reported not wanting to burden friends and family by openly discussing mental health issues (Augsberger et al., 2015b). The participants mentioned the burden as a factor for not using mental health services.

Even when Asian Americans make the difficult decision to, or have no other choice rather than to reveal their emotional distresses, they prefer to use their social networks as alternative resources to formal mental health services (Chu & Sue, 2011; Kearney, Draper, & Barón, 2005; Zhang et al., 1998). Asian Americans in need of mental health care tend to reach out to family and friends whom they trust and confide in before they seek professional help outside of their social networks. They often do not reach the service systems until late after the initial onset of their psychiatric symptoms, when their condition is extremely severe and all other supportive resources get exhausted (Lin & Cheung, 1999; Yang, Phelan, & Link, 2008). Thus, the underutilization of mental health services as observed by Asian Americans may also result from the resourcefulness of supportive familial and social relationships that help with the coping of mental disturbances (Villatoro, Morales, & Mays, 2014).

While social connections have been shown to influence mental health service use (Pescosolido & Boyer, 2010), research typically looked at family and peers as the primary source of support, and rarely examined other social networks. In addition, only few researchers have taken account of cultural differences in examining the role of social networks among Asian Americans. This study incorporates the various relationship types of Asian Americans, and interprets their impact on mental health service use through a cultural lens.

## **B) Principal Social Relationships of Asian Americans**

Embedded within Confucian values in Asian American cultures are five principal relationships through which each person defines a sense of identity, duty, and responsibility. The five principal relationships are parent and child, husband and wife, older sibling and younger sibling, friend and friend, and ruler and subject (government and citizen) (M. Park and Chelsa, 2007). The fact that there are three family relationships among the five basic human relationships confirms the emphasis on family in Asian American cultures. In Confucianism, community and society are considered as mere extension of the family. The NLAAS has factors that provides understanding of the dynamics within the principal relationships of Asian Americans.

### **III. ANDERSEN'S BEHAVIORAL MODEL**

The main purpose of this study is to establish a more comprehensive model for identifying factors that affect the mental health service utilization of Asian Americans. Identifying such indicators will lead to suggestions for future service provisions and public education, helping Asian Americans to use effective mental health treatment more frequently and promptly when needed. This section will introduce the original theoretical framework applied in this study and describe the variables previously studied under its scope. In addition, this chapter suggests social relationship factors that have not been included in previous studies applying ABM as predictors for mental health service use in Asian Americans. These factors include family cohesion, social support, ethnic identity, and social support.

Many studies attempted to verify factors of mental health service use in Asian Americans without applying appropriate theoretical models (Abe-Kim et al., 2007; J. Chang et al., 2013; Harris et al., 2005; Ihara et al., 2013; Le Meyer et al., 2009; Pippins, Alegría, & Haas, 2007; Spencer, Chen, Gee, Fabian, & Takeuchi, 2010; Ta et al., 2010; Takeuchi et al., 2007). Some explanatory frameworks have been developed and have been used to identify predictors of health service utilization. Well-known frameworks include the Theory of Planned Behavior (Ajzen, 1991), the Health Belief Model (Rosenstock, 2005), and the Network Episode Model (Pescosolido, 1992). Among the frameworks, this study will expand on research that has addressed issues of racial/ethnic disparities in mental health service use under the scope of Andersen's Behavioral Model (Andersen, 1968; Jang, Kim, & Chiriboga, 2005; Jang, Kim, Hansen, & Chiriboga, 2007; Kimerling & Baumrind, 2005).

Andersen's model categorizes factors for mental health service use in three components: need, enabling, and predisposing factors. Need factors for mental health service are conditions



that laypeople or health care providers recognize as requiring medical treatment, mainly represented by mental health status (Andersen, 1995). Enabling factors cover a variety of resources that provide means to the services, including health insurance coverage and socioeconomic status. Finally, predisposing factors include demographic characteristics such as age, gender, education, and ethnicity that predispose people to use or not use services even though these conditions are not directly responsible for use.

The early studies applying Andersen's model in health service overlooked the difference across racial/ethnic groups, and therefore focused on the universal factors that explain barriers and facilitators to mental health service use (Andersen, Harada, Chiu, & Makinodan, 1995; F. K. Cheung & Snowden, 1990; Hargraves & Hadley, 2003; Sareen et al., 2007; Snowden & Cheung, 1990; Snowden & Yamada, 2005). They reported the significance of structural barriers among the enabling factors on mental health service utilization, and the findings deduced general implications such as expanding health insurance coverage, diminishing financial burdens, and making services more available (Alegría et al., 2008; Eisenberg et al., 2007; Gibson, 1973; Hurd & McGarry, 1997; McAlpine & Mechanic, 2000; Thomas & Snowden, 2002). However, empirical studies asserted that differences in health care utilization remain even after adjusting for the structural barriers, suggesting the need to better understand other mechanisms through which differences may arise across racial/ethnic groups (Hurd & McGarry, 1997; Keyes et al., 2012; G. Kim et al., 2010).

Andersen and his colleagues (1995) recommended addressing the unique situational and cultural factors specific to each group in applying the behavioral models, and efforts to incorporate cultural factors to the behavioral models have been facilitated since. Firstly, in terms of predisposing factors, immigration-related experiences (length of residence in US, generation

status, English language proficiency, acculturative stress, perceived discrimination) have been studied specifically as a unique cultural component to Asian Americans and Latinos (Abe-Kim et al., 2007; Hwang & Goto, 2009; Kang et al., 2010; G. Kim, Loi, et al., 2011; Salant & Lauderdale, 2003; Spencer et al., 2010; S. Sue, Cheng, Saad, & Chu, 2012). Perceived discrimination and acculturation stress were considered as a predisposing factor because of its impact on the attitude towards the health service system. Other culturally-related factors included in the predisposing domain were health beliefs, stigmatization, and knowledge about mental disorders (Leong & Lau, 2001; Scheppers, van Dongen, Dekker, Geertzen, & Dekker, 2006; Ting & Hwang, 2009). While English language proficiency was included as a predisposing factor in the original model, some studies categorized the factor as an enabling factor (G. Kim et al., 2010; Park, Cho, Park, Bernstein, & Shin, 2013), because of the possibility of change throughout the intervention (Kang et al., 2010). Cultural components added as enabling factors are the availability of culturally competent mental health services such as “ethnically matched” or “bilingual (multi-lingual)” mental health care providers (Jerrell, 1998; Sentell et al., 2007).

The modified Andersen’s models have made some contributions to Asian Americans studies by verifying many cultural factors to mental health service use (Andersen et al., 1995; Gee et al., 2007; Guo, Nguyen, Weiss, Ngo, & Lau, 2015; Harris et al., 2005; Hwang & Goto, 2009; Jang, Chiriboga, & Okazaki, 2009; Jang et al., 2005; Jang et al., 2007; G. Kim, Loi, et al., 2011; Snowden et al., 2011). Nevertheless, an unsatisfactory amount of variance remains unexplained (Andersen & Davidson, 2013; Augsberger, Hahm, Yeung, & Dougher, 2015), leaving a gap for improvement in the application of the model to Asian Americans.

Andersen’s model assumes help-seeking behavior is based on an individual’s rational choices regarding service-use, which is based on a self-assessment of their problems, their

service options, and the costs and benefits associated with these options (Pescosolido & Boyer, 1999). This process might not be dominant in mental health help-seeking of Asian Americans who do not appreciate the individualism associated with the traditional European values (B. S. K. Kim, Atkinson, & Yang, 1999; H. J. Lee, Kim, & Newhill, 2014). Asian American cultures tend to hold collectivist values, which is related to maintaining interpersonal harmony and retaining group cohesion (Okazaki, 2000). Individuals who are more collectivistic tend to understand themselves in the context of others (Singelis, 1994). They make decisions based on interpersonal obligations and responsibilities across close relationships, such family, friends, and other members of their in-groups (Markus & Kitayama, 1991). Therefore, one's mental illness is perceived not as a personal matter, and the impetus to seek help can be affected by their social network (relationships). While cultural and relationship factors are critical in mental health service use in Asian Americans, they have received little attention from researchers (M. Lee et al., 2017).

Therefore, this study suggests a modification to the Andersen's model by conceptualizing help-seeking as a process affected by social relationships rather than limited to an individual decision. For individuals from Asian cultures, family provides a critical context for understanding help-seeking behaviors. The centrality of family to Asian Americans is reflective of the collectivist values found in many Asian cultures, in which familial relationships are paramount (J. Chang et al., 2013). This collectivist tendency of Asian Americans is not limited to the family but also extends to other relationships (extended family, other ethnic groups, and kinship networks). Therefore, adding relationship factors (the immediate family, relatives, friends, ethnic groups, and neighbors) in an analysis of NLAAS data will result in findings that

are more culturally nuanced. This study includes these factors in its application of ABM to determine how they influence mental health service use in Asian Americans.

The model tests on Asian Americans who participated in the National Latino and Asian American Study (NLAAS) which is the first national data that collected information on the mental health service use in the population.

## **1. PREVIOUS FACTORS OF MENTAL HEALTH SERVICE UTILIZATION IN ABM**

To better understand the underutilization of mental health services by Asian Americans, it is important to examine factors that influence the process leading to receiving professional help in a comprehensive framework. This section introduces the factors that were categorized into need, enabling, and predisposing factors in ABM in previous studies.

### **A) Need Factors**

Awareness and recognition of mental health concerns is a significant factor that affects the decision of whether or not to seek treatment (Mojtabai, Olfson, & Mechanic, 2002).

Perceived need for care appears to increase the probability that one will utilize mental health services in Asian Americans (Chu, Hsieh, & Tokars, 2011; M. Lee et al., 2017). In Andersen's model for mental health service utilization, need factors which primarily relate to illness characteristics include both evaluated (objective) and perceived (subjective) need. However, as the purpose of this study was to examine the factors that contribute to mental health services use among Asian Americans who already had psychiatric disorders, evaluated need was excluded in the final research model.

### **i) Psychiatric diagnosis (Evaluated need)**

It has been empirically demonstrated that the main predictor of mental health service utilization is the presence of a current psychiatric disorder. Although research has shown that the diagnosis of one or more mental disorder(s) is a clear factor for utilizing mental health services (G. Kim, Loi, et al., 2011; S. Lee et al., 2014; S. Y. Lee et al., 2011), as described in Chapter Two, the actual rates for utilizing mental health services among people who are diagnosed with a disorder is lower in Asian Americans compared to the other racial/ethnic groups (S. Y. Lee et al., 2011). Lee and her colleagues (2011) reported that only 34.2 percent of Asian Americans with any mood disorder and 24.3 percent with any anxiety disorder sought mental health treatment services. These are lower than the rates of other racial/ethnic groups: Whites (any mood disorder 61.7%, any anxiety disorder 36.2%), African Americans (any mood disorder 42.6%, any anxiety disorder 24.7%), Latinos (any mood disorder 47.0%, any anxiety disorder 29.6%).

### **ii) Self-rated mental health (Perceived need)**

In addition to diagnoses for psychiatric disorders, self-rated mental health (SRMH) is included as a need factor for mental health treatment. While SRMH is not equivalent to diagnoses of psychiatric disorders (Fleishman & Zuvekas, 2007; Zuvekas & Fleishman, 2008), noticing symptoms and defining their significance may be critical in the perception of need for professional help (Fleishman & Zuvekas, 2007; Katz et al., 1997; G. Kim et al., 2010; Zuvekas & Fleishman, 2008). Previous research has shown that SRMH is a strong indicator for mental health service use (Katz et al., 1997; G. Kim et al., 2010; Zuvekas & Fleishman, 2008). In the National Comorbidity Study (NCS), those who rated their mental health status as “fair” or “poor”

had a higher chance of using any type of mental health services than those with “excellent” or “very good” ratings (Kessler et al., 1997; Mojtabai et al., 2002).

Recently, SRMH has received special attention as a potential predictor for mental health service use in Asian Americans (G. Kim, DeCoster, et al., 2011; G. Kim et al., 2010; Kwok, 2013; Ta et al., 2010). Asian Americans may differ in their propensities to define symptoms as indicative of a mental health problem. Asian Americans believe in mind-body holism, in which there is no clear distinction between psychological and physical illness (Leong & Lau, 2001). They tend to view their emotional and psychological issues in a manner of physical health and express the symptoms through somatization (Atkinson & Gim, 1989; Kwok, 2013; H. J. Lee et al., 2014; Lin & Cheung, 1999). As a result, Asian Americans that experience symptoms of mental illness may not realize they are mental health related, may overestimate their mental health status, potentially underestimating their mental health needs. In other words, Asian Americans who evaluate their mental health to be poor and perceive a need for professional help are likely to use mental health services. In an empirical study, SRMH was most influential in explaining mental health service use in Asian American immigrant elders (G. Kim et al., 2010).

## **B) Enabling Factors**

Enabling factors refer to an individual’s ability to obtain treatment when needed. Even though an individual feel needs to use mental health services, he or she will not be able to utilize the services without the adequate means (Andersen, 1968). Evaluating the resource a person uses is a vital component to utilization of mental health services. Traditionally, enabling factors included income, health insurance coverage, and other factors related to the accessibility (such as means of transportation, location, and travel time) or availability (such as amount and variety) of

services (Andersen, 1965; 1995). For Asian Americans, English proficiency and availability of translators or bilingual services were added as enabling factors because being limited of language not only can lead to miscommunication with health care providers but also have deleterious effects on understanding the mental health care system and treatments (Kim et al., 2011; Sentell et al., 2007; Snowden et al., 2011). Due to the limitation of available variables in the data, bilingual services or translator availability is not discussed in this study.

### **i) Health insurance coverage**

It is widely agreed that health insurance facilitates entry into the health care system (Berk & Schur, 1998; Dhingra, Zack, Strine, Pearson, & Balluz, 2010; Sareen et al., 2007). Regardless of race or ethnicity, people without health insurance are less likely to receive medical care (Hargraves & Hadley, 2003; U.S. DHHS, 2001). Previous studies of Asian Americans have also verified the association of health insurance coverage with service utilization among different subgroups (Abe-Kim et al., 2002; Wong et al., 2006).

In 2016, approximately 7.6% of all Asian Americans lack health insurance (U.S. Census Bureau, 2017b). Although the uninsured rate of Asian Americans is higher than non-Latino Whites (6.3%), it is comparatively lower than African Americans (10.5%) and Latinos (16.0%). Nevertheless, the utilization rate of mental health services of Asian Americans is not higher than African Americans or Latinos (Abe-Kim et al., 2007; Kearney et al., 2005; U.S. DHHS, 2001). Empirical studies show that Asian Americans are less likely to use mental health services even after controlling for insurance status (Kimerling & Baumrind, 2005; Temkin-Greener & Clark, 1988), indicating that the impact of health insurance coverage may not be as significant in Asian Americans as it is in other racial/ethnic minorities. In addition, more recent studies show that the

effect of insurance coverage on mental health service use among Asian Americans is diminished when other factors are accounted for (Ihara et al., 2013; M. Lee et al., 2017; Park et al., 2013).

### **ii) Household income**

The cost of medical care can be a burden to Asian Americans who have mental health challenges. In a study reporting unmet need for mental health services, nearly half of Asian Americans indicated that cost was the primary reason for not receiving needed care (Sareen et al., 2007). However, the impact of income (or poverty) on the mental health service utilization among Asian Americans has not been clearly verified. Recent studies found that the impact of income was not significant (Dhingra et al., 2010; ; M. Lee et al., 2017; Ihara et al., 2013). Park et al. (2013) reported an opposite result, finding that lower income is associated to using mental health services. There are two plausible reasons for such mixed results. First, Asian Americans have the highest median household income among all the racial/ethnic groups in the United States (U.S. Census Bureau, 2017b), so financial burden is a less salient issue compared to others. A second explanation is that, despite high income, many Asian Americans are self-employed or work in small businesses. Consequently, instead of having employment based insurance, they have private insurance or lack insurance, and therefore experience a greater financial burden for the cost of mental health services (Maxwell, Crespi, Antonio, & Lu, 2010; U.S. Census Bureau, 2017a).

### **iii) English language proficiency**

Language proficiency is frequently mentioned in literature as being a significant impediment to mental health services utilization. Difficulties in language may be particularly



problematic in mental health treatment because much of mental health assessment and diagnosis relies on direct communication rather than objective tests. Therefore, seeking mental health services can be challenging for those with language deficiencies. In addition, English proficiency exerts a pervasive impact as it can lead not only to miscommunication with mental health professionals but can also have destructive effects on navigating the healthcare system and on understanding mental health information and treatment (G. Kim et al., 2010).

In addition to Latinos, Asian Americans are the racial/ethnic group who are particularly impacted by English proficiency (Sentell et al., 2007). A recent census shows that the majority of Asians are foreign-born (U.S. Census Bureau, 2010). The immigrants in the Asian American population have more limited English proficiency than their US-born counterparts.

Research strongly indicates that language proficiency acts as a significant barrier to help-seeking. In a study on the 2001 California Health Interview Survey, Sentell and his colleagues (2007) reported that Asian Americans who demonstrated problems with English language were less likely to receive mental health services compared to those with English proficiency. Kang and colleagues (2010) asserted that nearly half of Asian Americans who use the mental healthcare system are limited due to a lack of English proficiency. When asked to compare language-related and other cultural barriers, Asian American respondents reported linguistic barriers to be as important, if not more so, than other cultural barriers (Snowden et al., 2011). Ihara et al. (2013) also reported that lower English proficiency was associated with not using specialist services for mental health issues.

## **C) Predisposing Factors**

In his original model, Andersen (1968) conceptualized that knowledge, beliefs, and attitudes about an illness or health services are predisposing factors that indirectly affect mental health service use. Predisposing factors included a broad array of factors that determine the status of a person, his or her ability to cope with the existing problems and commanding resources to deal with these problems (Andersen, 1995). Previously, the predisposing factors included the factors that were normally unchangeable or do not leave room for interventions, such as the demographic variables. Contextual predisposing characteristics to the framework such as perceived discrimination, acculturation stress, and cultural beliefs about mental illness were recently added to the model which describe how supportive or detrimental the community where the people live or work might be to their health service utilization (Andersen & Davidson, 2013). As NLAAS does not have factors related to health beliefs, this section only discusses perceived discrimination and acculturation stress. Because culture shapes one's beliefs about mental health and attitude towards mental health services, predisposing factors are where sociocultural variables can be suggested to be included for Asian Americans.

### **i) Socio-demographic factors**

Socio-demographic factors such as sex, age, marital status, education, household income and employment status are known to be associated with use of mental health services (Bebbington et al., 2000). However, studies on Asian Americans show inconsistent findings on the influence of these factors (Abe-Kim et al., 2007; J. Chang et al., 2013; Cho, Kim, & Velez-Ortiz, 2014).

Most studies demonstrate that, overall, women are more likely than men to utilize services for mental health issues, even accounting for the existence of psychiatric disorders (Addis & Mahalik, 2003; Ang, Lim, Tan, & Yau, 2003; Currin, Hayslip Jr., & Temple, 2011; Mackenzie, Gekoski, & Knox, 2006; Masuda et al., 2005; Vogel & Wester, 2003). However, mixed results exist within studies of Asian Americans' help-seeking behaviors; some reporting no effect of gender (Abe-Kim et al., 2002; Akutsu et al., 1990; Atkinson & Gim, 1989; Cho et al., 2014; Leong, Wagner, & Tata, 1995), and others reporting that men more frequently seek help (Chiu, 2004; Winnie W. Kung, 2003). These mixed results may be due to patriarchal cultural attitudes, in which Asian American women are discouraged from expressing their psychological problems, and therefore may fail to or delay in seeking help (H. J. Lee et al., 2014). Or it may simply be a result of health insurance coverage. While men are more uninsured generally, the uninsured rate of Asian American women are similar or higher than the men's (Austin, 2015).

The pattern of mental health service utilization is less clear in terms of age. It is difficult to link age to the overall service utilization, due to the different onset point of each psychiatric disorder. Some studies have shown that younger populations (e.g. college students) and older populations (e.g. elderly age 60 or older) were less likely to use mental health services compared to the middle age group (Matsuoka, Breaux, & Ryujin, 1997; Takeuchi et al., 1998). Other studies reported younger people were more likely to seek treatment over the course of their illness (A. H. Cheung, Dewa, & Wasylenki, 2003; Leong & Lau, 2001). The opposite result that older adults were more likely to use certain mental health services was found in Asian Americans and Latino non-U.S. citizens (Ihara et al., 2013; S. Lee et al., 2014). However, the effect of age on mental health service use became insignificant when other factors were controlled (G. Kim et al., 2010; G. Kim, Loi, et al., 2011; Park et al., 2013). The offsetting of the impact of

age on mental health service use when other factors are accounted for can be explained by the close association of age with health insurance coverage (i.e., Medicare eligibility) or immigration-related factors (i.e. immigration status, acculturation, English language proficiency, and length-of-time in the U.S.).

Most studies concur that living alone or being separated, widowed or divorced is associated with increased use of mental health services (Rozario, Morrow-Howell, & Proctor, 2004; Takeuchi et al., 1998). In a European study, the divorced or separated, compared to the married or cohabiting, used professional health care services more often (Bracke, Colman, Symoens, & Van Praag, 2010). Likewise, a study of Asian Americans revealed that the “married/cohabitating” in the first generation and 1.5 generation tend to use mental health services less than the “never married” (M. Lee et al., 2017).

Education may have a strong association with the utilization of mental health services in Asian Americans; a higher educational level correlates with a higher use of mental health services (Bebbington et al., 2000; Sareen et al., 2007; Woodward, 2011). However, the effect of education level may be moderated by income or health insurance coverage (people with a lower educational level are more likely to have smaller income and to be uninsured).

There has not been much research examining the influence of religion on the mental health utilization among Asian Americans. Recently, researchers have started to examine religion-related factors as facilitators to mental health service use (Ai, Aisenberg, Weiss, & Salazar, 2014; Ai, Huang, Bjorck, & Appel, 2013). Ai and her colleagues (Ai et al., 2013) found that religious attendance has a strong association with social support, which results in better mental health outcomes in Asian Americans. It may be hypothesized that religion, as a source of social support, affects the utilization of mental health services among Asian Americans.

## **ii) Perceived discrimination**

Racism and discrimination (or racial discrimination) are facets of the social context that are present in the lives of racial/ethnic minorities. History is fraught with examples of policies and practices that have systematically discriminated against Asian Americans (e.g., the Chinese Exclusion Act of 1882, the Immigration Act of 1917, the Tydings-McDuffie Act of 1934, and Executive Order 9066 in 1942) (Chan, 1991; Takaki, 1989). Evidence suggests that both overt and covert forms of racial discrimination targeting Asian Americans persist (Spencer et al., 2010; D. W. Sue, Bucceri, Lin, Nadal, & Torino, 2009). Compared to the past and even compared to other racial/ethnic minorities, Asian Americans are more likely to experience more subtle and elusive forms of discrimination (Noh, Beiser, Kaspar, Hou, & Rummens, 1999; D. W. Sue et al., 2009). Contemporary and subtle forms of racial discrimination towards Asian Americans include the model minority stereotype (which highlights the aggregation of success indicators while masking the challenges of immigrant populations), hate crimes, racial profiling, and employment discrimination (Spencer et al., 2010).

Perceived discrimination may be a barrier to help seeking among Asian Americans (Spencer et al., 2010). The Stigma-induced identity threat model of Major and O'Brien (2005) posits that individuals who experience racial discrimination will have increased vigilance and anxiety which lead them to avoid mainstream/dominant culture institutions, including the mental health care system (Burgess et al., 2008; Major & O'Brien, 2005). Uba (1982) also insisted that history of discrimination, and a suspicion of the service delivery system may act as critical barriers to service use for Asian Americans. Burgess and her colleagues (2008) verified that perceived discrimination is significantly associated with the underutilization of mental health services among Asian Americans. Similarly, Spencer and Chen (2004) found experiencing

discrimination made Chinese Americans with mental health issues avoid formal mental health services, and alternatively reach out for informal (e.g. religious leaders) and non-professional help (e.g. friends or relatives).

### **iii) Acculturation stress**

Acculturation is the process whereby individuals from another culture adapt to the values and norms of the new culture. Studies have shown that this process can be very difficult and stressful (Leong & Lau, 2001; Leong & Kalibatseva, 2011; Ying & Miller, 1992). Stress induced by the acculturation process include language difficulties, financial problems, familiarizing with the new system, homesickness, difficulties establishing new social ties, and lack of support (Kwok, 2013). Over half of Asian Americans are immigrants (U.S. Census Bureau, 2012) who may face the impact of acculturation (or acculturative) stress. In addition, studies suggested that the level of discrepancy between the host culture and the culture of origin decides the level of stress (Bulut & Gayman, 2016). Therefore, Asian American immigrants may be experiencing more acculturation stress compared to other immigrants from European or Latin America countries (J. S. Lee, Koeske, & Sales, 2004). Researchers have proposed that acculturation stress may affect attitudes toward seeking psychological services and actual help-seeking behaviors (Atkinson & Gim, 1989; Tata & Leong, 1994; Ying & Miller, 1992).

## **2. SOCIOCULTURAL FACTORS OF ASIAN AMERICANS**

Chapter Two discussed that, in collectivistic Asian culture, one's process of important decision making is not entirely done in the individual level, but also other people are incorporated. Therefore, it is important to examine the social relationship factors of Asian

Americans to see whether they affect mental health service use. Based on the five principal relationships in the Asian cultures (family, relatives, friends, ethnic group members, and neighbors,) and the availability of related variable in the NLAAS, this section suggests four social relationship factors as additional determinants for mental health service use for Asian Americans. As will be seen below, each construct is related to one of the five principal relationships, except for social support, which comprises two.

### **A) Family: Family Cohesion**

For individuals from the collectivistic Asian American cultures, family provides a critical context for understanding mental health services use (J. Chang et al., 2013). Confucianism posits the family as the fundamental unit of society, and a person is considered as a part of a family with interdependent responsibilities and expectations (Park & Chelsa, 2007). Asian Americans tend to value the good of the family over the individual member's (H. J. Lee et al., 2014), and decisions may be made in favor to the overall family interest even though they may result in negative consequences for the individual. Given the centrality of family in Asian American cultures, it is vital to determine how individual's relationship with their family influence their help-seeking behaviors. However, only a few studies have examined the influence of the family on Asian Americans' use of mental health services (Abe-Kim & Takeuchi, 1996; Au, 2017; J. Chang et al., 2013; M. Lee et al., 2017; Nicdao, Hong, & Takeuchi, 2008; Ta et al., 2010).

The dynamics and relationship in many Asian American families emphasize cohesion, closeness, and support (E. Lee & Mock, 2005; M. Lee et al., 2017; Ta et al., 2010). Studies have consistently shown positive family relationship is protective against psychosocial stressors (Greenberger & Chen, 1996; Laursen & Collins, 1994; Rivera et al., 2008), therefore have better

mental health outcomes. Individuals from cohesive and supportive families are at lower risk of experiencing psychological hardship and using drugs (Aydin & Oztutuncu, 2001; Harris & Molock, 2000; Vega, Zimmerman, Warheit, Apospori, & Gil, 1993; Zhang & Jin, 1996).

However, the findings of studies that examined the association of family relationships and mental health service use are not consistent. Several studies have stated that strong family cohesion may be instrumental in encouraging a family member to seek and complete mental health treatments (Armbruster & Fallon, 1994; Carpentier & White, 2002; Keeley & Wiens, 2008; U.S. DHHS, 2001). Although cohesive families may be supportive of family members seeking mental health services, a counterargument is that highly cohesive families may be distrusting of people outside of the family, therefore may want to keep individual family members from embarrassing the family unit, which may potentially hinder them from seeking help for mental health issues (Ta et al., 2010). These issues are particularly salient for Asian American families who often view mental disorders as highly stigmatizing and who may wish to avoid treatment to “save face” of the family (Ta et al., 2010; U.S. DHHS, 2001; Zane & Yeh, 2002). This study hypothesizes that, in collectivistic Asian culture, family cohesion may be associated with decreased use of mental health services.

## **B) Relatives and Friends: Social Support**

In addition to direct family, relatives and friends are critical social connections for Asian Americans. H. K. Kim and McKenry (1998) compared social networks and support among different racial/ethnic groups and found that Asian Americans are more likely to be involved in social activities with relatives and friends, which reflects the collective orientation in the Asian culture. For Asian Americans, especially for those who have recently immigrated, a vital source



of support besides the immediate family is their relatives and friends. However, the importance of non-family intimate relationships in one's help-seeking process is not evident in prior research which highlighted social support within the nuclear family.

The family model in Asian cultures is an extended one including relatives beyond the core nuclear family (Zhan, 2003). Due to different patterns of migration, Asian Americans have varying attachment to their relatives. Some of them are separated from and have diminished interaction with family members or relatives living in their country of origin. Asian Americans who have relatives in the United States may have closer relationships with them. Recent census showed that 12.3 percent of Asian Americans reported co-residing with one or more relatives outside the immediate family (Vespa, Lewis, & Kreider, 2013), and it is not uncommon for Asian Americans having relatives living in close proximity (Dinh, 2016; Kamo, 2000). Regardless of closer presence, Asian culture considers extended family members or relatives as critical source of support (Uba, 1984). Based on the extended family structure in Asian Culture, relatives may be involved in one's help-seeking decision. However, the specific role of relatives on the use of mental health services among Asian Americans is not well understood.

Friends differ from relatives or extended family members as they are typically relationships of choice based more on shared experience and interests (Crohan & Antonucci, 1989). Generally, friends are sources of companionship and emotional support (Antonucci et al., 2001; Birditt et al., 2009). For ethnic minorities like Asian Americans, friends are also an important source of informational support, providing information regarding social services such as mental health services (Zhou & Xiong, 2005).

Pescosolido and Boyer (1999) asserted that a larger social network and greater level of social support give more referrals to mental health services. However, in accordance with the

collectivistic value mentioned above, Asian Americans may not openly seek professional help as they are concerned about negative consequences in relationships. The fear that they may lose status, disrupt group harmony, and receive criticism from others impede them from disclosing their mental disturbance and seeking help. Zhang and colleagues (1998) reported that only 12 percent of Asian Americans revealed their mental health problems to relatives or friends while 25 percent of Whites did. Therefore, it can be hypothesized that Asian Americans with closer relationships with their relatives or friends may hesitate to seek professional help for their mental health issues.

### **C) Ethnic Group: Ethnic Identity**

Ethnic groups serve as a critical social network for Asian Americans. Asian Americans are a predominantly immigrant community. More than half of the ethnic groups are immigrants. As a response to a large amount of discrimination, Asian American immigrants formed ethnic communities to pool together their social resources (Zhou, 1992). As a result, Asian Americans tend to live along with people of the same racial/ethnic group forming ethnic-specific communities (e.g., Chinatown, Koreatown, Little Saigon; Iwamoto & Liu, 2010). Over half of Asian Americans (56.7%) live in five states (California, New York, Texas, New Jersey, and Hawaii), and nearly three-fourths of all Asian Americans lived in ten states (U.S. Census Bureau, 2010). Asian Americans immigrants in general, typically have close relationships with people from the same ethnic group, especially if they live in an ethnic enclave (Seráfica, Weng, & Kim, 2000).

Ethnic groups are especially important in collectivistic Asian culture where one's identity is considered to be part of the group's social identity (Ai et al., 2014). Ethnic identity refers to

one's sense of self in broad terms including culture, ethnicity, language, or kinship (Phinney, Horenczyk, Liebkind, & Vedder, 2001). Briefly, it is the perception of belonging to a certain ethnic group. While race is defined by physical characteristics, such as skin color or hair type, ethnicity reflects attachment one feels to one's cultural heritages and values (Cheryan & Tsai, 2006). Asian Americans may see themselves as representative of a larger community regardless of ethnicity or country of origin (Iwamoto & Liu, 2010), however may self-identify more naturally with their own subgroup communities (e.g., Chinese, Filipino, Vietnamese, Korean, Japanese, etc.) (Ai, Nicdao, Appel, & Lee, 2015).

Ethnic identity also includes feelings and attitudes a person has toward their ethnic group and how they perceive their ethnic group within the larger society (Phinney, 2003). In other words, ethnic identity reflects one's relationship with others within the ethnic group. People with high ethnic identity tend to self-identify as a group member; share attitudes and values of the group, and practice according to what is appreciated in the group (Phinney, 1996).

Despite widespread documentation of racial and ethnic differences in the use of mental health services, little is known regarding how ethnic identity affects help-seeking behaviors (Richman, Kohn-Wood, & Williams, 2007). Abe-Kim and her colleagues (2007) reported the third generation of Asian American immigrants, who have lower feelings of ethnic identity, have higher rates of mental health service utilization compared to the first and second generation. In a recent study on Chinese international students, those who express stronger feelings of Chinese identity were less likely to seek professional services (Li, Marbley, Bradley, & Lan, 2016).

Culturally-based shame and stigma attached to mental illness (Leong & Lau, 2001; Yang, Phelan, & Link, 2008) make it less likely for Asians to publicly admit problems and seek professional help for psychological distress but, rather, to rely on family involvement in

addressing such issues. A higher level of ethnic identity corresponds with an individual placing greater importance on the ethnic group and on relationships with other members. Therefore, it may be hypothesized that Asian Americans of higher sense of ethnic identity are less likely to use mental health services.

#### **D) Neighbors: Social Cohesion**

The external environment may have an impact on the utilization of mental health services among Asian Americans, beyond the support provided by relationships with family and friends (Mulvaney-Day, Alegría, & Sribney, 2007). The difference of social cohesion from social support is that relationships may not have close emotional ties. Social cohesion is defined as a degree of connectedness and solidarity that exists among people living in defined geographic boundaries (Sampson, Raudenbush, & Earls, 1997). Therefore, the locus of social cohesion theoretically lies in the community the individuals reside in (Mulvaney-Day et al., 2007). Living in a neighborhood with a high degree of trust is hypothesized to facilitate the use of social and health services (Hendryx & Ahern, 2001). Alternatively, those who feel that their neighborhood is not trustworthy may fear the negative consequences of utilizing mental health services on the relationships with the neighbors. How this community level variable operates for Asian Americans is an understudied area.

In summary, social relationships may have influence on the help-seeking behaviors of Asian Americans who live in a collectivistic culture. In previous studies, social relationships were viewed as protective factors for Asian Americans, by buffering the deleterious impact of psychosocial distresses and promoting better mental health. However, it is not well known how these social relationships affect mental health service use among Asian Americans who already

have mental health issues. This study examines the various types of social relationships to better understand the dynamics and implication for mental health services use in Asian Americans.

## **IV. METHODS**

### **1. DATA SOURCE: NLAAS**

This study analyzes data from the National Latino and Asian American Study (NLAAS), a multistage, stratified national probability sample of Asian American adults aged 18 years or older who resided in any of the 50 states and Washington, D.C. in 2002 and 2003. This section provides information about the purpose and design of the data.

#### **A) Purpose of the NLAAS**

The NLAAS is the first national population-based study of Latino and Asian American populations, designed as a part of the Collaborative Psychiatric Epidemiology Studies (CPES) funded by the National Institute of Mental Health (NIMH), with supplemental support from the Office of Behavioral and Social Sciences Research (OBSSR) at the National Institute of Health (NIH), the Substance Abuse and Mental Health Services Agency (SAMHSA), and the Latino Research Program Project. The CPES is comprised of three surveys: the National Comorbidity Survey Replication (NCS-R, N=9,282), the National Survey of American Life (NSAL, N=6,082), and the NLAAS (N=4,649). Although each study has different population groups and topical questionnaire modules, they share a common core of scientific objectives and survey format in measuring primary mental health diagnostic symptoms, symptom severity, and use of mental health services (Alegría, Vila, et al., 2004; Heeringa et al., 2004; Kessler et al., 2004). The project managers and support staff of each study were located in the Survey Research Center of the Institute for Social Research at the University of Michigan in Ann Arbor, working closely together and using similar procedures and materials (Pennell et al., 2004).

The primary objective of the CPES was to collect data about the prevalence of psychiatric disorders, risk factors and impairments related with these disorders, and their treatment patterns from a representative sample of the adult population of the US, with a special emphasis on minority groups (Pennell et al., 2004). Therefore, the uniqueness of ethnic and racial groups was considered in the survey procedure to identify factors that are significant in shaping the expression of psychiatric disorders and the culture-specific processes linked to difference found between groups. NLAAS adapted some conceptual and methodological strategies to assess these cultural and contextual influences. First, rigorous approaches were used to translate and adapt survey instruments, in which cultural idioms were incorporated. Additionally, respondents were allowed to be interviewed either in English or in their native language (for instance, Tagalog, Vietnamese, Chinese or Spanish) with efforts to match interviewees with interviewers of the same language and culture (Alegría, Takeuchi, et al., 2004).

Until the NLAAS data was released in 2003, nationally collected data covering the mental health service utilization of Asian Americans did not exist (Alegría, Takeuchi, et al., 2004; Heeringa et al., 2004). Before the NLAAS, empirical studies included only small sample sizes of Asian Americans, and were limited to specific geographic area or Asian American subgroups (Akutsu et al., 1990; Atkinson & Gim, 1989; Leong & Lau, 2001; Loo, Tong, & True, 1989; Tabora & Flaskerud, 1997; Tata & Leong, 1994).

The survey populations for the NLAAS included all Latino and Asian American adults in the U.S. This study specifically examines Asian Americans within the dataset. The Asian American survey population was stratified based on eligible adults' ancestry or national origin: Chinese, Filipino, Vietnamese, and all other Asians including Cambodian, Indian, Japanese, Korean, Taiwanese, and Thai. This stratification of the NLAAS populations relied on self-reports by household members at the time of the household screening. In cases

where a member of the survey population reported belonging to more than one Asian American target population, the following order of priority was used to assign individuals to a single group for the purpose of the stratified sample selection: 1) Vietnamese; 2) Filipino; 3) Chinese; and 4) other Asian (Korean, Japanese, Cambodians, etc.).

## **B) Sampling strategy of the NLAAS**

The data collection for the NLAAS was based on the sampling frames and sample selection procedures that are common to the University of Michigan Survey Research Center's (UMICH-SRC) national sample design (Heeringa et al., 2004). The stratified probability sample design including multiple area probability sample components are well documented in previous studies (Alegría, Takeuchi, et al., 2004; Alegría, Vila, et al., 2004; Heeringa et al., 2004; Pennell et al., 2004).

First, the NLAAS Core sample was designed to provide a nationally representative sample of Asian Americans regardless of geographic residential patterns. The selection of a probability sample of respondents for interview required a four-step sampling process: a primary stage sampling of U.S. Metropolitan Statistical Areas (MSAs) or counties, a second stage sampling of area segments formed from contiguous grouping of census blocks with probability proportionate to size, a third stage sampling of housing units within the selected area segments, and concluding with the random selection of eligible respondents from the sample housing units.

However, many area segments in the Core sample had very low density of the target Asian Americans of the NLAAS, resulting in high cost per interviewed case (Heeringa et al., 2004). Therefore, supplemental NLAAS- High Density (HD) sample components, consisting of oversampling of geographic area of higher density of Asian Americans, were added to the



sample plan (Heeringa et al., 2004). Samples were recruited from the census block groups of greater than 5% concentrations of individual national origin groups of interests in the NLAAS. As the HD oversamples are nested within the national sampling frame from the fully representative NLAAS Core sample, Asian Americans in the high-density domains had two chances of selection in the Core and HD sampling. In addition, second respondent sampling was adopted to recruit participants from households in which one eligible member had already been interviewed. The sample design required weighting corrections for joint probabilities of selection under the multiple components of the NLAAS sample design (Abe-Kim et al., 2007; Alegría, Takeuchi, et al., 2004; Heeringa et al., 2004).

The NLAAS interviews took place between April 2002 and December 2003. For the most part, interviews were conducted by trained bilingual interviewers using laptop computer-assisted interviewing software in the homes of the respondents. Face-to-face interviews were conducted with respondents in the core and high-density samples, unless they specifically requested a telephone interview, or when face-to-face interviewing was not feasible. Interviews were conducted via telephone with second respondents. As a measure of quality control, a random sample of participants who had completed interviews was re-contacted to validate the data. A \$50 incentive initially provided to participants was later increased to \$150 to reduce nonresponses.

A total of 27,026 sampling units were screened for eligible adults, in which 4,345 eligible main respondents and 1,234 eligible second adult respondents were identified. In the final, the NLAAS yielded 4,864 adult interviews: 2,095 Asian Americans and 2,554 Latinos. The response rates for primary and secondary respondents were 69.3% and 73.7%, respectively (Heeringa et al., 2004). Institutionalized persons including individuals in prisons, jails, nursing facilities and long-term medical or dependent care facilities were not included

in the study populations. Military personnel residing in a military base or military reservation were excluded as well due to security restrictions (Heeringa et al., 2004).

The institutional review boards at the University of Washington, Cambridge Health Alliance, and the University of Michigan reviewed and approved all study protocols and procedures. The questionnaire was available in six languages; all participants were interviewed by trained bilingual interviewers. Weights were developed to correct for sampling bias for the total sample and for the various Asian American subgroups (Chinese, Filipino, Vietnamese, Koreans, East Indians, Japanese, Laotian, etc.) (Alegría, Vila, et al., 2004; Heeringa et al., 2004).

## **2. DATA FOR THE CURRENT STUDY**

Among the 2,095 Asian Americans in the NLAAS, this study analyzed 370 Asian Americans who reported having mental health needs. Having mental health needs was defined by the respondent's self-report of having any type of psychiatric disorder or mental health related problems. The mental health need used as the criterion for screening the target subjects in this study is different from perceived need that is included as a factor for mental health service utilization. While mental health need for screening is an objective and direct indicator of need, perceived need is a subjective perception of one's mental health condition which may not directly connect to needs for mental health services.

There are 301 Asian Americans in the NLAAS that reported of having any type of psychiatric disorder. The psychiatric disorders were identified with the World Health Organization's Composite International Diagnostic Interview (WHO-CIDI) (Kessler et al., 2004; World Health Organization, 1990). Five categories of psychiatric disorders were covered in this study: (1) mood disorders (major depressive disorders or dysthymia); (2)

anxiety disorders (panic disorder, agoraphobia with and without panic attack, social phobia, panic attack, generalized anxiety disorder, or posttraumatic stress disorder); (3) intermittent explosive disorder, (4) eating disorder (anorexia, bulimia and binge eating), and (5) substance use disorders (abuse or dependence of alcohol or any kind of substance). The participants were asked with questions checking whether they had been diagnosed with each disorder from the above-mentioned list during the 12-month period. As participants could have multiple types of disorders, the value of each question was summed. Because the number of mental disorders has a highly skewed distribution, the presence of any type of mental disorder was coded dichotomously. If the respondents answered ‘yes’ for any of the above-mentioned disorder, they were treated as having any mental disorder during the 12-month period.

In addition to the 301 Asian Americans with psychiatric disorders, 69 who reported of visiting a mental health service specifically for their problems related to mental health (nerve, emotion, drug and alcohol use) in the past 12 months. These participants were added as the reason for their service use clearly states that they have mental health needs.

### **3. STUDY VARIABLES AND MEASUREMENT**

The goal of this study is to examine the impact of the sociocultural factors of Asian Americans on their utilization of mental health services. Many factors of Asian Americans have been studied with ABM as guideline to understand their relationships with mental health service use. To distinguish the unique impact of the sociocultural factors, the variables that were examined previously under the Andersen’s models were controlled for in this study. The analysis of this study is stepwise. First, variables known to affect mental health service use in each of the primary areas (predisposing, need, and enabling) are entered into the model, and then variables operationalizing features of Asian culture are added in a separate step. These

cultural variables are considered as predisposing factors under ABM. Table 4.1 displays the variables examined within this study model.

Table 4.1 Study Variables (Dependent Variable: Mental Health Service Use)

	<b>Need Factor</b>	<b>Enabling Factors</b>	<b>Predisposing Factors</b>
<p><b>Step 1 Analysis</b></p> <p>Previously Known ABM Factors</p>	<p><b>- Self Rated Mental Health</b></p>	<p><b>- Health Insurance</b></p> <p><b>- Household Income</b></p> <p><b>- English Language Proficiency</b></p>	<p><b>- Demographic Variables</b> age, gender, marital status, education, religion</p> <p><b>- Perceived Discrimination</b></p> <p><b>- Acculturation Stress</b></p>
<p><b>Step 2 Analysis</b></p> <p>Social Relationship Factors</p>			<p><b>- Family Cohesion</b></p> <p><b>- Social Support</b> Relative Support, Friend Support</p> <p><b>- Ethnic Identity</b></p> <p><b>- Social Cohesion</b></p>

### A) Mental Health Service Utilization

The purpose of this study is to understand important variables that predict mental health service utilization among Asian American individuals with mental health needs. Mental health service utilization is the dependent variable of this study. Service use was measured with the question, “In the past 12 months, did you go to see [provider of list below] for problems with your emotions, nerves, or your use of alcohol or drugs?” The services assessed in this study were classified into four categories: (1) specialty mental health care

(psychiatrist, psychologist, or other mental health professional); (2) general medical care (general practitioner, nurse, occupational therapist, other health professional, or any other medical doctor), (3) any services that represented endorsement of human service providers (social worker or counselor) as well as specialty mental health or general medical care, and (4) other services including hotlines, internet support groups, and self-help groups. Informal services such as meeting religious/spiritual advisors or healers were excluded. Each question was coded “0= no use” and “1=use”. As participants could use multiple types of services, the value of each service was summed. Due to the high possibility of highly skewed distribution, the variable was dichotomously recoded (0= none, 1 = at least once for any type of service).

## **B) Variables Known to Affect Mental Health Service Utilization in Asian Americans**

As mentioned in the literature review, a number of variables have been shown to predict mental health services utilization among Asian Americans. However, some of the studies explaining these factors were not conditioned on mental health need, that is they did not examine the effect of these factors among the people that had mental health need. This study expands the existing ABM to broaden our understanding of factors that influence the mental health service utilization of Asian Americans with mental health needs.

To verify the unique effect of the social relationship factors on mental health service use of Asian Americans, the previously studied factors are accounted for. First, the influence of the factors that were previously suggested as need, enabling and predisposing factors under the model (Andersen, 1968, 1995; Andersen et al., 1995) are verified. Then, the contributions of the new social relationship variables are examined. The previously known variables are listed below.

### **i) Need factors**

Need factors are known to be the most immediate cause of mental health service use as recognizing functional and health problems is the first step to perceive need to seek help. As this study targeted Asian Americans who already have mental health needs, whether they have psychiatric disorder(s) or reported of having mental health problems, only perceived need was included.

*a) Self-rated Mental Health.* Need factors in this study is represented by self-rated mental health (perceived) which is provided in the NLAAS. Self-rated mental health was included as a need variable for mental health treatment because it captures the individual's perception of mental health. Self-rated mental health was assessed with a single item "How would you rate your mental health?" Response categories were 1 (excellent) to 5 (poor). The item will be reverse coded that the higher scores mean perceiving oneself to be mentally healthy.

### **ii) Enabling factors**

Enabling factors are related to the means or barriers to the utilization of services. While health insurance status and income were considered critical factors for the general population, English language proficiency was added when investigating groups with many immigrants such as Asian Americans.

*a) Health insurance.* In the NLAAS, respondents were asked multiple questions related to health insurance coverage whether they were covered by 'type of military health insurance', 'health insurance obtained through employer/union', 'health insurance purchased from insurance company', 'Medicare', 'Medicare supplement or Medigap', 'health insurance

by government assistant program for people in need’, ‘state health insurance for uninsured people’, and ‘other health insurance’. In this study health insurance was dichotomized as whether the individual “lacks health insurance coverage” (0) or has “any type of insurance” (1).

*b) Household income.* The NLAAS provides the total income earned within the defined household top coded at \$200,000. As family members vary among different families, this study used per capita income (income-to-needs ratio in the NLAAS) for household income. The total income was divide by the number of members in the household and was categorized into 17 levels. This study recoded the household income into 5 levels where higher level indicates higher household income.

*c) English Language Proficiency.* English language proficiency was defined using the Cultural Identity Scales for Latino Adolescents (Felix-Ortiz, Newcomb, & Meyers, 1994), following methods used by others (Bauer, Chen, & Alegria, 2010; Kim et al., 2011). English language proficiency was assessed by the sum of three items rating the ability to speak, read and write English. The items are listed below. Responses were coded “excellent (4)/good (3)” or “fair (2)/poor (1)”. The internal consistency of the scale in this study was Cronbach’s  $\alpha = .96$ .

- *ELP1: How well do you speak in English?*
- *ELP2: How well do you read in English?*
- *ELP3: How well do you write in English?*

### iii) Predisposing factors

Predisposing factors refer to the sociocultural characteristics of individuals that exist prior to their mental illnesses. They include broad array of factors that reflect social structure (i.e. education, ethnicity, culture), health beliefs (attitudes, values, and knowledge) and personal traits (sociodemographic characteristics).

*a) Demographic Variables.* Self-reported demographic information includes age, gender, ethnic subgroup, marital status, education level, and religion. Variables such as age, gender, ethnic subgroup, and education level were analyzed without recoding. The other demographic variables, however, were recoded to better illustrate relationships between these variables and the outcome variable. The description of the demographic variables in the NLAAS and the details of the modification to the original coding of variables is provided below.

- **Age:** *numerical number of years from the time of the respondents' birth*
- **Gender:** *genders specified in the data only included females (2) and males (1).*
- **Marital status:** *marital status in the NLAAS is in 3 categories as "Married/Cohabiting" (1), "Divorced/Separated/Widowed" (2), and "Never married (3)". In this study, marital status was dichotomized as to whether participants are "married/cohabiting" (1) or "not married/cohabiting" (0) at the time of the survey.*
- **Education level:** *years of education in four categories as "0-11 years" (1), "12 years" (2), "13-15 years" (3), and "greater than or equal to 16 years" (4).*
- **Religion:** *religious preference of respondents in 14 categories including "denominations of Protestantism" (1~7), "denominations of Catholicism" (8~10), "agnostic or atheist" (11), "no religious preference" (12), "no religion" (13), and*



*“other”*. In this study, religion is recategorized into four categories as “Protestantism” (1), “Catholicism” (2), “Other religion” (3), and “No religion” (4).

*b) Perceived Discrimination.* Discrimination is defined broadly as actions or attitudes of individuals and institutions that systematically have a detrimental on socially defined groups with less power (Gee et al., 2007). Asian Americans have been subject to discrimination in all aspects of their life (Spencer et al., 2010; Sue et al., 2009). In this study, perceived discrimination refers to the participant’s perception of receiving discrimination specifically related to being Asian Americans. Perceived discrimination is not exactly an attitude towards the health care system, but can act as a direct or internalized stressor that will negatively affect the attitude to seeking help. It also implicitly indicates how supportive Asian Americans feel of using services in the mental health care system in the United States.

In this study, perceived discrimination was measured with a separate instrument consisting of three items developed by Vega and his colleagues (Vega, Zimmerman, Gil, Warheit, & Apospori, 1993). The items aim to capture the level of the participants’ perception of being treated with discrimination specifically because they are Asian Americans. Two items measure the respondent’s direct experience of being victim of discrimination while the third item measures their indirect experience of witnessing friends of the same race/ethnicity being treated unfairly. The items are listed below. Items are measured on a 4-point Likert scale ranging from 0 (never) to 3 (often). Perceived discrimination was assessed by the sum of the three items. Higher score indicates that the respondent perceives higher level of discrimination in daily life. The reliability of the scale in this study was low at Cronbach’s  $\alpha = .54$ .

- *PD1: How often do people dislike you because you are Asian?*
- *PD2: How often do people treat you unfairly because you are Asian?*
- *PD3: How often have you seen friends treated unfairly because they are Asian?*

*c) Acculturation Stress.* Acculturation stress is defined as the stress of cultural change that resulted from immigrating to the United States. The acculturation stress scale used in the NLAAS was adapted from the Mexican American Prevalence and Services Survey (MAPSS) (Alegeria et al., 2004b). While the original scale is consisted of 13 items, the NLAAS used nine dichotomized items to construct acculturation stress (Lueck and Wilson, 2010). The nine items are listed below.

The questions for acculturation stress were based on the assumption that respondents were immigrants, therefore the NLAAS researchers did not ask US-born respondents these questions. To avoid bias in the analyses toward only foreign-born Asians, US-born respondents were assigned a value of “0” for acculturation stress. Acculturation stress was measured by the sum of the nine items where higher scores indicated higher level of acculturation stress of the respondents.

- *AS1: Do you feel guilty for leaving your family and friends in your country of origin?*
- *AS2: Do you feel that in the United States you have the respect you had in your country of origin?*
- *AS3: Do you feel that living out of your country of origin has limited your contact with family or friends?*
- *AS4: Do you find it hard interacting with others because of difficulties you have with the English language?*

- *AS5: Do people treat you badly because they think you do not speak English?*
- *AS6: Do you find it difficult to find the work you want because you are of Asian descent?*
- *AS7: Have you been questioned about your legal status?*
- *AS8: Do you think you will be deported if you go to a social or government agency?*
- *AS9: Do you avoid seeking health services due to fear of immigration officials?*

### **C) Social Relationship Factors Operationalizing Collectivism in the NLAAS**

In addition to the previous ABM, this study added four social relationship variables (family cohesion, social support, ethnic identity, and social cohesion) that may have impact on Asian Americans' decision of utilizing mental health services. The factors are not directly connected to mental health service utilization, and therefore should be considered as predisposing factors within the ABM.

#### **i) Family Cohesion**

Family cohesion is defined as affective involvement or bonding within the family (Ta et al., 2010). In the NLAAS, family cohesion was assessed through a 10-item subscale of the Family Cohesion Scale originally developed by Olson (1985). The items ask how strongly the respondents agree with statements regarding their family. The items are listed below. Possible responses were '1=strongly agree', '2=somewhat agree', '3=somewhat disagree', and '4=strongly disagree'. The items were reverse-coded to let higher scores indicate stronger family cohesion. Scale scores range from 10 to 40. The reliability of the scale was reported as Cronbach's  $\alpha = .86$  (Gee et al., 2007) and  $\alpha = .82$  (Rivera et al., 2008). The internal consistency of the scale in this study was Cronbach's  $\alpha = .94$ .

- *FC1: Family members respect one another.*
- *FC2: Family shares values.*
- *FC3: Things work well as family.*
- *FC4: Family trusts and confides in each other.*
- *FC5: Family loyal to family.*
- *FC6: Proud of family.*
- *FC7: Express feelings with family.*
- *FC8: Family likes to spend free time with each other.*
- *FC9: Family feels close to each other.*
- *FC10: Family togetherness is important.*

## **ii) Social Support**

In this study, social support refers to the closeness of relationship with relatives and friends. Social support was examined in two domains: relatives and friends. Relative support is measured by three items to assess the respondent's ability to rely on relatives for emotional support. The friend support scale consists of three parallel items that assess the respondent's ability to rely on friends for emotional support. The six items and possible responses are listed below. The items were reverse coded and summed to let higher scores indicated higher level of social support. The reliability of the scale was  $\alpha = .71$  for the relatives' domain and  $\alpha = .75$  for the friends' domain (Mulvaney-Day et al., 2007). The reliability of the social support scale was  $\alpha = .76$  in this study.

- *SS1: (Not including your husband/wife/partner) How often do you talk on the phone or get together with family or relatives who do not live with you? (1=Most every day,*

2=A few times a week, 3=A few times a month, 4=Once a month, 5=Less than once a month).

- **SS2:** (Not including your husband/wife/partner) How much can you rely on relatives who do not live with you for help if you have a serious problem? (1=A lot, 2=Some, 3=Little, 4=Not at all)
- **SS3:** (Not including your husband/wife/partner) How much can you open up to relatives who do not live with you about your worries? (1=A lot, 2=Some, 3=Little, 4=Not at all)
- **SS4:** How often do you talk on the phone or get together with friends? (1=Most every day, 2=A few times a week, 3=A few times a month, 4=Once a month, 5=Less than once a month)
- **SS5:** How much can you rely on your friends for help if you have a serious problem? (1=A lot, 2=Some, 3=Little, 4=Not at all)
- **SS6:** How much can you open up to your friends about your worries? (1=A lot, 2=Some, 3=Little, 4=Not at all)

### **iii) Ethnic Identity**

In this study, ethnic identity is a variable measuring closeness of relationship with members in the ethnic group. In the NLAAS, four questions were asked to determine the extent to which respondents identified and shared time with members of their ethnic group. The four items and possible responses are listed below. While the original scale consisted of four items, the marriage item (EI4) was removed based on the concern that its inclusion negatively affected the overall internal consistency of the measure in previous studies (Ai et al., 2013; Guarnaccia et al., 2007). Each item is reverse coded and scored from 1 to 4. Ethnic identity was measured by the sum of the three items where higher scores means stronger

ethnic identity. The reliability of the Ethnic Identity Scale was Cronbach's  $\alpha = .75$  (Guarnaccia et al., 2007).

- **EI1:** *Identify with others of same racial/ethnic descent. (1=Very closely, 2=Somewhat closely, 3=Not very closely, 4=Not at all)*
- **EI2:** *Feel close in your ideas/feelings with people of same racial descent. (1=Very close, 2=Somewhat close, 3=Not very close, 4=Not at all)*
- **EI3:** *Amount of time spent you would like to spend with people of same racial/ethnic descent. (1=A lot, 2=Some, 3=A little, 4=None)*
- **EI4:** *Importance for same racial/ethnic group to marry within group.*

#### **iv) Social Cohesion**

In this study, social cohesion refers to one's relationship with the neighbors. The Social Cohesion scale in the NLAAS consists of four items that ask the respondents' relationship with people in the neighborhood. The items were adapted from three different instruments that evaluated cohesiveness of the respondent's neighborhood (Bearman, Jones, & Udry, 1997; National Institute of Mental Health, 1994; Sampson et al., 1997). The items are listed below. The responses to all items are coded '1=Very true', '2=Somewhat true', '3=Not very true', '4=Not at all true'. The items are reverse coded so that higher scores indicate stronger social cohesion. The reliability of the social cohesion scale was Cronbach's  $\alpha = .81$  for both English and Spanish interviews (Mulvaney-Day et al., 2007). In this study it was Cronbach's  $\alpha = .84$ .

- **SC1:** *People in neighborhood can be trusted.*
- **SC2:** *People in neighborhood get along with each other.*

- *SC3: People in neighborhood help in emergency.*
- *SC4: People in neighborhood look out for each other.*

#### **4. DATA ANALYSIS**

Logistic regression does not make many of the key assumptions of linear regression and general linear models that are based on ordinary least squares algorithms. That means there is no necessity to check linearity, normality, homoscedasticity, and measurement level in this study. Therefore, the preliminary analyses of this study are focused on understanding the conditions of the variables among the Asian American participants. Descriptive analyses were conducted with SPSS (ver. 23.0) to explore the actual condition of the predictors and the pattern of the mental health services use in Asian Americans.

In addition, ethnic subgroup analyses were conducted to ensure whether it is suitable to examine Asian Americans all together. Crosstab analyses and Analyses of Variances (ANOVA) were conducted to see whether there are differences in the variables by ethnic subgroup. There was no difference by ethnic subgroup regarding likelihood of mental health service use, therefore, the groups are considered together for this analysis. As will be seen there were interesting and important subgroup differences on key variables These will be described in the Result Chapter and some interpretation will be provided in the Discussion Chapter.

Preliminary binary analyses were conducted to understand the binary relationships of mental health service use and other variables. A comparison of mental health service use or no-use by the predictor variables were examined using t-tests for continuous variables and crosstab analyses ( $\chi^2$ ) for categorical variables. Correlation analyses were performed to examine bivariate relationships between variables, and to check the issue of multi-collinearity.

The logistic regression analysis was conducted in two steps. Because of the issue of retaining a good logistic regression model fit, purposive variable selection method suggested by Hosmer and Lemeshow (2005) was applied. First, all the predicting variables were analyzed with binary logistic regression analyses to see whether they should be entered in the final logistic regression entrance. Only the variables that met the criteria of 'p <.20' were examined in the final logistic regression analysis. After the variables were selected, Stepwise multivariate logistic regression analysis was applied. In step one, the factor(s) that were previously studied under the scope of ABM and met the purposive selection criteria were examine. In step two, the social relationship factor(s) that met the purposive selection criteria were added in the regression analysis to see if they account for additional variance in help-seeking.

Specific Aim 1: To describe how Asian Americans differ in family cohesion, social support, ethnic identity, and social cohesion by age, sex, ethnic subgroup, education level, religion, health insurance status and income. Descriptive statistics were used to characterize the respondents' age, sex, ethnic subgroup, education level, income, perceived discrimination, acculturation stress, English language proficiency, family cohesion, social support, ethnic identity, and social cohesion. Crosstab analyses and ANOVAs were used to compare the ethnic subgroups in the key variables.

Specific Aim 2: To evaluate the independent impact of each key variable on mental health service utilization among Asian Americans with mental health needs. Binary analyses (crosstab, t-tests) were conducted. The social relationship factors and the hypothesized covariates were screened for inter-correlations and their associations with mental health service utilization.



Specific Aim 3: To determine if social relationship factors have effects on the mental health service utilization among Asian Americans with mental health needs after adjusting for the previously known factors. Applying the purposeful selection method suggested by Hosmer and Lemeshow (2005), variables with a strong ( $p < .20$ ) association with mental health service utilization in the correlation analyses were included in the final regression model. Stepwise multivariate logistic regression analysis was applied to verify predictors of mental health service utilization.

## **V. RESULTS**

### **1. UNIVARIATE ANALYSES OF ALL VARIABLES**

Among the 2,095 Asian Americans in the NLAAS, this study includes 370 (17.7%) Asian Americans who had mental health needs in the past 12 months. Descriptive analyses and other univariate analyses were conducted to provide descriptions of the sample and the conditions of the key variables among them.

#### **A) Sociodemographic Characteristics**

The sociodemographic characteristics of the subjects are displayed in Table 5.1.

Of the sample, 33.0 percent were between the age of 21 and 30, while the mean age was 37.62 (SD=14.46). There were more females (56.5%) than males (43.5%) in the sample. Filipinos comprised 29.2 percent of the sample. 27.3 percent were Chinese, 20.3 percent were Vietnamese, and 23.2 percent were other Asians. 67.1 percent of the sample had at least a high school education, and about 40 percent received a college or higher education. About 80 percent reported of having a religion. 29.8 percent were Catholic, 24.6 percent were Protestants, and 26.2 percent were of other religions.

Table 5.1 Demographic Characteristics of the Sample

	<b>Category</b>	<b>N (%)</b>
<b>Age</b> (Mean: 37.62/ SD:14.46)	20 or less	26 (7.0%)
	21~30	122 (33.0%)
	31~40	78 (21.1%)
	41~50	79 (21.4%)
	51~60	35 (9.5%)
	61 or more	30 (8.1%)
<b>Gender</b>	Female	209 (56.5%)
	Male	161 (43.5%)
<b>Ethnic Subgroup</b>	Vietnamese	75 (20.3%)
	Filipino	108 (29.2%)
	Chinese	101 (27.3%)
	Other Asian	86 (23.2%)
<b>Education</b>	0~11 years	50 (13.5%)
	12 years	72 (19.5%)
	13~15 years	102 (27.6%)
	16 or more years	146 (39.5%)
<b>Religion</b> (N= 362)	Protestant	89 (24.6%)
	Catholic	108 (29.8%)
	Other	95 (26.2%)
	No religion	70 (19.3%)
<b>Marital Status</b>	Married/Cohabiting	206 (55.7%)
	Divorced/Separated/Never Married	164 (44.3%)

## B) Mental Health Service Utilization

Reported rates of past-year mental health service use by participants were low (see Table 5.2). Of the total subjects with mental health needs, less than one-third (30.3%) reported using any form of service. This corresponds with the results from the previous studies based on the NLAAS (Abe-Kim et al., 2007; Wang et al., 2007). More participants visited general health professionals such as medical doctors, nurses, or general practitioners (17.0%) for their mental disturbance than visiting mental health specialists (psychiatrists, psychologists, etc.; 13.5%). 11.4 percent sought human services (social workers or counselors), and 7.3 percent used other type of services (hotline, self-help groups, internet support groups).

Table 5.2 12-Month Mental Health Service Utilization of the Sample (N=370)

Type of Service	N (%)
<b>Any Service</b>	112 (30.3%)
<b>Any MH Specialist</b> (Psychiatrist, Psychologist, Other MH Professionals)	50 (13.5% / 44.6%)
<b>Any General Health Prof.</b> (General Practitioner, Nurse, Other Health Professionals, Medical Doctor)	63 (17.0% / 56.3%)
<b>Any Human Service</b> (Social Worker, Counselor)	42 (11.4% / 37.5%)
<b>Any Other services</b> (Hotline, Self-help group, Internet Support group)	27 (7.3% / 24.1%)

Of those 112 participants who used services, 70 (62.5%) used only one type of service exclusively, while the remainders used two or more types of service simultaneously to deal with their mental health issue.

Table 5.3 Number of Type of Service (N=112)

Number of Service(s)	N (%)
1	71 (62.5%) <sup>6</sup>
2	21 (18.8%)
3	15 (13.4%)
4	6 (5.4%)

### C) Descriptive Analyses Results of Key Variables

Descriptive analyses for the predictor variables for mental health service use were conducted (see Table 5.4).

The participants evaluated their mental health status as relatively good. The self-rated mental health score of the participants was 3.45 (SD=1.12) which is between ‘good (3)’ and ‘very good (4)’. Given that the participants have been mental health needs, the score seems relatively high. Only about 20 percent of the participants rated their mental health condition negatively as ‘poor (5.1%)’ or ‘fair (14.1%)’, while about half rated positively as ‘very good (29.5%)’ or ‘excellent (20.0%)’. 31.1 percent reported having ‘good’ mental health condition. This shows that Asian Americans, despite having mental health issue, overestimate their mental health status.

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<sup>6</sup> Among 112 participants who used any type of mental health service, 34 (30.3%) used general health service exclusively, 13 (11.6%) used mental health specialist service exclusively, 12 (10.7%) used human service exclusively, and 11 (9.8%) used other services exclusively.

Among the enabling factors, the mean score for English language proficiency was 8.91 (SD=3.09). As it was measured in three items of 4-point Likert scales, the average score is 2.97 which is close to 'good (3)'. Therefore, the result shows that the participants assessed their proficiency of speaking, reading, and writing English positively. The participants of the data reported 'medium' household income per capita. The mean score for household income was 1.97 (SD=1.15) which is close to 'medium (2)'. Majority of the participants (83.7%) reported having health insurance of any type.

The mean score for the level of perceived discrimination was 4.02 (SD=1.58). As perceived discrimination was measured in three items of 4-point Likert scale ranging from 0 (never) to 3 (often), the average score (1.34) indicates that the participants mostly did not experience discrimination because of being Asian American. For acculturation stress, the mean score was 29.22 (SD=42.65). As the range of acculturation score was 0 to 190, the level of acculturation stress in the participants does not seem severe. However, the standard deviation was high as acculturation stress was measured only for immigrant Asian Americans, and U.S.-born<sup>7</sup> were given the value of '0'. Among 251 immigrants, 169 (67.3%) reported experience of any level of stress related to acculturation. The acculturation stress score for the immigrant participants was 43.07 (SD=45.67).

Among the four relationship factors, the mean score for family cohesion was 34.87 (SD=6.50). As family cohesion was measured by ten items with four values (1~4)<sup>8</sup>, the average score 3.49 indicates that the participants perceive that their families are cohesive. The mean score for social support was 14.42 (SD=4.68) where it was measured with six items; four items in 4-point Likert and two items in 5-point Likert. As the score range for social support was from 6 to 26, the participants assessed that their support from relatives and

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<sup>7</sup> Among 370 participants, 119 (32.2%) were U.S.-born and 251 (67.8%) were immigrants.

<sup>8</sup> '1: strongly disagree', '2: somewhat disagree', '3: somewhat agree', '4: strongly agree'

friends is not high. This is reasonable as more than half of the participants are immigrants, therefore have limited interaction with relatives and friends of their country of origin. The mean score for ethnic identity was 9.37 (SD=1.92). Measured by three items (4-point Likert), the average score 3.12 is slightly over the value of '3=somewhat closely', which indicates that the participants, in general, maintain relatively close relationships with people of the same ethnic group. The mean score for social cohesion of the participants was 12.27 (SD=2.73). The average score for the 4-item scale was 3.07 which was close to the value '3: somewhat true'. This shows that the participants have relatively cohesive relationship with the neighbors. In summary, the Asian American participants in the study had relatively high scores of relationship factors expect for social support.

Table 5.4 Descriptive Statistics for Predictors for Mental Health Service Use

	<b>Variables</b>	<b>Mean (SD) / N (%)</b>	<b>Range</b>
Need Factor	Self-Rated Mental Health (n=369)	3.45 (1.12)	1~5
	<i>Poor (1)</i>	19 (5.1%)	
	<i>Fair (2)</i>	52 (14.1%)	
	<i>Good (3)</i>	115 (31.1%)	
	<i>Very Good (4)</i>	109 (29.5%)	
	<i>Excellent (5)</i>	74 (20.0%)	
Enabling Factors	Insurance Coverage (n=369)		
	<i>Not Insured</i>	60 (16.3%)	
	<i>Insured</i>	309 (83.7%)	
	Household Income per capita (n=370)	1.97 (1.15)	0~4
	<i>Low (0)</i>	49 (13.2%)	
	<i>Fairly Low (1)</i>	73 (19.7%)	
	<i>Medium (2)</i>	121 (32.7%)	
	<i>Fairly High (3)</i>	95 (25.7%)	
	<i>High (4)</i>	32 (8.6%)	
		English Language Proficiency (n=367)	8.91 (3.09)
Predisposing Factor	Perceived Discrimination (n=370)	4.02 (1.58)	0~9
	Acculturation Stress (n=370)	29.22 (42.65)	0~180
	<i>Immigrants (n=251)</i>	43.07 (45.67)	
Social Relationship Factors	Family Cohesion (n=367)	34.87 (6.50)	10~40
	Social Support (n=367)	14.42 (4.68)	6~26
	Ethnic Identity (n=370)	9.37 (1.92)	3~12
	Social Cohesion (n=364)	12.27 (2.73)	4~16



## 2. VARIABLES EXAMINED BY ETHNIC GROUP

To assess for significant differences in key variables across ethnic groups, a series of chi-square analyses and ANOVAs were conducted.

### A) Mental Health Service Utilization by Ethnic Group

A crosstab analysis was conducted to examine where there is a difference in mental health service use by different Asian American ethnic groups. The result is presented in Table 5.5. Chinese showed the lowest percentage of mental health service use (26.7%) compared to other groups, while Filipinos had the highest (32.4%). Vietnamese were 32.0 percent and other Asians were 30.2 percent. However, the difference among the ethnic groups was not statistically significant ( $\chi^2(1)=.939$ ,  $p=.816$ ). Therefore, there was no difference shown in the mental health service utilization by ethnic group.

Table 5.5 Mental Health Service Utilization by Ethnic Group  
(within category percentage/ within ethnic group percentage)

Category	No MHSU (N=258; 69.7%)	MHSU (N=112; 30.3%)	$\chi^2$ (p value)
Vietnamese	51 (19.8% / 68.0%)	24 (21.4% / 32.0%)	.939 (.816)
<b>Ethnic Group</b>	Filipino 73 (28.3% / 67.6%)	35 (31.3% / 32.4%)	
<b>(N=370)</b>	Chinese 74 (28.7% / 73.3%)	27 (24.1% / 26.7%)	
	Other Asian 60 (23.3% / 69.8%)	26 (23.2% / 30.2%)	

## **B) Sociodemographic Characteristics by Ethnic Group**

A series of crosstab analyses and an analysis of variance (ANOVA) were conducted to examine whether the participants differ in demographic characteristics by ethnic groups (see Table 5.6). In terms of gender distribution, there was no gender difference among the four ethnic groups ( $\chi^2(1) = .199, p = .978$ ). However, there was a difference in age by ethnic groups ( $F(3, 366) = 6.690, p < .001$ ). According to the post-hoc analysis, the average age for Vietnamese (44.00,  $SD = 15.06$ ) was significantly higher than Filipino (36.49,  $SD = 15.28$ ;  $p < .01$ ), Chinese (36.49,  $SD = 14.23$ ;  $p < .01$ ), and other Asians (34.77,  $SD = 11.44$ ;  $p < .001$ ). There was no significant difference in age among Filipino, Chinese, and other Asians.

There was also difference in education status by ethnic groups ( $\chi^2(3) = 52.941, p < .001$ ). Vietnamese showed the highest rate of '0~11 years' group (33.3%) while the other three groups had the most in the '16 years or more' group. 33.3 percent of Filipino, 52.5 percent of Chinese, and 47.7 percent of other Asians reported graduating from college. Only 21.3 percent of Vietnamese received college or more education.

The ethnic groups had difference in marital status as well ( $\chi^2(1) = 11.737, p < .01$ ). While there were more 'married/cohabiting' participants in Vietnamese (64.0%), Filipino (61.7%), and other Asian (58.1%) there were more Chinese who were not currently married or cohabiting (58.4%). There was difference in religion among the participants by ethnicity. While the majority of the participants in the Vietnamese (87.8%), Filipino (93.4%), and other Asian (85.5%) groups reported of having any kind of religion, only 57.6 percent of Chinese did ( $\chi^2(1) = 48.559, p < .001$ ). There was no difference in insurance coverage by ethnic group ( $\chi^2(1) = .787, p = .853$ ).

Regarding sociodemographic characteristics, Vietnamese were different from other ethnic groups in age and education level, while Chinese were different in marital status and religion.

Table 5.6 Sociodemographic Characteristics by Ethnic Group

(within ethnic group percentage/ within category percentage)

	Category	Vietnamese (N=75)	Filipino (N=108)	Chinese (N=101)	All Other (N=86)	$\chi^2 / F$ (p value)
<b>Gender</b> (N=370)	Male	31 (41.3% / 19.3%)	48 (44.4% / 29.8%)	44 (43.6% / 27.3%)	38 (44.2% / 23.6%)	.199 (.978)
	Female	44 (58.7% / 21.1%)	60 (55.6% / 28.7%)	57 (56.4% / 27.3%)	48 (55.8% / 23.0%)	
<b>Age (N=370)</b>	Mean (SD)	44.00 (15.06) a	36.53 (15.28) b	36.49 (14.23) b	34.77 (11.44) b	6.690 (.000)*** v>f**, v>c** v>o***
<b>Education Status</b> (N=370)	0-11 years	25 (33.3% / 50.0%)	12 (11.1% / 24.0%)	7 (6.9% / 14.0%)	6 (7.0% / 12.0%)	52.941 (.000)***
	12 years	20 (26.7% / 27.8%)	28 (25.9% / 38.9%)	13 (12.9% / 18.1%)	11 (12.8% / 15.3%)	
	13-15 years	14 (18.7% / 13.7%)	32 (29.6% / 31.4%)	28 (27.7% / 27.5%)	28 (32.6% / 27.5%)	
	16< years	16 (21.3% / 11.0%)	36 (33.3% / 24.7%)	53 (52.5% / 36.3%)	41 (47.7% / 28.1%)	
<b>Marital Status</b> (N=370)	Not Married/ Cohabiting	27 (36.0% / 16.5%)	42 (38.9% / 25.6%)	59 (58.4% / 36.0%)	36 (41.9% / 22.0%)	11.737 (.008)**
	Married/ Cohabiting	48 (64.0% / 23.3%)	66 (61.1% / 32.0%)	42 (41.6% / 20.4%)	50 (58.1% / 24.3%)	
<b>Religion</b> (N=362)	No Religion	9 (12.2% / 12.9%)	7 (6.6% / 10.0%)	42 (42.4% / 60.0%)	12 (14.5% / 17.1%)	48.559 (.000)***
	Religion	65 (87.8% / 22.3%)	99 (93.4% / 33.9%)	57 (57.6% / 19.5%)	71 (85.5% / 24.3%)	

### **C) Variables Known to Affect Asian Americans by Ethnic Group**

A series of ANOVAs and a Crosstab analysis were conducted to examine whether there is difference in the previously known variables by ethnic groups (see Table 5.7). The previously known variables are the need (self-rated mental health), enabling (household income, health insurance, and English language proficiency), and predisposing (perceived discrimination and acculturation stress) factors that have been examined as predictors for mental health service use under the scope of ABM.

For the need factor, there was a difference of self-rated mental health by ethnic group ( $F(3, 365) = 11.245, p < .001$ ). The post-hoc analysis showed that Vietnamese (2.84,  $SD = 1.25$ ) rated their mental health status significantly lower than Filipino (3.69,  $SD = .92; p < .001$ ), Chinese (3.46,  $SD = 1.11; p < .01$ ), and other Asians (3.67,  $SD = 1.03; p < .001$ ). There was no significant difference among Filipino, Chinese, and other Asians in self-rated mental health. The result indicate that Vietnamese assess their mental health status negatively or they have more mental health problems compared to other Asian ethnic groups.

Among the enabling factors, there was difference in household income ( $F(3, 366) = 4.399, p < .01$ ) and English language proficiency ( $F(3, 363) = 45.353, p < .001$ ), but not in health insurance coverage ( $F(3, 365) = .787, p = .853$ ). Firstly, Vietnamese (1.57,  $SD = 1.15$ ) had significantly lower household income per capita than Filipino (2.13,  $SD = 1.07; p < .01$ ), and other Asians (2.14,  $SD = 1.10; p < .01$ ). Chinese (1.94,  $SD = 1.23$ ) did not have significantly different household income compared to the other three Asian ethnic groups. Secondly, Vietnamese (5.81,  $SD = 2.91$ ) had significantly lower score in English language proficiency than Filipino (10.05,  $SD = 2.22; p < .001$ ), Chinese (9.06,  $SD = 3.15; p < .001$ ), and other Asians (10.00,  $SD = 2.23; p < .001$ ). Filipino had significantly higher English proficiency than Chinese ( $p < .05$ ).

In terms of predisposing factors, participants did not show difference in perceived discrimination by ethnic group ( $F(3, 366) = .849, p = .468$ ). However, there was difference in acculturation stress ( $F(3, 366) = 5.280, p < .01$ ). According to the post-hoc analysis, the average acculturation stress score for Vietnamese (44.67,  $SD = 40.41$ ) was significantly higher than Filipino (20.56,  $SD = 39.48; p < .01$ ) and other Asians (24.88,  $SD = 42.75; p < .05$ ). Chinese (30.69,  $SD = 44.75$ ) did not have significant difference in acculturation stress compared to the other ethnic groups.

In summary for the previously known variables, Vietnamese were distinguishing from other ethnic groups in acculturation stress, self-rated mental health, household income, and English language proficiency. These results come from the unique experience of Vietnamese during immigration. After the 1965 Immigration Act, many Asians who were generally from more educated, middle-class, and urbanized background voluntarily immigrated to America (Lee et al., 2014). On the contrary, Vietnamese were forced to leave their country due to the Vietnam war and post-war communization. Many of them were not prepared for the life in American with limited resource and social connections. Thus, Vietnamese may have the lowest education level, household income, and English proficiency. In addition, the harsh experience of war and immigration process may have contributed to higher acculturation stress and lower mental health condition. As English is one of the official languages in the Philippines, it is reasonable that Filipino have the highest level of English proficiency.

Table 5.7 Variables Known to Affect Asian Americans by Ethnic Group

(within ethnic group percentage/ within category percentage)

<b>Variables (Mean / N)</b>		<b>Vietnamese (v)</b>	<b>Filipino (f)</b>	<b>Chinese (c)</b>	<b>All Other (o)</b>	<b>F/x<sup>2</sup> (p value)</b>
<b>Self-Rated Mental Health (3.45 / N=369)</b>	N	75	108	100	86	11.245 (.000)***
	Mean (SD)	2.84 (1.25) b	3.69 (.92) a	3.46 (1.11) a	3.67 (1.03) a	f>v***, c>v**, o>v***
<b>Health Insurance (N=369)</b>	Not Insured	13 (17.3% / 21.7%)	16 (14.8% / 26.7%)	15 (14.9% / 25.0%)	16 (18.8% / 26.7%)	.787 (.853)
	Insured	62 (82.7% / 20.1%)	92 (85.2% / 29.8%)	86 (85.1% / 27.8%)	69 (81.2% / 22.3%)	
<b>Household Income (1.97 / N=370)</b>	N	75	108	101	86	4.399 (.005)**
	Mean (SD)	1.57 (1.15) b	2.13 (1.07) a	1.94 (1.23) ab	2.14 (1.10) a	f>v**, o>v**
<b>English Language Proficiency (8.91 / N=367)</b>	N	74	108	100	85	45.353 (.000)***
	Mean (SD)	5.81 (2.91) c	10.05 (2.22) a	9.06 (3.15) b	10.00 (2.23) ab	f>v***, c>v***, o>v***, f>c*
<b>Perceived Discrimination (4.02 / N=370)</b>	N	75	108	101	86	.849 (.468)
	Mean (SD)	4.24 (1.88)	3.88 (1.55)	3.94 (1.43)	4.08 (1.52)	
<b>Acculturation Stress (29.22 / N=370)</b>	N	75	108	101	86	5.280 (.001)**
	Mean (SD)	44.67 (40.41) a	20.56 (39.48) b	30.69 (44.75) ab	24.88 (42.75) b	v>f**, v>o*

#### **D) Social Relationship Factors by Ethnic Group**

A series of ANOVAs were also carried out to verify the difference of the four social relationship variables by ethnic groups. The social relationship variables include family cohesion, social support, ethnic identity, and social cohesion. These will be the new factors that were added to the conventional ABM. The result is displayed in Table 5.8.

Firstly, there was difference across Asian ethnic groups in family cohesion scores ( $F(3, 363) = 5.577, p < .001$ ). According to the post-hoc analysis, Chinese (32.74,  $SD = 7.97$ ) perceived their family least cohesive compared to Vietnamese (36.11,  $SD = 6.48; p < .01$ ) and Filipino (35.89,  $SD = 4.36; p < .01$ ). Other Asians did not have significant difference in family cohesion from the other ethnic groups. Secondly, Asian Americans ethnic groups had significantly different level of social support ( $F(3, 363) = 22.199, p < .001$ ). Especially, Vietnamese (18.04,  $SD = 5.21$ ) reported significantly higher social support from relatives and friends than Filipino (13.10,  $SD = 4.16; p < .001$ ), Chinese (13.85,  $SD = 3.98; p < .001$ ), and other Asians (13.62,  $SD = 4.06; p < .001$ ). There was no significant difference among Filipino, Chinese, and other Asians. Thirdly, there was difference in ethnic identity levels among the Asian American participants by ethnic group ( $F(3, 369) = 9.760, p < .001$ ). Vietnamese (10.37,  $SD = 2.06$ ) had significantly higher level of ethnic identity compared to Filipino (9.10,  $SD = 1.75; p < .001$ ), Chinese (8.96,  $SD = 1.75; p < .001$ ), and other Asians (9.33,  $SD = 1.87; p < .01$ ). However, there was no significant difference in social cohesion by ethnic group ( $F(3, 360) = 1.856, p = .137$ ).

For social relationship factors, Vietnamese differed in social support and ethnic identity, while Chinese differed in family cohesion. Again, the different experience each ethnic group had in America may have influenced such features.



Table 5.8 Social Relationship Factors by Ethnic Group

<b>Variables (Mean / N)</b>		<b>Vietnamese (v)</b>	<b>Filipino (f)</b>	<b>Chinese (c)</b>	<b>All Other (o)</b>	<b>F (p value)</b>
<b>Family Cohesion (34.87 / N=367)</b>	N	74	108	100	85	5.577 (.001)***
	Mean (SD)	36.11 (6.48) a	35.89 (4.36) a	32.74 (7.97) b	35.02 (6.35) ab	v>c**, f>c**
<b>Social Support (14.42 / N=367)</b>	N	74	108	100	85	22.199 (.000)***
	Mean (SD)	18.04 (5.21) a	13.10 (4.16) b	13.85 (3.98) b	13.62 (4.06) b	v>f***, v>c***, v>o***
<b>Ethnic Identity (9.37 / N=370)</b>	N	75	108	101	86	9.760 (.000)***
	Mean (SD)	10.37 (2.06) a	9.10 (1.75) b	8.96 (1.78) b	9.33 (1.87) b	v>f***, v>c***, v>o**
<b>Social Cohesion (12.27 / N=364)</b>	N	74	107	99	84	1.856 (.137)
	Mean (SD)	12.36 (3.17)	12.72 (2.56)	12.12 (2.48)	11.82 (2.76)	

## **E) Summary of Ethnic Difference**

Table 5.9 summarizes the result of the analyses to examine difference by ethnic group. Except for gender, perceived discrimination, and social cohesion, there was difference by ethnic group.

Generally, Vietnamese was the most distinguishing group from the other three ethnic groups. The Vietnamese subjects in the data were older in age and had lower education level. They reported the highest level of acculturation stress and rated their mental health condition most negatively among the Asian ethnic groups. In addition, Vietnamese were the groups with the lowest household income per capita and English proficiency. Finally, they had the highest social support and ethnic identity score. Chinese had the lowest rate of being ‘married or cohabiting’ and ‘having religion’. Chinese also had significantly lower level of family cohesion.

Table 5. 9 Summary of Ethnic Group Difference Analyses

Variables	AAs with Mental Health Needs (N=370)
Gender	Not significant
Age	$v > f^{**}$ , $v > c^{**}$ , $v > o^{***}$
Education Level	Vietnamese had lower education level than the other 3 groups
Marital Status	Chinese had lower rates of being married/cohabiting than the other 3 groups
Religion	Chinese had lower rates of having (a) religion(s)
Self-Rated Mental Health	$f > v^{***}$ , $c > v^{**}$ , $o > v^{***}$
Health Insurance	Not significant
Household Income	$f > v^{**}$ , $o > v^{**}$
English Language Proficiency	$f > v^{***}$ , $c > v^{***}$ , $o > v^{***}$ , $f > c^*$
Perceived Discrimination	Not significant
Acculturation Stress	$v > f^{**}$ , $v > o^*$
Family Cohesion	$v > c^{**}$ , $f > c^{**}$
Social Support	$v > f^{***}$ , $v > c^{***}$ , $v > o^{***}$
Ethnic Identity	$v > f^{***}$ , $v > c^{***}$ , $v > o^{**}$
Social Cohesion	Not significant

\*:  $p < .05$ , \*\*:  $p < .01$ , \*\*\*:  $p < .001$

Vietnamese: v, Filipino: f, Chinese: c, Other Asians: o

### **3. BIVARIATE ANALYSES: RELATIONSHIPS OF ALL VARIABLES TO MENTAL HEALTH SERVICE UTILIZATION**

Bivariate (Crosstabulations, t-tests, correlations) analyses were done applied to see whether there is a difference in variables between people who used mental health services and those who did not.

#### **A) Nominal Variables: Crosstabs**

A series of crosstabulation was conducted to assess for significant differences in the nominal variables as a function of service use (see Table 5.10). The results show that the Asian Americans who used mental health services have no difference in any nominal predictors from the Asian Americans who have not used any type of mental health services.

Table 5.10 Bivariate Analyses (Crosstabs) on Mental Health Service Use

		<b>No MHSU (N=258; 69.7%)</b>	<b>MHSU (N=112; 30.3%)</b>	<b><math>\chi^2</math> (p value)</b>
<b>Gender (N=370)</b>	Male	114 (44.2% / 70.8%)	47 (42.0% / 29.2%)	.157 (.692)
	Female	144 (55.8% / 68.9%)	65 (58.0% / 31.1%)	
<b>Education Status (N=370)</b>	0-11 years	33 (12.8% / 66.0%)	17 (15.2% / 34.0%)	5.156 (.161)
	12 years	57 (22.1% / 79.2%)	15 (13.4% / 20.8%)	
	13-15 years	65 (25.2% / 63.7%)	37 (33.0% / 36.3%)	
	16< years	103 (39.9% / 70.5%)	43 (38.4% / 29.5%)	
<b>Ethnic Group (N=370)</b>	Vietnamese	51 (19.8% / 68.0%)	24 (21.4% / 32.0%)	.939 (.816)
	Filipino	73 (28.3% / 67.6%)	35 (31.3% / 32.4%)	
	Chinese	74 (28.7% / 73.3%)	27 (24.1% / 26.7%)	
	Other Asian	60 (23.3% / 69.8%)	26 (23.2% / 30.2%)	
<b>Marital Status (N=370)</b>	Not Married/ Cohabiting	115 (44.6% / 70.1%)	49 (43.8% / 29.9%)	.021 (.884)
	Married/ Cohabiting	143 (55.4% / 69.4%)	63 (56.3% / 30.6%)	
<b>Religion (N=362)</b>	No Religion	51 (20.3% / 72.9%)	19 (17.1% / 27.1%)	.506 (.477)
	Religion	200 (79.7% / 68.5%)	92 (82.9% / 31.5%)	
<b>Health Insurance (N=369)</b>	Not Insured	39 (15.1% / 65.0%)	21 (18.9% / 35.0%)	.824 (.364)
	Insured	219 (84.9% / 70.9%)	90 (81.1% / 29.1%)	

## **B) Continuous Variables: t-tests**

A series of t-tests was conducted to assess for significant differences in the continuous variables as a function of service use (see Table 5.11). The participants who have used any type of mental health service had significantly different scores than those who have not in perceived discrimination, ethnic identity, and social cohesion. There were no differences in the other continuous predictors between the two groups.

The group who used mental health service (3.75, SD= 1.45) had significantly lower level of perceived discrimination compared to those who did not (4.13, SD=1.63;  $x^2(1)= 2.215, p<.05$ ). However, the 'use' group (9.69, SD=1.87) had higher score in ethnic identity than the 'no use' group (9.37, SD= 1.93;  $x^2(1)= -2.124, p<.05$ ). 'Use' group (12.86; SD= 2.22) also showed higher score in social cohesion (12.02, SD=2.89;  $x^2(1)= -3.007, p<.01$ ).

Table 5.11 Binary Analyses (t-tests) on Mental Health Service Use

Variables		Group	Mean (SD)	$\chi^2$ (p value)
Need Factor	Self-Rated Mental Health	No MHSU (N=258)	3.44 (1.14)	-.387 (.702)
		MHSU (N=111)	3.49 (1.07)	
Enabling Factors	Household Income	No MHSU (N=258)	1.95 (1.17)	-.356 (.722)
		MHSU (N=112)	2.00 (1.12)	
	English Language Proficiency	No MHSU (N=256)	8.83 (3.10)	-1.497 (.135)
		MHSU (N=111)	9.11 (3.08)	
Predisposing Factors	Perceived Discrimination	No MHSU (N=258)	4.13 (1.63)	2.215 (.028)*
		MHSU (N=112)	3.75 (1.45)	
	Acculturation Stress	No MHSU (N=258)	30.04 (42.85)	.563 (.574)
		MHSU (N=112)	27.32 (42.30)	
Social Relationship Factors	Family Cohesion	No MHSU (N=256)	34.65 (6.79)	-1.013 (.312)
		MHSU (N=111)	35.40 (5.78)	
	Social Support	No MHSU (N=256)	14.56 (4.80)	.849 (.396)
		MHSU (N=111)	14.11 (4.40)	
	Ethnic Identity	No MHSU (N=258)	9.23 (1.93)	-2.124 (.034)*
		MHSU (N=112)	9.69 (1.87)	
	Social Cohesion	No MHSU (N=253)	12.02 (2.89)	-3.007 (.003)*
		MHSU (N=111)	12.86 (2.22)	

### C) Correlation Analysis- Binary Relationships of all Variables

Correlation analyses were conducted to examine the binary relationships between variables, and to check multi-collinearity. The results are presented in Table 5.12. Following Cohen's (1988) guideline of correlation coefficient interpretations, correlations smaller than ' $r = .10$ ' are considered trivial and will not be discussed hereafter.

While many variables had statistically significant correlations with others, the dependent variable of this study, mental health service use (MHSU) was correlated only with three factors, perceived discrimination, ethnic identity, and social cohesion. MHSU was negatively correlated with perceived discrimination ( $r = -.110$ ,  $p < .05$ ) indicating Asian Americans who perceive higher level of racial discrimination in daily lives would less likely to seek for mental health service. In addition, both ethnic identity ( $r = .110$ ,  $p < .05$ ) and social cohesion ( $r = .141$ ,  $p < .01$ ) were positively correlated with MHSU. The results echo the results found in the previously conducted bivariate analyses (crosstabs, t-tests), but are not accord with the hypothesis of this study insisting that closer relationships may hinder mental health service use in Asian Americans. It is noteworthy that the other factors, which were verified as predictors of mental health service use in previous studies, did not have significant association.

Small to moderate relationships were verified in the correlation analyses with the four social relationship factors. Family Cohesion was moderately associated with ethnic identity ( $r = .299$ ,  $p < .001$ ). It could be seen that Asian Americans of cohesive families have closer relationships with friends of the same racial/ethnic group. Family cohesion also had small and positive relationship with social cohesion ( $r = .195$ ,  $p < .001$ ). Small correlations were found in social cohesion with social support and ethnic identity. Social cohesion was negatively associated with social support ( $r = .195$ ,  $p < .001$ ) but positively associated with



ethnic identity ( $r = .139, p < .01$ ). The positive association between social cohesion and ethnic identity in Asian Americans can be explained by their tendency of living in the same ethnic-specific communities (Iwamoto & Liu, 2010).

With sociodemographic and controlled factors, family cohesion was moderately associated with marital status ( $r = .284, p < .001$ ) indicating that ‘married/cohabiting’ Asian Americans are more likely to have cohesive families. Social support had moderate correlations with acculturation stress ( $r = .254, p < .001$ ) and self-rated mental health ( $r = -.307, p < .001$ ), and was strongly associated with English language proficiency ( $r = -.469, p < .001$ ).

Among the sociodemographic and controlled variables, perceived discrimination was strongly associated with acculturation stress ( $r = .432, p < .001$ ). English proficiency had moderate to strong correlations with age ( $r = -.426, p < .001$ ), education level ( $r = .461, p < .001$ ), perceived discrimination ( $r = .186, p < .001$ ), acculturation stress ( $r = .476, p < .001$ ), self-rated mental health ( $r = .370, p < .001$ ), and household income ( $r = .257, p < .001$ ). The results show that Asian Americans who are old and less educated may have higher chance of having lower level of English proficiency. And those who have lower English proficiency are more likely to experience discrimination, receive more acculturation-related stress, and have less income.

The strong correlations with ‘ $r = .400$ ’ raise a question of multicollinearity among the variables, therefore the variance inflation factors (VIF) were checked. None of the factors exceeded ‘3.00’ indicating no risk of multicollinearity.

Table 5.12 Correlations of Variables (N=370)

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Mental Health Service Use (MHSU)	1															
2. Gender	-.021 (.693)	1														
3. Age	.057 (.273)	.056 (.284)	1													
4. Education Level	.010 (.842)	.007 (.897)	<b>-.243</b> <b>(.000)***</b>	1												
5. Marital Status	.008 (.884)	-.040 (.444)	<b>.274</b> <b>(.000)***</b>	<b>-.131</b> <b>(.012)*</b>	1											
6. Religion	.037 (.478)	-.054 (.304)	<b>.156</b> <b>(.003)**</b>	-.056 (.292)	.071 (.176)	1										
7. Health Insurance	-.047 (.365)	-.012 (.816)	<b>.106</b> <b>(.042)*</b>	.041 (.431)	<b>.111</b> <b>(.033)*</b>	.030 (.568)	1									
8. Perceived Discrimination (PD)	<b>-.110</b> <b>(.035)*</b>	.097 (.062)	.084 (.108)	.008 (.878)	<b>.254</b> <b>(.000)***</b>	-.044 (.402)	.015 (.774)	1								
9. Acculturation Stress (AS)	-.029 (.574)	<b>.130</b> <b>(.012)*</b>	<b>.173</b> <b>(.001)**</b>	-.083 (.110)	.069 (.184)	-.057 (.279)	-.023 (.663)	<b>.432</b> <b>(.000)***</b>	1							
10. Self-Rated Mental Health (SRMH)	.020 (.702)	<b>.155</b> <b>(.003)**</b>	<b>-.238</b> <b>(.000)***</b>	.221 (.000)***	-.031 (.559)	.009 (.868)	-.031 (.547)	-.055 (.296)	<b>-.115</b> <b>(.027)*</b>	1						
11. Household Income	.019 (.722)	.039 (.456)	-.046 (.382)	<b>.257</b> <b>(.000)***</b>	<b>.183</b> <b>(.000)***</b>	.057 (.280)	<b>.149</b> <b>(.004)**</b>	.077 (.137)	<b>-.118</b> <b>(.023)*</b>	<b>.137</b> <b>(.008)**</b>	1					
12. English Language Proficiency (ELP)	.042 (.426)	-.091 (.081)	-.426 (.000)***	<b>.461</b> <b>(.000)***</b>	<b>-.142</b> <b>(.006)**</b>	-.011 (.831)	.002 (.972)	<b>-.186</b> <b>(.000)***</b>	<b>-.476</b> <b>(.000)***</b>	<b>.370</b> <b>(.000)***</b>	<b>.257</b> <b>(.000)***</b>	1				
13. Family Cohesion	.053 (.312)	.030 (.561)	<b>.119</b> <b>(.023)*</b>	<b>-.111</b> <b>(.034)*</b>	<b>.284</b> <b>(.000)***</b>	<b>.182</b> <b>(.001)**</b>	.036 (.495)	.038 (.463)	.078 (.135)	<b>.143</b> <b>(.006)**</b>	<b>.121</b> <b>(.021)*</b>	<b>-.118</b> <b>(.026)*</b>	1			
14. Social Support	-.044 (.396)	.102 (.051)	<b>.372</b> <b>(.000)***</b>	<b>-.261</b> <b>(.000)***</b>	<b>.178</b> <b>(.001)**</b>	-.025 (.631)	-.025 (.637)	<b>.129</b> <b>(.013)*</b>	<b>.254</b> <b>(.000)***</b>	<b>-.307</b> <b>(.000)***</b>	<b>-.179</b> <b>(.001)**</b>	<b>-.469</b> <b>(.000)***</b>	-.059 (.256)	1		
15. Ethnic Identity	<b>.110</b> <b>(.034)*</b>	.032 (.543)	<b>.152</b> <b>(.003)**</b>	-.045 (.388)	.084 (.109)	.045 (.394)	-.020 (.706)	.028 (.595)	<b>.178</b> <b>(.001)**</b>	.063 (.227)	-.037 (.481)	<b>-.221</b> <b>(.000)***</b>	<b>.299</b> <b>(.000)***</b>	.046 (.379)	1	
16. Social Cohesion	<b>.141</b> <b>(.007)**</b>	-.061 (.243)	<b>.107</b> <b>(.042)*</b>	.025 (.631)	<b>.141</b> <b>(.007)**</b>	.079 (.136)	.103 (.050)	<b>-.147</b> <b>(.005)**</b>	<b>-.117</b> <b>(.025)*</b>	.041 (.432)	<b>.127</b> <b>(.015)*</b>	.080 (.126)	<b>.195</b> <b>(.000)***</b>	<b>-.167</b> <b>(.001)**</b>	<b>.139</b> <b>(.008)**</b>	1

2. (0-female 1-male), 5. (0-not married/cohabiting 1-married/cohabiting), 6. (0-no religion 1-religion), 7. (0-no insurance 1-insurance),

#### **4. LOGISTIC REGRESSION ANALYSIS**

As mentioned in the data analysis section in the previous chapter of methods, logistic regression analysis was carried out in two steps. The first step is the part where variables were selected, and the next step is the actual logistic regression analysis.

##### **A) Variable Selection**

While some methodologists suggest inclusion of all variables in the regression model regardless of their significance in order to control for confounding, this approach has a risk of numerically unstable estimates and large standard errors (Bursac et al., 2008). Therefore, minimizing the number of variables until obtaining the most parsimonious model has been commonly used. Several variable selection methods such as forward selection or backward elimination are available in statistics programs, however, this study applied the method of purposeful selection of variables proposed by Hosmer and Lemeshow (2005).

Hosmer and Lemeshow (2005) suggested the purposeful selection method for better model fits in logistic regression analyses. Following the method, logistic regression was conducted in two steps. Firstly, univariate analysis was used to explore the unadjusted association between the factors and the outcome variable. Factors with p value smaller than 0.20 were included in the multivariate analysis model while the others were excluded. The Wald coefficients and p values of the univariate regression analyses are shown in Table 5.13. Among the variables in the hypothesis model, only perceived discrimination, ethnic identity, and social cohesion fit the description for final analysis entrance. Such results are consistent with the previously conducted bivariate analyses (crosstabs, t-tests, and correlations).

Table 5.13 Bivariate Regression Analyses Results (N=370)

DV: Mental Health Service Use

Predictor Variable	Wald (p value)
Gender	.157 (.692)
Age	1.205 (.272)
Education Level	.040 (.842)
Marital Status	.021 (.884)
Religion	.505 (.477)
Self-Rated Mental Health	.636 (.425)
Health Insurance Coverage	.821 (.365)
Household Income	.127 (.721)
English Proficiency	.636 (.425)
Perceived Discrimination	<b>4.393 (.036)*</b>
Acculturation Stress	.317 (.573)
Family Cohesion	1.022 (.312)
Social Support	.723 (.395)
Ethnic Identity	<b>4.426 (.035)*</b>
Social Cohesion	<b>7.106 (.008)**</b>

## **B) Logistic Regression Analysis of Selected Variables**

According to the bivariate logistic regression analyses carried out in the previous step, perceived discrimination, ethnic identity, and social cohesion were purposively selected to be entered in the final stepwise logistic regression analysis. While there are different methods of conducting stepwise regression analyses (enter, forward, and backward), as the variates to be analyzed were selected in the previous stage, the method of entering all the variables was applied.

The stepwise logistic regression was conducted with perceived discrimination in model 1, and subsequently adding ethnic identity and social cohesion in model 2. The model fit of the step 1 model was significant ( $\chi^2=4.358$ ,  $p< .05$ ), and the -2 Log likelihood was 443.359. The variance of mental health service use explained by perceived discrimination was small (Nagelkerke  $R^2= 0.17$ ). Perceived discrimination was a negative predictor of service use (OR= .854,  $p< .05$ ).

In step 2, ethnic identity and social cohesion were added to the model. The model fit was significant ( $\chi^2=14.267$ ,  $p< .01$ ), and the -2 Log likelihood was 443.450. The variance increased to 5.4% (Nagelkerke  $R^2= .054$ ). While perceived discrimination had a significant odd ratio in model 1, it became not significant after the entrance of the newly added predictors (OR= .867,  $p= .070$ ). This may result from the intercorrelations between each variable. The correlation between perceived discrimination and ethnic identity was low at  $r = .028$  ( $p= .595$ ), but the correlations between perceived discrimination and social cohesion ( $r = -.147$ ,  $p< .01$ ), ethnic identity and social cohesion ( $r = .139$ ,  $p< .01$ ) were significant. In addition, social cohesion positively predicted mental health service use (OR= 1.106,  $p< .05$ ), indicating that Asian Americans with higher level of social cohesion have higher chance of using mental health services.

Table 5.14 Stepwise Logistic Regression Analysis (N=363)

DV: Mental Health Service Use

Predictor Variable	Step 1		Step 2	
	OR (95% CI)	p value	OR (95% CI)	p value
Perceived Discrimination	.854 (.735~.994)	.041	.867 (.743~1.012_	.070
Ethnic Identity	-	-	1.127 (.995~1.276)	.059
Social Cohesion	-	-	1.106 (1.010~1.211)	.030
Nagelkerke R Square	.017		.054	

## **VI. DISCUSSION**

The current study examined the predictors of mental health service use by Asian Americans with mental health needs. Especially, it focused on exploring culture-specific factors that may contribute to service using behaviors in the Asian American group. Based on the existing literature that documents that collectivism is prevalent in Asian cultures, this study anticipated that Asian Americans would be influenced by relationships with others in their help-seeking decision process. Building on the modified Andersen's Behavioral Model that includes several cultural factors (i.e. perceived discrimination, acculturation stress, English language proficiency), this study added four social relationship factors that can be seen as a credible operationalization of collectivism, including: family cohesion, social support, ethnic identity, and social cohesion. More specifically, the hypotheses posited that Asian Americans who hold more collectivistic values would regard their relationships with others as important, therefore would be less likely to use mental health services. General observations of the mental health service use will be discussed before the result for the research questions are discussed, and the implication as well as the limitation and future research directions will be presented.

### **1. OVERVIEW OF STUDY FINDINGS**

#### **A) Asian Americans with Needs are Unlikely to Use Mental Health Services**

Consistent with previous studies, the study found that Asian Americans underutilize mental health services even when they have needs (Abe-Kim et al., 2007; Ahmedani et al., 2015; G. Kim et al., 2011; Le Meyer et al., 2009; Nguyen & Bornheimer, 2015; S. Y. Lee et al., 2011; S. Y. Lee et al., 2015). Less than one third of the Asian Americans who reported of having mental health problems used any type of mental health service. More seriously, out of 301 Asian American who had objective needs of having

been diagnosed with any psychiatric disorder, and who were not selected for having used a mental health service in the previous (year), only 43 (14.3%) sought professional help. This is much lower than the prevalence (34.1%) reported in the study by Abe-Kim and colleagues (2007) which used the same NLAAS data. While Abe-Kim and colleagues excluded several psychiatric disorders such as intermittent explosive disorder or eating disorders in their analyses, this study included all the DSM-IV disorders reported in the NLAAS. The prevalence reported in this study is close to the 13.8 percent that was reported by G. Kim and colleagues (2011) who used similar criteria for mental disorders. Setting aside the difference in the prevalence of mental health service use by methodology, the studies share findings of underutilization of mental health services among Asian Americans with needs. In addition, the study found that, regardless of the type of mental disorder, Asian Americans do not seek professional help (see Table 7.2.).

It is note that Asian Americans who elected to seek services tended to receive treatments from general health professionals rather than mental health specialists when having mental health issues. Asian Americans in the study reported a higher rate of visiting general health professionals (17.0%) than visiting mental health specialists (13.5%). Moreover, of those who reported using any form of services for mood, nervous, or substance problems, 30.3 percent sought help from general medical services exclusively. This finding is consistent with the findings from some of the previous studies (Abe-Kim et al., 2007; S. Lee et al., 2014), but conflicts with the results of other studies that reported higher rates of mental health specialist visits in Asian Americans (Le Meyer et al., 2009; Nguyen and Bornheimer, 2014). The higher use of general medical services reported in this study reflects Asian Americans' tendency to somatize psychological distress, emphasize physical discomfort of their mental disturbance, and therefore rely the medical sector instead of mental health professionals (Kung, 2004; Leong & Lau, 2001; Lin &



Cheung, 1999; Sue & Morishima; 1982; Zhang et al., 1998). However, when restricted to Asian Americans with objective mental health needs, Asian Americans with any psychiatric disorder diagnosis used more specialty services compared to general medical services (see Table 7.1.).

## **B) Previously Studied Factors for Mental Health Service Use Made Little**

### **Contribution in This Study**

The first research question of this study is to verify the impact of the predisposing (demographics, perceived discrimination, and acculturation stress), enabling (household income, health insurance, and English language proficiency), and need (self-rated mental health) factors in the previous ABM on mental health services use of Asian Americans. The binary t-tests, crosstab analyses, correlation analyses, and the logistic regression analysis showed that only a few factors have significant impact in the prediction of mental health service use for Asian Americans.

*Subjective need for service use is not critical.* In the previous ABM, the need factors are considered a more immediate and powerful predictor of service use than predisposing and enabling factors (Andersen, 1995). Why the impact of self-rated mental health on service use in Asian Americans is well documented (Chu et al., 2011; Dhingra et al., 2010; G, Kim et al., 2010; Kimerling & Baumrind, 2005; M. Lee et al., 2017; Mojtabai, Olfson, & Mechanic, 2002), the subjective need factor was not significant in this study mainly because the subjects already had objective mental health needs (mental health problems).

*No previously verified “enabling” factors contributed.* One of the most interesting findings of this study is that none of the enabling factors were identified as factors. While structural barriers such as health insurance coverage and household income

on mental health service use has been verified as influential factors for mental health service use in Americans regardless of their race or ethnicity (Abe-Kim et al., 2002; Berk & Schur, 1998; Dhingra, Zack, Strine, Pearson, & Balluz, 2010; Hargraves & Hadley, 2003; Sareen et al., 2007; U.S. DHHS, 2001; Wong et al., 2006), the impact was found not significant in this study. One explanation for the result is that health insurance coverage may not be as significant in Asian Americans. Compared to other racial/ethnic minorities, Asian American are more likely to be insured (U.S. Census Bureau, 2017b). Only 7.6 percent of Asian Americans in the recent census report and about 16 percent<sup>9</sup> in this study were uninsured. Another explanation would be that the effect of health insurance coverage on mental health service use weakens when other factors such as mental health needs are accounted for (Ihara et al., 2013; M. Lee et al., 2017; Park et al., 2013). Additionally, the impact of household income was not significant on mental health treatment seeking in Asian Americans. These findings suggest that the underutilization of mental health services in Asian Americans may not be due to lack of resource.

English language proficiency, which is well documented as a cultural barrier for mental health service use (Ihara et al., 2013; Kang et al., 2010; G. Kim et al., 2011; Sentell et al., 2007; Snowden et al., 2011), was also not verified as a significant factor in this study. The finding suggests that, when Asian Americans have mental health needs, English language deficiencies do not have strong influence on their help-seeking behaviors. The reason for this result could be found in the fact that the Asian Americans in this study reported their English language proficiency to be ‘good’ in average.

*Socio-demographic factors did not contribute.* None of the socio-demographic factors (gender, age, marital status, education level, and region) was significantly

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<sup>9</sup> Note that the NLAAS was collected in 2002 and 2003, while the census report states the insurance rates for the year of 2016.

associated with mental health service use of Asian Americans in this study, although each of these factors have been shown to be associated with mental health service use in other studies using the Andersen's Behavioral Model.. Most of the previous studies report that men are less likely than women seek help for mental health problems (Addis & Mahalik, 2003; Ang, Lim, Tan, & Yau, 2003; Currin, Hayslip Jr., & Temple, 2011; Mackenzie, Gekoski, & Knox, 2006; Masuda et al., 2005; Vogel & Wester, 2003). However, this study found no significant difference in service use by gender indicating both Asian American men and women are facing unmet mental health needs. This result may be the reflection of the gender roles in Asian cultures where men are expected to keep their problems silent and 'be strong', and Asian American women are discouraged from expressing their psychological problems (H. J. Lee et al., 2014). Just as what is generally found in the literature, there was no significant impact of age on the mental health service use of Asian Americans (G. Kim et al., 2010; G. Kim, Loi, et al., 2011; Park et al., 2013). Previous studies reported lower use of services in people who are the 'married or cohabiting' (Bracke, Colman, Symoens, & Van Praag, 2010; Rozario, Morrow-Howell, & Proctor, 2004; Takeuchi et al., 1998). Another study by M. Lee and colleagues (2017) examined the Asian Americans in the NLAAS and reported that "married/cohabitating" in the first generation and 1.5 generation tend to use mental health services less than the "never married". However, limiting the analysis to Asian Americans with mental health needs, this study found no significant impact of marital status. This indicates that mental health status should be accounted for when verifying the impact of marital status on mental health service use. While education level, with its strong association with the income and health insurance coverage, was considered to be important in explaining mental health service use (Bebbington et al., 2000; Sareen et al., 2007; Woodward, 2011), it was not verified as a predictor in this study.

Perceived discrimination alone was predictor. Among the previously studied predisposing factors, perceived discrimination was the only significant predictor of mental health service use of Asian Americans verified in this study. The results showed that Asian Americans who perceived more discrimination were less likely to seek mental health treatments. This result corresponds with the finding in the previous studies that experience of discrimination may be a barrier to mental health service use (Burgess et al., 2008; Major & O'Brien, 2005; Spencer et al., 2010). Also, notably, and in contrast to previous findings, acculturation stress did not significantly affect service use in Asian American disaccording with the findings of previous studies that stress level have inverse impact on help-seeking attitudes and behaviors (Atkinson & Gim, 1989; Tata & Leong, 1994; Ying & Miller, 1992). It is of note that the acculturation variable was measured only for people who were new immigrants. Participants who were born in the United States were scored as "0" on this factor in the NLAAS. This could have impacted the finding in this analysis as the variable was highly skewed. In future research, it may be suggested for studying acculturation stress only for the immigrants.

The results of this study identifying no significant predictors in the established ABM except for perceived discrimination raises a question for applying this framework to the Asian American population. Moreover, the low R square of the logistic regression model indicates that much more variation of Asian Americans' mental health service use is left unexplained. The findings suggest that the ABM should be expanded by including more culture-specific factors unique to Asian Americans (Andersen et al., 1995; Gee et al., 2007; Guo et al., 2015; Harris et al., 2005; Hwang & Goto, 2009; Jang et al., 2009; Jang et al., 2005; Jang et al., 2007; G. Kim, Loi, et al., 2011; Snowden et al., 2011).

### ***C) Contribution of Social Relationship Factors to the Mental Health Service Utilization of Asian Americans***

The second research question of this study was whether adding social relationship factors (family cohesion, social support, ethnic identity, and social cohesion) to the previously tested factors in the ABM would have additional impact on the mental health service use of Asian American. The reason these social relationship factors were added to the ABM is based on the assumption that relationship with others will be critical in important decision making to Asian Americans who share collectivistic values. This study hypothesized that closer relationships such as family, relatives, friends, and ethnic group members will serve as inhibitors while relationship with neighbors may facilitate mental health service use in Asian Americans.

Binary analyses examining the effect of each variable on mental health services use showed that of the newly added variable, only ethnic identity and social cohesion significantly predicted mental health service use. The final logistic model included only variables that were significantly related to mental health service use in binary analyses. Thus, only perceived discrimination, social cohesion, and ethnic identity were included in the final model. In the final logistic regression model, only social cohesion was verified as a positive predictor for mental health service use in Asian Americans. As noted in the Methods chapter, the scale measuring social cohesion asked people to rate their relationships with neighbors. The findings reported here suggest that neighbors may serve as an important source of support beyond family, relatives and friends (Mulvaney-Day, Alegría, & Sribney, 2007). The fact that ethnic identity is marginally significant in predicting mental health service use, is positively associated with social cohesion, and that Asian Americans tend to live in ethnic-specific neighborhoods gives an idea that relationships with members of the same ethnic group may be important for Asian

Americans when they live close to each other. However, the hypotheses that family cohesion, social support, and ethnic identity will contribute to Asian American's decision to use mental health services were rejected.

In conclusion, this study verified the impact of Asian Americans' relationship with neighbors on mental health service use, but not the impact of their relationships with family, relatives, friends, and ethnic group members. The findings are against the expectations of the study because Asian Americans tend to value the relationship with members of closer social ties more deeply and widely. As the impact of family relationship factors was verified in the study that examined Asian Americans with and without mental health needs in the NLAAS (M. Lee et al., 2017), it is necessary to see further and deeply how the mechanism of family relationship works in Asian Americans with mental health needs.

*Collectivism and Collective Efficacy in Relationships with Neighbors.* The results of the study stresses the impact of neighbors on the mental health service utilization among Asian Americans. Yet, there is little known how neighbor relationships or social cohesion affects help-seeking behaviors. The promising findings reported for the potential importance of social cohesion, with its emphasis on relationships with neighbors, makes contact with other important findings contributed by sociologists.

In particular, a body of work examining collective efficacy (Sampson et al., 1997), suggests that people's behaviors may be deeply affected by their neighborhood surroundings. Collective efficacy is a neighborhood-level concept in which community members (neighbors) create a sense of agency (Sampson et al., 1997) and assume ownership for the state of their local community. From the perspective of collective efficacy, within a neighborhood, the way in which people interact, share common goals and values, and trust one another are associated with positive group outcomes such as

decrease of crimes (Uchida et al., 2015). In general, collective efficacy would encourage individuals to act in the way that the community considers permissible or desirable (Ahern et al., 2009; Caetano et al., 1999; Curry et al., 1993). Although, there has not been a study on collective efficacy and mental health service utilization, this suggests the following, that is similar for social cohesion and mental health services. People who live in neighborhoods with high level of collective efficacy, when having mental health needs, would be more likely to use mental health services as it would be considered as the desirable behavior.

Collectivism can be an antecedent to collective efficacy to the extent that individuals identify with the neighborhood and are willing to expend the necessary effort to fulfill collective goals. It is expected that those who hold collectivistic values will place the good of the group above individual issues (Hofstede & Bond, 1988; Triandis et al., 1988), and try to perform activities that are necessary for the neighborhood's success even though it conflicts with their individual interests.

Although collective efficacy draws the attention on relationships with neighbors as an facilitator of positive behaviors of the individuals, there is a limitation of collective efficacy in explaining mental health service use among Asian Americans as a proxy of collectivistic values. First, collective efficacy does not account for cultural context or individual differences. Collective efficacy is a group-level concept in which neighbors share beliefs, trusts, and expectations whereas collectivism is in individual-level. Both collectivism and collective efficacy stress the impact of others (neighbors) in help-seeking behaviors. However, when making a decision for a desired action, collectivism is related to the individual's perception of 'what is good for the group', while collective efficacy assumes there is an agreed goal in the community. Assuming that everyone in the neighborhood perceive mental health service use as a desirable behavior leaves out the

unique cultural aspect related to mental health and mental health services. In addition, the construct of collective efficacy may help explain why Asian Americans use mental health services but may not enhance our understanding on why they do not. It can be thought that Asian Americans who used any type of mental health service did so as they considered it to be beneficial to the neighborhood. However, it would be hard to explain that the majority of Asian Americans with mental health needs did not use mental health services because they thought it accorded with the good of the neighborhood.

## **2. IMPLICATIONS**

Asian Americans are one of the fastest growing racial/ethnic groups in the U.S. (U.S. Census Bureau, 2012). Given their increasing representation in the country, it is important to understand ways to better meet the mental health needs of this population group. This study focused on identifying predictors for mental health service use in Asian Americans with needs. The findings have important implications for social work research, practice, and policy.

### ***A) Implications for Research***

The purpose of this study is to examine sociocultural variables of collectivism that were understudied as predictors for mental health service utilization. Interestingly, only variables related to social constructs predicted mental health service use in this study. These included ethnic identity, social cohesion, and perceived discrimination. Nonetheless, the percent of variance explained by these variables was very small, and in the final model only one variable, social cohesion, maintained its predictive value. Thus, the findings suggest that the impact of the factors under study were not as strong as they were predicted to be. Contrary to the expectation that the sociocultural factors will be strong indicators of



mental health service use in Asian Americans, the null finding suggests that the construct of social relationships reflecting collectivism is distal to help-seeking.

However, due to the limitation of the construct of the sociocultural variables in the NLAAS, it would be impetuous to conclude that social relationships are not important in Asian Americans' help-seeking for mental health issues. The sociocultural variables in the NLAAS were not strong operationalizations of collectivism, which is understandable because they were not an explicit goal of the NLAAS. The small amount of variance in this study result from the fact that the sociocultural variables in the data are not fully capturing the collectivistic values in Asian culture. Because the strengths of a research depend on a great extent on the quality of the measure used, enhancing methodologies that measure collectivism may be crucial in addressing the challenges of underutilization of mental health services in Asian Americans.

Firstly, the sociocultural factors in this study are operationalized imperfectly. Although there are no specific rules about the number of items to be retained in measurement scales, the measures for the the social relationship factors have relatively few items to completely capture the collectivistic value in Asian culture. While family cohesion is measured with a ten-item scale, social support has six, ethnic identity has three, and social cohesion has four items.

More importantly, the four social relationship factors are not a perfect operationalization of collectivistic values. While collectivism is a diverse construct including domains such as relatedness, belonging, duty, harmony, advice seeking, context dependent, hierarchichal, and group oriented (Oyserman, Coon, & Kemmelmeier, 2002), the measurements of the sociocultural factors in the NLAAS is limited to the sense of closeness or relatedness. Given that the results show that Asian Americans tend not to use mental health services even though they have needs, it is suggested that more aspects of

collectivism in duty, harmony, and advice seeking be included when examining mental health service use in sociocultural context.

*Previous work operationalizing collectivism.* Past research introduced several scales for measuring collectivism in its relationship with social behaviors. The most frequently used scales are 1) Hui's Individualism-Collectivism scale (INDCOL; 1988), 2) Singelis' Self-Construal scale (SCS; 1994), 3) Triandis and colleagues' Individualism and collectivism scale (also known as Culture Orientation Scale; 1995). Hui's INDCOL is measured with 63 items with specific reference to eight target groups (spouse, parents, kin, family, neighbors, friends, co-workers/ classmates, and unknown persons/acquaintance). Although INDCOL was validated by experts, it had issues of not having high estimates of reliability, and it was not tested across a wide range of cultures or subgroups within cultures (Shulruf, 2011). Singelis's SCS consists of 30 items that measure independence and interdependence of respondents. While SCS had a better reliability than INDCOL, it did not take account of different relationships (i.e. friends, family). Triandis and colleagues developed the 32-item Culture Orientation Scale (COS) as a measure of individualism and collectivism, crossed with horizontal and vertical domains relating to the concept of hierarchy within society. The original COS and its shortened version by Triandis and Gelfand (1998) yield four constructs: horizontal individualism (HI), vertical individualism (VI), horizontal collectivism (HC), and vertical collectivism (VC). While, COS is widely used, very few of the studies applying it reported an acceptable level of reliability (Oyserman et al., 2002).

Besides the issue of reliability, these measures have limitation for being adopted in research on mental health service utilization of Asian Americans. Firstly, it has been argued that these measurements fail to assess all the critical attributes of collectivism (Oyserman et al., 2002). As it is not yet well established which domains of collectivism is

more influential in mental health help-seeking behaviors in Asian Americans, comprehensive measures that include all of them. Secondly, as mentioned as the limitation for Singelis's SCS, the measures should not assume that one would hold a consistent individualistic-collectivistic value throughout different relationships. For example, one might consider family members in his/her decision making while excluding friends. Likewise, family members might be critical in help-seeking behaviors, but not in other behaviors. Therefore, to accurately examine how collectivistic values influence decision making, all the different relationships should be considered separately. Lastly, there has been an argument that there is discrepancy in holding collectivistic values and these values being externalized to behaviors (Oyserman et al., 2002). While the previous measures were based on the thoughts and beliefs, the use of frequency scale that relates to a prevalence of behavior or thought may provide more accurate indication of the behaviors of the respondents.

Another interpretation of the limited findings in this study suggest that future research should focus on finding additional predictors for Asian Americans' mental health service utilization. The low explanation of the theoretical model tells us that there is a large area that is yet unstudied. The immediate purpose of future research should be exploring this unknown territory. For example, qualitative research including interviews of Asian American clients or focus group discussions would be essential to initially verify critical factors and develop measurements. Ethnographic research can provide the epistemological and methodological tools to gain in-depth knowledge and look in the sociocultural worlds of Asian Americans' everyday lives.

Importance of ethnic subgroups. Another important implication for future research is examining ethnic subgroup difference in examining predictors of mental health service utilization of Asian Americans. In the analyses for checking ethnic group

difference in sociodemographic characteristics and key variables (see Table 5.8. to 5.11.), the results show that Asian Americans should not be considered as one group. Although Asian Americans are collectivistic in general, the aspects of collectivism or its externalization to behaviors may differ by ethnic subgroups because each subgroup has distinct sociodemographic background and immigration history in the United States. Therefore, future research into specific differences for Asian American ethnic subgroups may be fruitful in developing effective interventions for each target group.

Especially, Vietnamese were distinguishing from other ethnic groups in many of the socio-demographic characteristics and key variables of this study. Such difference come from the unique experience of Vietnamese during immigration. After the 1965 Immigration Act, many Asians who were generally from more educated, middle-class, and urbanized background voluntarily immigrated to America (Lee et al., 2014). On the contrary, Vietnamese were forced to leave their country due to the Vietnam war and post-war communization. Many of them were not prepared for the life in American with limited resource and social connections. Thus, Vietnamese are likely to have lower social economic status and English proficiency. In addition, the harsh experience of war and immigration process may have contributed to higher acculturation stress and lower mental health condition.

### ***B) Implications for Practice, Policy, and Education***

The findings affirm underutilization of mental health services continues to be a major mental health disparity in Asian Americans. The model minority myth about Asian Americans have led to the neglect of their mental health needs that, in general, they: (a) are successful in education and finance; (b) experience less mental health problems; and therefore (c) have less mental health needs. However, this study clearly states that the

underutilization is not due to the absence of mental health need. This suggests need for concerted efforts on the part of mental health professionals, educators, policy makers, and researchers to resolve the matter beyond the existing efforts.

In the micro level of social work practice, culturally competent mental health services and professionals are required. Cultural competence involves having awareness of the different cultures, values, and beliefs of Asian Americans and the ethnic subgroups and applying flexible treatment strategies to meet their mental health needs (Campinha-Bacote, 2002). Treatment providers should remain up to date on the developing literature on the mental health issues of Asian Americans and incorporate knowledge into developing practice plans for their Asian American clients. As the manifestation of underutilization of services is affected by cultural, generational and acculturation levels, mental health professionals must be well aware of these specific cultural factors when working with Asian Americans. In particular, given that mental disorders are highly stigmatized in Asian American communities (Atkinson & Gim, 1989; Augsberger et al., 2015; J. Chang et al., 2013), clinicians should deliver treatments in non-stigmatizing environments. Asian Americans tend to have negative attitude towards western medicine-oriented treatments and have paucity of information about them (Ang et al., 2004; Atkinson & Gim, 1989; Jang et al., 2007), therefore professionals should explain the treatment process and how it will be benefit to their Asian American clients thoroughly. Lastly, mental health organizations should strive to recruit and train Asian American professionals since racial/ethnic matching is associated with increased utilization, greater satisfaction, and lower treatment dropouts (Okazaki, 2000; Sue et al., 1991).

In community level, education and outreach programs should be widely implemented. Mental health educational campaigns in communities with high density of Asian Americans may help improve their attitude towards mental health treatments. As

Asian Americans are known to have less favorable attitude towards mental health services (Atkinson & Gim, 1989; Jang et al., 2007; Jang et al., 2009; Kim & Lee, 2014), fostering a positive view of mental health treatments can move Asian Americans in the direction of receiving treatments when having psychological troubles. Education programs for Asian Americans should also focus on expanding mental health literacy which includes knowledge about psychiatric disorders their causes, and treatments. Moreover, outreach to Asian Americans, who are mostly immigrants and have poor English language proficiency, is necessary to improve utilization of mental health services among members of this population who need care. Dispelling misunderstandings or false belief in causes of mental illness and its treatment may help Asian Americans to perceive a need for mental health services and initiate help-seeking behaviors in the formal health care system. The Education and Outreach Campaign provision in the Patient Protection and Affordable Care Act (ACA; 2010) provides legal basis for implementing health promotion outreach and education programs that targets to diminish racial/ethnic disparities in mental health care.

As it was shown that Asian Americans prefer to visit general health practitioners rather than mental health specialists to deal with their mental health issues, integrated/holistic care in community health centers may better meet the mental health needs of them. Integrating behavioral health services in primary care settings where mental illnesses can be screened and diagnosed at an earlier stage would also be helpful in promoting Asian American's mental health service utilization.

In social work education, the mental health curricula must be accountable for training students to be culturally competent providers. Efforts to build a diverse and culturally competent workforce in mental health practice must be part of the plan in social work education (Williams, Chapa, & Des Marais, 2013). Future mental health service providers should be trained and educated in culturally competent treatment models as it is

stated in the National Association of Social Workers (NASW)'s code of ethics (NASW, 2017) and Council on Social Work Education (CSWE)'s education policy and accreditation standards (CSWE, 2015). As most of the social work majors are not Asian Americans (CSWE, 2016)<sup>10</sup>, classes or field practices that include the unique aspects of mental health in Asian Americans will help students provide appropriate clinical treatments for clients of the group. Recruitment and retention of Asian American students who can deliver multilingual treatments may be suggested as well.

### **3. LIMITATIONS OF THE STUDY**

The findings of this study should be considered within the following limitations of this study.

First, the cross-sectional nature of this study precludes any causal inferences. Thus, rather than higher levels of social cohesion and ethnic identity, lower level of perceived discrimination facilitating mental health service use, it is possible that it may be the other way around. Future research with longitudinal data could better address the temporal sequence of causality.

Second, the use of secondary data set for analysis constrained variable by selection; for example, there were only few social relationship variables in the NLAAS, which did not directly connote collectivistic values in Asian cultures. In addition, there is an issue of validity in certain constructs in the NLAAS. For instance, the three item-ethnic identity, despite its high reliability, requires more psychometric information for its validity in future research. Notably, racial and ethnic identities were not separated and have oversimplified the content of racial/ethnic identity in Asian Americans. Current scholarly work in the area has shown them to be two separate multidimensional and dynamic constructs, as noted in a

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<sup>10</sup> Rates of Asian Americans in social work programs: 1.2% (Baccalaureate), 3.1% (master's), 2.6% (practice doctorate), 13.2% (Ph.D.)

Special Issue on Race and Ethnic Identity in the *Journal of Counseling Psychology* (Phinney & Ong, 2007; Ponterotto & Park-Taylor, 2007). Unfortunately, the NLAAS constructs were not designated to differentiate the whole group and subgroup identification in Asian Americans and, by so doing, made two specific concepts interchangeable. Development of measurements that precisely capture ethnic identity and collecting data accordingly can be suggested for future research.

As mentioned above, the most notable limitation of this study is not taking account of the diversity within Asian Americans. This may cause dangers of making overgeneralizations about the mental health service use of the entire population group. Asian Americans as an ethnic group is quite heterogeneous with over 28 subgroups (e.g. Chinese, Japanese, Filipino, Korean, Vietnamese, Laotian, Cambodian, etc.) each made unique by linguistic, cultural, and sociodemographic backgrounds and immigration histories in the United States. However, instead of considering differences among subgroups, this study focused on the shared cultural elements of the Asian Americans. The different pattern of mental health service use by subgroups is a potential area to examine in future research.



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## APPENDIX

### A. Mental Health Service Use of Asian Americans With Psychiatric Disorders

Table 7.1. Mental Health Service Use of Asian Americans with Psychiatric Disorder

Type of Service	AA with Mental illness (N=301)
<b>Any Service</b>	43 (14.3%)
<b>Any MH Specialist</b> (Psychiatrist, Psychologist, Other MH Professional)	30 (10.0%)
<b>Any General Health Prof.</b> (General Practitioner, Nurse, Other health professional, Medical Doctor)	24 (8.0%)
<b>Any Human Service</b> (Social Worker, Counselor)	21 (7.0%)
<b>Any Other services</b> (Hotline, Self-help group, Internet Support group)	15 (5.0%)



## B. Mental Health Service Use of Asian Americans by Psychiatric Disorders

Table 7.2. 12-Month Mental Health Service Utilization by Psychiatric Disorder

<b>Psychiatric Disorder</b>	<b>Service use N (%)</b>
<b>Any Psychiatric Disorder (N=301)</b>	43 (14.3%)
<b>Any Mood Disorder (N=101)</b> (major depressive disorders or dysthymia)	16 (15.8%)
<b>Any Anxiety Disorder (N=194)</b> (panic disorder, agoraphobia with and without panic attack, social phobia, panic attack, generalized anxiety disorder, or posttraumatic stress disorder)	31 (16.0%)
<b>Intermittent Explosive Disorder (N=50)</b>	9 (18.0%)
<b>Any Eating Disorder (N=34)</b> (anorexia, bulimia and binge eating)	1 (2.9%)
<b>Any Substance Use Disorder (N=28)</b> (abuse or dependence of alcohol or any kind of substance)	7 (25%)

**C. Analyses of Asian Americans with diagnosed needs (N=301)**

Table 7.3. Demographic Characteristics of the Sample with Psychiatric Disorder(s)  
(N=301)

	<b>Category</b>	<b>N (%)</b>
<b>Gender</b>	Female	171 (57.3%)
	Male	130 (40.0%)
<b>Age</b>	20 or less	23 (7.6%)
	21~30	107 (35.6%)
	31~40	60 (19.9%)
	41~50	64 (21.3%)
	51~60	26 (8.6%)
	61 or more	21 (7.0%)
<b>Ethnic Subgroup</b>	Vietnamese	59 (19.6%)
	Filipino	83 (27.6%)
	Chinese	88 (29.2%)
	Other Asian	71 (23.6%)
<b>Marital Status</b>	Married/Cohabiting	161 (53.5%)
	Divorced/Separated/Never Married	140 (46.5%)
<b>Education</b>	0~11 years	36 (12.0%)
	12 years	63 (20.9%)
	13~15 years	81 (26.9%)
	16 or more years	121 (40.2%)
<b>Religion (N= 293)</b>	Protestant	74 (25.3%)
	Catholic	81 (27.6%)
	Other	80 (27.3%)
	No religion	58 (19.8%)
<b>Health Insurance (N=301)</b>	Not Insured	49 (16.3%)
	Insured	251 (83.7%)

Table 7.4. Descriptive Statistic for Predictors for Mental Health Service Use

	<b>Variables</b>	<b>Mean (SD) / N (%)</b>	<b>Range</b>
Need Factor	Self-Rated Mental Health (n=300)	3.41 (1.13)	1~5
	<i>Poor (1)</i>	19 (5.1%)	
	<i>Fair (2)</i>	52 (14.1%)	
	<i>Good (3)</i>	115 (31.1%)	
	<i>Very Good (4)</i>	109 (29.5%)	
	<i>Excellent (5)</i>	74 (20.0%)	
Enabling Factors	Insurance Coverage (n=300)		
	<i>Not Insured</i>	49 (16.3%)	
	<i>Insured</i>	251 (83.7%)	
	Household Income per capita (n=370)	1.98 (1.18)	0~4
	<i>Low (0)</i>	40 (13.3%)	
	<i>Fairly Low (1)</i>	60 (19.9%)	
	<i>Medium (2)</i>	96 (31.9%)	
	<i>Fairly High (3)</i>	75 (24.9%)	
	<i>High (4)</i>	30 (10.0%)	
		English Language Proficiency (n=298)	8.94 (3.08)
Predisposing Factors	Perceived Discrimination (n=301)	4.05 (1.61)	0~9
	Acculturation Stress (n=301)	28.67 (41.82)	0~180
	<i>Immigrants (n=198)</i>	43.59 (44.83)	
Social Relationship Factors	Family Cohesion (n=298)	34.55 (6.75)	10~40
	Social Support (n=298)	14.44 (4.67)	6~26
	Ethnic Identity (n=301)	9.25 (1.97)	3~12
	Social Cohesion (n=295)	12.16 (2.83)	4~16

Table 7.5. Demographic Characteristics by Ethnic Group

(within ethnic group percentage/ within category percentage)

	Category	Vietnamese (N=75)	Filipino (N=108)	Chinese (N=101)	All Other (N=86)	$\chi^2 / F$ (p value)
<b>Gender</b> (N=301)	Male	26 (44.1% / 20.0%)	39 (47.0% / 30.0%)	34 (38.6% / 26.2%)	31 (43.7% / 23.8%)	1.257 (.739)
	Female	33 (55.9% / 19.3%)	44 (53.0% / 25.7%)	54 (61.4% / 31.6%)	40 (56.3% / 23.4%)	
<b>Age</b> (36.81 / N=301)	Mean (SD)	43.07 (15.24) a	35.67 (14.64) b	35.89 (14.39) b	34.08 (11.06) b	5.187 (.002)** v>f*, v>c*, v>o**
<b>Education Status</b> (N=301)	0-11 years	18 (30.5% / 50.0%)	8 (9.6% / 22.2%)	6 (6.8% / 16.7%)	4 (5.6% / 11.1%)	40.116 (.000)***
	12 years	16 (27.1% / 25.4%)	24 (28.9% / 38.1%)	13 (14.8% / 20.6%)	10 (14.1% / 15.9%)	
	13-15 years	12 (20.3% / 14.8%)	21 (25.3% / 25.9%)	23 (26.1% / 28.4%)	25 (35.2% / 30.9%)	
	16< years	13 (22.0% / 10.7%)	30 (36.1% / 24.8%)	46 (52.3% / 38.0%)	32 (45.1% / 26.4%)	
<b>Marital Status</b> (N=293)	Not Married/ Cohabiting	24 (40.7% / 17.1%)	34 (41.0% / 24.3%)	53 (60.2% / 37.9%)	29 (40.8% / 20.7%)	9.404 (.024)*
	Married/ Cohabiting	35 (59.3% / 21.7%)	49 (59.0% / 30.4%)	35 (39.8% / 21.7%)	42 (59.2% / 26.1%)	
<b>Religion</b> (N=300)	No Religion	7 (12.1% / 12.1%)	6 (7.4% / 10.3%)	35 (40.7% / 60.3%)	10 (14.7% / 17.2%)	34.786 (.000)***
	Religion	51 (87.9% / 21.7%)	75 (92.6% / 31.9%)	51 (59.3% / 21.7%)	58 (85.3% / 24.7%)	

Table 7.6. Variables Known to Affect Asian Americans by Ethnic Group

(within ethnic group percentage/ within category percentage)

Variables (Mean / N)		Vietnamese (v)	Filipino (f)	Chinese (c)	All Other (o)	F/x <sup>2</sup> (p value)
<b>Self-Rated Mental Health</b> (3.41 / N=300)	N	59	83	87	71	9.339 (.000)***
	Mean (SD)	2.81 (1.29) b	3.76 (.93) a	3.37 (1.09) a	3.56 (1.05) a	f>v***, c>v*, o>v***
<b>Health Insurance</b> (N=300)	Not Insured	8 (13.6% / 16.3%)	14 (16.9% / 28.6%)	14 (15.9% / 28.6%)	13 (18.6% / 26.5%)	.618 (.892)
	Insured	51 (86.4% / 20.3%)	69 (83.1% / 27.5%)	74 (84.1% / 29.5%)	57 (81.4% / 22.7%)	
<b>Household Income</b> (1.98 / N=301)	N	59	83	88	71	4.868 (.003)**
	Mean (SD)	1.54 (1.18) b	2.19 (1.08) a	1.90 (1.25) ab	2.21 (1.09) a	f>v**, o>v**
<b>English Language Proficiency</b> (8.94 / N=294)	N	58	83	87	70	32.799 (.000)***
	Mean (SD)	5.95 (2.98) c	10.14 (2.09) a	8.98 (3.22) b	9.93 (2.27) ab	f>v***, c>v***, o>v***, f>c*
<b>Perceived Discrimination</b> (4.05 / N=301)	N	59	83	88	71	1.576 (.195)
	Mean (SD)	4.42 (1.93)	3.88 (1.56)	3.92 (1.47)	4.08 (1.53)	
<b>Acculturation Stress</b> (28.67 / N=301)	N	59	83	88	71	5.59 (.001)***
	Mean (SD)	47.12 (41.32) a	22.53 (40.87) b	28.75 (44.02) b	20.42 (36.27) b	v>f**, v>c*, v>o**

Table 7.7. Social Relationship Variables by Ethnic Group

<b>Variables (Mean / N)</b>		<b>Vietnamese (v)</b>	<b>Filipino (f)</b>	<b>Chinese (c)</b>	<b>All Other (o)</b>	<b>F (p value)</b>
<b>Family Cohesion (34.55 / N=298)</b>	N	58	83	87	70	3.980 (.008)**
	Mean (SD)	35.68 (6.79) a	35.61 (4.37) a	32.53 (8.15) b	34.91 (6.69) ab	v>c*, f>c*
<b>Social Support (14.44 / N=298)</b>	N	58	83	87	70	17.89 (.000)***
	Mean (SD)	18.09 (5.33) a	13.01 (4.08) b	13.72 (3.95) b	14.00 (4.08) b	v>f***, v>c***, v>o***
<b>Ethnic Identity (9.25 / N=301)</b>	N	59	83	88	71	9.729 (.000)***
	Mean (SD)	10.42 (2.01) a	8.87 (1.77) b	8.92 (1.88) b	9.14 (1.91) b	v>f***, v>c***, v>o***
<b>Social Cohesion (12.16 / N=283)</b>	N	58	82	86	69	1.604 (.189)
	Mean (SD)	12.33 (3.23)	12.59 (2.68)	12.06 (2.56)	11.62 (2.92)	

Table 7.8. Summary of Ethnic Group Difference Analyses

Variables	AAs with Psychiatric Disorders (N=301)
<b>Gender</b>	Not significant
<b>Age</b>	v>f**, v>c**, v>o***
<b>Education Level</b>	Vietnamese had lower education level than the other 3 groups
<b>Marital Status</b>	Chinese had lower rates of being married/cohabiting than the other 3 groups
<b>Religion</b>	Chinese had lower rates of having (a) religion(s)
<b>Self-Rated Mental Health</b>	f>v***, c>v**, o>v***
<b>Health Insurance</b>	Not significant
<b>Household Income</b>	f>v**, o>v**
<b>English Language Proficiency</b>	f>v***, c>v***, o>v***, f>c*
<b>Perceived Discrimination</b>	Not significant
<b>Acculturation Stress</b>	v>f**, v>o*
<b>Family Cohesion</b>	v>c**, f>c**
<b>Social Support</b>	v>f***, v>c***, v>o***
<b>Ethnic Identity</b>	v>f***, v>c***, v>o**
<b>Social Cohesion</b>	Not significant

Table 7.9. Binary Analyses (Crosstabs) on Mental Health Service Use

		<b>No MHSU (N=258; 85.7%)</b>	<b>MHSU (N=43; 14.3%)</b>	<b>X<sup>2</sup> (p value)</b>
<b>Gender</b> (N=301)	Male	114 (44.2% / 87.7%)	16 (37.2% / 12.3%)	.731 (.393)
	Female	144 (55.8% / 84.2%)	27 (62.8% / 15.8%)	
<b>Education Status</b> (N=301)	0-11 years	33 (12.8% / 91.7%)	3 (7.0% / 8.3%)	4.220 (.239)
	12 years	57 (22.1% / 90.5%)	6 (14.0% / 9.5%)	
	13-15 years	65 (25.2% / 80.2%)	16 (37.2% / 19.8%)	
	16< years	103 (39.9% / 85.1%)	18 (41.9% / 14.9%)	
<b>Ethnic Group</b> (N=301)	Vietnamese	51 (19.8% / 86.4%)	8 (18.6% / 13.6%)	.639 (.888)
	Filipino	73 (28.3% / 88.0%)	10 (23.3% / 12.0%)	
	Chinese	74 (28.7% / 84.1%)	14 (32.6% / 15.9%)	
	Other Asian	60 (23.3% / 84.5%)	11 (25.6% / 15.5%)	
<b>Marital Status</b> (N=301)	Not Married/ Cohabiting	115 (44.6% / 82.1%)	25 (58.1% / 17.9%)	2.726 (.099)
	Married/ Cohabiting	143 (55.4% / 88.8%)	18 (41.9% / 11.2%)	
<b>Religion</b> (N=293)	No Religion	51 (20.3% / 87.9%)	7 (16.7% / 12.1%)	.302 (.582)
	Religion	200 (79.7% / 85.1%)	35 (83.3% / 14.9%)	
<b>Health Insurance</b> (N=300)	Not Insured	39 (15.1% / 79.6%)	10 (23.8% / 20.4%)	1.997 (.158)
	Insured	219 (84.9% / 87.3%)	32 (76.2% / 12.7%)	



Table 7.10. Binary Analyses (t-tests) on Mental Health Service Use

		<b>Group</b>	<b>Mean (SD)</b>	<b>X<sup>2</sup> (p value)</b>
<b>Need Factor</b>	<b>Self-Rated Mental Health</b>	No MHSU (N=258)	3.44 (1.14)	.938 (.349)
		MHSU (N=42)	3.26 (1.08)	
<b>Enabling Factors</b>	<b>Household Income</b>	No MHSU (N=258)	1.95 (1.17)	-1.081 (.281)
		MHSU (N=43)	2.16 (1.21)	
	<b>English Language Proficiency</b>	No MHSU (N=256)	8.83 (3.10)	-1.497 (.135)
		MHSU (N=42)	9.60 (2.94)	
<b>Predisposing Factors</b>	<b>Perceived Discrimination</b>	No MHSU (N=258)	4.13 (1.63)	2.264 (.024)*
		MHSU (N=43)	3.53 (1.44)	
	<b>Acculturation Stress</b>	No MHSU (N=258)	30.04 (42.85)	1.631 (.108)
		MHSU (N=43)	20.47 (34.29)	
<b>Social Relationship Factors</b>	<b>Family Cohesion</b>	No MHSU (N=256)	34.65 (6.79)	.598 (.550)
		MHSU (N=42)	33.98 (6.54)	
	<b>Social Support</b>	No MHSU (N=256)	14.56 (4.80)	1.093 (.275)
		MHSU (N=42)	13.71 (3.71)	
	<b>Ethnic Identity</b>	No MHSU (N=258)	9.23 (1.93)	-.430 (.667)
		MHSU (N=43)	9.37 (2.19)	
	<b>Social Cohesion</b>	No MHSU (N=253)	12.02 (2.89)	-2.093 (.037)*
		MHSU (N=42)	13.00 (2.24)	

7.11. Correlations of Variables (N=301)

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Mental Health Service Use (MHSU)	1															
2. Gender	-.049 (.394)	1														
3. Age	-.046 (.426)	.087 (.133)	1													
4. Education Level	.073 (.208)	-.038 (.508)	<b>-.236</b> <b>(.000)***</b>	1												
5. Marital Status	-.095 (.099)	-.007 (.901)	<b>.277</b> <b>(.000)***</b>	<b>-.125</b> <b>(.031)*</b>	1											
6. Religion	.032 (.584)	-.039 (.505)	<b>.154</b> <b>(.008)**</b>	-.067 (.253)	.070 (.232)	1										
7. Health Insurance	-.082 (.159)	-.014 (.810)	<b>.124</b> <b>(.031)*</b>	.034 (.563)	<b>.132</b> <b>(.022)*</b>	.035 (.554)	1									
8. Perceived Discrimination (PD)	<b>-.130</b> <b>(.024)*</b>	.100 (.084)	.091 (.113)	.007 (.909)	<b>.250</b> <b>(.000)***</b>	-.045 (.446)	-.012 (.841)	1								
9. Acculturation Stress (AS)	-.080 (.165)	.111 (.054)	<b>.204</b> <b>(.000)**</b>	-.079 (.170)	.061 (.289)	-.066 (.263)	.002 (.972)	<b>.442</b> <b>(.000)***</b>	1							
10. Self-Rated Mental Health (SRMH)	-.054 (.349)	<b>.136</b> <b>(.019)*</b>	<b>-.196</b> <b>(.001)***</b>	<b>.199</b> <b>(.001)***</b>	-.009 (.874)	.043 (.462)	-.045 (.433)	-.068 (.244)	<b>-.160</b> <b>(.006)**</b>	1						
11. Household Income	.062 (.281)	.024 (.681)	-.037 (.526)	<b>.252</b> <b>(.000)***</b>	<b>.208</b> <b>(.000)***</b>	.064 (.276)	<b>.150</b> <b>(.009)**</b>	.071 (.221)	-.093 (.106)	<b>.125</b> <b>(.031)*</b>	1					
12. English Language Proficiency (ELP)	.087 (.135)	-.110 (.058)	-.437 (.000)***	<b>.450</b> <b>(.000)***</b>	<b>-.139</b> <b>(.016)*</b>	.021 (.726)	.000 (.995)	<b>-.230</b> <b>(.000)***</b>	<b>-.507</b> <b>(.000)***</b>	<b>.359</b> <b>(.000)***</b>	<b>.255</b> <b>(.000)***</b>	1				
13. Family Cohesion	-.035 (.550)	.110 (.058)	.095 (.102)	-.074 (.034)	<b>.245</b> <b>(.000)***</b>	<b>.195</b> <b>(.001)**</b>	.049 (.403)	.039 (.497)	.083 (.153)	<b>.181</b> <b>(.002)**</b>	<b>.149</b> <b>(.010)*</b>	-.104 (.073)	1			
14. Social Support	-.063 (.275)	<b>.114</b> <b>(.049)*</b>	<b>.353</b> <b>(.000)***</b>	<b>-.268</b> <b>(.000)***</b>	<b>.176</b> <b>(.002)**</b>	-.028 (.638)	.015 (.802)	<b>.121</b> <b>(.036)*</b>	<b>.284</b> <b>(.000)***</b>	<b>-.277</b> <b>(.000)***</b>	<b>-.204</b> <b>(.000)***</b>	<b>-.460</b> <b>(.000)***</b>	-.079 (.175)	1		
15. Ethnic Identity	.025 (.667)	.052 (.370)	<b>.167</b> <b>(.004)**</b>	-.043 (.458)	.054 (.353)	.014 (.809)	-.005 (.932)	.077 (.184)	<b>.206</b> <b>(.001)**</b>	.098 (.091)	-.063 (.276)	<b>-.256</b> <b>(.000)***</b>	<b>.297</b> <b>(.000)***</b>	.079 (.171)	1	
16. Social Cohesion	<b>.121</b> <b>(.037)**</b>	-.032 (.587)	.110 (.059)	.053 (.364)	<b>.136</b> <b>(.020)*</b>	.091 (.123)	.095 (.105)	<b>-.141</b> <b>(.016)*</b>	<b>-.116</b> <b>(.047)*</b>	.035 (.545)	<b>.135</b> <b>(.021)*</b>	.092 (.113)	<b>.198</b> <b>(.000)***</b>	<b>-.170</b> <b>(.003)**</b>	<b>.155</b> <b>(.008)**</b>	1

2. (0-female 1-male), 5. (0-not married/cohabiting 1-married/cohabiting), 6. (0-no religion 1-religion), 7. (0-no insurance 1-insurance),

Table 7.12. Bivariate Regression Analyses Results (N=301)

DV: Mental Health Service Use

Predictor Variable	Wald (p value)
Gender	.728 (.394)
Age	.636 (.425)
Education Level	1.582 (.209)
Marital Status	<b>2.684 (.101)</b>
Religion	.301 (.583)
Self-Rated Mental Health	.879 (.349)
Health Insurance Coverage	<b>1.959 (.162)</b>
Household Income	1.165 (.280)
English Proficiency	<b>2.208 (.137)</b>
Perceived Discrimination	<b>4.956 (.026)</b>
Acculturation Stress	<b>1.898 (.168)</b>
Family Cohesion	.358 (.549)
Social Support	1.191 (.275)
Ethnic Identity	.186 (.666)
Social Cohesion	<b>4.266 (.039)</b>

(outcome variable: Mental Health Service Use)

Table 7.13. Stepwise Logistic Regression Analysis (N=289)

DV: Mental Health Service Use

Predictor Variable	Step 1		Step 2	
	OR (95% CI)	p value	OR (95% CI)	p value
<b>Marital Status</b>	.749 (.373~1.501)	.415	.657 (.321~1.346)	.251
<b>Perceived Discrimination</b>	.831 (.641~1.077)	.162	.857 (.662~1.110)	.244
<b>Acculturation Stress</b>	.999 (.988~1.010)	.862	1.000 (.989~1.011)	.965
<b>Health Insurance Coverage</b>	.566 (.253~1.267)	.166	.516 (.228~1.169)	.113
<b>English Language Proficiency</b>	1.054 (.922~1.205)	.442	1.048 (.916~1.200)	.493
<b>Social Cohesion</b>	-	-	1.163 (1.010~1.338)	.036
<b>Nagelkerke R Square</b>	.050		.054	