MENTAL HEALTH AND SERVICE UTILIZATION AMONG ASIAN AMERICANS: AN ANALYSIS OF INFLUENCING FACTORS USING U.S. NATIONAL REPRESENTATIVE DATA

by

XIAOCHUAN WANG

(Under the Direction of Larry G. Nackerud)

ABSTRACT

This dissertation reports three studies on mental health and service utilization among Asian Americans, using nationally representative data from National Latino and Asian American Study (NLAAS). The first study reported in Chapter 2 examines the prevalence and pattern of past year mental health-related service use, including specialty mental health services, general health services, human or alternative services, and any type of mental health-related services, among Asian Americans. Guided by Andersen's health behavioral model, this study explores influencing factors to Asian Americans' use and choice of mental health services. Findings from this study indicate that Asian Americans significantly underuse mental health services and that they tend to choose specialty mental health services and human or alternative services when seeking treatments. Marital status, age at immigration, and past year psychiatric disorder are found significantly correlated to Asian Americans' use of each and any type of mental health services. Second study reported in Chapter 3 investigates the influence of immigration and perceived social status on lifetime and 12-month psychiatric disorder occurrence among Asian immigrants. Results of the study suggest that Asian immigrants' age at immigration and

perceived social status in the U.S. are significantly associated with lifetime and 12-month psychiatric disorder occurrence. Respondents who immigrate to the U.S. during childhood and those who report lower perceived social status in the U.S. are more likely to experience lifetime and 12-month psychiatric disorders. Chapter 4 reports a study on the impacts of family cohesion and family conflict to past year mental health-related service utilization among Asian Americans. Primary findings from the study suggest the critical role of family cohesion and family conflict in influencing Asian Americans' mental health service use. Specifically, family cohesion is found to have significant correlation to Asian Americans' receipt of general health services and any type of mental health-related services. Family conflict is found as a significant predictor to the use of each and any type of mental health-related services, except specialty mental health services. The final chapter, Chapter 5, concludes this dissertation by providing summary of findings, discussion of limitations, and implications pertinent to social work practice, policy, and research.

INDEX WORDS: Asian Americans, mental health, service utilization, influencing factors, immigration, perceived social status, family cohesion, family conflict

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CHAPTER 1

INTRODUCTION AND LITERATURE REVIEW

Since the dawn of the twenty-first century, Asian Americans have become the fastest growing racial or ethnic group in the United States, with international migration responsible for the majority of the growth. Between 2000 and 2010, the total Asian American population increased by 43 percent, mostly driven by immigration. Currently, approximately 21 million Asian Americans, 6% of the total population, live in the U.S. The number is predicted to boost to 41 million in 2050 (U.S. Census Bureau, 2015). The rapid growth of Asian American population places a crucial yet challenging task in the mental health field. Their mental health status will not only greatly affect the community they reside and participate in, but also the well-being of the entire population in the society.

Despite the impending and ever-increasing needs, knowledge about the prevalence, types, and causes of mental health problems among Asian Americans is still inadequate. Extant research on mental health status among Asian Americans shows mixed findings. Previous studies suggest greater severity of mental health disorders, and comparable or higher risk of developing specific mental problems, among this population (Hurh & Kim, 1990; Ying, 1988). Recent epidemiological surveys, however, show conflict findings. Results from the National Latino and Asian American Study (NLAAS), the first national epidemiological study on Asian Americans in the United States, indicate lower prevalence and severity of mental illness, among this population. Specifically, according to the findings from the NLAAS, the overall lifetime prevalence and 12-month prevalence of any psychiatric disorder among Asian Americans is

17.3% and 9.19%, respectively (Takeuchi et al., 2007). Comparing with the prevalence rates found in the National Comorbidity Study which employed comparable methodologies for non-Hispanic Whites, Hispanics, and African Americans, these Asian American prevalence rates are lower (Breslau et al., 2005; Sue, Cheng, Saad, & Chu, 2012). The overall lifetime prevalence among Asian Americans is lower than that of the Latino Americans (28.1%) in the same NLAAS sample (Alegria et al., 2007), and lower than that of the African Americans (30.5%) found in the National Survey of American Life study using comparable methodologies (Williams et al., 2007). Such discrepancy suggests the need for a thorough and systematic study on the mental health situation and needs among Asian Americans.

In addition, Asian Americans represent over 20 ethnic subgroups. Each subgroup features its distinct culture, language use, prior- and post-immigration experiences. In regards to mental health, studies have evidenced that mental health status is heterogeneous across race and ethnicity groups within the Asian American population. For instance, Southeast Asians are found to have high prevalence of posttraumatic stress disorder (PTSD) and major depression among all ethnicity groups within the Asian American population, even after decades of residence in the United States (Marshall et al., 2005; Sue, Cheng, Saad, & Chu, 2012). In addition, people originate from different Asian countries or cultures are found to have different risks of developing and experiencing depression. For instance, Chinese, Southeast Asian, and Korean descendants are at higher risks of having depression than that of Japanese and Filipinos (Takeuchi & et al., 2007; Blair, 2000; Kinzie et al. 1997). Therefore, while it's crucial to understand the mental health status and problems among the entire Asian American population, it's also important to assess and address the needs for each distinct ethnic subgroup in this population.

Despite their vulnerability to psychiatric disorders, Asian Americans are found to significantly underuse mental health-related services (Abe-Kim & et. al., 2007; Kung, 2003, 2004). Nationally, Asian Americans use mental health services approximately two thirds less than do the Whites (Matsuoka, Breaux, & Ryujin, 1997). Recent results from National Latino and Asian American Study (NLAAS) show a consistent tendency. During a 12-month period, only 3.1% and 4.3% of Asians in the NLAAS sample used specialty mental health services and general health services, respectively, to address their mental health needs. These rates were lowest among those of all ethnic minority groups examined using comparable methodology and instruments (Abe-Kim et al., 2007). For those who were diagnosed with a psychiatric disorder based on DSM-IV within previous 12-month, the rate of service utilization among Asian Americans was again found lower than that of the general population (Abe-Kim et al., 2007; Wang et al., 2005).

Moreover, Asian Americans tend to show longer delay for treatment when ill (1,553 days) than did Caucasian Americans (607.4 days) (Lin, Inui, Kleinman, & Womack, 1982). When Asians Americans eventually turn to seek help from professional mental health services, they are generally more severely ill than whites who use the same services (Sue, 1999).

Underutilization of mental health service has profound impact not only to the individuals with mental illness, but also to their families and the society as a whole. Studies have demonstrated that recognition of mental illness and early intervention are pivotal in treatment and recovery (Badger, McNiece, & Gagan, 2000). Failure to receive appropriate service at the early stage of the mental illness increases the risks of hospitalization and poor prognosis (McAlpine & Mechanic, 2000). Furthermore, with appropriate mental health service, the families of the individuals with mental health problems are more likely to be released from the mental or

emotional strain, as well as the financial burdens resulted by medical expenses of hospitalization and intensive care. With recognition of the profound impact of mental health service underutilization, it's pivotal for us as researcher and practitioner to investigate the factors associated with Asian American's mental health service underuse.

Literature Review

Definition of mental health

Mental health is not merely the absence of mental disorder. The World Health Organization (WHO) defines mental health as a "state of wellbeing in which the individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to his or her community" (WHO, 2014).

Social determinants of mental health

World Health Organization (WHO) recently identified a multi-level system of determinants that can influence people's mental health-such factors can either influence one's risk of developing mental disorders or provide opportunities for intervening so as to reduce risk (WHO, 2014). These factors can be broadly divided into two categories: Individual determinants and social determinants. Individual determinants of mental health mainly refer to the genetic predispositions such as race and ethnicity, gender, and age; as well as individual behaviors, such as substance use. In addition to the individual factors, WHO also identified social determinants of mental health at multiple levels, include:

Level 1: Parents, families, and household level: factors of this level include parenting attitudes and behaviors; family cohesion and/or conflict; material conditions such as income, housing quality, access to safe food, water, and other resources; employment opportunities, school and employment conditions, social network and social support, etc.

Level2: Community level factors: including attributes of the nature and built environment; neighborhood safety; community trust and cohesion; community dynamics, etc.

Level 3: Local services factors: such as day care or education provision, prevention and early intervention, youth/adolescent services, social services, etc.

Level 4: Country level factors: discrimination, poverty reduction, inequality, national policies to promote access to education, employment, health care, housing and services proportionate to need, social protection policies that are universal and proportionate to need (WHO, 2014, p.17).

Factors in these four levels may influence the people's mental health independently. For instance, one's heightened risk of mental disorders may solely due to: his/her family environment is full of conflict (Level 1); the community he/she resides is unsafe (Level 2); or the prevention and early intervention services in the local area are absent (Level 3). These factors, on the other hand, can interplay with one another and influence mental health state jointly. For instance, lacking of employment opportunities (Level 1) may interact with lacking of safe food (Level 1) and together result in a higher risk of mental disorders for the individuals. In many cases, mental health risks are the result of the interaction of many factors from different levels. For example, an immigrant may experience discrimination (Level 4) in daily life which leads him/her to feel unsafe in his/her own community (Level 2). Such discrimination prevents him/her from getting equal employment opportunities, satisfying working conditions, and sufficient income (Level 1). All these, together with discrimination itself, jeopardize the well-being of the immigrant. While on the other hand, due to the insurance coverage policies towards recent immigrants (Level 4), the immigrant may not have access to local services providing prevention

and early intervention of mental problems (Level 3), which can further increase his/her risk of developing mental problems.

Previous identified factors that influence Asian Americans' mental health are generally consistent with those identified by WHO among general population. For instance, individual factors, such as gender and age, are found to have association with depressive symptoms and suicide rate among Asian Americans. Social determinants, such as discrimination and inequality in employment, are also known stressors to Asian Americans' mental health. While lacking of insurance coverage or sufficient English proficiency may limit Asian Americans' opportunities of receiving timely and effective mental health services. However, few studies have examined how these influencing factors interact with one another, or how the interplay of different factors may influence the mental health opportunities and outcomes among Asian Americans.

Moreover, given the fact that the thriving growth of Asian American population over the past few decades can be mainly attributed to immigration, it is important to advance the understanding of how immigration experiences and immigration-related factors may influence mental health risks, opportunities, outcomes, and needs in this population.

Factors associated with Asian Americans' mental health service use

Few researches have systematically studied factors associated with the use of mental health services in the Asian American population specifically. Previously identified factors can be understood within the theoretical context of Andersen's (1995, 2001) behavioral model of health service utilization. Originally developed to study the determining factors of health service use for the non-Hispanic White population, the Andersen's behavioral model has been frequently applied to studies on mental health service use and attitudes among diverse racial and ethnic

groups (Albizu-Garcia, Alegrı´a, Freeman, & Vera, 2001; Cooper-Patrick et al., 1999; Jang et al., 2007).

The initial Andersen's health behavioral model was developed in the 1960s with the attempts of understanding and predicting the factors that lead to families' use of health services. This original model focused on studying family as the unit. The author believed that the health services that individuals received is "most certainly a function" of the socioeconomic features of their family (Andersen, 1995, p.1). This initial model was questioned in its ability in predicting service use, and its vague definition of many factors. In the 1970s, the model was improved by changing its analysis unit from family to individual. The author attributed this change to difficulty of measurement at the family level due to potential heterogeneity within the families. This version of model featured in its innovative concept of mutability. The author perceived that in order to promote access to services, factors must be mutable to reflect behavioral changes associated with policy changes (Andersen, 1995). Some factors, such as demographic, social structure, and health beliefs were judged to be of low or medium mutability, as they cannot or hardly change in reaction to other external changes. This version had several subsequent revisions that reflected the development in knowledge and shift in policy focus. The third version model was published in the 1980s-1990s, with the feature of acknowledging and considering the effect of external environment, including physical, political, and socioeconomic environment, in the understanding of health service utilization. Individual behaviors were believed to have interactions with health services, and could jointly affect the health outcomes (Evans & Stoddart, 1990; Public Health Service, 1990).

The fourth and most widely used version of Andersen's health behavioral model was developed in 1995 (i.e. the Andersen's model). The Andersen's model categories three major factors: predisposing, enabling, and need factors:

1) Predisposing factors identify the factors that are independent of personal circumstances and experiences that may cause the need for service use. Predisposing factors include: *i*) demographic and background characteristics, such as age, gender, and ethnicity, and other "biological imperatives" (Andersen & Davidson, 2001, p.7); *ii*) variables that cannot be changed in the short term, such as education and occupations; *iii*) health beliefs and cultural norms; and *iv*) demographic and social composition of the communities to which the individual belongs.

2) Enabling factors explain differences in the resources available to the individual in their use of health services. For instance, individuals who have better English proficiency can better communicate their symptoms, concerns, and treatment plans with service providers, and therefore, are considered to have stronger enabling factors. Access to health service can be viewed as another important enabling factor to the use of mental health services.

3) Need factors refer to mental health problems that are in need of mental health services, including both actual and perceived needs, for mental health services.

Andersen's behavioral model serves as a theoretical foundation upon which the dissertation studies are conceptualized and framed up. Application of Andersen's behavioral model of health service utilization to Asian American population can be strengthened with the recognition of the important role of culturally-based health perceptions and beliefs towards mental health problems and service use. In many Asian cultures, causes of mental health problems are perceived as lack of harmony of emotions, as evil minds, or as family disharmony.

Incidence of mental health problems is oftentimes viewed as the stigma of individuals and families (Fung & Wong, 2007; Hwang, Myers, Abe-Kim & Ting, 2008). The fear of being stigmatized may prevent Asians from acknowledging their mental health problems and seeking for treatment.

Further, the central role of family in Asian cultures may provide opportunities or set barriers to the use of mental health services. Whenever problem occurs, Asians Americans tend to seek for support or problem solving from family, the most important unit in Asian culture. If seeking help outside of family, other people of their ethnic community may view this family as unable or irresponsible to take care of their family members. Studies have documented that the unique role of family in Asian cultures may prevent Asians from using mental health services. Research on the potential effects of family relation, such as family cohesion and family conflict, to mental health service use among Asian Americans is scarce. In addition, given that a high proportion of Asian American population are recent immigrants, it is essential to understand how family cohesion and family conflict may interact with immigration-related factors, and jointly affect Asian Americans' mental health service use.

The Current Studies

The dissertation consists of three correlated studies. Purpose of the three current studies in the dissertation is to advance the understanding on the status quo and influencing factors of mental health situation and mental health service utilization among Asian Americans.

Specifically, Study One, Chapter 2, examines the overall prevalence and specific pattern of Asian Americans' mental health service utilization on the basis of a nationally representative data from National Latino and Asian American Study (NLAAS). Guided by the Andersen's behavior model of health service use, this study also aims at identifying factors associated with

Asian Americans' mental health service use, as well as investigating the independent and joint influence of these factors to the use of mental health services.

Study Two, Chapter 3, addresses the impacts of one's perception of social status, individually, or jointly with the life-changing event and stressor-immigration, to the mental health outcomes of Asian Americans. In particular, Study Two explores if association exists between Asian immigrants' perceived social status, both in their country of origin and in the U.S., and the presence of lifetime and 12-month DSM-IV diagnosable psychiatric disorder. In addition, this study also seeks to examine if immigration-related factors, including age at immigration, years of residence in the U.S., English proficiency, and voluntary/involuntary immigration, are associated with the occurrence of any lifetime and 12-month psychiatric disorder. The combined influence of perceived social status and immigration-related factors on Asian immigrants' lifetime and past-year DSM-IV psychiatric disorder occurrence is assessed using multiple logistic regression.

In Study Three, Chapter 4, the effect of family relation to Asian Americans' mental health service use is examined. Using nationally representative data from National Latino and Asian American Study (NLAAS), Study Three seeks to answer the following research questions: Will more cohesive families give rises to mental health service use or vice versa? Will more conflictual family relationship lead to heightened use of mental health services or vice versa? Accounting for immigration-related factors, the study also attempts to investigate if the impact of family relation to Asian Americans' mental health service utilization will be moderated.

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CHAPTER 2

EXPLORING FACTORS ASSOCIATED WITH ASIAN AMERICANS' MENTAL HEALTH SERVICE UNDERUTILIZATION:

AN APPLICATION OF ANDERSEN'S BEHAVIORAL MODEL OF HEALTH SERVICE USE[1]

[1] Wang, X. To be submitted to *Journal of Immigrant and Minority Health*.

Abstract

Objectives. This study examines the prevalence and pattern of mental health-related service use in a nationally representative sample of Asian Americans. Types of mental health-related service use examined include: specialty mental health services, general health services, human or alternative services, and any type of mental health-related services. Particularly, guided by Andersen's health behavioral model, this study focuses on exploring influencing factors and their effects to Asian Americans' mental health service use.

Methods. This study features a secondary data analysis. Data are derived from the National Latino and Asian American Study (2002-2003). Asian Americans originate from China, Vietnam, and Philippines are included in the current study.

Results. Approximately 6.8% of the total sample (n=1628) used any type of mental health-related services in past year. Several factors are found significantly correlated to utilization of certain types of mental health-related services. Among which, marital status, age at immigration, and past year DSM-IV diagnosis are found to have significant association with each and any type of services. Respondents who are previously married, US born, or having DSM-IV diagnosable psychiatric disorder in past 12-month are more likely to use any type of mental health-related services.

Conclusions. The overall prevalence of mental health related service use is low among Asian Americans. Further studies on factors influencing Asian Americans' mental health service use, along with more tailored policies and interventions, are suggested to better meet the needs of this population.

Keywords: Asian Americans Mental Health Service Utilization Influencing Factors Andersen's behavioral model of health service use

Introduction

Representing the fastest growing racial or ethnic group in the United States, 21 million Asian Americans currently live in the U.S, accounting for 6% of the total population. By 2050, the size of Asian American population is projected to double to 41 million (U.S. Census Bureau, 2015). As the Asian American population booms, so will their mental health needs.

Asian Americans' mental health

Despite of the ever-increasing needs, there is a lack of a unified understanding on the mental health situation among Asian Americans. For years, the mainstream scholarly view has uphold the belief that Asian Americans are at a high risk for specific mental health problems at a prevalence which is comparable to or higher than the general population (Hurh & Kim, 1990; Ying, 1988). Recent research found that over 13% of Asian Americans has a diagnosable mental illness within a 12-month period (SAMHSA, 2014).

In addition to the overall elevated risk of developing mental health problems, Asian Americans' mental health also features heterogeneity within this population. Specifically, Asian Americans' mental health situation varies across race and ethnicity groups. For instance, higher prevalence of posttraumatic stress disorder (or PTSD) are found among Southeast Asians, as compared to other ethnicity groups within the Asian American population (Sue, Cheng, Saad, & Chu, 2012). Asian Americans whose origins are Chinese, Southeast Asians, or Koreans demonstrate a higher risk of having depression as compared to Japanese- and Filipino-descendants (Takeuchi & et al., 2007; Blair, 2000; Kinzie et al. 1997).

Asian Americans' mental health status also differs among age groups. Studies have shown that Asian Americans who are at their later life suffer from a range of mental health problems (Escobar, Nervi, & Gara, 2000; Pumariega, Rothe, & Pumariega, 2005; Mui et al.,

2003; Stokes et al., 2001). Elder Asian immigrants, especially, endorse a significantly higher prevalence of depression than their US-born counterparts (Lam, Pacala, & Smith, 1997; Stokes et al., 2001).

Asian Americans' mental health service use

Despite the fact that Asian Americans are vulnerable to mental health problems, studies found that Asian Americans demonstrated lower rates of mental health-related service utilization. Nationally, Asian Americans have significantly underutilized mental health services as compared with the non-Hispanic White population (Cheung & Snowden, 1990; Matsuoka, Breaux, & Ryujin, 1997; Harris, Edlund, & Larson, 2005; Wells, Klap, Koike, & Sherbourne, 2001), and the general population (Abe-Kim & et. al., 2007; Kung, 2003, 2004; Xu et al. 2011). In a 2008 study conducted by Alegria and colleagues, 8,762 racial and ethnic minorities (including Asian-, Latino- and African Americans) and non-Hispanic White were compared regarding the treatment they received for depression. Among those who demonstrate past year depressive disorders, Asian Americans are found to be significantly less likely to receive any treatment at all (Alegria et al.,2008).

Moreover, Lin, Inui, Kleinman, and Womack (1982) found that Asian Americans tended to show longer delay for treatment when ill (1,553 days) than did Caucasian Americans (607.4 days). When Asians Americans eventually turn to seek help from professional mental health services, they are generally more severely ill than whites who use the same services (Sue, 1999), and less likely to receive adequate treatment (Alegria et al.,2008).

There are many factors that attribute to the underutilization of mental health services among Asian Americans. The exploration of factors influencing mental health service use can be strengthened using the Andersen's behavioral model of health service use (Andersen, 1995,

2001). Originally developed to study the determining factors of health service use for the non-Hispanic White population, the Andersen's behavioral model has been frequently applied to study on mental health service use and attitudes among diverse racial and ethnic groups (Albizu-Garcia, et al., 2001; Cooper-Patrick et al., 1999; Jang et al., 2007). The Andersen's model constructed three major categories of influencing factors: predisposing, enabling, and need factors:

1) Predisposing factors refer to the factors that are independent of personal circumstances and experiences, and can influence individuals' needs and opportunities for service use, including: a) demographic and background characteristics, such as age, gender, and other "biological imperatives" (Andersen & Davidson, 2001, p.7); b) variables that cannot be changed in the short term, such as education and occupations; c) health beliefs and cultural norms; and d) natural and social composition of the communities to which the individual belongs.

2) Enabling factors explain differences in the resources available to the individual in using health services. For instance, individuals who possess more disposable income or wealth to pay for health service are considered to have stronger enabling factors to use of health services. Access to health services is another important enabling factor.

3) Need factors identify the mental health problems that are in need of mental health services, such as depression and mental disorders. Need factors represent both actual and perceived needs for mental health care services (Andersen, 1995; Babitsch, Gohl, & Lengerke, 2012).

Gaps in the literature

Previous studies have used some of the foregoing factors to examine mental health service utilization among Asian Americans. For instance, predisposing factors and enabling factors, such as age and insurance coverage, respectively, have been found to have consistent influence to mental health service use among Asian Americans (Bauer et al., 2010; Kim et al., 2011; Alegria et al. 2006). Other factors, such as gender and English proficiency are found to have association with mental health service use. The directions and strengths of these associations, nevertheless, are not consistent, especially when interplaying with other factors (Alegria et al. 2007; Gilmer et al. 2007; Takeuchi et al. 2007). In brief, few studies have examined the whole set of factors in the three categories- predisposing, enabling, and need- constructed by the Andersen's model, and investigated their associations with and effects to Asian Americans' mental health service use. This study will fill the gap in the literature by taking factors in all of the three categories into consideration in the investigation of their associations and influences to mental health service use among Asian Americans.

Furthermore, previous studies focus primarily on the use of specialty mental health services, as well as the use of any type of mental health-related services. Given the fact that a majority of Asian descents hold stigma towards the causes of mental health problems and seeking help for mental health needs, it is critical to understand Asian Americans' use of other treatment options, as well as exploring its influencing factors. This current study will expand the existing understanding by looking at Asian Americans' use of general health services and human or alternative services for mental health problems, in addition to that of specialty mental health services and any type of mental health-related services.

Study Aims

Using a nationally representative data from National Latino and Asian American Study (NLAAS) and applying the Andersen's behavior model of health service use, this current study aims at 1) examining prevalence and pattern of Asian Americans' mental health service use; 2) identifying factors associated with Asian Americans' mental health service use; 3) investigating the independent and, if possible, joint influence, of these factors to the use of mental health services.

Methods

Data and Sample

Current study employs secondary data analysis. Data analyzed is from the National Latino and Asian American Study (NLAAS). The National Latino and Asian American Study (2002-2003) is part of the Collaborative Psychiatric Epidemiology Studies (CPES) funded by National Institute of Mental Health (NIMH). Up to 2017, the NLAAS is the most comprehensive study that provides national information regarding mental illness and service use of Latinos and Asian Americans ever conducted (Alegria et al., 2004). It also seeks to assess the influence of race/ethnicity, socioeconomic status, and environmental context in potential health and service use differences on individual and population levels.

The study design and sampling procedure of NLAAS have been previously documented in great detail. In short, using race/ethnicity as stratum, the NLAAS utilized a three-tiered stratified sampling method to obtain more information that allows for subgroup analysis (Heeringa et al., 2004). Stratum used in NLAAS sampling include: Puerto Rican, Cuban, Mexican, Other Latinos, Chinese, Vietnamese, Filipino, and Other Asians. To be eligible to participate in the NLAAS study, respondents were required to meet all of the following

requirements: 1) being a Latino, Hispanic, or Spanish descendant, or an Asian descendant; 2) aged 18 years or older; 3) living in the non-institutionalized population of the coterminous United States and Washington D.C. The final NLAAS sample consisted of a total of 4,649 respondents, including 2,554 Latino-Americans and 2,095 Asian-Americans. In order to ensure the representativeness of the sample to the population, sample weights were constructed to justify unequal probability of selection, non-respondents, and post-stratification. The weighted response rates were: 73.2% for the total sample, 75.5% for the Latino Americans, and 65.6% for the Asian Americans, respectively (Heeringa et al., 2004). The study used primarily face-to-face interview and was administered in respondents' choice of language, including English, Spanish, Chinese, Vietnamese, or Tagalog by bilingual interviewers.

The analysis conducted for the present study included only Asian Americans aged 18 or older from three specific ethnic groups: Chinese, Filipino, and Vietnamese (N=1,628). Specifically, the subsample sizes are n=600 for Chinese, n= 508 for Filipino, and n= 520 for Vietnamese, respectively. Respondents identified as "Other Asian" including Asian Indians, Pakistanis, Bangladeshis, and Nepali descendants, as well as respondents identified in the Koreans and Japanese subgroups, were excluded in the present data analyses. This is so because their health and behavioral characteristics associated with heterogeneity of races and cultures within the "Other Asian" group are unknown. In addition, the sample sizes of each race/ethnicity subgroup within the "Other Asian" group was too small to yield accurate data analysis.

Measures

Variables

Dependent Variables

The primary dependent variables in the present study are past year service provider use. Past year service provider is assessed by asking respondents if they went to see [provider on list] for problems with their "emotions, nerves, or use of alcohol or drugs" from a list of service providers within the past 12 months. Three types of services are constructed in the study: 1) specialty mental health service provider, including psychiatrists, psychologists, or other mental health professionals; 2) general health service provider, including medical doctors, non-MD health care practitioners, or nurses; and 3) human or alternative service providers, such as social workers, counselors, religious or spiritual advisers, healers, self-help groups, or online support groups.

Aiming at understanding the prevalence and pattern of Asian Americans' mental health service use, each of the abovementioned service provider types were examined. In addition, to obtain the big picture of the overall prevalence, this study also examined "any mental health-related service use", which is defined as using any services that represent specialty mental health service provider, general health service provider, or human or alternative service providers for problems with their "emotions, nerves, or use of alcohol or drugs" within the past 12 months.

The final dependent variables are four binary variables, including: specialty mental health service use, general health service use, human or alternative service use, and any mental health-related service use, respectively. For each of the four binary variables, service use was coded 0 if respondent did not have any use of the corresponding type of service within the past 12 months, otherwise coded as 1 if the service was used at least once.

Independent Variables

Predisposing Factors

Five factors identified as predisposing factors were used in the analysis, including gender, age, work status, marital status, and education attainment. Gender is coded as female or male. Age are divided into 4 categories: 18-34 years old, 35-49 years old, 50-64 years old, and 65 years or above. Work status is coded as employed or not employed. Marital status is coded into 3 categories: Married/cohabiting, previously married (including divorced, separated, and widowed), and never married. Education attainment was coded into 4 categories: less than 11 years, 12 years, 13-15 years, and 16 years or above.

Enabling Factors

Five factors identified as enabling factors were analyzed in this study, including household income, insurance coverage status, English proficiency, age at immigration, and number of years in US. Household income was categorized as less than $15,000, $15,000-$34,999, $35,000-$74,999, or more than $75,000. Insurance coverage combined all insurance coverage sources, including military, employer, insurance company, Medicare, government assistance program, and state insurance programs. Responses were dichotomized into having health insurance or not. English proficiency was assessed by asking respondents the question "How well do you speak English?" Responses were coded into 2 categories: "Poor or fair", or "Good or excellent". Age at immigration was divided into 5 categories: US born, less than 12 years, 13-17 years, 18-34 years, and more than 35 years. Number of years was categorized as: US born, less than 5 years, 5-10 years, 11-20 years, and more than 20 years.

Need Factors

Two need factors were analyzed in this current study, including actual needs: 1) any diagnoses in past 12-month based on the Diagnostic and Statistical Manual of Mental Disorders, 4th Edition (DSM-IV; American Psychiatric Association 1994); and perceived needs: 2) self-reported mental health. Any DSM-IV diagnosis within the past 12 months was coded as 0 (no), if respondents were not diagnosed with any of the following DSM-IV disorders within the past 12 months: agoraphobia, alcohol abuse/dependence, drug abuse/dependence, eating disorder, generalized anxiety, dysthymia, intermittent explosive disorder, major depression, panic attack, panic disorder, posttraumatic stress disorder, and social phobia. Otherwise, the response was coded as 1 (yes). Self-reported mental health was assessed with one question "How would you rate your overall mental health - excellent, very good, good, fair, or poor?" Responses were separated into five categories: excellent, very good, good, fair, poor.

Analysis procedures

The current study was restricted to 1628 Asian Americans who were aged 18 or older and were from three specific ethnic groups: Chinese, Filipino, and Vietnamese. Data analysis of the current study consisted of three steps. First, a descriptive analysis was run to provide an overall picture of the socioeconomic characteristics of the three ethnic sub-groups, and the total Asian American sample in the study. Second, a bivariate analysis was conducted to examine the association between past year service provider use and independent variables. Specifically, Chi-square tests for Association were performed using SPSS to examine if association existed between any of the independent variables (including predisposing factors, enabling factors, and need factors), and past year service provider use (including specialty mental health service provider use, general health service provider use, human or alternative service provider use, and

any service provider use). Third, a logistic regression analysis was employed using SPSS to test the effects of the factors that were found significantly associated with past year service provider use in the second step.

Results

Descriptive Analysis

Table 2.1 presents descriptive statistics of the demographics of the three ethnic sub-groups (Chinese-, Vietnamese-, and Filipino-Americans) and the total Asian American sample. In brief, for the total Asian American sample, the majority are female (53.2%), less than 50 years old (70.2%, including 34.6% aged 18-34 years old and 35.6% aged 35-49 years old), employed (66.1%), married or cohabiting (70.3%), with good or excellent English proficiency (55.6%), having at least high-school diploma (63.2%, including 25.4% receiving 13-15 years of education while 37.8% receiving education for 16 years or more), with household income no less than $35,000 (65%, including 25.4% making $35,000-$74,999 per year while 39.6% making over $75,000).

Sociodemographic characteristics in the three ethnic sub-groups, (Chinese-, Vietnamese-, and Filipino-Americans) are generally consistent with those of the total Asian American sample. However, it's noticeable that the majority of Vietnamese Americans reported having poor of fair English proficiency (70.7%), which is contradict from the other two subgroups (Chinese: 43.6%; Filipinos: 18.2%), and the total Asian sample (44.4%) . In addition, the majority of Chinese Americans reported had received education for over 16 years (50.3%), while the percentages were 23.7% for Vietnamese Americans and 37.4% for Filipino Americans, respectively. Chinese and Filipino Americans also featured greater percentages of making higher annual household

income (greater than $75,000), at 43.8% and 49.2%, respectively, as compared to Vietnamese Americans (25.4%).

Table 2.1. *Sample description of Chinese Americans, Vietnamese Americans, Filipino Americans, and Total Asian American sample (Weighted %, N=1628)*

Demographic variables	**Chinese (*n* = 600)**	**Vietnamese (*n* = 520)**	**Filipinos (*n* = 508)**	**Total Asian (*N* = 1628)**
Gender				
Female	52.7 %	53.3 %	53.7 %	53.2 %
Male	47.3 %	46.7 %	46.3 %	46.8 %
Age				
18-34	35.0 %	31.2 %	37.6 %	34.6 %
35-49	37.5 %	36.3 %	32.7 %	35.6 %
50-64	20.5 %	23.1 %	20.5 %	21.3 %
≥ 65	7.0 %	9.4 %	9.3 %	8.5 %
Work status				
Employed	68.0%	62.7%	67.3 %	66.1 %
Not employed	32.0%	37.3%	32.7 %	33.9 %
Marital Status				
Married/cohabiting	69.0%	73.8 %	68.1 %	70.3 %
Previously married	10.2%	7.3 %	9.8 %	9.2 %
Never married	20.8%	18.8 %	22.0 %	20.6 %
English proficiency				
Poor or fair	43.6 %	70.7 %	18.2%	44.4%
Good or excellent	56.4 %	29.3 %	81.8 %	55.6 %
Education				
0-11 years	14.2 %	29.2 %	10.4 %	17.8 %
12 years	16.0 %	22.3 %	19.1 %	19.0 %
13-15 years	19.5 %	24.8 %	33.1 %	25.4 %
≥ 16 years	50.3 %	23.7 %	37.4 %	37.8 %
Household income ($)				
< 15,000	18.7 %	26.2 %	12.4 %	19.1 %
15,000-34,999	13.7 %	22.7 %	11.6 %	15.9 %
35,000-74,999	23.8 %	25.8 %	26.8 %	25.4 %
≥ 75,000	43.8 %	25.4 %	49.2 %	39.6 %

Bivariate Analysis

Secondly, cross-tabulation is utilized to identify if significant association exists between each independent and dependent variable. Specifically, chi-square test for association is

performed to examine if each of the predisposing, enabling, needs factors, is significantly correlated to past year utilization of specialty mental health services, general health services, human or alternative services and any type of service, respectively.

Overall, the result of the current study reveals a relatively low prevalence of mental health service use. Only 6.8% of the sample used any type of service for problems with "emotions, nerves, or use of alcohol or drugs" in the past 12 months. Among those who participated in any treatment, slightly more tend to use specialty mental health services (3.1%) over general health services (2.7%) or human or alternative services (2.8%).

Table 2.2 summarizes the results of chi-square tests for association between each independent predisposing variable (gender, age, work status, marital status, education attainment) and dependent variable. In regards to specialty mental health service use, work status (X^2 (1)=8.512, p<.01) and marital status (X^2 (2)=15.89, p<.001) are found to have significant association. Respondents who are not employed are more likely to use specialty mental health service than those who are employed (4.9% vs 2.2%). Previously married (divorced, separated, and widowed) are more likely to use specialty mental health service (7.4%) as compared to those who are married/cohabiting (2.1%) and never married (4.8%). Similar results are found in regards to general health service use, to which work status (X^2 (1)=10.59, p<.01) and marital status (X^2 (2)=10.72, p<.001) are found to be significantly correlated. Respondents who are not employed are more likely to use general health services for mental health problems than those who are employed (4.5% vs 1.8%). Previously married are more likely to use general health services (6.0%) as compared to those who are married/cohabiting (1.9%) and never married (3.9%). With regard to human or alternative services, gender, age, and marital status are found to have significant correlation. Higher prevalence of use human or alternative service utilization is

observed among those who are female (3.7%), younger adults aged 18-34 years old (4.4%), and never married (6.9%). Overall, age and marital status are found to be significantly associated with use of any type of service. Specifically, those who are at two extremes of age in their adulthood, aged 18-34 years old and aged over 65 years, are more likely to use any type of service for mental health needs. Previously married, again, demonstrates a higher prevalence of participating in any type of treatment (14.1%) than those with other marital status.

Table 2.2. *Combined results of Chi-square tests for Association between Predisposing Factors and Past Year Service Use (Weighted %, N = 1628)*

		No.	Specialty Services 51 (3.1%)	General Services 44 (2.7%)	Human or Alternative Services 45 (2.8%)	Any type of Services 110 (6.8%)
Gender						
n (%)	Female	866	27 (3.1%)	27 (3.1%)	32 (3.7%)*	68 (7.9%)
	Male	762	24 (3.1%)	17 (2.2%)	13 (1.7%)*	42 (5.5%)
Age group						
n (%)	18-34	563	22 (3.9%)	15 (2.7%)	25 (4.4%)**	49 (8.7%)*
	35-49	580	12 (2.1%)	14 (2.4%)	15 (3.3%)**	33 (5.7%)*
	50-64	347	11 (3.2%)	7 (2.0%)	2 (0.6%)**	15 (4.3%)*
	≥ 65	138	6 (4.3%)	8 (5.8%)	3 (2.2%)**	13 (9.4%)*
Work						
	Employed	1076	24 (2.2%)**	19 (1.8%)**	24 (2.2%)	54 (5.0%)*

status *n* (%)	Not employed	552	27 (4.9%)**	25 (4.5%)**	21 (3.8%)	56 (10.1%)*
Marital status *n* (%)	Married/cohabiting	1144	24 (2.1%)***	22 (1.9%)***	16 (1.4%)***	51 (4.5%)***
	Previously married	149	11 (7.4%)***	9 (6.0%)***	6 (4.0%)***	21 (14.1%)***
	Never married	335	16 (4.8%)***	13 (3.9%)***	23 (6.9%)***	38 (11.3%)***
Education *n* (%)	0-11 years	290	9 (3.1%)	8 (2.8%)	4 (1.4%)	19 (6.6%)
	12 years	309	13 (4.2%)	9 (2.9%)	7 (2.3%)	21 (6.8%)
	13-15 years	414	11 (2.7%)	12 (2.9%)	14 (3.4%)	26 (6.3%)
	≥ 16 years	615	18 (2.9%)	15 (2.4%)	20 (3.3%)	44 (7.2%)

*p<.05; **p<.01; ***p<.001

Table 2.3 summarizes the results of chi-square tests for association between each independent enabling variable (household income, insurance coverage, English proficiency, age at immigration, and number of years in US) and dependent variables. Overall, age at immigration is the only factor that is found to be significantly associated with all the dependent variables. Specifically, in terms of specialty mental health service use, household income (X^2 (3)=11.77, p<.01) and age at immigration (X^2 (4)=17.05, p<.01) are found to have significant correlation. Higher prevalence of using specialty mental health services is observed among those whose annual household income is lower than $15,000 (6.1%). Respondents who were born in the U.S.

or came to the U.S. during childhood (i.e. less than 12 years old) are more likely to make use of specialty services, at the rates of 5.3% and 5.3%, respectively. It's worth noting that English proficiency, age at immigration, and length of residence in the U.S. all demonstrate significant association with the use of human or alternative services. Respondents who reported speaking good or excellent English is observed to have a higher tendency of using human or alternative services. Similar as the use of specialty services, those who are U.S. born or immigrated before 12 years old are more likely to use human or alternative services (6.3% and 4.7%, respectively). In addition to those who are U.S. born, respondents who live in the U.S. for less than 5 years or over 20 years are more likely to use this kind of service.

Table 2.3. *Combined results of Chi-square tests for Association between Enabling Factors and Past Year Service Use (Weighted %, N = 1628)*

		No.	Specialty Services 51 (3.1%)	General Services 44 (2.7%)	Human or Alternative Services 45 (2.8%)	Any type of Services 110 (6.8%)
Household Income ($) *n* (%)	< 15,000	311	19 (6.1%)**	13 (4.2%)	11 (3.5%)	32 (10.3%)
	15,000-34,999	259	5 (1.9%)**	5 (1.9%)	7 (2.7%)	14 (5.4%)
	35,000-74,999	413	12 (2.9%)**	10 (2.4%)	7 (1.7%)	26 (6.3%)
	≥ 75,000	645	15 (2.3%)**	16 (2.5%)	20 (3.1%)	38 (5.9%)

Insurance Coverage *n* (%)	No	281	5 (1.8%)	4 (1.4%)	12 (4.3%)	18 (6.4%)
	Yes	1347	46 (3.4%)	40 (3.0%)	33 (2.4%)	92 (6.8%)
English Proficiency *n* (%)	Poor or fair	720	19 (2.6%)	21 (2.9%)	11 (1.5%)**	41 (5.7%)
	Good or excellent	903	31 (3.4%)	23 (2.5%)	34 (3.8%)**	68 (7.5%)
Age at Immigration *n* (%)	US born	302	16 (5.3%)**	13 (4.3%)*	19 (6.3%)***	35 (11.6%)***
	≤ 12 yrs	190	10 (5.3%)**	7 (3.7%)*	9 (4.7%)***	19 (10.0%)***
	13-17 yrs	114	3 (2.6%)**	4 (3.5%)*	4 (3.5%)***	9 (7.9%)***
	18-34 yrs	676	8 (1.2%)**	8 (1.2%)*	9 (1.3%)***	23 (3.4%)***
	≥ 35 yrs	343	14 (4.1%)**	12 (3.5%)*	4 (1.2%)***	24 (7.0%)***
Number of Years in US *n* (%)	US born	302	16 (5.3%)	13 (4.3%)	19 (6.3%)**	35 (11.6%)
	≤ 5 yrs	192	3 (1.6%)	3 (1.6%)	7 (3.6%)**	11 (5.7%)
	5-10 yrs	261	8 (3.1%)	8 (3.1%)	4 (1.5%)**	16 (6.1%)
	11-20 yrs	447	13 (2.9%)	11 (2.5%)	7 (1.6%)**	26 (5.8%)
	≥ 20 yrs	423	11 (2.6%)	9 (2.1%)	8 (1.9%)**	22 (5.2%)

*p<.05; **p<.01; ***p<.001

Table 2.4 is a summarization of chi-square test results between each need factor and dependent variable. Objective need, past year DSM-IV disorder diagnosis, is proved to be

significantly associated with the use of each and any type of services. Respondents with diagnosable DSM-IV in past 12-month use specialty services significantly more likely (16.3%) than those who don't have any DSM-IV diagnosis (1.8%). Same tendency is also observed in the use of general services (16.3% vs 1.4%), human or alternative services (15.0% vs 1.6%), and the overall utilization of any type of treatment (33.3% vs 4.1%). Subjective need, self-rated mental health, is found to be significantly correlated with the use of specialty and general services. Those who reported their mental health status as poor tend to address their mental health needs by making use of specialty and general services in much higher rates (33.3% and 25.0%, respectively), as compared to those who reported excellent/very good/good mental health status. Overall, respondents who perceived themselves as having better mental health are less likely to use any type of mental health-related services.

Table 2.4. *Combined results of Chi-square tests for Association between Need Factors and Past Year Service Use (Weighted %, N = 1628)*

		No.	Specialty Services 51 (3.1%)	General Services 44 (2.7%)	Human or Alternative Services 45 (2.8%)	Any type of Services 110 (6.8%)
Self-rated mental health *n* (%)	Excellent	447	6 (1.3%)***	6 (1.3%)***	9 (2.0%)	15 (3.4%)***
	Very good	543	11 (2.0%)***	11 (2.0%)***	13 (2.4%)	28 (5.2%)***
	Good	457	13 (2.8%)***	13 (2.8%)***	16 (3.5%)	36 (7.9%)***

	Fair	144	8 (5.6%)***	4 (2.8%)***	4 (2.8%)	13 (9.0%)***
	Poor	36	12 (33.3%)***	9 (25.0%)***	3 (8.3%)	17 (47.2%)***
Any DSM-IV disorder in past 12-month	No	1481	27 (1.8%)***	20 (1.4%)***	23 (1.6%)***	61 (4.1%)***
	Yes	147	24 (16.3%)***	24 (16.3%)***	22 (15.0%)***	49 (33.3%)***

n (%)

*p<.05; **p<.01; ***p<.001

In summary, the prevalence of mental health service utilization is notably low among Asian Americans. Only 6.8% of Asian American respondents in this current study have used any type of services to address their mental health problems in the past 12 months. If taking a closer look of each specific type of mental health related services, the prevalence is further lowered to around 3%, with 3.1% used specialty services, 2.7% used general services, and 2.8% used human or alternative services, respectively.

In regards to influencing factors, all show significance with utilization of certain types of services to some degree, except education attainment and insurance coverage. Specifically, work status, marital status, household income, age at immigration, self-rated mental health, and past year DSM-IV diagnosis, are factors that found statistically associated with the use of specialty mental health services. As for general health services, influencing factors are almost identical except that household income is not found significantly correlated. In terms of human and alternative services, gender, age, marital status, English proficiency, age at immigration, length of residency in the U.S., along with past year DSM-IV diagnosis, are proved to have significant association.

Overall, three factors: marital status as predisposing factor, age at immigration as enabling factor, and past year DSM-IV diagnosis as need factor, are found to have significant associations with each and any type of services.

Multivariate Analysis

Third, logistic regression tests are conducted to estimate the effects of the three factors that were identified in the second step of analysis - marital status, age at immigration, and DSM-IV diagnosis, to the use of any type of service during past 12 months. Table 2.5 presents results of the estimation, including coefficients, standard errors, odd ratios and 95% confidence intervals. Specifically, respondent who are previously married are 2.46 times more likely to use any type of mental health-related services (OR=2.460, p<.01, 95% CI [1.362, 4.443]), comparing to those who are married or cohabiting. Immigrants who arrived in the U.S. during 18-34 years old are less likely to use any type of mental health-related services (OR=0.467, p<.05, 95% CI [0.257, 0.850]), as compared to their US born counterparts. Respondents who has had any DSM-IV disorder in past 12 months are 9.34 times more likely to use any type of mental health-related services (OR=9.335, p<.001, 95% CI [5.982, 14.567]) than those who hasn't had any past year DSM-IV disorder.

Table 2.5. *Logistic Regression results for Past Year Service Use (N=1628)*

Variable		B (SE)	OR (95% CI)
Marital status			
(Married/cohabiting)			
	Previously married	.900** (.302)	2.460 (1.362, 4.443)
	Never married	.493 (.264)	1.638 (.975, 2.750)

Age at immigration			
(US born)			
	≤ 12 yrs	–.113 (.330)	.893 (.468, 1.705)
	13-17 yrs	–.095 (.420)	.910 (.399, 2.072)
	18-34 yrs	–.761* (.035)	.467 (.257, .850)
	≥ 35 yrs	–.109 (.317)	.897 (.482, 1.671)
Any DSM-IV disorder			
past 12 months			
(No)			
	Yes	2.234*** (.227)	9.335 (5.982, 14.567)

*p<.05; **p<.01; ***p<.001

Conclusions and discussions

This study has examined the prevalence and pattern of Asian Americans' mental health service use. Findings of the study indicate that Asian Americans appear to have a low prevalence (6.8%) of mental health-related service utilization. This rate is significantly lower than that of the general population and other racial/ethnic groups. This finding is consistent with previous studies (Abe-Kim et. al., 2007; Kung, 2003, 2004). Among those who have used any type of services to address their mental health problems in the past 12 months, a slightly higher percentage of respondents would choose to use specialty mental health services (3.1%) over other type of services. It's worth noting that Asian Americans demonstrate a relatively high rate (2.8%) of using human or alternative services for mental health problems, in comparing their choice of

mental health-related services. Yet, the rate of human or alternative services among Asian Americans is still lower than that of the general population (Abe-Kim et al., 2007).

Despite the overall finding of low prevalence of mental health service utilization among Asian Americans, there are differences in service use within this particular population. Many factors may influence Asian Americans' use of mental health-related services. For instance, work status, marital status, household income, age at immigration, self-rated mental health, and past year DSM-IV diagnosis, are found to be significantly correlated to Asian Americans' use of specialty mental health services. All the factors mentioned above, with the exception of household income, are also found significantly associated with general health service use. Additionally, gender, age, marital status, English proficiency, age at immigration, years of residency in the U.S., as well as past year DSM-IV diagnosis, are proved to have significant association with the use of human or alternative services.

Marital status, age at immigration, and past year DSM-IV disorder are the three factors that are statistically significant in the use of each and any type of mental health related services. Respondents who are previously married are more likely to use any type of mental health-related services than married/cohabiting ones. Those who has had any DSM-IV disorder in past 12 months are significantly more likely to use any type of services. Moreover, respondents who immigrated to the U.S. when they were 18-34 years old are less likely to use any type of mental health-related services than their US born counterparts.

Conclusively, this study has examined the prevalence and pattern of mental health service use among Asian Americans, identified factors associated with their service use, and investigated the effects of such factors. Findings of the current study expand the current knowledge in Asian Americans' mental health service utilization, especially in the use of human or alternative

services. Although Asian Americans demonstrate a low overall rate of mental health service use, when they do seek for help for mental health issues, they are likely to use human or alternative services. Possible explanations include: the stigmatized perceptions held towards mental health problems, discrepancy in perceived or expressed mental health needs, barriers to access culturally and linguistically appropriate services, etc.

Moreover, results of the study also suggest that many factors could, to some extent, influence Asian Americans' choice of service use in determining whether or not to use mental health-related services, and/or which type of mental health-related services to be used. Some factors, such as marital status, age at immigration, and past year DSM-IV psychiatric disorder diagnosis are critical as they not only affect Asian Americans' overall use of any type of mental health-related services, but also each specific type of services, including specialty mental health services, general health services, and human or alternative services.

This study has several limitations. First, this study is based on secondary data analysis, using data from National Latino and Asian American Study. The cross-sectional nature of the NLAAS refrains the current study from determining the longitudinal effects, such as the influence of service use to respondents' health outcome, or the recursive effects of their health outcome to future service use. Moreover, the NLAAS uses retrospective measures of service use and DSM-IV diagnosis, which could result in recall and reporting biases of responses. Further, the study focus only on three sub-ethnicity groups of Asian Americans, while not examining the respondents who identified as "Other Asian" due to extremely small sample size in some service type categories. Given the known heterogeneity of races and cultures, the prevalence and patterns of mental health-related services use among the "Other Asians" subgroups are in need of further study. Last but not least, respondents' use of each and any type of mental health-related

services is coded as dichotomous variables. The frequencies of service utilization may be oversimplified and thus, could not provide more detailed information on Asian Americans' service use pattern.

To sum up, this current study marks an important endeavor in expanding the understanding of Asian Americans' mental health service use, and possesses critical social work practice, policy and research implications. In particular, Asian Americans show significantly low prevalence of mental health-related service use. Even among those who demonstrate objective or subjective mental health needs, the rate of service utilization is still significantly lower than 50%. The findings indicate the salient needs of increasing mental health service availability and accessibility to Asian Americans. It is recommended for policy makers and practitioners to raise awareness and expand education through educational presentations and informational brochure, and strengthen community outreach efforts through mental health fairs and lectures, to provide information and resources to the Asian American communities. Additionally, agencies, organizations, and frontline practitioners should follow the National Standards for Culturally and Linguistically Appropriate Services (CLAS) in Health and Health Care to provide services that are culturally and linguistically accessible and appropriate to Asian Americans. Specifically, it is suggested to: *i*) ascertain clients' preferred language of service and increase the manpower of bilingual staff to elevate the availability of services in clients' preferred or native language (Gaw, n.d.; Chin, 1998; Chun & Akutsu, 1999); *ii*) culturally adapt existing efficacious treatments and develop ethnic-specific programs to provide and deliver services that are acceptable and effective for Asian Americans (Hall, 2001; Hinton, Pich, Chhean, Safren, & Pollack, 2006); and *iii*) continuously oversee and conduct quality assurance of CLAS services, and regularly provide cultural competence training opportunities to ensure the development of cultural competence of

practitioners, agencies, and organizations. Moreover, results of the study highlight that despite the overall low utilization rate of mental health services, Asian Americans have a preference of using human or alternative services to address their mental health needs, apart from receiving specialty mental health services. This findings suggest that social work practitioners should take a prominent position in addressing the service underutilization issue among Asian Americans. In particular, it is recommended for social work practitioners to assume leadership to foster multi-agencies and multi-sectors collaboration in service provision.

In this study, factors that influence Asian Americans' use and choice of mental health services are explored guided by Andersen's behavioral model of health service use. The study finds several factors that are influential to Asian Americans' use of certain type of services. Amongst, marital status, age at immigration, and past year DSM-IV diagnosis are found to have significant association with the use of each and any type of services. Participants who are previously married, US born, or having past-year palpable diagnosable DSM-IV psychiatric disorder, are more likely to use each and any type of mental health-related services. In contrast, immigrants who arrive in the U.S. during 18-34 years old are significantly less likely to use services, at approximately half of the odds as compared to that of their US-born counterparts. This finding indicates that social work practitioners should increase outreach efforts to immigrants, especially those who immigrate at the age range of 18-34 years old, to facilitate service use. Furthermore, according to the findings from the study, those who didn't have any diagnosis of mental disorder based on DSM-IV criteria are significantly less likely to use mental health services during a 12-month period. Yet, respondents who report having psychiatric disorder diagnosis (n=147) may not necessarily overlap with those who perceive their mental health as "Poor" or "Fair" (n=180). This discrepancy stresses the needs for social work

practitioners and other mental health professionals to consistently screen for those who indeed need services, yet are missed out due to the lack of cultural adaptation of Western-based standardized assessment.

What's more, this study contributes to the advancement of understanding on the prevalence and pattern of Asian Americans' mental health-related service use and their influencing factors, which may serve as a crucial platform to inspire future studies. For instance, with a more refined understanding of the influencing factors of Asian Americans' mental health service use as identified in this study, future research can further explore the impacts of culture and immigration to Asians' service use through qualitative or mix-methods study. In particular, the influence of culturally-based health beliefs towards mental health problems, such as viewing mental illness as illegitimate disease or as stigmatized event, should be further investigated, as they may act as constraints on service use (Fung & Wong, 2007; Hwang, Myers, Abe-Kim & Ting, 2008). Likewise, this study reveals that previously identified barriers to mental health service use that are specific to or prominent among immigrants, such as English proficiency and insurance coverage, are not associated with Asian Americans' mental health service use (Abe-Kim et al., 2007; Alegria et al., 2007). Namely, English proficiency is found to have association with the use of human or alternative services only, while insurance coverage is found to have no significant correlation to each and any type of mental health-related services, among Asian Americans. Hence, it is suggested that follow-up research should take a further look at these barriers to understand their specific impacts to mental health service use among Asian Americans.

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CHAPTER 3

EXAMINING THE INFLUENCE OF IMMIGRATION AND PERCEIVED SOCIAL STATUS ON PSYCHIATRIC DISORDER AMONG ASIAN IMMIGRANTS[2]

[2] Wang, X. To be submitted to *Asian American Journal of Psychology*.

Abstract

Objectives. This study examines the influence of immigration-related factors, together with perceived social status, on lifetime and 12-month psychiatric disorders among Asian immigrants.

Methods. This study features a secondary data analysis. Data are derived from the National Latino and Asian American Study (2002-2003). Only Asian Americans who immigrate from China, Vietnam, and Philippines are included in the current study. This study uses multiple logistic regression models, controlling for objective social status and demographic variables, to estimate effects of perceived social status, as well as combined influence of perceived social status and immigration, to lifetime and 12-month psychiatric disorders among Asian immigrants.

Results. Lifetime prevalence and 12-month prevalence of any psychiatric disorder among Asian immigrants is 19.8% and 7.7%, respectively. Perceived social status in the U.S. is found to have significant negative associations with lifetime and 12-month psychiatric disorders. The associations persist after adding immigration-related factors to the estimation. Age at immigration is the only immigration-related factor found significantly correlated with lifetime and 12-month psychiatric disorders. Respondents who immigrate to the U.S. during childhood are more likely to experience lifetime and 12-month psychiatric disorders.

Conclusions. Perceived social status in the U.S. and age at immigration are found influential to lifetime and 12-month psychiatric disorders in total Asian immigrant sample. Further studies examining interactions between perceived social status and immigration (i.e. change of actual and/or perceived social status) are suggested to better understand the mental health needs of this population.

Keywords: Asian Americans Immigration Perceived Social Status Psychiatric Disorder

Introduction

The United States is rapidly becoming an ethnically and culturally diverse country since the contemporary immigration wave starting from the 1990s. With many of its people are either immigrants themselves or descendants of immigrants, the United States is expected to become a plurality nation of racial and ethnic groups, with no single majority ethnicity group (U.S. Census, 2012). Among all ethnic groups, Asian immigrants are the fastest growing one. Largely fueled by immigration, Asian American population in the United States increased 72% between 2000 and 2015 (Lopez, Ruiz, & Patten, 2017). Currently, about 21 million Asian immigrants live in the U.S., comprising 6% of the total population. At this large growth rate, the size of Asian immigrant population is projected to reach 41 million by 2050 (U.S. Census Bureau, 2016).

Vulnerability of immigrants' mental health has been established by previous studies. Immigrants often have to face a number of challenges associated with their life and culture change, such as adaptation, acculturation and family disruption (Mui, 1996). Negative consequences associated with such challenges lead to various problems, such as illness and loss of productivity, to the individual immigrants, families, and the society as a whole (Department of Health & Human Services, 2001; Lui & Rollock, 2012). Particularly, immigrants are at high risk for mental health problems due to the numerous and enormous challenges associated with culture change, while having limited resources to deal with such challenges.

Mental health of Asian immigrants

Knowledge about mental health problems and needs among Asian immigrant population, however, is still insufficient. Existing literature shows discrepancy on the understanding of mental health status among Asian immigrants. Some studies found that, comparing with the general population, Asians are at a high risk for specific mental health problems (Hurh & Kim,

1990; Ying, 1988). For instance, Asian immigrants overall are found to have an elevated risk of developing depression. Among all age groups of Asian immigrant population, elders are particularly at risk for depression. A significantly higher prevalence of depression among elder Asian immigrants, as compared to their US-born counterparts, has been found by extant research (Lam, Pacala, & Smith, 1997; Stokes et al, 2001). Further, recent studies also found that Asian immigrants suffer from other mental health problems. Asian immigrants demonstrate psychological distress, symptoms of social anxiety and trauma-related disorders, which may attribute to acculturation stress, family adjustment, change in socioeconomic status, and misidentification in the mainstream society (Takeuchi et al., 2007).

Other studies, however, show somewhat conflict findings. Based on nationally representative sample, a 2007 study show that Asian immigrants have lower overall lifetime prevalence and 12-month prevalence of any psychiatric disorder than that of the Latino descendants (Takeuchi et al., 2007). Similarly, Asian immigrants are found to have lower rates of mental disorder than Whites (Sue, Sue, Sue, & Takeuchi, 1995; Breslau & Chang, 2006).

Nevertheless, studies have evidenced that mental health status is heterogeneous across race and ethnicity groups within the Asian immigrant population. For instance, Southeast Asians are found to have higher prevalence of posttraumatic stress disorder (PTSD), comparing to other ethnicity groups within the Asian immigrant population (Sue, Cheng, Saad, & Chu, 2012). Further, people from different Asian countries are found to have different risks of developing depression. Specifically, Chinese, Southeast Asians, and Korean immigrants demonstrate a higher risk of having depression as compared to Japanese and Filipino immigrants (Takeuchi & et al., 2007; Blair, 2000; Kinzie et al. 1997).

Immigration, perceived social status, and mental health

Studies have demonstrated the effect of immigration on mental health. For instance, research found that goals/reasons of immigration influence immigrants' experience of stress and mental health outcome. Generally speaking, individuals who immigrate to the United States voluntarily (as students or professionals to seek better education or job opportunities) may experience less acculturative stress and better mental health outcome, as compared to those come to the U.S. involuntarily due to hardship (Duldulao et al., 2009; Ngin, 2000).

Age of immigration is generally considered as a risk factor of immigrants' mental health. As a stress-inducing process, immigration at the two extremes in age, childhood and old-age, leads to greater risk of mental health problems. Research found that individuals who immigrated to the United States in their childhood experience significantly higher risk of anxiety and substance-abuse as compared to those who immigrated during adolescence or adulthood (Breslau and Chang, 2006). Similar tendency has been found among the immigrants who arrive to the U.S. at the later part of their lives. When comparing with U.S.-born counterparts, immigrants who arrive in the United States at age 35 or older experience significantly higher level of emotional stress. On the contrary, for those who immigrated before 35-year-old, the level of emotional stress they experience is not higher than their U.S.-born counterparts (Angel et al., 2001).

Other challenges associated with immigration, such as low socioeconomic status, place emotional burden to immigrants and therefore, may result in depression, anxiety, and substance abuse (Ortega, Rosenheck, Alegria, & Desai, 2000). For instance, due to visa restrictions, Asian immigrants usually suffer from limited employment opportunities or under market compensations. Recent study based on nationally representative sample indicates that a notably large proportion of the Asian immigrants are in lower socioeconomic status. In addition to

objective social status, perceived social status is another important indicator of immigrants' mental health (Kingdon & Knight, 2006; Chen et. al., 2009). Perceived social status refers to individual's person perception of their socioeconomic status, health and happiness, in relation to others in the society. When immigrants assess their perceived social status, they not only consider their current socioeconomic standing, but also consciously or unconsciously take into consideration of their assessment on previous social status in country of origin and prospects for future (Zhou, 1995; Chen et. al., 2009). Perceived social status can influence immigrants' self-awareness and feelings of control and therefore, is a critical determinants of immigrants' mental health (Aneshensel, 1992; Goodman et al., 2001; Goodman et al., 2003). Many immigrants experience change of socioeconomic status, both actual and perceived difference, associated with immigration. The detrimental effect of difference in social status is particularly intensified among first generation Asian immigrants (Takeuchi et al., 2007).

Some factors, such as length of residence in the United States and English proficiency, may, to some extent, moderate mental health status of Asian immigrants. Based on the results of the Chinese American Psychiatric Epidemiological study (CAPES), Hwang and colleagues found that the Chinese immigrants, though demonstrate higher risk of developing major depression than general population, generally have decreased risk of depression as the length of residence in the United States increased (Hwang et al., 2005). English proficiency, on the other hand, is found to have significant influence to the mental health status of male Asian immigrants only (Takeuchi et al. 2007).

Study Aims

Previous studies focus primarily on understanding objective factors and their influences to immigrants' mental health. Relatively few studies have examined the influences of subjective factors, such as immigrants' own perception of social status, together with immigration-related factors to their mental health outcomes. In light of the gap in existing literature, this current research aims at investigating if Asian immigrants' perceived social status, both in their country of origin and in the U.S., are associated with lifetime and 12-month DSM-IV psychiatric disorder. In addition, this study also seeks to examine if immigration-related factors, including age at immigration, years of residence in the U.S., English proficiency, and voluntary/involuntary immigration, are associated with the presence of any lifetime and 12-month psychiatric disorder among this population. Taken together, this study further attempts to test their combined influence to Asian immigrants' DSM-IV psychiatric disorder occurrence during a 12-month period and lifetime.

Methods

Data and Sample

Current study utilized secondary data analysis. Data analyzed is from the National Latino and Asian American Study (NLAAS). The National Latino and Asian American Study (2002-2003) is part of the Collaborative Psychiatric Epidemiology Studies (CPES) funded by National Institute of Mental Health (NIMH). The NLAAS is so far the most comprehensive study that provides national information regarding mental illness and service use of Latinos and Asian Americans ever conducted (Alegria et al., 2004).

Using race/ethnicity as stratum, the NLAAS employed a three-tiered stratified sampling method to obtain comprehensive information that allows for subgroup analysis (Heeringa et al.,

2004). Stratum used in NLAAS sampling include: Puerto Rican, Cuban, Mexican, Other Latinos, Chinese, Vietnamese, Filipino, Asian Indians, and Other Asians. To be eligible to participate in the NLAAS study, respondents were required to meet all of the following requirements: 1) being a Latino, Hispanic, or Spanish descendant, or an Asian descendant; 2) aged 18 years or older; 3) living in the non-institutionalized population of the coterminous United States and Washington D.C. The final NLAAS sample consisted of a total of 4,649 respondents, including 2,554 Latino-Americans and 2,095 Asian-Americans. In order to ensure the representativeness of the sample to the population, sample weights were constructed to justify unequal probability of selection, non-respondents, and post-stratification. The weighted response rates were: 73.2% for the total sample, 75.5% for the Latino Americans, and 65.6% for the Asian Americans, respectively (Heeringa et al., 2004). The study used primarily face-to-face interview and was administered in respondents' choice of language, including English, Spanish, Chinese, Vietnamese, or Tagalog by bilingual interviewers.

The analysis conducted for the present study were restricted to Asian immigrants aged 18 or older from three specific ethnic groups: Vietnamese, Filipino, and Chinese. Respondents identified as "Other Asian" were excluded in the present data analyses due to small sample size of each race/ethnicity subgroup and heterogeneity among subgroups. Further, 305 U.S. born respondents were omitted from the analysis as this study focuses on immigrants' mental health and effect of immigration. Another 79 respondents were omitted due to missing information in key variables. The final sample size of the current study is N=1244, including 452 Vietnamese, 340 Filipino, and 452 Chinese, respectively.

Measures

Variables

Lifetime and 12-month psychiatric disorder

Dependent variables of the current study are two dichotomous variables: any lifetime psychiatric disorder and any 12-month psychiatric disorder. Any lifetime and 12-month psychiatric disorder are assessed based on the Diagnostic and Statistical Manual of Mental Disorders, 4th Edition (DSM-IV; American Psychiatric Association 1994). Any lifetime psychiatric disorder is coded as 0 (no), if respondents were not diagnosed with any of the following DSM-IV disorders during their lifetime: agoraphobia, alcohol abuse/dependence, drug abuse/dependence, eating disorder, generalized anxiety, dysthymia, intermittent explosive disorder, major depression, panic attack, panic disorder, posttraumatic stress disorder, and social phobia. Otherwise, the response was coded as 1 (yes). Similarly, any 12-month psychiatric disorder is coded as 1 (yes) if respondents experienced occurrence at least one of the abovementioned disorder within the past 12 months. Otherwise, responses is coded as 0 (no).

Immigration related variable:

Four Immigration related variable are analyzed in this study including: age of immigration, number of years in the U.S., English proficiency, and voluntary/involuntary immigration. Age of immigration is assessed with a single item, “How old were you when you first came to this country?” The responses are coded into three categories: less than 12 years old, 13-34 years old, and more than 35 years old, representing three distinct age groups-childhood, adolescent and early adulthood, and later adulthood, respectively. Number of years in the U.S. is measured as a continuous variable and separated into 2 categories: less than 5 years, and greater than 5 years. English proficiency is evaluated by asking respondents the question “How well do you speak English?” Responses are coded into 2 categories: “Poor or fair”, or “Good or

excellent". Voluntary/ involuntary immigration is assessed by asking respondents "Did you move from your country of origin because you or your family wanted to or because you had to?" Responses are coded as "voluntary" if respondents reported they wanted to move from their country of origin. Otherwise, responses are coded as "involuntary".

Perceived social status in the U.S and in country of origin.

Two dimensions of immigrants' perceived social status, perceived social status in the U.S. and perceived social status in country of origin, are assessed employing the MacArthur Scale of Subjective Social Status. The MacArthur Scale of Subjective Social Status was developed to measure the subjective social status across the common socioeconomic status indicators, using a numbered stepladder image (Adler et al., 2000). This measure has good reliability (Giatti, Camelo, Rodrigues, & Barreto, 2012) and has been utilized to examine its link to physical and mental health outcomes, adjusting for objective socioeconomic status (Operario, Adler & Williams, 2004; Hu et al., 2005; Ostrove, Adler, Kuppermann & Washington, 2000; Singh-Manoux, Adler, & Marmot, 2003). Specifically, to assess perceived social status in the U.S. using the MacArthur Scale of Subjective Social Status, respondents were instructed to:

> *Think of this ladder as representing where people stand in the United States. At the top of the ladder are the people who are the best off—those who have the most money, the most education and the most respected jobs. At the bottom are the people who are the worst off—who have the least money, least education, and the least respected jobs or no job. The higher up you are on the ladder, the closer you are to the people at the very top; the lower you are, the closer you are to the people at the very bottom. What is the number to*

the right of the rung where you think you stand at this time in your life, relative to other people in the United States?

Similarly, respondents were instructed to report their perceived position of the ladder to identify their relative social status comparing with other people in their country of origin, based on their self-assessment of income, education, and occupation/employment status. Responses are coded into continuous variable, with its value range from 0 which indicating respondents' perceived social status "at the bottom", to 10 indicating their perceived social status "at the top", in the U.S. and in country of origin, respectively.

Objective social status

Three conventional measures of objective social status are controlled in the study, including: education, work status, and household income. Education attainment is coded into 4 categories: less than 11 years, 12 years, 13-15 years, and 16 years or above. Work status is coded as employed, not employed, and not in the labor force. Household income is categorized as less than $15,000, $15,000-$34,999, $35,000-$74,999, or more than $75,000.

Demographic variables

In addition, the study also take demographic variables into consideration. Demographic variables used in the study include: gender, age, and marital status. Gender is coded as female or male. Age are divided into 4 categories: 18-34 years old, 35-49 years old, 50-64 years old, and 65 years or above. Marital status is coded into 3 categories: married/cohabiting, previously married (including divorced, separated, and widowed), and never married.

Analysis procedures

The current study was restricted to 1244 Asian immigrants who were aged 18 or older and were from three specific ethnic groups: Vietnamese, Filipino, and Chinese. At the first stage

of data analysis, a descriptive analysis was performed to provide an overview of the socioeconomic characteristics of the total Asian immigrant sample, as well as the three ethnic sub-groups. Second, a series of bivariate analysis tests were performed using SPSS separately to examine if associations existed between independent variables and dependent variables (lifetime and 12-month psychiatric disorders) before controlling for other factors. Third, with objective social status and demographic variables controlled, a series of multiple logistic regression analyses were conducted using SPSS to test the effects of perceived social status and immigration-related factors to lifetime psychiatric disorders, and 12-month psychiatric disorders, respectively.

Results

Descriptive Analysis

Table 3.1 presents descriptive statistics of the demographics of the three ethnic sub-groups (Vietnamese-, Filipino-, and Chinese-immigrants) and the total Asian immigrant sample. In brief, for the total Asian immigrant sample, most are female (53.0%), less than 50 years old (68.8%), employed (66.9%), married or cohabiting (75.4%), with poor or fair English proficiency (52.1%), having at least high-school diploma (61.7%), and with household income no less than $35,000 (65.7%). The mean of respondents' perceived social status in the U.S. (PSS in the U.S.) is 5.45 (SD= 2.028), which is lower than respondents' average perceived social ranking in their country of origin (PSS in country of origin, M= 6.51, SD=2.365). In other words, respondents generally perceive downward social status along with immigration.

The three ethnic sub-groups, Vietnamese-, Filipino-, and Chinese-immigrants, demonstrate similar demographic characteristics with the total Asian immigrant sample. Yet, the percentage of self-reported poor or fair English proficiency among Vietnamese immigrants

(73.2%) is significantly higher than that of Filipinos (23.3%) and the total Asian immigrant sample (52.1%). Further, most Chinese immigrants report education attainment for over 16 years (50.7%), while the percentages are 24.8% for Vietnamese, 40.6% for Filipinos, and 38.5% for total Asian sample, respectively. In addition, higher household income earners (making greater than $75,000 yearly) consist of greater proportions of Filipino and Chinese immigrants sampled (50.3% and 44.7%, respectively), as compared to Vietnamese immigrants (25.7%). Filipinos perceive the highest levels of social status in their country of origin (M=7.21, SD=2.075) and in the U.S. (M=6.21, SD=1.634). On the contrary, Vietnamese report lowest levels of perceived social status in their country of origin (M=5.42, SD=2.660) and in the U.S. (M=4.75, SD=2.180). Yet, all three ethnic sub-groups report downward perceived social status in the U.S. from country of origin, congruent with the overall downward tendency of the total Asian sample.

Table 3.1. *Sample description of Vietnamese immigrants, Filipino immigrants, Chinese immigrants, and Total Asian immigrants (Weighted %, N=1244)*

Demographic variables	**Vietnamese (*n* = 452)**	**Filipinos (*n* = 340)**	**Chinese (*n* = 452)**	**Total Asian (*N* = 1244)**
	% / M(SD)	% / M(SD)	% / M(SD)	% / M(SD)
Gender				
Female	51.1 %	55.6 %	52.9%	53.0 %
Male	48.9 %	44.4 %	47.1 %	47.0 %
Age				
18-34	29.9%	25.3 %	31.9 %	29.3 %
35-49	38.5 %	38.8 %	41.2 %	39.5 %
50-64	21.7 %	25.0 %	20.1 %	22.0 %
≥ 65	10.0 %	10.9 %	6.9 %	9.1 %
Work status				
Employed	63.5%	67.6 %	69.7%	66.9 %
Not employed	9.3 %	5.9 %	5.8 %	7.1 %
Not in labor force	27.2 %	26.5 %	24.6 %	26.0 %
Marital Status				
Married/cohabiting	75.4 %	76.8 %	74.3 %	75.4 %
Previously married	7.5 %	9.1 %	9.1 %	8.5%
Never married	17.0 %	14.1 %	16.6 %	16.1 %

English proficiency				
Poor or fair	73.2 %	23.3 %	52.4 %	52.1 %
Good or excellent	26.8 %	76.7 %	47.6 %	47.9 %
Education				
0-11 years	30.1 %	13.5 %	16.6 %	20.7 %
12 years	20.8 %	15.3 %	16.2 %	17.6 %
13-15 years	24.3 %	30.6 %	16.6 %	23.2 %
≥ 16 years	24.8 %	40.6 %	50.7 %	38.5 %
Household income ($)				
< 15,000	23.9 %	9.7 %	17.5 %	17.7 %
15,000-34,999	24.1 %	10.3 %	13.9 %	16.6 %
35,000-74,999	26.3 %	29.7 %	23.9 %	26.4 %
≥ 75,000	25.7 %	50.3 %	44.7 %	39.3 %
PSS in country of origin	5.42 (2.660)	7.21 (2.075)	7.08 (1.799)	6.51 (2.365)
PSS in the U.S.	4.75(2.180)	6.21 (1.634)	5.58 (1.907)	5.45 (2.028)

Bivariate Analysis

At the second stage of data analysis, bivariate analyses are performed to examine if any of the demographic variables and immigration-related factors is significantly associated with lifetime and 12-month psychiatric disorders, respectively.

Table 3.2 summarizes the results of chi-square tests for association between each demographic variable (gender, age, work status, marital status, education, household income), immigration-related variables (age at immigration, years in the U.S., English proficiency, voluntary/ involuntary immigration), and lifetime psychiatric disorders. In regards to demographic variables, work status (X^2 (2) =9.930, p<.01) and marital status (X^2(2) =17.463, p<.001) are found significantly associated with lifetime psychiatric disorders. Respondents who are employed are less likely to have any DSM-IV diagnosable psychiatric disorder during lifetime (17.3%) than the unemployed (22.7%), and those who are not in labor force (25.3%). Respondents who are married/cohabiting (17.2%) are a lot less likely to have DSM-IV disorder occurrence during lifetime, comparing with those who are previously married (24.5%), and never married (29.5%). Age at immigration is the only immigration-related factors that found to

have significant association with any lifetime psychiatric disorder ($X^2(2) = 22.925$, $p < .001$). Those who immigrate to the U.S. on or before 12 years old are much more likely (32.8%) to have DSM-IV diagnosable psychiatric disorder during lifetime, comparing to those who arrive in the U.S. during adolescent and adulthood (17.0% for 13-34 years old, and 18.9% for over 35 years old, respectively). The overall prevalence of the presence of any DSM-IV psychiatric disorder over lifetime among Asian immigrants is relatively high (19.8%).

Table 3.2. *Combined results of Chi-square tests for Association between Demographic and Immigration-related Variables, and Lifetime Psychiatric Disorder (Weighted %, N = 1244)*

Variable		Yes	No	X^2(df)*
Gender				.657(1)
n (%)	Female	136 (20.6%)	523 (79.4%)	
	Male	110 (18.8%)	475 (81.2%)	
Age group				6.805(3)
n (%)	18-34	86 (23.6%)	279 (76.4%)	
	35-49	95 (19.3%)	397 (80.7%)	
	50-64	42 (15.3%)	232 (84.7%)	
	≥ 65	23 (20.4%)	90 (79.6%)	
Work status				9.930(2) **
n (%)	Employed	144 (17.3%)	688 (82.7%)	
	Unemployed	20 (22.7%)	68 (77.3%)	

	Not in Labor Force	82 (25.3%)	242 (74.7%)	
Marital status				17.463(2) ***
n (%)	Married/cohabiting	161 (17.2%)	777 (82.8%)	
	Previously married	26 (24.5%)	80 (75.5%)	
	Never married	59 (29.5%)	141 (70.5%)	
Education				.468 (3)
n (%)	0-11 years	47 (18.3%)	210 (81.7%)	
	12 years	44 (20.1%)	175 (79.9%)	
	13-15 years	59 (20.4%)	230 (79.6%)	
	≥ 16 years	96 (20.0%)	383 (80.0%)	
Household income				4.201(3)
($)	<15, 000	49 (22.3%)	171 (77.7%)	
n (%)	15,000-34,999	31 (15.0%)	176 (85.0%)	
	35,000-74,999	69 (21.0%)	259 (79.0%)	
	≥ 75,000	97 (19.8%)	392 (80.2%)	
Age at				22.925(2) ***
immigration	≤ 12 years old	59 (32.8%)	121 (67.2%)	
n (%)	13-34 years old	128 (17.0%)	624 (83.0%)	
	≥ 35 years old	59 (18.9%)	253 (81.1%)	

Years in the U.S.				.570(1)
n (%)	< 5 yrs	33(17.7%)	153 (82.3%)	
	≥ 5 years	213 (20.1%)	845 (79.9%)	
English				.018(1)
proficiency	Poor/Fair	129 (19.9%)	518 (80.1%)	
n (%)	Good/Excellent	117 (19.6%)	479 (80.4%)	
Voluntary				.396(1)
immigration	Voluntary	171 (19.3%)	714 (80.7%)	
n (%)	Involuntary	75 (20.9%)	284 (79.1%)	
Total		246 (19.8%)	998 (80.2%)	
n (%)				

*p<.05; **p<.01; ***p<.001

Table 3.3 below summarizes the results of chi-square tests for association between each demographic variable (gender, age, work status, marital status, education, household income), immigration-related variables (age at immigration, years in the U.S., English proficiency, voluntary/ involuntary immigration), and 12-month DSM-IV psychiatric disorder diagnosis. Among demographic variables, age (X^2 (3) =10.954, p<.05), marital status (X^2(2) =34.338, p<.001), and household income (X^2 (3) =7.836, p<.05) are found to have statistically significant association with the presence of any psychiatric disorder over a 12-month period. Respondents

who are at two extremes of age are more likely to have 12-month psychiatric disorder (11.0% for 18-34 years old, and 10.6% for over 65 years old, respectively). Respondents who are married/cohabiting are significantly less likely (5.2%) to experience DSM-IV psychiatric disorder during a 12-month period, as compared to the previously married (13.2%) and never married (16.5%). In terms of annual household income, participants reported lowest household income (<$15, 000) are most likely (11.8%) to have 12-month DSM-IV diagnosable psychiatric disorder. Yet, those who report lower-medium tier household income ($15,000-$34,999) are least likely (4.8%) to experience any DSM-IV psychiatric disorder during a 12-month period. As for immigration-related factors, age at immigration ($X^2(2) = 19.207$, $p < .001$) is the only one that is found to be significantly associated with 12-month DSM-IV psychiatric disorder. Respondents who came to the U.S. during childhood (i.e. less than 12 years old) are more likely (15.6%) to experience at least one psychiatric disorder during a 12-month period, as compared to those who arrive in the U.S. during adolescent and adulthood (5.9% for 13-34 years old, and 7.7% for over 35 years old, respectively). The overall rate of experiencing any psychiatric disorder during a 12-month period is 7.7% among Asian immigrants.

Table 3.3. *Combined results of Chi-square tests for Association between Demographic and Immigration-related Variables, and 12-Month Psychiatric Disorder (Weighted %, N = 1244)*

Variable		Yes	No	X^2 (df)*
Gender				.369(1)
n (%)	Female	48 (7.3%)	611 (92.7%)	
	Male	48 (8.2%)	537 (91.8%)	

Age group				10.954(3) *
n (%)	18-34	40 (11.0%)	325 (89.0%)	
	35-49	29 (5.9%)	463 (94.1%)	
	50-64	15 (5.5%)	259 (94.5%)	
	≥ 65	12 (10.6%)	101 (89.4%)	
Work status				4.331(2)
n (%)	Employed	55 (6.6%)	777 (93.4%)	
	Unemployed	9 (10.2%)	79 (89.8%)	
	Not in Labor Force	32 (9.9%)	292 (90.1%)	
Marital status				34.338(2) ***
n (%)	Married/cohabiting	49 (5.2%)	889 (94.8%)	
	Previously married	14 (13.2%)	92 (86.8%)	
	Never married	33 (16.5%)	167 (83.5%)	
Education				1.105(3)
n (%)	0-11 years	17 (6.6%)	240 (93.4%)	
	12 years	20 (9.1%)	199 (90.9%)	
	13-15 years	23 (8.0%)	266 (92.0%)	
	≥ 16 years	36 (7.5%)	443 (92.5%)	
Household income				7.836(3) *
	<15, 000	26 (11.8%)	194 (88.2%)	

($)	15,000-34,999	10 (4.8%)	197 (95.2%)	
n (%)	35,000-74,999	25 (7.6%)	303 (92.4%)	
	≥ 75,000	35 (7.2%)	454 (92.8%)	
Age at				19.207 (2) ***
immigration	≤ 12 years old	28 (15.6%)	152 (84.4%)	
n (%)	13-34 years old	44 (5.9%)	708 (94.1%)	
	≥ 35 years old	24 (7.7%)	288 (92.3%)	
Years in the U.S.				.492(1)
n (%)	< 5 yrs	12 (6.5%)	174 (93.5%)	
	≥ 5 years	84 (7.9%)	974 (92.1%)	
English				.415(1)
proficiency	Poor/Fair	53 (8.2%)	594 (91.8%)	
n (%)	Good/Excellent	43 (7.2%)	553 (92.8%)	
Voluntary				.092(1)
immigration	Voluntary	67 (7.6%)	818 (92.4%)	
n (%)	Involuntary	29 (8.1%)	330 (91.9%)	
Total		96 (7.7%)	1148 (92.3%)	
n (%)				

*p<.05; **p<.01; ***p<.001

Multivariate Analysis

Third, a series of multiple logistic regression tests are conducted to estimate the effects of immigration and perceived social status, to lifetime and 12-month DSM-IV psychiatric disorders, respectively, adjusting for objective social status and factors that were found significant in the second step of data analysis.

Table 3.4 presents results from two multiple logistic regression models performed to estimate the effects of immigration and perceived social status to lifetime psychiatric disorders, including coefficients, standard errors, odd ratios and 95% confidence intervals. Model 1 includes perceived social status, with objective social status (measured by education attainment, work status, and household income) and marital status controlled. Model 2 further adds immigration-related factors to existing Model 1.

As shown in Table 3.4, model 1 reveals that immigrants' perceived social status in the U.S. is significantly associated ($p<.01$) with the presence of any lifetime DSM-IV psychiatric disorder. Respondents who report higher perceived social status in the U.S. are less likely to have any lifetime DSM-IV psychiatric disorder (OR=.868, 95% CI [.797, .945]). No significant association is observed between perceived social status in immigrants' country of origin and lifetime psychiatric disorder. As for the objective social status, household income and work status are found correlated to the presence of any lifetime psychiatric disorder. Specifically, respondents whose household income are greater than $75,000 have higher odds of experiencing lifetime psychiatric disorder (OR=1.652, $p<.05$, 95% CI [1.028, 2.653]) than those who have $15,000 or less household income. Respondent who are not in labor force are 1.760 times more likely to have any lifetime psychiatric disorder (OR=1.760, $p<.01$, 95% CI [1.250, 2.479]), comparing to those who are employed. Marital status is another significant predictor to the

presence of any lifetime psychiatric disorder. Respondents who are previously married (OR=1.669, p<.05, 95% CI [1.017, 2.740]) and never married (OR=2.193, p<.001, 95% CI [1.517, 3.169]) demonstrate higher likelihood of having lifetime psychiatric disorder than those who are married or cohabiting.

Adding immigration-related factors to the existing Model 1, Model 2 presents the estimates of combined influence of immigration and perceived social status to the presence of any lifetime psychiatric disorder. Household income, work status, marital status and perceived social status in the U.S. remain as significant predictors. Age at immigration is found significantly associated with lifetime psychiatric disorder. Comparing with baseline group (respondents who immigrate to the U.S. before 12 years old), those who arrived in the U.S. during 13-34 years old (OR=.435, p<.001, 95% CI [.283, .668]) and those who immigrate on or after 35 years old (OR=.429, p<.01, 95% CI [.248, .742]) are both less likely to experience any lifetime psychiatric disorder. However, perceived social status in immigrants' country of origin, years in the U.S., English proficiency, and voluntary immigration are not found to be significantly associated with the presence of any lifetime DSM-IV psychiatric disorder.

Table 3.4. *Multiple Logistic Regression results for Lifetime Psychiatric Disorder (N=1244)*

Variable		Model 1		Model 2	
		B (SE)	OR (95% CI)	B (SE)	OR (95% CI)
Education					
attainment	12 yrs	.121 (.241)	1.129 (.704, 1.812)	.088 (.244)	1.092 (.677, 1.762)
(0-11 years)	13-15 yrs	.102 (.237)	1.107 (.696, 1.760)	.113 (.242)	1.119 (.697, 1.797)
	≥ 16 yrs	.174 (.229)	1.191 (.760, 1.866)	.220 (.239)	1.246 (.779, 1.993)

Household income ($) (<15, 000)	15,000-34,999	-.212 (.265)	.809 (.481, 1.361)	-.160 (.267)	.852 (.505, 1.438)
	35,000-74,999	.367 (.233)	1.443 (.914, 2.278)	.418 (.237)	1.518 (.954, 2.417)
	≥ 75,000	.502 (.242)*	1.652 (1.028, 2.653)	.507 (.248)*	1.660 (1.020, 2.702)
Work status (Employed)	Unemployed	.234 (.282)	1.263 (.727, 2.194)	.262 (.284)	1.300 (.744, 2.269)
	Not in Labor Force	.565 (.175) **	1.760 (1.250, 2.479)	.578 (.178) **	1.783 (1.257, 2.529)
Marital status (Married/ cohabiting)	Previously married	.512 (.253) *	1.669 (1.017, 2.740)	.529 (.257)*	1.697 (1.026, 2.806)
	Never married	.785 (.188) ***	2.193 (1.517, 3.169)	.529 (.211)*	1.698 (1.122, 2.568)
PSS in country of origin		.021 (.035)	1.022 (.954, 1.094)	.018 (.035)	1.018 (.951, 1.091)
PSS in the U.S.		-.142 (.043) **	.868 (.797, .945)	-.146 (.046) **	.864 (.790, .945)
Age at immigration (≤ 12 yrs old)	13-34 yrs old			-.832 (.219)***	.435 (.283, .668)
	≥ 35 yrs old			-.847 (.280) **	.429 (.248, .742)
Years in the U.S. (< 5 yrs)	≥ 5 yrs			.027 (.221)	1.027 (.666, 1.583)

English proficiency (Poor or Fair)	Good or Excellent	-.234 (.189)	.791 (.547, 1.145)
Voluntary immigration (Voluntary)	Involuntary	.119 (.161)	1.127 (.822, 1.544)

*p<.05; **p<.01; ***p<.001

Table 3.5 presents results from two multiple logistic regression models performed to estimate the effects of immigration and perceived social status to 12-month psychiatric disorders, including coefficients, standard errors, odd ratios and 95% confidence intervals. Similar to Table 3.4, Model 1 shown in Table 3.5 includes perceived social status, with objective social status (measured by education attainment, work status, and household income), age, and marital status adjusted, while Model 2 adds immigration-related factors to existing Model 1.

As shown in Table 3.5, model 1 again finds that immigrants' perceived social status in the U.S. is significantly associated (p<.05) with the presence of any 12-month DSM-IV psychiatric disorder. Respondents' likelihood of having any 12-month psychiatric disorder decreases (OR=.855, 95% CI [.752, .972]) as respondents' perceived social status in the U.S. increases. Additionally, respondents who are previously married (OR=2.692, p<.01, 95% CI [1.361, 5.323) and never married (OR=3.470, p<.001, 95% CI [1.916, 6.284]) are significantly more likely to experience 12-month psychiatric disorder than those who are married or cohabiting. Yet, this model shows no significant association between perceived social status in country of origin and 12-month psychiatric disorder.

Adding immigration-related factors to the existing Model 1, Model 2 shown in Table 3.5 details the estimated results of effects of immigration and perceived social status to 12-month psychiatric disorder. Perceived social status in the U.S. remains significant at the $p<.05$ level. The odds ratio of having any psychiatric disorder over a 12-month period associated with a 1-point increment of perceived social status in the U.S. is .869 (95% CI [.760, .994], $p<.05$). Marital status remains significant at the $p<.01$ level. Age at immigration is again found to have statistically significant association with the presence of any 12-month psychiatric disorder. Respondents who immigrate to the U.S. during 13-34 years old (OR=.443, $p<.05$, 95% CI [.233, .844]) are less likely to experience any 12-month psychiatric disorder, as comparing to the reference group (respondents who immigrate to the U.S. before 12 years old). Yet, this model shows no association between perceived social status in immigrants' country of origin, years in the U.S., English proficiency, voluntary/involuntary immigration, and the presence of any 12-month DSM-IV psychiatric disorder.

Table 3.5. *Multiple Logistic Regression results for 12-Month Psychiatric Disorder (N=1244)*

Variable		Model 1		Model 2	
		B (SE)	OR (95% CI)	B (SE)	OR (95% CI)
Education attainment (0-11 years)	12 yrs	.329 (.362)	1.390 (.684, 2.826)	.333 (.364)	1.395 (.683, 2.849)
	13-15 yrs	.083 (.365)	1.087 (.531, 2.222)	.170 (.368)	1.186 (.576, 2.442)
	≥ 16 yrs	.174 (.358)	1.190 (.590, 2.400)	.341 (.367)	1.406 (.685, 2.885)
Household income ($)	15,000-34,999	-.712 (.404)	.491 (.222, 1.082)	-.678 (.406)	.507 (.229, 1.124)
	35,000-74,999	.013 (.325)	1.013 (.535, 1.916)	.100 (.332)	1.105 (.576, 2.118)

(<15, 000)	≥ 75,000	.202 (.338)	1.223 (.631, 2.371)	.248 (.347)	1.281 (.649, 2.528)
Work status					
(Employed)	Unemployed	.160 (.402)	1.173 (.534, 2.579)	.182 (.406)	1.200 (.542, 2.659)
	Not in Labor Force	.274 (.289)	1.315 (.747, 2.317)	.243 (.293)	1.275 (.718, 2.263)
Age group					
(18-34)	35-49	-.170 (.303)	.844 (.466, 1.528)	-.141 (.329)	.869 (.456, 1.656)
	50-64	-.332 (.369)	.718 (.348, 1.478)	-.306 (.444)	.736 (.308, 1.758)
	≥ 65	.140 (.460)	1.151 (.467, 2.833)	.118 (.574)	1.125 (.366, 3.463)
Marital status					
(Married/ cohabiting)	Previously married	.990 (.348) **	2.692 (1.361, 5.323)	.991 (.351)**	2.693 (1.352, 5.362)
	Never married	1.244(.303)***	3.470 (1.916, 6.284)	1.104 (.319)**	3.017 (1.614, 5.638)
PSS in country of origin		.031 (.052)	1.031 (.932, 1.142)	.033 (.052)	1.034 (.933, 1.146)
PSS in the U.S.		-.157 (.066) *	.855 (.752, .972)	-.140 (.069) *	.869 (.760, .994)
Age at immigration (≤ 12 yrs old)	13-34 yrs old			-.814 (.329) *	.443 (.233, .844)
	≥ 35 yrs old			-.634 (.500)	.531 (.199, .1.413)
Years in the	≥ 5 yrs			.140 (.365)	1.150 (.562, 2.353)

U.S. (< 5 yrs)			
English proficiency (Poor or Fair)	Good or Excellent	-.517 (.290)	.596 (.337, 1.054)
Voluntary immigration (Voluntary)	Involuntary	.132 (.241)	1.141 (.712, 1.829)

*p<.05; **p<.01; ***p<.001

Conclusions and discussions

First, the current study has assessed the overall prevalence of lifetime and 12-month psychiatric disorder among Asian immigrants. Results of the study indicate that the lifetime prevalence and 12-month prevalence of psychiatric among Asian immigrants is 19.8% and 7.7%, respectively. This finding is congruent with previous research conducted by Takeuchi and colleagues in 2007, in which the overall lifetime prevalence and 12-month prevalence found was 17.3% and 9.19%, respectively (Takeuchi et al., 2007). It should be noted that the lifetime prevalence of any psychiatric disorder among Asian immigrants is remarkable, yet still lower than that of the Latino Americans (28.1%) in the same NLAAS sample (Alegria et al., 2007). Asian immigrants also feature a lower 12-month prevalence of any DSM-IV disorder, as compared to other ethnicities reported in the nationally representative National Comorbidity Survey Replication (NCS-R) studies (Kessler & Chiu, 2005).

In addition, this study has examined the association between immigration-related factors and occurrence of any psychiatric disorder during lifetime and 12-month among Asian immigrants. Findings of the study indicate that age at immigration is the only immigration-related factor that significantly associates with any lifetime and 12-month psychiatric disorder. Immigrants who came to the U.S. during childhood are more likely to experience psychiatric disorder during their lifetime or over a 12-month period, as compared to those who arrive in the U.S. during adolescent and adulthood. This finding is consistent with previous studies (Breslau and Chang, 2006; Hwang, Chun, Takeuchi, Myers, & Siddarth, 2005). Age at immigration's effect to immigrants' mental health can be understood in the context of development, in terms of their developed and developing personalities, identities, and abilities. For instance, immigrants who come to U.S. during childhood are less likely to have a fully established system of beliefs and identity, and thus, may suffer from loss of identification in the mainstream society and conflict of two distinctively different cultures, as they socialize and get acculturated to the new environment. It's worth noting that no significant association is found between other immigration-related factors, such as English proficiency and length of residence in the U.S., and the presence of any lifetime and 12-month psychiatric disorder, among Asian immigrants. This finding broadens the scope of current understanding on the effects of length of residence in the U.S. and English proficiency to Asian immigrants' mental health (Hwang et al., 2005; Takeuchi et al. 2007).

Moreover, perceived social status in the United States is found to have significant correlation to the occurrence of any psychiatric disorder during lifetime and a 12-month period among Asian immigrants. Respondents' likelihood of having any lifetime or 12-month psychiatric disorder decreases as their perceived social status in the U.S. increases. Previous

studies have established that subjective social status is related to adult health outcomes among several racial and ethnic groups (Adler et al., 2000; Franzini & Fernandez-Esquer, 2006; Hu et al., 2005; Ostrove et al., 2000). This current study expands the current knowledge as it identifies significant negative associations between perceived social status and presence of lifetime psychiatric disorder, and between perceived social status and 12-month psychiatric disorder occurrence.

Further, this study has utilized a series of multiple logistic regression to examine the combined effects of immigration and perceived social status to the presence of any lifetime and 12-month psychiatric disorder among Asian immigrants. Negative associations are found between immigrants' perceived social status in the U.S. and occurrence of lifetime and 12-month psychiatric disorder, after controlling for objective social status. The association persists after adding immigration-related factors to the estimation. Overall, perceived social status in the U.S. and age at immigration are the two factors that show consistent effects to lifetime and 12-month psychiatric disorders in Asian immigrant sample. Yet, it is to my surprise that immigrants' perceived social status in country of origin, before and after adding immigration-related factors, is not found significantly associated with the presence of psychiatric disorder among Asian immigrants. This is probably because that in this study, perceived social status in country of origin and perceived social status in the U.S. are constructed as two separate variables, instead of constructing a variable measuring the change between pre- and post-migration perceived social statuses. Future studies focusing on the change of perceived socioeconomic status associated with immigration are suggested in the examination of influencing factors to mental health among Asian immigrants.

This study has several limitations. First, this study is based on secondary data analysis, using data from National Latino and Asian American Study. The cross-sectional nature of the NLAAS refrains the current study from establishing reliable causality between immigration-related factors and perceived social status, and psychiatric disorders. Second, the NLAAS uses retrospective measures of DSM-IV psychiatric disorder diagnosis, which could result in recall and reporting biases of responses. Third, the primary outcome variables of the study are lifetime and 12-month psychiatric disorder, as defined by DSM-IV criteria. Although the DSM-IV provides a standardized measurement of mental disorder, its Western expressions and standards may lead to underestimate of psychiatric disorders among Asian immigrants, especially when Asian immigrants perceive or express their mental health problems in ways that are not identified in DSM-IV. Fourth, the study focus only on three sub-ethnicity groups of Asian immigrants, while not examining the respondents who identified as "Other Asian" due to extremely small sample size in some categories of key variables. Given the known heterogeneity of races and cultures, it's important to include other Asians and examine their ethnic characteristics in future studies. Last but not least, respondents' lifetime and 12-month psychiatric disorder is coded as dichotomous variables. The prevalence of each type of psychiatric disorder may be too simplified to provide detailed information.

Taken together, this study remarks an important endeavor to examine the effects of immigration and perceived social status to the prevalence of lifetime and 12-month psychiatric disorder among Asian immigrants. Relatively low prevalence of lifetime and 12-month psychiatric disorder are found among Asian immigrants. Significant associations between immigrants' perceived social status in the U.S. and age at immigration, and psychiatric disorders are evidenced in the study. To be specific, immigrants who view themselves as at lower social

status in relative to other people in the U.S., and those who come to the U.S. before 12-year-old (during childhood), are found to have higher odds to experience 12-month and lifetime occurrence of psychiatric disorder. Prior studies have demonstrated that recognition of mental illness and early intervention are pivotal in treatment and recovery (Badger, McNiece, & Gagan, 2000). Hence, it is imperative for social work practitioners to increase outreach and education efforts so as to ensure prevention and early intervention of mental illness among these particular groups. That is to say, practitioners should consider adding mental health education components to existing resources and services, such as health lectures and health fairs, while adapting and developing services to make them culturally and linguistically accessible and appropriate to the specific Asian immigrant communities. Moreover, given the fact that Asian immigrants who arrived in the U.S. during childhood are found more vulnerable to psychiatric disorders, it's recommended that school social workers should proactively attend to the mental health situations and needs of young Asian immigrants, and assume prime position in providing mental health inventions in school settings. Additionally, social work professionals who are skilled at advocacy should take a pivotal position and advocate for policies that could bring in positive impacts to the mental health opportunities and outcomes of the immigrants (George, Thomson, Chaze, & Guruge, 2015). Likewise, given the important role of social integration to immigrants' mental health, it is recommended that policy makers should design and implement policies that promotes inclusion and integration of immigrants (Delara, 2016; Berkman, Glass, Brissette, & Seeman, 2000). Also, policies should be in place to promote awareness and education to the general public, in regards to the profound impact of enhancing mental health well-being of racial and ethnic minorities.

Furthermore, the study demonstrates the impacts of immigration and perceived social status to the occurrence of mental disorder among Asians, adjusting for objective social status and demographic variables. On the basis of the study findings, to further explore the influence of immigration, future research should consider measuring the change of perceived socioeconomic status associated with the immigration process, instead of measuring immigrants' perceived social status in two countries as two independent variables. In addition, as revealed in the study, Asian ethnic subgroups have different demographic features and distinct immigration experiences, which may lead to disparities in mental health well-being. Thus, it is recommended that future research should attend to the heterogeneity among ethnic subgroups within the Asian American population, so as to better understand and address the ethnically specific mental health needs.

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CHAPTER 4

DO FAMILY COHESION AND FAMILY CONFLICT MATTER? A STUDY ON THE INFLUENCE OF FAMILY RELATIONAL FACTORS ON MENTAL HEALTH SERVICE UTILIZATION AMONG ASIAN AMERICANS[3]

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Abstract

Objectives. This study examines the influence of family relational factors, namely family cohesion and family conflict, on mental health service utilization among Asian Americans.

Methods. This study features a secondary data analysis. Data is derived from the National Latino and Asian American Study (2002-2003). Only Asian Americans whose origins are China, Vietnam, and Philippines are included in the current study. This study uses multiple logistic regression models, with covariates controlled, to estimate the influence of family relational factors and immigration-related factors on past year mental health service utilization among Asian Americans.

Results. Family cohesion and family conflict are both found as significant predictors to past year use of each and any type of mental health services in bivariate analyses. After controlling other covariates, effects of family cohesion and family conflict to past year mental health service use are inconsistent across each type of services. Family cohesion remains a significant predictor to Asian Americans' receipt of general health services and any type of mental health-related services. Family conflict significantly influences the use of each and any type of mental health-related services, except specialty mental health services.

Conclusions. Family relation plays an important role in influencing the rate and type of mental health service use among Asian Americans. Tailored policies and interventions targeting Asian families, in addition to individuals, are suggested to better meet the mental health needs of this population.

Keywords: Asian Americans Family Cohesion Family Conflict Immigration Mental Health Service Use

Introduction

Nationally, Asian Americans have significantly underutilized mental health services as compared with the non-Hispanic White population, (Cheung & Snowden, 1990; Harris, Edlund, & Larson, 2005), and the general population (Abe-Kim et. al., 2007; Kung, 2003, 2004). A 2008 study found that among those who demonstrate past-year depressive disorders, Asian Americans are least likely to receive any treatment at all for depression, comparing with Latino Americans, African Americans, and non-Hispanic White (Alegria et al.,2008). In addition to low utilization rate, Asian Americans also demonstrate longer delay for treatment when ill (1,553 days) than did Caucasian Americans (607 days). When Asians Americans eventually seek for mental health treatments, they are generally more severely ill than whites who use the same services (Sue, 1999), and less likely to receive adequate treatment (Alegria et al.,2008).

Previous studies have identified various barriers that prevent Asian Americans from seeking and receiving effective treatment in a timely manner. For instance, culturally-based health beliefs play a particularly important role in affecting Asian Americans' perception of mental health problems and service use. Causes of mental health problems are perceived as lack of harmony of emotions or as evil minds, in many Asian cultures. Acknowledging the incidence of mental illness, according to some Asian Americans, is similar as acknowledging that they are sinful or insane in a sense (Fung & Wong, 2007; Hwang, Myers, Abe-Kim & Ting, 2008). Such culturally-based stigmatized perception of mental illness oftentimes hinders Asian Americans' use of mental health services. Moreover, studies have identified other cultural or structural barriers, such as lack of insurance coverage, limited English proficiency, absence of culturally and linguistically appropriate services, that prevent Asian Americans from timely and effective utilization of mental health services (Abe-Kim, Takeuchi, & Hwang, 2002; Abe-Kim et al.,

2007; Alegría et al., 2007; Snowden & Yamada, 2005; Wong et al., 2006). Nonetheless, there is scant literature on family relational factors, such as family cohesion and family conflict, to mental health service utilization among Asian Americans.

Family Relation and Mental Health Service Use

The emphasis on family in Asian cultures lays the foundation of the understanding of help-seeking behavior and mental health service utilization among Asian Americans. In contrast to the centrality of individualism in American culture, Asian culture regards collectivism highly of value. In Asian culture, family is the most prominent and important unit of collectivism. Family obligation and family support- such as respecting for and supporting a family member- emotionally by showing love, respect, support and courtesy; financially by providing financial and material support; and physically by taking care of them- is highly valued in Asian culture. Taking care of the ill family members is generally considered the responsibility of the remaining family members. As such, seeking help outside of family may be viewed as the family being unable or irresponsible to take care of mentally ill family members, and thus, may embarrass the family. Further, given the stigma that incidence of mental illness attribute to sinful mind or family disharmony, Asian families may be reluctant to reveal the mental health illness of or seek for mental health services for their family members, in the hope of keeping the pride and honor of the family, or "saving face" of the family.

Given the centrality of family in Asian cultures, it is pivotal to understand how family relation affects Asian Americans' mental health and service use. Studies have documented that family relation had positive effects to mental health. Specifically, studies suggest that strong family cohesion could function as a potential buffer to psychosocial stressors (Laursen & Collins, 1994; Ta, Holck & Gee, 2010). Those who come from families with stronger cohesion

are less likely to develop or experience depression, psychological distress, and suicide ideation (Meyerson et al., 2002; Harris & Molock, 2000). On the contrary, higher level of family conflict leads to a significantly greater risk of attempting suicide, according to a recent study based on the NLAAS sample (Cheng et al., 2010).

However, the understanding of the effects of family relation, i.e. family cohesion and family conflict, to mental health service utilization among Asian Americans is still in infancy. Some studies suggest that strong family bonding may give rise to the use of mental health services (Carpentier & White, 2002), and less cohesive family relation may hinder the initial and subsequent use of mental health treatment, especially among children (Keeley & Wiens, 2008; Armbruster & Fallon, 1994). Yet, a counterargument upholds that, given the stigma of mental illness and needing help in Asian culture, in more cohesive families, members may be more reluctant to seek help outside of family in order to not embarrass the family unit (Ta, Holck, & Gee, 2010). The discrepancy in understanding indicates a need to further examine the influence of family relation on mental health service use among Asian Americans.

Nevertheless, it's to my surprise that only a few studies have researched the influence of family relation on Asian Americans' mental health service use (Abe-Kim et al., 2002; Snowden, 2007; Ta, Holck, & Gee, 2010). Moreover, previous studies focused primarily on the use of specialty mental health services, and the use of any type of mental health-related services. Given the fact that many Asian Americans are influenced by the stigmatized perception of mental illness and help-seeking, it is critical to understand family relation's influence on Asian Americans' use of other treatment options, such as general health services and human or alternative services, apart from specialty mental health services and any type of mental health-related services.

Furthermore, given that approximately 70% of the U.S. Asian population are immigrants, it's important to take the influence of immigration into consideration. Researches have established that immigration influences the mental health outcome and service use among Asian Americans (Breslau & Chang, 2006; Hwang et al., 2005). On the other hand, greater family conflict, as well as greater family cohesion, has been found among immigrants (Walton & Takeuchi, 2010). However, there is scant literature on whether immigration-related factors may intensify or moderate family relation, i.e. family cohesion and family conflict, and consequently, may influence Asian Americans' mental health service use.

In light of the literature gaps, this present study will enrich the extant understanding on the influence of family cohesion and family conflict on Asian Americans' mental health service utilization, not only the overall prevalence, but also pattern and type of service use. Moreover, by taking into account the effect of immigration-related factors, this study will provide insights to the impact of family relation to the use of mental health services among the fastest growing ethnic minority in the United States.

Study Aims

Using a nationally representative data from National Latino and Asian American Study (NLAAS), this study aims at 1) examining if and how family cohesion may influence Asian Americans' mental health service use; 2) identifying if and how family conflict may impact mental health service use among Asian Americans. Specifically, will more cohesive families give rises to mental health service use or vice versa? On the contrary, will more conflictual familial ties lead to help-seeking or vice versa? In addition to prevalence, what types of mental health related services may be used? Furthermore, this study also aims at advancing the understanding on if immigration-related factors (such as age at immigration and generation

status) moderates the impact of family relation to mental health service utilization among Asian Americans.

Methods

Data and Sample

Present study features secondary data analysis. Data analyzed is from the National Latino and Asian American Study (NLAAS). The National Latino and Asian American Study (2002-2003) is part of the Collaborative Psychiatric Epidemiology Studies (CPES) funded by National Institute of Mental Health (NIMH). Up to 2017, NLAAS has been the most comprehensive study that provides national information on mental illness and service use of Latinos and Asian Americans ever conducted. NLAAS has also assessed the influence of race/ethnicity, socioeconomic status, and environmental context in potential health and service use differences on individual and population levels.

The study design and sampling procedure of NLAAS have been previously documented in great detail. To be brief, using race/ethnicity as stratum, the NLAAS employed a three-tiered stratified sampling method to obtain more information that allows for subgroup analysis (Heeringa et al., 2004). Stratum used in NLAAS sampling include: Puerto Rican, Cuban, Mexican, Other Latinos, Chinese, Vietnamese, Filipino, Asian Indians, and Other Asians. To be eligible to participate in the NLAAS study, respondents were required to meet all of the following requirements: 1) being a Latino, Hispanic, or Spanish descendant, or an Asian descendant; 2) aged 18 years or older; 3) living in the non-institutionalized population of the coterminous United States and Washington D.C. The final NLAAS sample consisted of a total of 4,649 respondents, including 2,554 Latino-Americans and 2,095 Asian-Americans. In order to ensure the representativeness of the sample to the population, sample weights were constructed

to justify unequal probability of selection, non-respondents, and post-stratification. The weighted response rates were: 73.2% for the total sample, 75.5% for the Latino Americans, and 65.6% for the Asian Americans, respectively (Heeringa et al., 2004). The study used primarily face-to-face interview and was administered in respondents' choice of language, including English, Spanish, Chinese, Vietnamese, or Tagalog by bilingual interviewers.

The analysis conducted for the present study were restricted to Asian Americans whose ages were 18 or older and were from three specific ethnic groups: Vietnamese, Filipino, and Chinese. Respondents identified as "Other Asian" were excluded in the present data analyses due to small sample size of each race/ethnicity subgroup and heterogeneity among subgroups. Additionally, 29 respondents were omitted from the analysis due to missing information in key variables. The final sample size of the present study is N=1599, including 520 Vietnamese, 508 Filipino, and 600 Chinese, respectively.

Measures

Variables

Dependent Variables

The primary dependent variables in the present study are past year service provider use. Past year service provider is assessed by asking respondents if they went to see [provider on list] for problems with their "emotions, nerves, or use of alcohol or drugs" from a list of service providers within the past 12 months. Three types of services are constructed in the study: 1) specialty mental health service provider, including psychiatrists, psychologists, or other mental health professionals; 2) general health service provider, such as medical doctors, non-MD health care practitioners, or nurses; and 3) human or alternative service providers, including social workers, counselors, religious or spiritual advisers, healers, self-help groups, and online support groups. Each of the abovementioned service provider types are examined in the present study. In

addition, to obtain detailed information on family relational factors' influence on the overall prevalence of mental health service use, this study also examines "any mental health-related service use", which is defined as using any services that represent specialty mental health service provider, general health service provider, or human or alternative service providers for problems with their "emotions, nerves, or use of alcohol or drugs" within the past 12 months.

The final dependent variables are four binary variables, including: specialty mental health service use, general health service use, human or alternative service use, and any mental health-related service use, respectively. For each of the four binary variables, service use is coded 0 if respondent did not have any use of the corresponding type of service within the past 12 months, otherwise coded as 1 if the service was used at least once.

Independent Variables

Family cohesion

Family cohesion is assessed using the 10-item Likert-type family cohesion scale. Example of family cohesion include: family members respect one another, share similar values and beliefs as a family, trust each other, feel loyal to and proud of family, like to spend time with each other, etc. Responses range from 1 (strongly agree) to 4 (strongly disagree). Responses are reverse coded. Sum of scores in this scale ranges from 10 to 40, with higher sum indicating higher level of family cohesion. This measure has excellent internal consistency ($\alpha = .928$) and has been used in previous studies based on NLAAS sample (Yip, Gee, & Takeuchi, 2008).

Family conflict

Family conflict is assessed using a 5-item Likert-type family conflict scale. Respondents were asked to use a 3-point scale to assess the frequency of family conflict that occurred. Responses range from 1(hardly ever) to 3(often). Sum of scores in this scale ranges from 5 to 15,

with higher scores indicative of greater frequency of family conflict. This measure is reliable across the Asian Americans (α = . 767).

Immigration related variable:

Two Immigration related variable analyzed in this study include: 1) Age of immigration is assessed with a single item, "How old were you when you first came to this country?" The responses are then coded into five categories (U.S. born; equal to or younger than age 12, between ages 13 and 17, between ages 18 and 34, equal to or older than age 35); 2) Generation status: responses are constructed into three categories: first generation (i.e. respondents were born outside the U.S.), second generation (i.e. respondents were born in the U.S. and had at least one parent who was an immigrant), and third or later generation (i.e. respondents were born in the U.S. and both of his/her parents were also born in the U.S.).

Covariates

Covariates that will be used in this current study, include: 1) any past year psychiatric disorder diagnosis based on the Diagnostic and Statistical Manual of Mental Disorders, 4th Edition (DSM-IV; American Psychiatric Association 1994); and 2) self-reported mental health. Any past year DSM-IV psychiatric disorder diagnosis was coded as 0 (no), if respondents were not diagnosed with any of the following DSM-IV disorders within the past 12 months: agoraphobia, alcohol abuse/dependence, drug abuse/dependence, eating disorder, generalized anxiety, dysthymia, intermittent explosive disorder, major depression, panic attack, panic disorder, posttraumatic stress disorder, and social phobia. Otherwise, the response was coded as 1 (yes). Self-reported mental health was assessed with one question "How would you rate your overall mental health - excellent, very good, good, fair, or poor?" Responses were separated into five categories: excellent, very good, good, fair, and poor.

Demographic variables

In addition, demographic variables controlled in the present study include: gender, age, work status, marital status, education attainment, ethnicity, insurance coverage, and English proficiency. Gender is coded as female or male. Age are separated into 4 categories: 18-34 years old, 35-49 years old, 50-64 years old, and 65 years or above. Work status is categorized into employed, unemployed, or not in labor force. Marital status is coded into 3 categories: married/cohabiting, previously married (including divorced, separated, and widowed), and never married. Education attainment is divided into 4 categories: less than 11 years, 12 years, 13-15 years, 16 years or above. Ethnicity include 3 sub-ethnic groups in the sample: Vietnamese Americans, Filipino Americans, and Chinese Americans. Insurance coverage combined all insurance coverage sources, including military, employer, insurance company, Medicare, government assistance program, and state insurance programs. Responses are dichotomized into having health insurance or not. English proficiency is assessed by asking respondents the question "How well do you speak English?" Responses are coded into 2 categories: "Poor or fair", or "Good or excellent".

Analysis procedures

The current study included 1599 Asian Americans who were aged 18 or older and were from three specific ethnic groups: Vietnamese, Filipino, and Chinese. Data analysis of the current study consisted of three steps. First, a descriptive analysis was run to provide the socioeconomic characteristics of the three ethnic sub-groups, and the total Asian American sample in the study. Second, a set of bivariate analyses was conducted to examine the association between past year service provider use and each explanatory variables. Specifically, a series of logistic regression were performed using SPSS between each explanatory variables and past year

service provider use (including specialty mental health service provider use, general health service provider use, human or alternative service provider use, and any service provider use). Third, a series of multiple logistic regression analysis were conducted using SPSS to test the impact of family relation independently (including family cohesion and family conflict), and jointly with immigration-related factors, to past year service provider use, adjusting for covariates.

Results

Descriptive Analysis

Table 4.1 presents descriptive statistics of the demographics of the three ethnic sub-groups (Vietnamese-, Filipino-, and Chinese-Americans) and the total Asian American sample. In brief, for the total Asian American sample, most are female (53.1%), less than 50 years old (70.3%), employed (66.5%), married or cohabiting (70.4%), with good or excellent English proficiency (56.1%), having at least high-school diploma (63.8%), with household income no less than $35,000 (65.4%). The mean of family cohesion is 36.83 (SD= 4.66), indicating a relatively high level of family cohesion among the total Asian American sample. Additionally, the mean of family conflict among the total Asian sample is 6.42 (SD= 1.82), suggesting a relatively low level of family conflict.

Sociodemographic characteristics in the three ethnic sub-groups (Vietnamese-, Filipino-, and Chinese-Americans) are similar as those of the total Asian American sample in regards of gender, age group, work status, and marital status. In regards of English proficiency, Vietnamese Americans report the lowest English proficiency (Poor/fair: 70.4 %, Good/ excellent: 29.6%) in all three ethnic subgroups. In contrast, Filipino Americans report the highest English proficiency (Poor/fair: 17.7 %, Good/ excellent: 82.3%). Further, most Chinese American respondents hold

at least college degree (51.2%), while the percentages were 23.9% for Vietnamese Americans and 37.6% for Filipino Americans, respectively. In addition, most Filipino Americans (49.5%) and Chinese Americans (44.0%) report high yearly household income (greater than $75,000), while fewer Vietnamese Americans (25.7%) make comparable household income. Regarding to family cohesion and conflict, Vietnamese report the highest score of family cohesion (M=37.93, SD=3.94), and the lowest level of family conflict (M=6.14, SD=1.73) among all the three ethnic groups. In other words, Vietnamese Americans report relatively more cohesive and less conflictual family relation. On the other hand, Chinese Americans report the lowest level of family cohesion (M=35.76, SD=5.23), while Filipinos report the highest level of family conflict (M=6.60, SD=1.88).

Table 4.1. *Sample description of Vietnamese Americans, Filipino Americans, Chinese Americans, and Total Asian American sample (Weighted %, N=1599)*

Demographic variables	**Vietnamese (*n* = 510)**	**Filipinos (*n* = 503)**	**Chinese (*n* = 586)**	**Total Asian (*N* = 1599)**
	% / M(SD)	% / M(SD)	% / M(SD)	% / M(SD)
Gender				
Male	47.1 %	46.3 %	47.3%	46.9 %
Female	52.9 %	53.7 %	52.7 %	53.1 %
Age				
18-34	31.0%	37.8 %	35.5 %	34.8 %
35-49	36.3 %	32.6 %	37.4 %	35.5 %
50-64	23.1 %	20.7 %	20.1 %	21.3 %
≥ 65	9.6 %	8.9 %	7.0 %	8.4 %
Work status				
Employed	63.1%	67.6 %	68.4%	66.5 %
Not employed	9.8 %	5.8 %	6.1 %	7.2 %
Not in labor force	27.1 %	26.6 %	25.4 %	26.3 %
Marital Status				
Married/cohabiting	74.1 %	68.4 %	68.9 %	70.4 %
Previously married	7.1 %	9.5 %	9.9 %	8.9 %
Never married	18.8 %	22.1 %	21.2 %	20.7 %
English proficiency				
Poor or fair	70.4 %	17.7 %	43.3 %	43.9 %

Good or excellent	29.6 %	82.3 %	56.7 %	56.1 %
Education				
0-11 years	28.8 %	10.1 %	13.7 %	17.4 %
12 years	22.2 %	19.1 %	15.5 %	18.8 %
13-15 years	25.1 %	33.2 %	19.6 %	25.6 %
≥ 16 years	23.9 %	37.6 %	51.2 %	38.2 %
Household income ($)				
< 15,000	25.7 %	12.3 %	18.3 %	18.8 %
15,000-34,999	22.7 %	11.3 %	13.8 %	15.9 %
35,000-74,999	25.9 %	26.8 %	23.9 %	25.5 %
≥ 75,000	25.7 %	49.5 %	44.0 %	39.9 %
Family Cohesion	37.93 (3.94)	36.95 (4.36)	35.76 (5.23)	36.83 (4.66)
Family Conflict	6.14 (1.73)	6.60 (1.88)	6.51 (1.82)	6.42 (1.82)

Bivariate Analysis

Table 4.2 summarizes the results of bivariate analyses conducted for each type of mental health service provider use, with odds ratio and 95% confidence intervals reported. Among all, family cohesion is found to have significant negative association with the past year use of each and any type of mental health-related services. Specifically, each 1-point increase in family cohesion lowers respondents' odds ratio of receiving specialty mental health services (OR=.933, p<.01, 95% CI [.892, 975]), general health services (OR=.903, p<.001, 95% CI [.866, 942]), human or alternative services (OR=.903, p<.001, 95% CI [.866, 941]), as well as the use of any type of mental health-related services (OR=.912, p<.001, 95% CI [.884, 941]).

Family conflict is also found as a significant predictor of mental health related service use. The odds ratios of the receipt of treatment with a 1-point increment of family conflict are OR=1.239 (95% CI [1.098, 1.400], p<.01) for specialty mental health services, OR=1.378, 95% CI [1.222, 1.553], p<.001) for general health services, OR=1.359 (95% CI [1.206, 1.531], p<.001) for human or alternative services, and OR=1.359(95% CI [1.249, 1.479], p<.001) for the use of any type of mental health-related services, respectively. In other words, higher level of family conflict will increase the likelihood of mental health service use among Asian Americans.

With regards to immigration-related factors, respondents who immigrate to the U.S. during 18-34 years old are significantly less likely to use all types of mental health services than their U.S.-born counterparts. Those who arrived in the U.S. after 35-year-old demonstrate a lower odds ratio in the use of human or alternative services only (OR=.179, p<.01, 95% CI [.060, .532]), comparing with U.S.-born participants. Generation status also emerges as a significant predictor of mental health service use. Comparing with first generation Asian Americans, second generation participants are significantly more likely to use general health services for mental health problems (OR=3.006, p<.05, 95% CI [1.137, 7.943]), and any type of mental health-related services (OR=2.430, p<.05, 95% CI [1.206, 4.897]). As compared to the first generation, third generation or later demonstrates higher odds of using each and any type of mental health services- specialty mental health services (OR=2.993, p<.01, 95% CI [1.359, 6.593]), general health services (OR=3.092, p<.01, 95% CI [1.331, 7.183]), human or alternative services (OR=4.415, p<.001, 95% CI [2.112, 9.229]), and any type of mental health-related services (OR=3.145, p<.001, 95% CI [1.787, 5.534]), respectively.

Overall, marital status, age at immigration, generation status, self-rated mental health, past year DSM-IV psychiatric disorder diagnosis, as well as family cohesion and family conflict, are found as significant predictor to use of each and all types of mental health services- specialty mental health services, general health services, human or alternative services, and any type of mental health-related services. Some variables are statistically significant in the use of certain types of mental health services only. Specifically, in addition to the abovementioned predictors, work status is also significant to the use of specialty mental health services and general health services use. Gender, age, ethnicity, and English proficiency are significant to the use of human or alternative services. In terms of the overall use of any type of services, gender, age, and work

status are identified as influencing factors. Yet, bivariate analyses found no significant differences by education and insurance coverage in influencing past year use of each and any type of mental health services.

Table 4.2. *Results of Bivariate Analyses for Past Year Service Use (N=1599)*

		Specialty Services	General Services	Human/ Alternative Services	Any type of Services
		OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)
Gender					
(Female)	Male	.963 (.547, 1.695)	.706 (.382, 1.306)	.450 (.235, .865)*	.664 (.445, .991)*
Age group					
(18-34)	35-49	.524 (.257, 1.069)	.911 (.436, 1.906)	.576 (.300, 1.105)	.638 (.404, 1.009)
	50-64	.736 (.344, 1.573)	.758 (.306, 1.879)	.126 (.030, .534)**	.444 (.241, .818)**
	≥ 65	1.129 (.449, 2.841)	2.272 (.943, 5.475)	.483 (.144, 1.623)	1.103 (.580, 2.096)
Work status					
(Employed)	Unemployed	1.160 (.344, 3.912)	1.472 (.429, 5.051)	1.968 (.736, 5.261)	1.397 (.648, 3.014)
	Not in Labor Force	2.502 (1.396, 4.484)**	3.030 (1.622, 5.658)**	1.710 (.899, 3.253)	2.348 (1.561, 3.533)***
Marital status					
(Married/cohabiting)	Previously married	4.027 (1.919, 8.448)***	3.396 (1.532, 7.528)**	3.061 (1.178, 7.954)*	3.735 (2.170, 6.430)***
	Never married	2.436 (1.271, 4.667)**	2.051 (1.022, 4.118)*	5.181 (2.703, 9.928)***	2.791 (1.795, 4.339)***

Education (≥ 16 years)	0-11 years	1.102 (.489, 2.485)	1.177 (.493, 2.810)	.431 (.146, 1.274)	.945 (.541, 1.651)
	12 years	1.373 (.652, 2.888)	1.229 (.531, 2.841)	.706 (.295, 1.689)	.920 (.532, 1.592)
	13-15 years	.908 (.424, 1.944)	1.198 (.555, 2.586)	1.045 (.522, 2.093)	.873 (.528, 1.441)
Ethnicity (Chinese)	Vietnamese	1.095 (.578, 2.076)	1.323 (.639, 2.739)	.374 (.158, .888)*	.949 (.593, 1.521)
	Filipinos	.633 (.300, 1.334)	1.170 (.552, 2.478)	.941 (.491, 1.804)	.964 (.602, 1.544)
Insurance Coverage (Yes)	No	.526 (.207, 1.338)	.474 (.168, 1.335)	1.785 (.910, 3.502)	.949 (.562, 1.601)
English Proficiency (Good or excellent)	Poor or fair	.777 (.435, 1.388)	1.172 (.643, 2.135)	.404 (.203, .803)**	.756 (.506, 1.129)
Age at Immigration (US born)	≤ 12 yrs	1.077 (.474, 2.450)	.862 (.337, 2.200)	.750 (.332, 1.695)	.888 (.491, 1.608)
	13-17 yrs	.520 (.148, 1.831)	.813 (.259, 2.547)	.545 (.181, 1.637)	.680 (.315, 1.466)
	18-34 yrs	.234 (.098, .559)***	.272 (.112, .664)**	.206 (.092, .460)***	.284 (.164, .491)***
	≥ 35 yrs	.829 (.393, 1.747)	.821 (.368, 1.827)	.179 (.060, .532)**	.604 (.349, 1.044)
Generation Status (First generation)	Second generation	.1.988 (.691, 5.721)	3.006 (1.137, 7.943)*	1.118 (.263, 4.749)	2.430 (1.206, 4.897)*
	Third or later generation	2.993 (1.359, 6.593)**	3.092 (1.331, 7.183)**	4.415 (2.112, 9.229)***	3.145 (1.787, 5.534)***

Self-rated mental health					
(Excellent)	Very good	1.819 (.627, 5.274)	1.512 (.555, 4.122)	1.188 (.503, 2.805)	1.673 (.870, 3.219)
	Good	2.582 (.913, 7.305)	2.147 (.809, 5.700)	1.761 (.770, 4.029)	2.640 (1.403, 4.966)**
	Fair	5.301 (1.705, 16.480)**	2.138 (.595, 7.689)	1.416 (.429, 4.670)	3.132 (1.435, 6.837)**
	Poor	47.345 (15.328, 146.240)***	25.980 (8.572, 78.744)***	4.624 (1.191, 17.952)*	30.357 (12.878, 71.562)***
Any DSM-IV disorder in past 12-month					
(No)	Yes	9.964 (5.545, 17.904)***	14.221 (7.637, 26.483)***	11.128 (6.030, 20.539)***	11.300 (7.347, 17.381)***
Family Cohesion		.933 (.892, .975) **	.903 (.866, .942)***	.903 (.866, .941)***	.912 (.884, .941)***
Family Conflict		1.239 (1.098, 1.400)**	1.378 (1.222, 1.553)***	1.359 (1.206, 1.531)***	1.359 (1.249, 1.479)***

†p<.1; *p<.05; **p<.01; ***p<.001

Multivariate Analysis

Finally, a series of multiple logistic regression analyses are performed to estimate the effects of family cohesion and family conflict, respectively, to past year service provider use, adjusting for the factors that were found significant in the second step of data analysis- including immigration-related factors and covariates. In this step, if any of the immigration-related factors

(age at immigration and generation status) is found significant in the first set of multivariate models, interactions between family cohesion/family conflict and the corresponding immigration-related factor will be added into the second set of multivariate models. Note that self-rated mental health, though found significant in bivariate analysis, was excluded from multivariate analysis model due to its collinearity with the occurrence of past year DSM-IV psychiatric disorder diagnosis.

Table 4.3 presents results from two multiple logistic regression models performed to estimate the effects of family cohesion and family conflict, respectively, to the use of specialty mental health services in past year. Variables entered in Model 1 include work status, marital status, age at immigration, generation status, past year DSM-IV psychiatric disorder, and family cohesion. Model 2 contains variables such as work status, marital status, age at immigration, generation status, past year DSM-IV psychiatric disorder, and family conflict.

As shown in Table 4.3, Model 1 reveals that Asian Americans who are not in labor force are 1.936 times more likely ($p<.05$, 95% CI [1.027, 3.648]) to use specialty mental health services, comparing with those who are employed. Those who are previously married are more likely (OR=2.342, 95% CI [1.039, 5.282], $p<.05$) to use specialty services than those who are married or cohabiting. Respondents who reported past year diagnosable DSM-IV psychiatric disorder are much more likely to use specialty mental health services (OR=7.305, 95% CI [3.872, 13.779], $p<.001$) than those who hasn't had any past year DSM-IV disorder. However, multivariate analysis indicates that family cohesion, as well as immigration related factors, are not significant in influencing Asian Americans' use of specialty mental health services. Similarly, Model 2 in Table 4.3 estimating effects of family conflict to the use of specialty

mental health services found that work status, marital status, and past year DSM-IV disorder are significant predictor, while family conflict are not.

Given that neither age at immigration or generation status is found significant in these models, no interaction effect between immigration-related factors and family cohesion/family conflict is tested for past year use of specialty mental health services.

Table 4.3. *Multiple Logistic Regression Results for Past Year Use of Specialty Mental Health Services (N=1599)*

		Model 1	Model 2
		OR (95% CI)	OR (95% CI)
Work status	Employed		
	Unemployed	.632 (.171, 2.335)	.667 (.184, 2.409)
	Not in Labor Force	1.936 (1.027, 3.648)*	1.924 (1.021, 3.625)*
Marital status	Married/cohabiting		
	Previously married	2.342 (1.039, 5.282)*	2.429 (1.087, 5.428)*
	Never married	1.485 (.681, 3.242)	1.524 (.700, 3.316)
Age at Immigration	US born		
	≤ 12 yrs		
	13-17 yrs	.781(.208, 2.931)	.767 (.206, 2.856)
	18-34 yrs	.506 (.193, 1.328)	.495 (.190, 1.288)
	≥ 35 yrs	1.314 (.522, 3.306)	1.317 (.529, 3.275)
Generation Status	First generation		
	Second generation	1.311 (.398, 4.317)	1.319 (.399, 4.358)

	Third or later generation	1.803 (.691, 4.707)	1.810 (.696, 4.709)
Any DSM-IV disorder in past 12-month	No		
	Yes	7.305 (3.872, 13.779)***	6.780 (3.507, 13.109)***
Family Cohesion		.981 (.933, 1.032)	
Family Cohesion X **Generation Status**	First generation		
	Second generation		
	Third or later generation		
Family Conflict			1.079 (.941, 1.236)
Family Conflict X **Generation Status**	First generation		
	Second generation		
	Third or later generation		

†p<.1; *p<.05; **p<.01; ***p<.001

Table 4.4 presents results from two sets of multiple logistic regression models performed to estimate the effects of family cohesion and family conflict, respectively, to past year use of general health services for mental problems.

As shown in Table 4.4, Model 3a reveals that Asian Americans who are not in labor force are 2.427 times more likely (95% CI [1.217, 4.841], p<.05) to use general health services, as compared to those who are employed. Respondents who experience DSM-IV psychiatric disorder in previous 12 months are much more likely to use general health services (OR=10.260,

95% CI [5.203, 20.229], p<.001) than those who didn't experience past year psychiatric disorder. More importantly, multivariate analysis suggests that family cohesion is significantly associated with the use of general health services. With each 1-point of increase in family cohesion, the odds of using general health services for mental health problems is.944 (95% CI [.898, .992], p<.05). Moreover, generation is also found significant in the use of general health services. Respondents who are third generation or later are more likely (OR=2.594, 95% CI [.884, 7.614], p<.1) to use services than first generation participants.

Model 3b in Table 4.4 adds the interaction between generation status and family cohesion, as generation status is found significant in Model 3a. The interaction between family cohesion and generation status is significant (p<.05), indicating that the effect of family cohesion is more salient among respondents who are third or later generation Asian Americans, adjusting for other covariates. Specifically, comparing with their first generation counterparts, third or later generation respondents with identical family cohesion scores demonstrate higher odds of using general health services for mental health problems (OR=1.361, 95% CI [1.018, 1.819], p<.05).

Model 4a suggests that work status, generation status, and past year DSM-IV are significant predictors to the use of general health services. Moreover, significant association is observed between family conflict and general health service use (p<.05). Respondents' likelihood of using general health services increases (OR=1.190, 95% CI [1.038, 1.364]) as family conflict increases. Adding interaction between family conflict and generation status to Model 4a, Model 4b found no significant differences and no interaction effect exist in the use of general health services.

Table 4.4. *Multiple Logistic Regression Results for Past Year Use of General Health Services (N=1599)*

		Model 3a	Model 3b	Model 4a	Model 4b
		OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)
Work status	Employed				
	Unemployed	.720 (.182, 2.841)	.839 (.208, 3.378)	.864 (.232, 3.213)	.937 (.249, 3.527)
	Not in Labor Force	2.427 (1.217, 4.841)*	2.758 (1.362, 5.584)**	2.396 (1.200, 4.784)*	2.642 (1.310, 5.328)**
Marital status	Married/cohabiting				
	Previously married	1.585 (.635, 3.955)	1.659 (.667, 4.124)	1.843 (.754, 4.502)	1.737 (.706, 4.274)
	Never married	1.214 (.522, 2.823)	1.075 (.453, 2.552)	1.338 (.577, 3.100)	1.110 (.473, 2.604)
Age at Immigration	US born				
	≤ 12 yrs				
	13-17 yrs	1.971 (.539, 7.206)	2.071 (.546, 7.857)	1.805 (.511, 6.379)	1.931 (.528, 7.064)
	18-34 yrs	.962 (.335, 2.764)	.976 (.342, 2.788)	.861 (.305, 2.432)	.854 (.302, 2.414)
	≥ 35 yrs	2.102 (.729, 6.064)	2.114 (.729, 6.131)	1.948 (.691, 5.491)	2.088 (.731, 5.964)
Generation Status	First generation				
	Second generation	2.711 (.819, 8.966)	1.065 (.010, 109.960)	2.670 (.798, 8.932)	40.856 (1.786, 934.766)*
	Third or later generation	2.594 (.884, 7.614) †	.000 (.000, 2.463) †	2.484 (.855, 7.215) †	37.743 (1.370, 1040.174)*

Any DSM-IV disorder in past 12-month	No				
	Yes	10.260 (5.203, 20.229)***	9.958 (4.995, 19.854)***	8.905 (4.421, 17.937***	9.055 (4.502, 18.214)***
Family Cohesion		.944 (.898, .992) *	.916 (.865, .970)**		
Family Cohesion X **Generation Status**	First generation				
	Second generation		1.028 (.896, 1.180)		
	Third or later generation		1.361 (1.018, 1.819)*		
Family Conflict				1.190 (1.038, 1.364)*	1.308 (1.118, 1.531)**
Family Conflict X **Generation Status**	First generation				
	Second generation				.701 (.464, 1.057)
	Third or later generation				.696 (.451, 1.074)

†p<.1; *p<.05; **p<.01; ***p<.001

Table 4.5 reports findings from two sets of multiple logistic regression models conducted to estimate the effects of family cohesion and family conflict, respectively, to past year use of human or alternative services for mental problems.

As shown in Table 4.5, Model 5a suggests that male respondents use human or alternative services significantly less than do their female counterparts (OR= .406, 95% CI [.202, .817], $p<.05$). Respondents who are never married (relative to those who are married or cohabiting), and those who had at least one past year diagnosable DSM-IV disorder are more likely to use human or alternative services. Significant differences exist among generation status-third or later generation Asian Americans are 2.574 times more likely (95% CI [1.017, 6.514], $p<.05$) to use human or alternative services, comparing with their first generation counterparts. However, family cohesion is found to have no significant impact to the use of human or alternative services.

In terms of family conflict, Model 6a reveals a significant association between family conflict and the use of human or alternative services. Specifically, the odds ratio of family conflict is 1.155 (95% CI [1.005, 1.328], $p<.05$), indicating that higher level of family conflict increases the likelihood of using human or alternative services. Model 6b consists of the interaction term between generation status and family conflict, adjusting for other covariates. After adding interaction term, surprisingly, neither family conflict or generation status remains significant in predicting the use of human or alternative services. The interaction effect of family conflict and generation status is not significant either.

Table 4.5. *Multiple Logistic Regression Results for Past Year Use of Human or Alternative Services (N=1599)*

		Model 5a	Model 5b	Model 6a	Model 6b
		OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)
Gender	Female				
	Male	.406 (.202, .817)*	.398 (.197, .804)*	.416 (.206, .841)*	.413 (.202, .845)*
Age group	18-34				
	35-49	1.269 (.533, 3.022)	1.270 (.535, 3.018)	1.327 (.561, 3.138)	1.307 (.544, 3.137)
	50-64	.366 (.069, 1.933)	.341 (.064, 1.818)	.362 (.068, 1.917)	.363 (.068, 1.927)
	≥ 65	1.480 (.278, 7.878)	1.416 (.265, 7.551)	1.460 (.272, 7.847)	1.438 (.266, 7.777)
Marital status	Married/cohabiting				
	Previously married	1.473 (.490, 4.429)	1.568 (.526, 4.672)	1.647 (.554, 4.895)	1.795 (.584, 5.515)
	Never married	2.678 (1.143, 6.270)*	2.658 (1.130, 6.254)*	2.844 (1.223, 6.614)*	3.365 (1.407, 8.049)**
Ethnicity	Chinese				
	Vietnamese	.657 (.254, 1.698)	.668 (.258, 1.732)	.635 (.245, 1.648)	.642 (.248, 1.658)
	Filipinos	1.050 (.510, 2.163)	1.066 (.517, 2.199)	.974 (.476, 1.994)	.988 (.476, 2.050)
English Proficiency	Good or excellent				
	Poor or fair	.901 (.363, 2.233)	.892 (.358, 2.220)	.892 (.361, 2.209)	.917 (.368, 2.286)

Age at Immigration	US born				
	≤ 12 yrs				
	13-17 yrs	1.290 (.391, 4.254)	1.312 (.397, 4.340)	1.207 (.365, 3.988)	1.188 (.363, 3.891)
	18-34 yrs	.687 (.251, 1.876)	.704 (.257, 1.926)	.654 (.241, 1.778)	.672 (.245, 1.837)
	≥ 35 yrs	.719 (.150, 3.449)	.765 (.158, 3.697)	.717 (.151, 3.401)	.691 (.143, 3.328)
Generation Status	First generation				
	Second generation	.555 (.116, 2.666)	.707 (.002, 213.457)	.596 (.124, 2.875)	.000 (.000, 14.320)
	Third or later generation	2.574 (1.017, 6.514)*	.355 (.005, 26.323)	2.779 (1.092, 7.074)*	.821 (.043, 15.660)
Any DSM-IV disorder in past 12-month	No				
	Yes	6.646 (3.384, 13.052)***	6.444 (3.266, 12.711)***	5.637 (2.772, 11.463)***	5.681 (2.752, 11.726)***
Family Cohesion		.963 (.917, 1.012)	.953 (.901, 1.008)		
Family Cohesion X **Generation Status**	First generation				
	Second generation		.992 (.833, 1.181)		
	Third or later generation		1.060 (.938, 1.196)		

Family Conflict		1.155 (1.005, 1.328)*	1.069 (.906, 1.260)
Family Conflict X **Generation Status**	First generation		
	Second generation		2.109 (.850, 5.233)
	Third or later generation		1.184 (.804, 1.745)

†p<.1; *p<.05; **p<.01; ***p<.001

Table 4.6 below presents the estimates of the effects of family cohesion and family conflict, respectively, to past year use of any type of mental health-related services.

As shown in Table 4.6, respondents who are not in labor force are significantly more likely (p<.01) to use any type of mental health-related services than their employed counterparts. People who are previously married demonstrate higher likelihood (p<.05) of using any mental health-related services as compared to those who are married or cohabiting. Participants who report having a past year diagnosable DSM-IV disorder are more likely to any mental health-related services. Moreover, in Model 7a, generation status is found significant. Third or later generations of Asian Americans are found to have higher odds of using any type of mental health-related services (OR= 2.538, 95% CI [1.227, 5.250], p<.05), in relative to the first generations. Family cohesion emerges as a predictor to the use of any mental health-related services (OR=.955, 95% CI [.920, .991], p<.05), indicating that higher level of family cohesion reduces Asian Americans' likelihood of using any type of mental health-related services. Model

7b in Table 4.6 suggests that the interaction effect between family cohesion and generation status lacks of statistical significance in predicting the use of any type of mental health-related services.

With regards to family conflict, strong association is observed between family conflict and the use of any mental health-related services in past year. Respondents' likelihood of using any type of mental health services increase (OR=1.207, 95% CI [1.096, 1.329], p<.001) with each 1-point increment in family conflict. Taking interaction effect into consideration in Model 8b, work status, marital status, past year DSM-IV disorder, and family conflict remain significant in predicting service use. Yet, interaction effect of family conflict and generation status is found to be not significant in influencing past year use of any mental health-related services.

Table 4.6. *Multiple Logistic Regression Results for Past Year Use of Any Mental Health-related Services (N=1599)*

		Model 7a	Model 7b	Model 8a	Model 8b
		OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)
Gender	Female				
	Male	.703 (.450, 1.098)	.695 (.444, 1.088)	.716 (.457, 1.122)	.717 (.456, 1.128)
Age group	18-34				
	35-49	.905 (.490, 1.672)	.905 (.490, 1.672)	.969 (.526, 1.787)	.967 (.524, 1.787)
	50-64	.553 (.238, 1.281)	.535 (.229, 1.248)	.554 (.238, 1.289)	.553 (.237, 1.289)
	≥ 65	.666 (.240, 1.851)	.641 (.229, 1.796)	.668 (.239, 1.870)	.667 (.238, 1.869)
Work status	Employed				
	Unemployed	.767 (.316, 1.862)	.814 (.334, 1.983)	.837 (.353, 1.986)	.837 (.353, 1.989)

	Not in Labor Force	2.093 (1.284, 3.411)**	2.141 (1.311, 3.497)**	2.098 (1.286, 3.423)**	2.101 (1.284, 3.437)**
Marital status	Married/cohabiting				
	Previously married	2.300 (1.204, 4.391)*	2.285 (1.196, 4.364)*	2.523 (1.329, 4.788)**	2.526 (1.328, 4.804)**
	Never married	1.543 (.851, 2.797)	1.501 (.826, 2.728)	1.672 (.925, 3.021)	1.672 (.918, 3.045)
Age at Immigration	US born				
	≤ 12 yrs				
	13-17 yrs	1.397 (.592, 3.298)	1.435 (.605, 3.403)	1.270 (.541, 2.979)	1.273 (.541, 2.995)
	18-34 yrs	.847 (.436, 1.643)	.863 (.444, 1.675)	.792 (.410, 1.530)	.794 (.410, 1.537)
	≥ 35 yrs	1.753 (.762, 4.035)	1.851 (.800, 4.284)	1.796 (.785, 4.109)	1.803 (.783, 4.151)
Generation Status	First generation				
	Second generation	1.838 (.793, 4.259)	.564 (.010, 31.521)	1.930 (.823, 4.528)	1.852 (.169, 20.241)
	Third or later generation	2.538 (1.227, 5.250)*	.232 (.005, 10.057)	2.637 (1.274, 5.455)**	2.829 (.275, 29.115)
Any DSM-IV disorder in past 12-month	No				
	Yes	8.086 (5.053, 12.939)***	7.896 (4.922, 12.669)***	6.772 (4.171, 10.997)***	6.762 (4.158, 10.997)***
Family Cohesion		.955 (.920, .991) *	.942 (.903, .983)**		

Family Cohesion X **Generation Status**	First generation			
	Second generation	1.036 (.923, 1.162)		
	Third or later generation	1.071 (.964, 1.190)		
Family Conflict			1.207 (1.096, 1.329)***	1.208 (1.083, 1.347)**
Family Conflict X **Generation Status**	First generation			
	Second generation			1.006 (.741, 1.366)
	Third or later generation			.990 (.728, 1.348)

†p<.1; *p<.05; **p<.01; ***p<.001

Conclusions and discussions

The current study investigated the impact of family cohesion and family conflict to past year use of specialty mental health services, general health services, human or alternative services, and overall, any type of mental health-related services in nationally representative sample of Asian Americans. Results of bivariate analyses indicate that family cohesion and family conflict are both significant predictors to the use of mental health services in previous 12 months. Participants reporting higher level of family cohesion are less likely to use specialty services, general services, human or alternative services, or any type of mental health-related

services. In contrast, participants reporting higher level of family conflict are more likely to receive each and any type of mental health-related services.

After controlling for immigration-related factors and other covariates, however, the effects of family cohesion and family conflict are inconsistent across each type of services. Specifically, family cohesion remains a significant predictor to Asian Americans' receipt of general health services, as well as, the overall use of any type of mental health-related services. Higher level of family cohesion is associated with lower likelihood of using general health services and any type of mental health-related services among Asian Americans. Yet, significant association are not found between family cohesion and the use of specialty mental health services, and human or alternative services. Taking immigration into consideration, interaction effects between family cohesion and generation status is found significant only in the use of general health services among third or later generation Asian Americans. In other words, effect of family cohesion is more prominent among respondents who are third or later generation Asian Americans. As compared to their first generation counterparts with same family cohesion level, third or later generation Asian Americans are found to have a 1.361-times-greater odds of using general health services for mental health problems. Family conflict, on the other hand, is found to have important influence on the use of each and any type of mental health-related services, with the only exception of specialty mental health services, after adjusting for all other covariates. Interaction effect between family conflict and generation status is not found statistically significant across all types of mental health services examined.

To sum up, findings of the present study are in line with previous studies in understanding the effects of family cohesion (Ta, Holck & Gee, 2010) and family conflict (Abe-Kim et al., 2002; Chang, Natsuaki, &Chen, 2013) to the overall rate of mental health service use

among Asian Americans. Generally speaking, more cohesive families are less likely to use mental health services. This is probably because that people from cohesive families may have less mental health needs as strong family bonding buffers their psychosocial stressors (Meyerson et al., 2002; Laursen & Collins, 1994; Ta, Holck & Gee, 2010). Yet, another possible explanation is that people from more cohesive families may have stronger attempts to keep the honor and proud of their families. Therefore, they may choose to keep their problems within their families, instead of seeking help outside of their families, in order to not shame their families with stigmatized mental illness (Ta, Holck, & Gee, 2010). On the other hand, more conflictual families are more likely to use mental health services, which is probably resulted by elevated mental health needs associated with tensioned family relations.

More importantly, the present study advances extant knowledge in how family relation may influence Asian Americans' decision of mental health service use, especially in the use of general health services and human or alternative services, which has seldom been explored before. To my knowledge, the present study is the first comprehensive empirical examination of the impact of family relational factors to the use of each and all types of mental health services in a nationally representative sample of Asian Americans.

Further, this present study also assesses the moderating effect of generation status of family relation to mental health service use. The effect of generation status to family cohesion is found among third or later generation Asian Americans for their use of general health services. Specifically, family cohesion is found to have stronger influence to third or later generation Asian Americans in their receipt of general health services for mental health problems. For third or later generation Asian Americans, lacking of cohesive family bonding may intensify their

psychological stresses and thus, promote their use of general health services in a rate that is greater than their first generation counterparts.

Findings of the present study should be seen in the context of several limitations. First, the study focuses only on three sub-ethnicity groups of Asian Americans, and excludes the respondents who identified themselves as "Other Asian". This is so because of the extremely small sample size in some service type categories. Given the heterogeneity of races and cultures, the prevalence and patterns of mental health-related services use among other Asians are in need of further study. Second, this study is a secondary data analysis, using data from National Latino and Asian American Study. The cross-sectional nature of the NLAAS limits the current study in its ability of determining the longitudinal effects and establishing causality. Moreover, the NLAAS uses retrospective measures of service use and DSM-IV diagnosis, which could lead to recall and reporting biases. Further, the present study examines past year service use, which provides important information on Asian Americans' current mental health service use. However, this measure may not always reflect the most accurate rate and pattern of service use, as many individuals tend to delay treatment for mental health problems (Kessler, Olfson, & Berglund, 1998; Wang et al., 2005). Future studies should consider assessing both current (past year) and lifetime service use to better understand the mental health service utilization among Asian Americans.

Despite the caveats, the present study remarks a significant contribution to the extant literature by lending several important social work implications. First, this study promotes cultural awareness. Findings from the present study highlight the centrality role of family in Asian culture. It is recommended for social work practitioners to aware and respect such cultural differences, and gain relevant knowledge and skills, so as to provide culturally competent and

appropriate services to their Asian American clients. This study could also serve as a vessel of knowledge that benefits social work education. Findings of the study offers great opportunity for social work educators and social work students to assess their own cultural values and assumptions, to become aware of and respect cultural differences, which is the basis of obtaining cross-cultural knowledge and skills and becoming a culturally competent social work professional.

Moreover, this study bridges the knowledge gap. Results from the present study evidence the significant effect of family relation to mental health service use among Asian Americans. In collectivist Asian cultures, family relation plays a critical role in influencing whether Asian Americans reveal their mental health needs, whether they seek for help to address their mental health needs, and which types of treatment they use. Social work practitioners could benefit from this empirical study by integrating the findings of the study into program planning and implementation. To be specific, given the pivotal role of family, it is suggested that social workers outreach to entire Asian family units, rather than individual Asian Americans. And if during intervention, social workers observe that interdependence among family members is highly regarded, they should engage the entire family units in the decision process (Gaw, n.d.). Furthermore, as noted earlier, the occurrence of mental illness and seeking mental health treatment are stigmatized in Asian cultures. It is imperative for social work professionals to strive to provide mental health services in a non-stigmatizing fashion, such as integrating mental health care into physical checkups or primary health care to reduce Asian Americans' exposure to stigmatized events or shameful feelings. Meanwhile, social workers should also develop and provide educational programs that specifically address the stigma issues to Asian communities,

so as to increase their acceptability of mental health service use (Sentell et al., 2007; Chin, 1998; Chun & Akutsu, 1999).

Last but not least, findings from the study indicate that generally speaking, Asian families that are more cohesive or less conflictual are less likely to use mental health services. Yet, it remains unknown that whether such decreased odds should attribute to the lack of mental health needs in the more cohesive family relations, or due to the discouragement from the family in the attempt of keeping the honor and proud, or "saving face", of the entire family (Ta, Holck, & Gee, 2010). It is recommended that future studies should utilize qualitative research methods to obtain an in-depth understanding of the influence of family relation and establish reliable causality.

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CHAPTER 5

CONCLUSION

Summary of findings

The blooming Asian American population in the United States has placed both opportunities and challenges to mental health researchers and practitioners. The past decade has witnessed the thriving development of research, especially nationwide epidemiological studies, providing major advancement in the knowledge of Asian Americans' mental health prevalence and service utilization. Nevertheless, findings from the studies have congruously suggested the awareness of service underutilization among Asian Americans, and pointed to the needs of studying in and addressing this issue to improve the mental health situation of this population. This dissertation contributes to social work research, practice and policy by providing a systematic examination of factors that influence Asian Americans' mental health service utilization, in terms of prevalence rates and choices of service type, based on a nationally representative sample. Subsequently, the dissertation provides critical empirical evidences that would benefit social work scholars and practitioners by investigating the impacts of perceived social status and immigration to the occurrence of lifetime and past year psychiatric disorder, as well as by exploring the independent and joint influence of family relation and immigration to mental health service use, among Asians. In the following sections, the foregoing three studies, as reported in Chapters 2, 3, 4, of the dissertation, respectively, will be briefly reviewed.

Chapter 2: Exploring factors associated with Asian Americans' mental health service underutilization: An application of Andersen's behavioral model of health service use.

In light of the lack of a comprehensive examination of factors that influence Asian Americans' use of mental health-related services, this study advances extant knowledge through a systematic analysis that examines the prevalence and patterns of mental health service use, and explores the influencing factors and their effects to the use of mental health-related service, including the use of specialty mental health services, general health services, human or alternative services, and any type of mental health-related services, in a nationally representative sample of Asian Americans. Specifically, guided by Andersen's health behavioral model, this study investigates three categories of factors that may impact service use: *i*) predisposing factors, including gender, age, work status, marital status, and education attainment; *ii*) enabling factors, including household income, insurance coverage status, English proficiency, age at immigration, and number of years in US; and *iii*) need factors, including any DSM-IV diagnoses in past 12-month, and self-reported mental health. Findings from this study indicate a relatively low prevalence of using mental health services among Asian Americans. Among those who reported past year use of services, a slimly higher proportion chose to use specialty mental health services (3.1%) over other type of services. A closer look at Asian Americans' choice of service type suggests that Asian Americans are likely to use human or alternative services to address mental health problems, aside from specialty mental health services. Several factors are found significant in influencing utilization of certain types of mental health-related services. Amongst, marital status, age at immigration, and past year DSM-IV diagnosis are critical as they are found to have significant association with each and any type of service use. Respondents who are previously married, US born, or having DSM-IV diagnosable psychiatric disorder in past 12-

month are more likely to use each and any type of mental health-related services. These findings suggest the needs for follow-up studies that establish reliable causal relationship, policies that combat cultural and structural barriers, and tailored interventions that effectively provide and deliver culturally and linguistically competent services, to address the service underutilization issue among Asian Americans.

Chapter 3: Examining the influence of immigration and perceived social status on psychiatric disorder among Asian immigrants

The study reported in Chapter 3 first investigates the influence of immigration, as a life-changing event and stressor, on the occurrence of lifetime and 12-month psychiatric disorders among Asian immigrants. Immigration-related factors tested in the study includes: age at immigration, length of residence in the U.S., English proficiency, and voluntary/involuntary immigration. Results of bivariate analyses show that age at immigration is the only immigration-related factor that is found to have significant influence to the presence of lifetime and past year DSM-IV psychiatric disorder among Asian immigrants. Next, the study uses multiple logistic regression models, adjusting for objective social status and demographic variables, to estimate effects of perceived social status, along with its combined influence with immigration, to lifetime and 12-month psychiatric disorders among Asian immigrants. Perceived social status in the United States is found to have significant association with the presence of lifetime and past year psychiatric disorder among Asian immigrants. Respondents' likelihood of having any lifetime or 12-month psychiatric disorder decreases as their perceived social status in the U.S. increases. After taking immigration-related factors into account, immigrants' perceived social status in the U.S. and age at immigration remain significant to Asian immigrants' occurrence of lifetime or past year psychiatric disorder. Surprisingly, immigrants' perceived social status in country of

origin, before and after adding immigration-related factors, has not established any significant association with the presence of psychiatric disorder among Asian immigrants in this study. It's suggested that future studies should consider constructing the measure of perceived social status as the change of perceived socioeconomic status along with the immigration process, in lieu of viewing immigrants' perceived social status in two countries as two independent variables, to better capture the influence of immigration. Moreover, despite that results of the study suggest that generally, Asian immigrants' likelihood of having psychiatric disorder slightly decreases as their perceived social status in the U.S. increases, it is still incumbent for social work practitioners to outreach to and include those who hold relatively higher perceived social status, in addition to those who perceived themselves as in lower status in the U.S., in the education, prevention, and intervention of mental health disorders.

Chapter 4: Do family cohesion and family conflict matter? A Study on the influence of family relational factors on mental health service utilization among Asian Americans

With recognition of the unique and critical feature of family in Asian culture, the study reported in Chapter 4 examines the impact of family relation- family cohesion and family conflict- to the prevalence and pattern of mental health service utilization among Asian Americans. Using multiple logistic regression models, the study estimates the influence of these two family relational factors on past year mental health service utilization among Asian Americans, adjusting for immigration-related factors and demographic variables. The study further tests the interaction effect between family relational factors and immigration-related factors to estimate their joint impact to past year mental health service use. Primary findings from the study shows that family relation plays a crucial role in influencing the rate and type of mental health service use among Asian Americans. In particular, results of bivariate analyses

suggest that both of the two family relational factors, family cohesion and family conflict, are significant predictors to past year use of each and any type of mental health services. Participants reporting higher level of family cohesion are less likely, while those reporting higher level of family conflict are more likely, to use each and any type of mental health-related services. After controlling other covariates, family cohesion remains a reliable predictor to Asian Americans' receipt of general health services and any type of mental health-related services, whilst family conflict is significant to the use of each and any type of mental health services, with the only exception of specialty mental health services. Taking immigration into consideration, interaction effect between family relational factors and immigration-related factors is hardly found. The only significant interaction effect is found between family cohesion and generation status in the use of general health services. Namely, as compared to their first generation counterparts with identical family cohesion scores, third or later generation Asian Americans are found to have a 1.361-times-greater odds of using general health services for mental health problems. In other words, effect of family cohesion is more prominent among respondents who are third or later generation Asian Americans. No significant interaction effect between family conflict and immigration-related factors (i.e. generation status) is found across all types of mental health services examined. The study possesses several important social work education and practice implications. Namely, study highlights the central role of family in Asian culture that differs greatly from the U.S. culture, and therefore, promotes culture awareness for social work educators, social work students, and frontline social workers in their endeavors of building cultural competence. In addition, findings from the study provides insights to guide program planning and implementation when working with Asian Americans. On the basis of the advanced understanding of how family relation may influence the use of each type of mental health-related

services, social workers and other service providers can better plan and deliver the most appropriate and effective services. In addition, it's recommended that, considering the centrality role of family relation, future interventions should target at meeting the mental health needs of entire Asian family, and outreach to entire Asian family units, rather than individual Asian Americans.

Limitations

The three studies reported in the dissertation should be viewed with several limitations in mind. First, a few of the deficiencies are rooted in the design of the studies- secondary data analysis. Specifically, the dataset analyzed in the studies, National Latino and Asian American Study (NLAAS), is a cross-sectional survey. The longitudinal effects that require time to manifest, such as the influence of service use to respondents' health outcome, the recursive effects of their health outcome to future service use, and impacts of strengthened family bonding to future service use, cannot be solidly established in this dissertation. Plus, the cross-sectional nature and observational study design of NLAAS refrains the dissertation from drawing reliable causal relationship. Further, findings from the studies may subject to recall and reporting biases as the NLAAS uses retrospective measures of service use and DSM-IV diagnosis.

In addition, Chapter 2 and Chapter 4 construct the outcome variable- past year use of mental health services- as dichotomous variables. The frequencies of service utilization may be oversimplified and therefore, cannot provide more detailed information regarding Asian Americans' service use pattern. Besides, measuring only the past year service use may limit the generalizability of the studies to the prevalence and pattern of long-term service use, as individuals tend to delay treatment for mental health problems (Kessler, Olfson, & Berglund, 1998; Wang et al., 2005). Moreover, the primary outcome variables of the study reported in

Chapter 3 are lifetime and 12-month psychiatric disorder, as defined by DSM-IV criteria, a Western-derived standardized instrument for mental disorder. Applying a Western-based diagnostic method to Asian Americans requires extra caution as it may lead to underestimate of psychiatric disorders among Asians, especially when Asians express their mental health problems in ways that are not identified in DSM-IV.

Implications

Despite the foregoing caveats, the dissertation shed light on the understanding of status quo and influencing factors of mental health and service utilization among Asian Americans, with particular focus on the impacts of immigration, perceived social status, and family relation. The dissertation possesses several essential social work implications. The following sections will discuss social work practice, policy, and research implications based on the research findings of this dissertation.

Social Work Practice Implications

Primary findings from the dissertation highlight the fact that Asian Americans have significantly underused mental health services. The combined prevalence of using any type of mental health-related services is merely 6.8% among Asian Americans, enormously lower than that of other racial or ethnic groups (Abe-Kim et. al., 2007; Kung, 2003, 2004). The needs of promoting mental health service use among Asian Americans are prominent, because their mental health well-being will not only affect these ethnic minorities themselves, but also, inevitably, impact to their families and friends, residing communities, working places, and other citizens in the society. Social work professionals should take up a vital position in addressing the service underutilization issue given the fact that Asian Americans prefer to use human or alternative services for their mental health problems, as revealed in the results of the dissertation.

Despite the overall low rate of service utilization, Asian Americans have a relatively high use of human or alternative services, which may attribute to the culturally-based stigma towards mental illness. To tackle this bias and increase service use, mental health professionals could integrate mental health care into physical checkups so as to reduce Asian Americans' exposure to the shameful feelings or stigmatized events, meanwhile, strengthening outreach efforts and providing educational programs to Asian communities to increase their acceptability of mental health service use (Sentell et al., 2007; Chin, 1998; Chun & Akutsu, 1999). Moreover, Asian Americans may hesitate to use traditional treatment due to the lack of knowledge of Western conceptualized mental illness or lack of familiarity to Western-derived treatment. It is imperative for social work practitioners to bridge the needs and services through referrals and interventions, and to improve mental health literacy among Asian Americans, so as to increase the timely and effective utilization of mental health services.

In addition, findings from dissertation congruously indicate that the occurrence of psychiatric disorder is significantly correlated to past year use of each and any type of mental health services among Asian Americans. Nevertheless, results also suggest that even among those who had past year palpable diagnosable psychiatric disorders, the rate of service utilization is still significantly lower than 50%. It is recommended that mental health social workers and other mental health professionals (such as psychiatrists and psychologists) consistently screen for people in need of services so as to increase service accessibility. Results from the dissertation suggest that Asians who immigrate to the U.S. during childhood, and those who perceive themselves as at lower social status in relative to other people in the U.S., are more likely to experience psychiatric disorder during their lifetime or over a 12-month period. It is suggested that practitioners should ensure outreach effort and service provision to these particular groups,

in addition to the general Asian population. Moreover, it's crucial for school social workers and teachers to take up the prominent role in providing school-based mental health interventions, targeting young Asian immigrants.

Meanwhile, it is incumbent for social work practitioners to plan and provide mental health services that are culturally and linguistically accessible and appropriate services to the Asian Americans. To combat the language barrier, practitioners should assess patients' English proficiency and ascertain their preferred language of communication. It is suggested that agencies and organizations working with Asian Americans to enhance the availability of services in clients' native or preferred language and increase the manpower of bilingual staff (Gaw, n.d.; Chin, 1998; Chun & Akutsu, 1999). On the other hand, schools of social work should strengthen their efforts of recruitment and training, so as to increase the Asian American social worker workforce to serve this ever-growing population. Further, to ensure the provision and delivery of culturally competent services, practitioners should consider to culturally adapt extant treatments that are well received by other racial/ethnic groups and the general population and develop ethnic-specific interventions, so as to make these treatment options understandable, acceptable and effective for Asian Americans (Hall, 2001; Hinton, Pich, Chhean, Safren, & Pollack, 2006). Agencies and organizations, on the other hand, should regularly provide cultural competence training opportunities to frontline social workers to ensure their continuous development of cultural competence to better serve the Asian American population.

Furthermore, findings from the dissertation highlight the crucial role of family and family relation in the use of mental health services among Asian Americans. Specifically, family plays an essential role in Asian culture. In addition, family relation, namely family cohesion and family conflict, hugely influences Asian Americans' prevalence and choice of mental health

service utilization. On the basis of these findings, it is recommended that social work practitioners, when working with Asian American populations, should become aware of and respect these unique cultural values, proactively obtain relevant cross-cultural knowledge and skills, and culturally adapt programs and interventions to better reach their Asian American clients. In particular, given the centrality role of family, it is suggested that social workers outreach to entire Asian family units, instead of individual Asian Americans. If social work practitioners observe that the Asian family values interdependence among family members, they should consider treat the family as a unit and involve the entire family in health decision process (Gaw, n.d.). Moreover, community organizations and practitioners should design and implement ethnic-specific programs that reflect and comply with Asian's value of family, such as programs that target to meet the needs of entire family, to improve family inclusion, and to strengthen family bonding.

Social Work Policy Implications

The three studies reported in the dissertation convey important social work policy implications. First and foremost, the dissertation calls attention to the mental health opportunities, outcomes, and needs among Asian Americans. Presence and prevalence of mental disorders not only affects the mental health well-being of Asian Americans, but also threatens public health of the entire nation. Policies are needed to promote public awareness of and expand education on the importance of enhancing mental health well-being of racial and ethnic minorities. In particular, appropriate funding should be allocated to develop public education in health clinics, hospitals, and social media, and to design and implement community-based programs, such as health fairs and health lectures.

Additionally, the studies reveal the facts that Asian Americans significantly underuse mental health services and that many factors may contribute to the underutilization. Among the individual and structural factors identified influential to Asian Americans' mental health service use, needing services is one of the essential factors. Respondents having at least one palpable diagnosable psychiatric disorder based on DSM-IV criteria are much more likely to use each and any type of mental health services. As noted earlier, the existing Diagnostic and Statistical Manual of Mental Disorders (DSM) provides standardized criteria and language in mental health problem diagnosis. However, this standardized instrument is conceptualized and developed based on Western-derived psychological constructs. In addition, cultural variation in symptom perception and expression exists between East and West, as well as among ethnic subgroups within the Asian American population. Prior studies demonstrate that cultural-bound mental health disorders may not be captured by the DSM criteria, and thus, can be mis- or under-detected by Western-based standardized assessments (Zheng et al., 1997; Sue, Cheng, Saad, & Chu, 2012; Hinton, Pich, Marques, Nickerson, & Pollack, 2010). Conclusively, one standardized measurement regardless of heterogeneity can hardly be an effective measurement for all populations (Ihara, Chae, Cummings, & Lee, 2014). It is incumbent for policy makers to allocate appropriate funding and resources to foster the modification and development of instrument that accounts for cultural variations in symptom expression and contains culture-bound psychiatric disorders in measurement, so as to more accurately and comprehensively understand the mental health situation and needs of Asian Americans. At organizational or program level, policy makers should continuously follow the National Standards for Culturally and Linguistically Appropriate Services (CLAS) in Health and Health Care to design and implement CLAS services that include specific cultural adaptions for Asian American clients; conduct ongoing

quality assurance assessment of CLAS services provided; and provide regular cultural competence training to assist practitioners to recognize and respect cultural diversity, assess their own values and assumptions, obtain cross-cultural knowledge and skills, to better serve the Asian American population.

Social Work Research Implications

The dissertation shed light on the multifaceted factors that influence Asian Americans' overall prevalence and preferred options of the use of mental health-related services. With recognition of centrality role of family in Asian culture, it further illustrates the important effects of family cohesion and family conflict in correlation to Asian Americans' prevalence and patterns of mental health service use. Additionally, the dissertation also represents important contributions to the understanding of the influence of immigration and perceived social status to Asian Americans' lifetime and short-term (past year) psychiatric disorders. Results of the dissertation provide solid empirical foundation to inspire future studies.

First, future studies should consider using qualitative or mix methods research to further understand the multifaceted factors that influence Asian Americans' mental health service use. In particular, as discussed earlier, culturally-based beliefs possess critical influences on if and when Asian Americans recognize mental illness symptoms, how they perceive mental illness, whether they stigmatize mental illness and help seeking behaviors, and which type of treatment they likely opt to use. Follow-up qualitative or mix methods research could provide empirical information that helps researchers and practitioners better understand the impact of culture in Asian Americans' mental health service use. Likewise, qualitative studies on the influence of family relation can help us establish reliable causal relationship to guide future practice.

In addition, this dissertation is based on data from NLAAS, a cross-sectional study. Hence, the longitudinal health effects of using mental health services, and the recursive effects of health outcome to future mental health service use, cannot be measured. It is necessary for researchers to conduct follow-up studies to advance the knowledge of these longitudinal and recursive effects, and establish valid causality between the identified influencing factors and service use.

Moreover, the dissertation has evidenced the impacts of immigration and perceived social status to the occurrence of mental disorder among Asian Americans. It is suggested that future studies further investigate the interaction effects of immigration and perceived social status, such as perceived change of socioeconomic status associated with immigration, to better estimate their joint impact to Asian Americans' short-term and long-term mental health situation and needs.

Last but not least, it is recommended that future research should examine further in regards of the heterogeneity among ethnic subgroups within the Asian American population. As noted in the dissertation, different ethnic subgroups feature distinct demographic characteristics, dissimilar immigration experiences, as well as divergent family cohesion and family conflict scores, which may lead to variations in mental health well-being and may indicate different prevalence and patterns of mental health service use. By examining the differentiated subgroups, it is expected that future studies can provide ethnically specific empirical information to guide practice and policy making.

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