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PREDICTORS OF HELP-SEEKING IN A NATIONAL SAMPLE OF ASIAN AMERICANS: THE EFFECTS OF DEMOGRAPHICS, LANGUAGE, DISORDER, DISTRESS, AND ETHNICITY

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ABSTRACT

PREDICTORS OF HELP-SEEKING IN A NATIONAL SAMPLE OF ASIAN AMERICANS: THE EFFECTS OF DEMOGRAPHICS, LANGUAGE, DISORDER, DISTRESS, AND ETHNICITY

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Disparities in mental health, specifically in the underutilization of services, remain a pervasive barrier to equitable outcomes for ethnic minority populations. One population that has consistently been found to underutilize mental health services is Asian Americans/Pacific Islanders (AAPIs). Extant studies suggest that mental illness rates among AAPIs are within the same range as non-Hispanic Whites; however, AAPIs are considerably less likely to utilize services relative to their population size. The goal of this study was to assess the predictive value of a range of variables on help-seeking behaviors. Predictor variables assessed include ethnicity, SES, gender, age, probable DSM-IV disorder status, distress, and experiences of discrimination. Help-seeking behaviors assessed included: 1) use of any service, 2) use of formal services, 3) use of informal services, and 4) use of specialty mental health services. A sample of 2095 adults was drawn from the National Latino and Asian American Study (NLAAS). A series of logistic regressions were conducted. A probable DSM-IV mood or anxiety disorder and high levels of distress were found to significantly predict all forms of service use. Predictors of all types of service use were found to vary by ethnic subgroup, with significant differences according to DSM-IV disorder status. Implications for future research and practice are discussed.

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Studies on mental health service utilization in the United States have consistently shown that ethnic minority individuals are significantly underrepresented in patient populations (U.S. Department of Health and Human Services [USDHHS], 2001; President's New Freedom Commission on Mental Health [PNFCMH], 2003). Etiological surveys have demonstrated that unmet need for treatment is greatest among racial-ethnic minorities, such that ethnic minority individuals experiencing comparable mental health concerns relative to the general population remain less likely to utilize mental health services than their White counterparts (Wang et al., 2005). Greater understanding of the traits, circumstances, and life experiences of underserved populations is essential to understanding barriers to mental health treatment, remedying inequalities in service access, and ultimately reducing health disparities (Takeuchi & Kramer, 2002).

One population that has consistently been found to underutilize mental health services is Asian Americans (Abe-Kim, Takeuchi, & Hwang, 2002; Sue, 1994; Yamashiro & Matsuoka, 1997). According to the U.S. Department of Health and Human Services (2001), studies examining rates of service use in the formal mental health services sector found that Asian Americans used fewer services per capita than other groups. In addition, less than 20 percent (17%) of those individuals who reported experiencing problems sought services, and less than 6% sought help from a mental health professional. In contrast, studies have indicated that nearly one-half to two-thirds of White individuals experiencing problems, one-third of African American individuals with

a diagnosable disorder, and one-fifth of Hispanic American individuals with a diagnosable disorder seek any form of treatment.

According to the US Census Bureau's recent American Community Survey series (2007), Asian Americans are one of the fastest-growing demographics in the United States, a diverse group comprising approximately 4.7 percent of the U.S. household population as of 2004. This compares to the proportion of approximately 4.2 percent found only four years previously (US Census Bureau, 2000). Contrary to conceptions of this population that treat Asian Americans as a single, monolithic entity, Asian Americans represent more than 43 different ethnic groups whose origins, histories, practices, and cultures vary widely (Takeuchi & Kramer, 2002). These intragroup cultural differences are particularly salient in light of the fact that the rapid growth of the Asian American population in recent years is primarily due to immigration: approximately 67 percent of the Asian American population is foreign-born, and 50% of the current population immigrated to the United States after 1990 (US Census Bureau, 2007).

In addition to the treatment of Asian American groups as a single entity, one of the most pervasive myths surrounding Asians in America is that of the "model minority" (Sue and Sue, 1990; Zhang, Snowden, & Sue, 1998). According to this stereotype, Asian Americans fare better than other ethnic groups in terms of income, occupational and educational achievement, social status, and health. This stereotype manifests itself within the domain of clinical psychology as an insidious characterization of Asian Americans as being particularly resilient to mental health problems, experiencing fewer mental health problems overall, and experiencing less severe mental health problems when they arise

(Tracey, Leong, & Glidden, 1986; Leong, 1994). The reality of Asian American status and mental health in the United States, however, belies these assumptions.

Although the median family income of Asian American families exceeds that of the general population, at $59,324 to $50,046, there is considerable variation among subgroups (US Census Bureau, 2007). Japanese Americans have the highest median income, at $70,708, followed by Asian Indian Americans at $70,708. Hmong Americans have the lowest median family income of all groups, at $32,384, followed by Cambodian Americans and Laotian Americans at $35,621 and $43,542, respectively. These groups also experience considerably higher rates of poverty than the general U.S. population (12.4%), with 37.8% of Hmong American, 29.3% of Cambodian American, and 18.5% of Laotian Americans living below the poverty line in 2004. This bivariate distribution of wealth is also evidenced within some Asian American groups. For example, the largest Asian American ethnic group, Chinese Americans, comprises 23.4% of the Asian American population and shows considerable within-group diversity (Organization of Chinese Americans, 2006). Nationally, Chinese Americans have on average greater median household and per capita incomes than the general population, but also experience greater rates of poverty than non-Hispanic Whites (9.4% to 8.2%, respectively). In addition, Chinese Americans at every level of education consistently earn lower incomes than non-Hispanic Whites, and Chinese Americans are more likely to be in poverty at each level of educational achievement than are non-Hispanic Whites.

The wide disparity between Asian American groups of higher income and those in poverty is mirrored in the distribution of educational achievement among Asian Americans. Although Asian Americans as a group are more likely to achieve a

bachelor's degree or more (48.2%) than are non-Hispanic Whites (29.7%) and the general population (27%), they are also more likely than non-Hispanic Whites to earn less than a high school degree (11.4% to 15.2%, respectively) (US Census Bureau, 2007). These differences are more striking when subgroups are considered; among Vietnamese Americans, only 23.5% achieve a bachelor's degree or higher, and 30% earn less than a high school degree. Cambodian, Hmong, and Laotian American individuals are even less likely to earn a high school degree, achieving less than a high school education at rates of 53.3%, 59.6%, and 49.6%, respectively (US Census Bureau, 2000). Asian Indian Americans earn the highest proportion of bachelor's degrees or higher among Asian American groups, at 63.9% in 2000. Despite high levels of educational achievement among some Asian American groups, however, income differences persist; Asian Americans earn less income than the general population at every level of educational achievement except Master's degree and higher (Organization of Chinese Americans, 2006).

Given the paucity of studies on Asian American groups, information on health status in general and mental health status in particular is limited. In addition, methodological issues arise when attempting to compare prevalence rates of DSM-IV disorders across ethnic groups, namely, the equivalence of constructs and measures, the existence of culture-bound syndromes inadequately addressed by the DSM-IV, cultural bias in diagnostic and conceptual schemes, and the role of acculturation and racism in prevalence estimations (Sue & Chu, 2003). The 2001 Supplement to the Surgeon General's Report on Mental Health provides the most complete picture to date of the status of mental health among Asian Americans (USDHHS, 2001). It notes, however,

that exact prevalence rates of mental disorders among Asian American groups have been particularly difficult to come by, as even large national studies contain limited and greatly diverse Asian American samples.

One study that attempted to provide clearer estimates of mental illness prevalence among Asian Americans is the Chinese American Psychiatric Epidemiological Study (CAPES), which examined rates of depression among Chinese Americans living in Los Angeles County, California (Takeuchi et al., 1998). Results suggested moderate levels of depressive disorders among Chinese American Angelinos (about 7% lifetime prevalence), lower than the findings of the earlier National Comorbidity Survey (NCS; Kessler et al., 1994), but similar to the findings of the Epidemiological Catchment Area (ECA) study of the 1980s (Robins & Regier, 1991). In the case of both the NCS and the ECA, however, as Asian American sample sizes were small, diverse, and non-representative of any particular sub-population, no prevalence estimates could be confidently established. In general, the accumulated evidence suggests that mental illness prevalence rates among Asian Americans are somewhat lower than, but within the same range as, non-Hispanic Whites (Sue & Chu, 2003). However, there is some suggestion that rates of psychopathology among Asian Americans are grossly underestimated (Leong, Wagner, & Tata, 1995). Whatever the true rates of mental disorders among Asian Americans, it is clear that they *do* exist – and represent a need for services that is not being adequately met.

Compared to other ethnic groups in the United States, Asian Americans are considerably less likely to utilize services relative to their population size (Ying & Hu, 1994; Cheung & Snowden, 1990). For example, a recent study of help-seeking patterns

among Chinese Americans found that only 6% of the sample had previously used mental health services, compared to rates of 15-25% across the general U.S. population (Kung, 2003). Data from the 2005 California Health Interview Survey found that, adjusting for health conditions and service preferences, Asian American/Pacific Islanders report similar levels of psychological stress to non-Hispanic Whites (15.4% to 14.1%), but are 43% less likely to use mental health services (UCLA Center for Health Policy Research, 2007, cited in Cheng, McDonnell, Lee, & Moskowitz, 2008). In addition, there is some evidence that Asian Americans in distress are more likely to delay seeking help, are less likely to self-refer for help, and present with more severe symptoms when treatment is sought (Akutsu, Snowden, & Organista, 1996; Durvasula & Sue, 1996). Proposed reasons for these disparities vary widely, and more research is required in order to determine both ultimate and proximal causes. An overview of the theoretical underpinnings of help-seeking and established research on correlates of Asian American help-seeking is presented below.

Help-Seeking

Help-seeking is the utilization of sources of support, advice, or assistance in response to illness, acute stress, specific life events, trauma, psychological disorders, or interpersonal and personal problems (Gourash, 1978). These sources of help can be formal (such as visiting a mental health professional or medical doctor) or informal (such as consulting a religious leader). Kleinman (1978) further differentiated sources of help-seeking, into three domains: lay (friends or family), folk (religious, community, and alternative healing leaders), and professional (medical/psychological institutions). Early

studies on help-seeking behavior primarily focused on whether individuals sought formal or informal sources of help as a direct result of need for assistance.

In a study examining help-seeking behavior among indigenous Puerto Ricans, Rogler and Cortes (1993) proposed a model that reconceptualized help-seeking behavior as a transactional process, deeply affected by cultural context, in which individuals follow pathways of interaction toward institutionalized professional support. The authors describe these pathways as "the sequence of contacts with individuals and organizations prompted by the distressed person's efforts, and those of his or her significant others, to seek help as well as the help that is supplied in response to such efforts" (p. 555). The steps in this process are as follows: first, there is an onset of distress that is recognized and interpreted by the individual, typically in consultation with close family members and significant others, within his or her cultural framework. These cultural factors affect symptom expression and interpretation, conceptualization of symptom importance and severity, and beliefs about the need to seek outside help. Second, the individual makes initial contact with the health delivery system through various social networks, through a series of lay individuals ("a network of personal contacts" [p. 557]), to more authoritative laypersons (such as religious leaders) until contact is made with professional sources of help (Freidson, 1960). The final stage of the Rogler & Cortes model extends beyond the first-contact stage to examine patient inclusion in a "reliable treatment program" (p. 559). This paradigm extension is necessary, they explain, when considering that there are often a number of steps between the initial reception of professional help and incorporation in a program that provides lasting relief; for example, attrition rates after the first session have

been estimated to be anywhere from 20 to 57% of psychotherapy patients (Mitchell, 1989, cited in Rogler & Cortes, 1993).

Cultural factors are heavily influential at each stage of the help-seeking process (Rogler & Cortes, 1993). In the initial stage, cultural beliefs about the origins and significance of mental illness shape the recognition and assessment of distress, attitudes toward seeking professional help, and willingness to contact sources of professional help. In the second stage, individuals interact directly with culturally-appropriate lay sources of help, such as social networks and religious and community leaders; the authors note that extended lay social networks that are heavily embedded in a particular cultural framework may represent longer pathways to professional help, such that individuals who are entrenched in cultural minority communities may traverse a greater number of contacts before reaching professional services and subsequently experience delays in receiving help. Conversely, individuals may prefer to seek help exclusively from lay sources, according to their cultural appropriateness and/or wariness of mainstream professional services. In addition, in the case of cultural minorities, this initial professional contact is often within the general medical health sector. Finally, cultural factors may influence the patient's perception of the appropriateness and efficacy of treatment and contribute to changes in treatment modalities or withdrawal from treatment. The issue of withdrawal is a particularly salient one for racial and ethnic minorities: Sue and Zane (1987) have estimated that the attrition rate for ethnic minorities following the first psychotherapy session is approximately 50%.

The vast majority of studies of help-seeking among Asian Americans have focused primarily on either attitudes toward seeking professional help (Tata & Leong, 1994;

Nguyen & Anderson, 2005) or willingness to seek counseling (Kim & Omizo, 2003). Given low rates of service utilization and sampling limitations, very few studies have examined actual help-seeking behaviors among Asian Americans (Ying & Hu, 1994; Akutsu & Chu, 2006; Abe-Kim et al., 2007). Studies examining attitudes toward seeking professional help generally assess client-specific and cultural variables such as the impact of stigma, loss of face, confidence in mental health professional, recognition of a need for help, and degree of interpersonal openness (e.g., Tata & Leong, 1994). Studies examining willingness to seek counseling generally assess individual intent, but not behavior (Solberg et al., 1994). In addition, those studies that assess help-seeking behaviors directly have typically been performed using non-representative, local, and/or convenience samples (Abe-Kim, Gong, & Tacata, 2004; Gong, Gage, & Tacata, 2003; Ying & Miller, 1992).

Although it is true that attitudes and willingness do not necessarily predict behavior, research has suggested that the link between attitudes and behavior is very strong (Fishbein & Ajzen, 1975). Research with Asian Americans has found a strong link between attitudes toward seeking professional help and willingness to seek counseling (Liao, Rounds, & Klein, 2001; Tata & Leong, 1994). However, the paucity of studies on Asian American help-seeking behaviors makes the link between willingness to seek help and the actual seeking of help difficult to determine. Based on Ajzen's (2001) enumeration of the theory of attitudes and behaviors, namely, that intentions are the best predictors of human behavior and these intentions are predicted by people's attitudes, feelings of social pressure (norms), and perceptions of control, it is reasonable to conceive of attitudes, willingness, and behavior as a chain of personal assessments and

intents culminating in the action of seeking help. Although the precise causal relationship between willingness to seek help and the actual behavior of seeking help is yet to be determined, findings on Asian Americans' attitudes toward professional help and willingness to seek help can aid us in formulating tentative research questions about behavioral outcomes. As such, these studies are included in the overview of correlates of Asian American help-seeking provided below.

Correlates of Help-Seeking Among Asian Americans

Although research examining help-seeking behavior among Asian Americans is limited, there is some evidence to suggest that culture plays an important role in the help-seeking process enumerated by Rogler and Cortes. For example, stigma of depression has been found to be more severe in Chinese Americans than in Caucasian Americans, which may influence willingness to seek treatment (Hsu et al., 2008). Cultural values, such as concerns with "face," may also play a significant role in Asian American help-seeking attitudes and behaviors (Gong, Gage, & Tacata, 2003). Expectations regarding social roles, particularly familial roles, may influence when and where an individual seeks help for distress (Aroian et al., 2005). Below, we examine findings related to the following correlates of help-seeking attitudes and behavior among Asian Americans: gender, age, education/SES, English language proficiency, discrimination, and acculturative stress. We will then discuss the extant research into ethnic subgroup variations. The three ethnic subgroups surveyed in this study are Vietnamese Americans, Filipino Americans, and Chinese Americans.

Variable selection was guided by the purpose of this study, which is to identify predictors of treatment utilization for Asian American individuals. The variables of

ethnicity, gender, education/SES, English language proficiency, and acculturative stress were selected on the basis of previous findings that suggest that they may play an important role in help-seeking for Asian Americans, although their relative influences have not yet been established. The additional variable of experiences of discrimination was included on the basis of its theoretical importance, given Rogler and Cortes' (1993) model of help-seeking behavior in which the choice of a source of services may be influenced by previous salient experiences such as discrimination, as well as previous research demonstrating a link between experiences of discrimination and service utilization (Spencer & Chen, 2002). The variables of distress and DSM-IV disorder status were included to assess direct predictors of service use, as well as to make comparisons across types of distress.

Gender

Research with general population samples has consistently shown distinct gender differences in the seeking of professional help. Of all individuals seeking psychological help, two-thirds are female (Good, Dell, & Mintz, 1989). As overall rates of mental illness do not vary widely by gender, one explanation for limited male professional help-seeking is the stigma associated with needing help, according to masculine gender roles (Wang et al., 2005). Studies examining the effects of gender role-induced stress among men using the Gender Role Conflict Scale, which measures masculine role stress, have found that the restricted emotionality expectation of male roles predicts decreased help-seeking (O'Neil et al., 1986; Good, Dell, & Mintz, 1989). This restricted emotionality expectation has also been shown to significantly relate to negative attitudes toward help-seeking among male college students (Blazina & Watkins, 1996).

Research with Asian American populations has shown more mixed results. In general, research has shown similar differential effects of gender, albeit with considerable differences between ethnic subgroups. Some studies have found that Asian American women have more favorable attitudes toward seeking professional help and are more willing to participate in professional counseling (Tata & Leong, 1994). Others have found no gender differences in attitudes toward seeking professional help, proposing similar socialization processes with regard to help-seeking for mental illness (Ying & Miller, 1992). In a study examining help-seeking patterns of Chinese Americans in California, Kung (2003) found that women's odds of seeking professional help were 157.8 times greater than men's odds when they met criteria for a diagnosable mental illness. Gim et al. (1990) found a more modest effect when considering self-esteem as a moderating variable; they found that Chinese American women with high self esteem were 8 times more likely to seek help than Chinese American men with high self esteem. A similar study examining attitudes toward seeking professional help conducted with Vietnamese Americans, however, did not find differences by gender (Nguyen & Anderson, 2005). Gong, Gage, and Tacata (2003), assessing service use among Filipino Americans, found that women sought informal services at a slightly increased rate, but no other gender differences in service use were found.

Age

In general, studies examining the effects of age on help-seeking attitudes have found a curvilinear relationship: young adults and the elderly have demonstrated more negative attitudes, with individuals in-between demonstrating generally more positive attitudes (Ying & Miller, 1992). One explanation for this effect was provided by Aroian and

colleagues (2005), who examined service use among Chinese American elders and found that these individuals would not use services unless need was sufficiently high. Differing beliefs on what level of distress, as well as familial expectations and a desire not to burden family members, affected level of service use. A study with Vietnamese Americans found that increasing age predicted increasingly positive attitudes toward seeking mental health services (Luu, Leung, & Nash, 2009). Similar results have been found with Chinese American samples (Ying & Miller, 1992, Aroian et al., 2005). A study with Filipino Americans, however, found that age was negatively associated with use of lay services and positively associated with use of general medical services (Gong, Gage, & Tacata, 2003).

Education/SES

Research has shown that persons of lower socioeconomic status, as represented by education or income, are less likely to voluntarily seek professional help (Thoits, 2005). One explanation for these findings is that individuals of lower socioeconomic status face greater barriers to health services, such as limited access to health insurance (USDHHS, 2001). Socioeconomic markers such as income, occupation, and educational attainment are established predictors of health, and lower SES has consistently been shown to be associated with greater risk for physical and mental illness (Adler et al., 1994).

Social status may reflect factors such as access to greater social networks that may affect help-seeking behavior. A study conducted by West (1994) examined the relationship between social status and access to help within a classroom setting; she found that students with high social status had much greater access to help than their low-status peers, and the effect of social status was so influential as to outweigh other posited

factors. While not intended to generalize outside of the immediate experimental context, this study provides some evidence to support the notion that social status relates directly to access to sources of help. Research with East and Southeast Asian immigrant and refugee women has demonstrated that perceived access to sources of help predicted attitudes toward seeking professional help more than other variables of consideration, although socioeconomic status was not directly factored into the model (Fung & Wong, 2007).

English Language Proficiency

Limited English language proficiency, as well as a lack of lingually-diverse services, has long been identified as a barrier to treatment for Asian Americans (Leong, 1986; Gong, Gage, and Tacata, 2003). Research with Asian American populations has demonstrated that client-therapist language match predicts lower drop-out rates, greater levels of rapport, and higher ratings of the therapists' effectiveness and empathy by clients (Liu, 1990; Flaskerud & Soldevilla, 1986). This relationship between English language proficiency (ELP) and service use has been replicated with Vietnamese Americans, Filipino Americans, and Chinese Americans (Ying & Miller, 1992; Gong, Gage, & Tacata, 2003; Jang, Lee, & Woo, 1998). In addition, language barriers have been found to be related to increased levels of distress, anxiety, and depression, suggesting an unmet need (Ding & Lee, 2009).

Experiences of Discrimination

Sue & Chu (2003) argue that minority experiences of discrimination can serve as stressors that have powerful effects on mental health, resulting in both increased prevalence rates of mental illness and greater wariness of mainstream services. As

Spencer and Chen (2004) note, "cultural and social contexts shape the mental health of ethnic minorities and influence the types of mental health services they use; racism and discrimination are facets of the social context that are ever present in the lives of racial/ethnic minorities" (p. 809). They further note that past abuses of the medical establishment may influence current distrust on the part of minorities. In addition, culturally-inappropriate services, whether biased, unresponsive to non-English speakers, or incongruent with cultural values, may be correctly perceived as inadequate by ethnic minorities (Alegria et al., 2008).

Studies of the effects of discrimination on help-seeking behavior among Asian Americans generally support these hypotheses. High levels of racial/ethnic discrimination and unfair treatment have been found to be a risk factor for smoking in Asian Americans (Chae et al., 2008). Similarly, high levels of discrimination have been found to be related to chronic health conditions in Asian American populations (Gee et al., 2007a). Controlling for other known effect variables, Gee et al. (2007b) found that individuals who reported discrimination were at a twofold greater risk for one DSM-IV disorder within the past 12 months, and at a threefold risk for two or more DSM-IV disorders. These findings support the chronic stress-disorder prevalence hypothesis.

Spencer and Chen (2002), examining the connection between experiences of discrimination and service utilization, found that individuals who reported experiencing unfair treatment in the past because they speak a different language or have an accent were 2.2 times more likely to use informal services and 2.4 times more likely to use lay support systems such as friends and family than individuals who did not report the same

experience. They also found that more negative attitudes toward formal mental health services were associated with greater informal sector use.

Acculturative Stress

Immigration-related factors have been identified as predictors of both mental disorders and service use among Asian Americans (Takeuchi et al., 2007; Zane et al., 2009; Gee, 2001). Acculturation, or the process of adaptation to the values, expectations, and beliefs of another culture, has been proposed as the primary mechanism mediating distress recognition and use of services (Leong & Tata, 1994; Atkinson & Gim, 1989). In general, studies have demonstrated that higher levels of acculturation to U.S. society are associated with more willingness to seek psychological help, greater stigma tolerance, and more openness to discussing problems with a therapist (Leong & Tata, 1994; Ying & Miller, 1992). These results have been similarly reported for Vietnamese Americans, Filipino Americans, and Chinese Americans (Luu, Leung, & Nash, 2009; Abe-Kim, Gong, & Takeuchi, 2004; Gong, Gage, & Tacata, 2003; Ying & Miller, 1992.). It has been proposed that cultural interpretations of distress affect explanatory models of mental illness as well as the perceived appropriateness of services (Ying, 1992).

Using data from the National Latino and Asian American Study, Abe-Kim and colleagues (2007) demonstrated that mental health service use (general medical and specialty mental health) varied according to birthplace and generation, with later-generation Asian Americans more likely to seek services for distress. In addition, they found that rates of mental health service use varied according to immigration status, with U.S.-born Asian Americans seeking services at a significantly higher rate.

The Current Study

The primary goal of this study is to determine the relative predictive value of a range of demographic and psychosocial variables on differential patterns of service use among Asian Americans. This study improves upon previous help-seeking studies of Asian American populations by assessing a national sample and examining specific help-seeking behaviors rather than willingness to seek counseling or attitudes toward help-seeking. In addition, this study improves upon previous research on Asian American help-seeking behaviors by examining the relationship between different forms of distress and service use, specifically through the disaggregating of DSM-IV disorder categories. Finally, this study expands upon previous research with Asian American groups by disaggregating ethnicity and examining the relationship between predictor variables and service use at the level of ethnic subgroups.

Predictor variables include the demographic variables of gender, age, and education/SES, and the psychosocial variables of English language proficiency (ELP), past experiences of discrimination, acculturative stress, probable DSM-IV disorder status, and distress. Service use outcomes assessed include: 1) use of any services, 2) use of formal services, 3) use of informal services, and 4) use of specialty mental health services. The secondary goal of this study is to examine ethnic subgroup differences in predictor variables, patterns of service use, and the relationship between predictor variables and service use. To these ends, we have formulated the following research questions and hypotheses:

1. How do the demographic and psychosocial variables of age, gender, education/SES, discrimination, acculturative stress, DSM-IV disorder status, and psychological distress predict use of services by Asian Americans?

2. Which of these variables predict formal service use, as opposed to informal service use?

3. We predict that specialty mental health service use will be predicted by variables related to acculturation and psychological distress, such as English Language proficiency and DSM-IV disorder status.

4. We predict that rates of service use (any), formal service use, informal service use, and specialty mental health service use will vary across ethnic groups.

5. We predict that the predictor variables of age, gender, education/SES, discrimination, acculturative stress, DSM-IV disorder status, and psychological distress will vary across ethnic groups.

6. Finally, we predict that the nature of the relationships between these predictor variables and service use (any), formal service use, informal service use, and specialty mental health service use will vary across ethnic groups.

This study is exploratory in nature, as it is one of the first to assess behavioral help-seeking outcomes among a nationally-representative sample of Asian Americans, and is the first study to assess the interaction between ethnicity and types of distress in predicting types of service use.

As such, data analyses will reflect this exploratory nature rather than attempt to constrain variables to an established path or factor model. It is hoped that results will provide some insight into the relative predictive value of previously-identified help-seeking covariates, as well as illuminate future paths for research.

Methods

Participants

Participants are drawn from the Asian American subset of the National Latino and Asian American Survey (NLAAS), the first national epidemiological household survey of Asian Americans in the U.S. (Alegría et al., 2004). The NLAAS, conducted from 2002-2003, was part of the Collaborative Psychiatric Epidemiology Studies, which also included the National Comorbidity Survey Replication (NCS-R) and the National Survey of American Life (NSAL). The primary goals of the CPES surveys were to collect data about prevalence of, impairment due to, and treatment patterns for mental disorders from representative samples of both majority and minority U.S. adult populations. Secondary goals included obtaining information about the association between environmental context, social position, and psychosocial factors with disorder prevalence and service utilization. The final NLAAS sample included a total of 4649 adults: 2095 identified as Asian American, and 2554 identified as Latino American. Our sample includes all of the Asian American adults surveyed by the NLAAS: 520 Vietnamese Americans, 508 Filipino Americans, 600 Chinese Americans, and 467 identified as belonging to any other Asian American ethnicity.

Procedures

The NLAAS was a stratified area probability sample of Latino and Asian American adults, residing in any of the 50 states or the District of Columbia (Heeringa et al., 2004). Three Asian American groups were targeted for data-gathering: Chinese Americans, Filipino Americans, and Vietnamese Americans; individuals of "other" Asian ancestries were included as a category, as well. The NLAAS survey was administered to non-

institutionalized adults aged 18 years or older. To overcome language barriers that may discourage participation, the measures were translated into four Asian languages – Mandarin Chinese, Cantonese, Tagalog, and Vietnamese (Alegria et al., 2004). For the purposes of the NLAAS, researchers defined "Asian American" as referring to any individual of an Asian ancestry currently residing in the United States, whether as a citizen of birth, naturalized citizen, permanent resident, or temporary resident (Heeringa, 2004). Information was collected regarding citizenship, residency, and migration status, as well as ethnic identification. As the survey methods relied on contacting eligible household members within sample strata prior to administering the survey, all individuals are self-identified with regard to ethnicity.

Each survey within the CPES framework followed a four-step method of sampling. The NLAAS sampling methods were constructed to provide a nationally representative sample of Asian Americans irrespective of geographic residency patterns. In the first step (the primary stage), sampling of U.S. Metropolitan Statistical Areas (MSAs) and counties was conducted. Second-stage sampling of area segments was followed by third-stage sampling of housing units within selected area segments. In the final sampling stage, interviewers randomly selected eligible members of already-surveyed households to participate.

Interviews were primarily conducted using laptop computer-assisted personal interview methods within households (Alegria et al., 2004). A subset of interviews was conducted by phone. A print version of the survey was provided in the event of technical problems. CPES questionnaires were administered using computer-assisted interview (CAI) software, the Blaise Survey Processing System, Version 4.5, which allowed for

complicated skip pattern algorithms. The first questions asked requested the respondent to provide language preferences for the interview; the interview was then conducted in the respondent's language of choice. An example of an English test item as viewed by NLAAS respondents through the CAI system is presented in Figure 2. The sampling process is described in greater detail by Heeringa and colleagues elsewhere (2004).

Measures

The CPES questionnaires consisted of core measures common to all three surveys as well as measures specific to the population concerns of target groups (Alegria et al., 2004). The core questionnaire was based largely on the World Health Organization's (WHO) Composite International Diagnostic Interview (CIDI), initially developed for the World Mental Health Survey Initiative and labeled the WMH-CIDI.

Predictor Variables

Socioeconomic Status

The two most frequently used proxy measures of socioeconomic status in health literature are education and income; of these, education has frequently proven to be the stronger predictor of health outcomes (Grzywacz et al., 2004; Webster et al., 2008; Yip, 2003). For this reason, we have chosen to use education level as a proxy measure for socioeconomic status. Education levels are split into four levels in the original survey: less than 12 years (coded "1"), 12-13 years (coded "2"), 13-15 years (coded "3"), and greater than 15 years (coded "4"). In the United States, these levels correspond to: less than a high school education, a high school education, some college and/or an Associate's degree, and a four-year or Bachelor's degree.

DSM-IV Disorder Status

DSM-IV disorder status within the past 12 months was determined from the WHO-CIDI assessment of symptoms, and includes any of the following: generalized anxiety disorder, panic disorder with or without agoraphobia, post-traumatic stress disorder, social phobia, dysthymia, major depressive disorder, substance use (alcohol, drug), substance dependence (alcohol, drug), bulimia nervosa, anorexia nervosa, binge eating disorder, intermittent explosive disorder, or agoraphobia without panic disorder. Participants were asked a series of screening questions and assessed for the full range of symptoms when initial criteria were met. For example, respondents who answered "yes" to the following question were subsequently administered the depression section of the WHO-CIDI: "Have you ever in your life had a period of time lasting several days or longer when most of the day you felt sad, empty, or depressed?"

Respondents who met DSM-IV criteria for generalized anxiety disorder, panic disorder with or without agoraphobia, post-traumatic stress disorder, social phobia, dysthymia, major depressive disorder, bipolar disorder, or agoraphobia without panic disorder were coded as positive for a probable mood/anxiety diagnosis. Respondents who met criteria for alcohol abuse, alcohol dependence, substance abuse, or substance dependence were coded as positive for a probable substance use disorder diagnosis. Respondents who met criteria for intermittent explosive disorder were coded positive for a probable IED diagnosis. Finally, respondents who met criteria for anorexia nervosa, bulimia nervosa, or binge eating disorder were coded as positive for a probable eating disorder diagnosis.

Experiences of Discrimination

The NLAAS included a measure of past experiences of discrimination consisting of 9 described situations originally designed for the Detroit Area Study by Williams et al. (1997). Respondents indicated how often they experienced the following situations: being treated with less courtesy than others; being treated with less respect; receiving poorer service at a restaurant; people acting as if you aren't smart, as if they are afraid of you, as if you are dishonest, or as if you are not as good as they are; being threatened or harassed; being called names and insulted. Responses were coded for frequency of experience on a 1-6 Likert scale with the following values: never, less than once a year, a few times a year, a few times a month, at least once a week, almost every day. This measure has been used in the NLAAS literature numerous times and is considered a good measure of perceived discrimination (Perez, Fortuna, & Alegria, 2008; Gee et al., 2007a).

Acculturative Stress

The acculturative stress scale of the NLAAS consists of eight items selected from the Mexican American Prevalence and Services Survey (MAPSS), which were initially adapted from the Occupational/Emotional Stress subscale of the Hispanic Stress Inventory (Alegria, 2004b). It is intended to measure the level of stress due to processes of acculturation after immigration to the United States. An example item on this scale asks, "Do people treat you badly because they think you do not speak English well or speak with an accent?" Participants responded either "yes" (coded "1") or "no" (coded "0"). Responses were summed to produce an acculturative stress score ranging from 0 to 9, with higher values indicating higher reported frequencies of acculturation-related sources of stress. This measure was administered to a subset of the Asian American sample (n = 1636) who reported being born in a country other than the United States.

Distress

Psychological distress was measured using eight items derived from the K-10 (Kessler et al., 2002). This scale asks respondents to rate the frequency with which they experienced signs of psychological distress such as restlessness, hopelessness, nervousness, and tiredness within the previous thirty days. Reponses ranged from 0 (none of the time) to 4 (all of the time). Raw variables were reverse-coded so that a higher score on the 0-32 scale indicates higher levels of psychological distress. Two items, "During the last thirty days, how often did you feel so depressed that nothing could cheer you up?" and "During the last thirty days, how often did you feel so restless that you couldn't sit still?" were answered by less than half of all respondents and so were dropped from the scale.

Outcome Variables

Formal Service Use

Formal service use was defined as at least one visit to a professional source of help within the past 12 months (concurrent with DSM-IV status parameters) for "mood/nerve/substance problems." If respondents indicated a number greater than zero in response to any of the following questions, they were coded as having sought formal services: "How many visits did you make to a psychiatrist/medical doctor/psychologist/social worker/counselor in the past 12 months?"

Informal Service Use

Informal service use was defined as at least one visit to a non-professional (folk) source of help for "mood/nerve/substance problems" within the past 12 months. If respondents indicated a number greater than zero in response to any of the following

questions, they were coded as having sought informal services: "How many visits did you make to a spiritual advisor/healer have you made in the last 12 months?" Participants were given a list of types of healers to choose from: acupuncturist, biofeedback specialist, chiropractor, energy healing specialist, exercise or movement therapist, herbalist, homeopath, guided imagery specialist, hypnotist, guided imagery specialist, masseuse, spiritualist/psychic, yoga/relaxation/meditation expert, dietician, or doctor of oriental medicine. A positive response to any of these indicates use of informal services.

Specialty Mental Health Service Use

Specialty mental health service use was defined as at least one visit to a mental health professional (psychiatrist, psychologist, social worker, or counselor) for "mood/nerves/substance problems" within the past 12 months. Participants who reported at least one visit to a mental health professional in the previous year were coded as having sought specialty mental health services.

Statistical Analyses

Descriptives. The 12-month prevalence of service use was computed for any service, formal services, informal services, and specialty mental health services. 12-month prevalence rates for mood/anxiety disorders, substance use disorders, intermittent explosive disorder, and eating disorders were also computed. Predictor and outcome variables were then stratified by ethnicity to examine differences across groups.

Correlations. To assess the relationship between variables, correlations between predictor and outcome variables were computed for the full sample. As the variables of age, distress, discrimination, and acculturative stress were found to violate assumptions of normality, statistical transforms were applied in the following manner: cube-root

transforms were applied to correct skew in the distribution of the age and distress variables, and skew was corrected for in distribution of the discrimination and acculturative stress variables using an $x^{2/3}$ transform. The method of transformation chosen was based upon the degree of skew. Correlations were computed between corrected variables in the following manner: Pearson's *r* was used to assess the strength of relationships between quantitative (ratio or interval scale) data and ordinal or quantitative data; point-biserial correlation coefficients were computed to assess the strength of relationships between quantitative and nominal data; Phi (ϕ) values were computed to assess relationships between dichotomous data; and Spearman's Rho (ρ) values were computed to compare relationships between sets of ordinal data.

Chi-Square Analyses. To assess the significance of relationships between predictor variables at different levels of service use (use vs. non-use), a series of likelihood ratio chi-square analyses were conducted. Significant results, as indicated by *p*-values of less than .05, suggest a significant relationship between row and column values.

To assess whether significant differences existed in rates of service use across ethnic groups, a series of likelihood ratio chi-square analyses were conducted. Identical analyses were conducted to assess the presence of significant variations in means or frequencies of predictor variables. As above, *p*-values of less than .05 are taken as indicative of significant differences.

Logistic Regression Analyses. To assess the relative effects of predictor variables on service use, a series of binary logistic regression analyses were conducted with the full sample. Separate analyses were conducted to assess the effects of predictor variables on

any form of service use, formal service use, informal service use, and specialty mental health service use. Because logistic regression does not require the assumption of normally-distributed data, non-corrected variables were used in this analysis; results are thus interpretable within the same scales given for predictor variables in the descriptive analysis. Variables were entered into the model directly so as to control for the effects of each other predictor, with demographic variables (age, gender, education) entered first and followed by the psychosocial variables of distress, DSM-IV status, English language proficiency, experiences of discrimination, and acculturative stress. Odds ratios were computed using the e^{a+bX} conversion. Significance of effects was assessed using the Wald Chi-Square statistic. Identical analyses were then conducted using each of the three identified ethnic subgroups (Vietnamese, Filipino, and Chinese) as referent samples to assess the predictive value of these variables on service use within each ethnic group.

Results

Full Sample

Descriptive Statistics

Descriptive statistics of the predictor variables for the full Asian American sample (n = 2095) are presented in Table 1, and descriptive statistics of the outcome variables are presented in Table 2. The age range of participants was 18-95, as only adults were sampled ($M = 41.2$, $SD = 14.77$). Approximately twelve percent of the sample (11.7%) met criteria for a DSM-IV mood or anxiety disorder within the past year, while 1.3% met criteria for a substance use disorder, 2.4% met criteria for Intermittent Explosive Disorder, and 1.6% met criteria for an eating disorder. Reported levels of past experiences of discrimination, acculturative stress, and distress were generally low; as

previously reported, however, these variables were found to be significantly positively skewed, indicating that the majority of participants reported very low rates of these concerns while a smaller number of participants indicated high levels of discrimination, acculturative stress, and distress. Reliabilities of the scales were computed using Cronbach's alpha. Reliabilities were acceptable for the experiences of discrimination (r = .91) and psychological distress (r = .88) scales. However, the reliability of the acculturative stress scale within the Asian American sample was found to be poor (r = .43), and so this variable was excluded from further analysis.

Reported rates of past-year service use by participants were low. Of the total sample, 131 participants (6.3%) reported using any form of service for mood, nervous, or substance problems; of these, 113 (86.3%) reported using formal services and 47 (35.9%) reported using informal services. Of those who used informal services, the majority (61.7%) used informal services exclusively. Of those who used formal services, the majority (69.9%) sought specialty mental health services, while the remainder (30.1%) sought general medical services exclusively.

Intracorrelations between variables are presented in Table 3, Table 4, and Table 5. Following Cohen's (1988) guidelines of correlation coefficient interpretations, correlations smaller than r = .10 are considered trivial and will not be discussed herein. A small correlation was found between formal and informal service use (r = .22, p < .01), and between specialty mental health and informal service use (r = .24, p < .01), reflecting the extent to which participants sought both informal and formal sources of help.

Significant but trivial correlations were found between demographic variables and service use. Of psychosocial variables, markers of distress were significantly associated

with different types of service use. Small correlations were found between psychological distress and use of formal services ($r = .22, p < .01$), use of informal services ($r = .14, p < .01$), and use of specialty mental health services ($r = .17, p < .01$). Probable DSM-IV disorder status was differentially associated with service use: the presence of a mood/anxiety disorder was moderately associated with the use of any service ($r = .32, p < .01$) and formal services ($r = .31, p < .01$), with smaller correlations with informal ($r = .21, p < .01$) and specialty mental health ($r = .29, p < .01$) services. Substance use disorders had small correlations with all forms of service use. Correlations between IED and service use were mostly trivial, with a small correlation between IED and informal service use ($r = .10, p < .01$). Eating disorders were significantly, but trivially, associated with informal service use.

Significant correlations among predictor variables suggest complex underlying relationships. Increasing age was associated with lower levels of education ($r = -.21, p < .01$), lower levels of English proficiency ($r = -.35, p < .01$), lower rates of reported discrimination ($r = -.23, p < .01$), lower rates of substance disorders ($r = -.10, p < .01$), and lower rates of IED ($r = -.10, p < .01$). Higher levels of education were associated with increased English proficiency ($r = .42, p < .01$) and increased amounts of reported discrimination ($r = .18, p < .01$). Higher rates of reported discrimination were significantly associated with higher rates of psychological distress ($r = .25, p < .01$), mood/anxiety disorders ($r = .16, p < .01$), IED ($r = .10, p < .01$), and eating disorders ($r = .11, p < .01$). The strongest correlations between psychological distress and DSM-IV disorder status were found for mood/anxiety disorders ($r = .33, p < .01$), with small correlations found with IED ($r = .10, p < .01$) and eating disorders ($r = .12, p < .01$).

Chi-square analyses were conducted to assess for significant differences in means or frequencies of predictor variables as a function of service use. For any service use, women used services in significantly greater proportion than men ($\chi^2 = 4.25, p < .05$). Those who used services reported significantly greater rates of past discrimination ($\chi^2 = 58.44, p < .05$), psychological distress ($\chi^2 = 251.91, p < .01$), mood/anxiety disorders ($\chi^2 = 210.60, p < .01$), substance use disorders ($\chi^2 = 32.45, p < .01$), and IED ($\chi^2 = 8.30, p < .01$). Those who used services reportedly significantly greater English language proficiency than those who did not use services ($\chi^2 = 10.69, p < .05$).

When comparing rates of predictor variables across formal and informal services, we find that women were significantly more likely than men to use informal services ($\chi^2 = 6.14, p < .05$), but not formal services ($\chi^2 = 3.64$, *n.s.*). Individuals with greater English language proficiency were significantly more likely to use formal services ($\chi^2 = 10.12, p < .05$), but no significant differences were found in English language proficiency for informal service use. Significant differences in rates of DSM-IV mood/anxiety, substance use, and intermittent explosive disorders were found for formal service use, but no significant difference was found in rates of eating disorders. Conversely, significant differences were found between rates of all DSM-IV disorder statuses in informal service use. Significant differences in rates of discrimination and distress were found for both formal and informal services, such that individuals who sought formal and informal sources of help reported significantly greater rates of discrimination and distress.

Significant differences were also found in predictor variables between users and non-users of specialty mental health services. Women sought specialty mental health services in greater proportions than men ($\chi^2 = 4.89, p < .05$). Those who used specialty mental health services reported significantly greater rates of mood/anxiety ($\chi^2 = 181.63, p < .01$), substance use ($\chi^2 = 24.39, p < .01$), and intermittent explosive disorders ($\chi^2 = 9.56, p < .01$), as well as significantly higher rates of distress ($\chi^2 = 240.57, p < .01$) and discrimination ($\chi^2 = 57.71, p < .05$), than those who did not use specialty mental health services.

Logistic Regression Analyses

A series of logistic regression analyses were conducted to examine the independent effects of predictor variables, controlling for other variables in the model. Standardized betas (β), standard errors (SE), and odds ratios are reported for any service use, formal service use, informal service use, and specialty mental health service use.

Table 10 presents the results of logistic regression analyses for any form of service use. The presence of a probable DSM-IV mood/anxiety diagnosis was the strongest predictor of service use, with individuals reporting a probable diagnosis more than five times more likely to seek services than those without a probable diagnosis (OR = 5.27, $p < .01$). Distress was also a positive predictor of service use (OR = 1.15, $p < .01$). Finally, English language proficiency was found to be an independent positive predictor of service use (OR = 1.28, $p < .05$).

Table 11 presents the results of logistic regression analyses for formal service use. Once again, DSM-IV mood/anxiety disorder status was the strongest predictor of formal

service use (OR = 6.02, $p < .01$), and distress positively predicted formal service use (OR = 1.15, $p < .01$). English language proficiency also positively predicted formal service use (OR = 1.29, $p < .05$). Age found to be a positive predictor of formal service use, albeit with small effect: for each year increase in age, the odds of using formal services increased by approximately two percent.

Table 12 present the results of logistic regression analyses for informal service use. As with formal service use, the strongest predictor of use of informal services was mood/anxiety disorder status (OR = 4.11, $p < .01$), and distress predicted use of services (OR = 1.12, $p < .01$). Unlike formal service use, however, age negatively predicted informal service use (OR = 0.97, $p < .05$), such that each increasing year in age was associated with a three percent decrease in the odds of using informal services. Education was a positive predictor of informal services, such that increased education predicted increased odds of using informal services (OR = 1.53, $p < .05$).

Finally, Table 13 presents the results of logistic regression analyses for specialty mental health service use. Mood/anxiety disorders independently predicted specialty mental health service use (OR = 7.88, $p < .01$), such that individuals with a probable mood/anxiety disorder were nearly eight times more likely to use specialty mental health services than those without a mood/anxiety disorder. English language proficiency was found to most strongly predict specialty mental health service use as opposed to other services (OR = 1.47, $p < .01$).

Results by Ethnicity

In order to assess any differential effects of predictors on service use as a function of ethnicity, data was stratified into three major groups: Vietnamese American (n = 520),

Filipino American (n = 508), and Chinese American (n = 600). Chi-square analyses were run to assess differences for each group in means or frequencies of predictor variables as a function of type of service use. Identical logistic regression analyses were run for each group to assess the predictive value of variables on service use as a function of ethnicity. Frequencies of service use for Vietnamese individuals with probable substance use or eating disorder diagnosis were too low to conduct analyses; as such, these values are omitted below.

Descriptive Statistics

Rates of service use for each subgroup are presented in Table 14. To assess for significant differences in rates of use across group, a series of chi-square analyses were conducted. Rates of any service, formal service, informal service, and specialty mental health service use did not differ significantly across groups.

Means and frequencies of predictor variables for each subgroup, as well as chi-square analyses assessing significant differences across groups, are presented in Table 15. Significant differences were found between groups in the sample age; the Vietnamese group was found to be significantly older than the Filipino and Chinese group (χ^2 = 276.61, $p < .01$). Significant differences were also found in the distribution of educational achievement across ethnic groups ($\chi^2 = 214.44, p < .01$): the Vietnamese sample had a significantly higher percentage of individuals with less than a high school degree than the Filipino or Chinese sample (29.2%, compared to 10.4% and 14.2%, respectively), while the Chinese sample reported the highest percentage of individuals with a college degree or more (50.3%). Significant differences were also found in English language proficiency ($\chi^2 = 485.55, p < .01$), with the Filipino sample reporting

the highest rates of proficiency (3.3), the Chinese sample the second-highest (2.6), and the Vietnamese sample the lowest (2.1). Rates of reported discrimination were significantly different across groups, as well ($\chi^2 = 365.76, p < .01$), with Filipino individuals reporting the highest rates of past experiences of discrimination.

Rates of psychological distress varied significantly across ethnic groups ($\chi^2 = 211.65$, $p < .01$). Chinese individuals reported significantly higher rates of psychological distress (3.2) than Vietnamese (2.4) or Filipino (2.6) individuals. DSM-IV disorder status did not vary across groups with respect to mood/anxiety disorders, substance use disorders, or intermittent explosive disorder. However, significantly higher rates of eating disorders were observed in the Filipino sample (2.9%) than in the Vietnamese (0.8%) or Chinese (0.8%) samples.

Logistic Regressions

Results from logistic regressions predicting any service use for each ethnic group are presented in Table 16. At the level of ethnic subgroups, demographic variables were not significant predictors of general service use. The presence of a mood/anxiety disorder significantly predicted service use for all three groups: Vietnamese individuals with a mood/anxiety disorder were seven times more likely (OR = 7.23, $p < .01$), Filipino individuals were about five times more likely (OR = 4.65, $p < .01$), and Chinese individuals were more than nine times more likely to use services (OR = 9.12, $p < .01$). Distress predicted service use at similar rates across the three groups. The presence of a substance use disorder, however, only predicted service use for the Chinese subgroup, increasing the odds of using services more than 14 times.

Results from logistic regression analyses predicting formal service use for each ethnic group are presented in Table 17. Of the demographic variables, gender was found to be a significant predictor of formal service use for the Filipino sample only (OR = 2.61, $p <$ .05). Filipino women were 2.6 times more likely than Filipino men to use formal services. As with any service use, mood/anxiety disorder status was found to predict service use for all three groups at different rates. Chinese with a mood/anxiety disorder were nearly 14 times more likely to use formal services than those without the same diagnosis (OR = 13.65, $p < .01$); Vietnamese were nearly six times more likely (OR = 5.94, $p < .01$); and Filipino were 4.5 times more likely (OR = 4.53, $p < .01$). Substance use disorders predicted service use for the Filipino (OR = 5.88, $p < .05$) and Chinese (OR = 13.12, $p < .05$) samples. Distress significantly predicted formal service use, with the strongest relationship found in the Filipino sample (OR = 2.61, $p < .05$).

Results from logistic regression analyses predicting informal service use for each group are presented in Table 18. Significant predictors were DSM-IV status and distress, which varied by group. The presence of a mood/anxiety disorder predicted increased odds of using informal services for the Filipino sample only (OR = 15.01, $p < .01$). IED predicted the use of informal services for the Vietnamese sample at a high rate: individuals with probable IED were more than thirty times more likely to use informal services. IED did not predict informal service use for the Filipino or Chinese samples. Conversely, the presence of an eating disorder predicted increased use of informal services for the Chinese sample (OR = 14.62, $p < .05$), such that Chinese individuals with a probable eating disorder diagnosis were nearly fifteen times more likely to seek informal services. Distress, controlling for the other variables in the model, was a

significant predictor of informal service use for the Chinese sample only (OR = 1.11, $p <$ .05).

Table 19 presents results from logistic regression analyses predicting use of specialty mental health services by ethnicity. Significant effects were not found for demographic variables, but effects of psychosocial variables varied widely across groups. English language proficiency was found to be a significant predictor of specialty mental health service use for the Chinese sample (OR = 1.92, $p < .05$), but not for the Vietnamese or Filipino samples. Past experiences of discrimination were found to decrease use of specialty mental health services for the Vietnamese sample: for each single unit increase in reported rates of past discrimination, rates of specialty mental health service use decreased by 13 percent (OR = 0.87, $p < .05$). This effect was not found to be significant in the Filipino or Chinese samples. Mood/anxiety disorders predicted the use of specialty mental health services for each group; Vietnamese adults with a mood/anxiety disorder were 4.4 times more likely to use services ($p < .05$), Filipino adults with a mood/anxiety disorder were nearly 9 times more likely (OR = 8.74, $p < .01$), and Chinese adults with a mood/anxiety disorder were 18.5 times more likely (OR = 18.54, $p < .01$). IED predicted the use of specialty mental health services for the Vietnamese sample only (OR = 13.66, $p < .01$), such that Vietnamese adults with probable IED diagnosis were nearly fourteen times more likely to seek help through specialty mental health services than those not meeting DSM-IV IED criteria. Psychological distress was a significant predictor for the Vietnamese (OR = 1.12, $p < .05$) and Filipino samples (OR = 1.28, $p <.01$), but not for the Chinese sample (OR = 1.10, *n.s.*).

Discussion

Results: Full Sample

Consistent with previous studies, we found that the rate of service use by Asian Americans in the sample was low relative to reported levels of distress and lower than rates found in the general population (Abe-Kim, Takeuchi, & Hwang, 2002; Sue, 1994; Yamashiro & Matsuoka, 1997). Although approximately 14% of the sample met criteria for one or more DSM-IV diagnoses, of these only 23% reported seeking any form of service within the past year. Relationships between service use variables suggest that formal services were sought at a higher rate than informal services. Small correlations between formal and informal services suggest that some individuals sought both sources of help for emotional problems; however, many individuals sought help exclusively via formal or informal service providers. Of those who reported using any form of services for mood, nervous, or substance problems, 24% sought help from general medical services exclusively.

Our first research question asked, "How do the demographic and psychosocial variables of age, gender, education/SES, discrimination, acculturative stress, DSM-IV disorder status, and psychological distress predict use of services by Asian Americans?" We found that gender was an important predictor for the full sample, with women seeking help at significantly higher rates than men. This is consistent with previous research indicating that Asian American women display more favorable attitudes toward seeking help (Tata & Leong, 1994). However, the proportion of females vs. males seeking help was not as striking as the 2/3 proportion of female help-seeking frequently found in general population samples (Good, Dell, & Mintz, 1989). Significant

differences between service users and non-users suggest that individuals who sought any form of service experienced greater rates of past discrimination, higher levels of distress, and higher rates of DSM-IV disorders. These findings are consistent with previous research indicating that past experiences of discrimination are associated with increased distress and psychopathology (Leong, 1986; Gee et al., 2007; Ying & Miller, 1992). Sue and Chu (2003) have noted that discrimination can lead to both increased levels of distress and increased mistrust of available mainstream services. Our findings with the general sample supported the relationship between discrimination and distress. In addition, individuals who sought services were found to have significantly higher levels of English language proficiency than those who did not. This is also consistent with previous research indicating that limited English language proficiency served as a barrier to service use (Leong, 1986; Gong, Gage, and Tacata, 2003).

Once variables were entered into logistic models in order to control for shared effects, it was found that the demographic variables of age, gender, and education did not independently predict general service use. For service use in general, the strongest predictors were variables of distress. Both DSM-IV mood/anxiety disorder status and psychological distress predicted increased use of services. In addition, English language proficiency was found to independently predict increased use of services, consistent with previous findings (Gong, Gage, and Tacata, 2003; Ying & Miller, 1992; Jang, Lee, & Woo, 1998).

When we examine differences between use of formal and informal services (research question 2), we find that the presence of a DSM-IV mood or anxiety disorder most strongly predicts use of both forms of services, with stronger associations between

DSM-IV disorder status and formal service use. Psychological distress independently predicts use of both formal and informal services at approximately equivalent rates. In addition, at the level of formal and informal services, age was found to be a predictor of service use in differential fashion. For formal services, age was found to be a positive predictor of use. This is consistent with previous findings indicating that greater age predicted higher levels of willingness to use psychological services among Asian American populations (Barry & Grilo, 2002). However, age negatively predicted informal service use, such that older individuals were less likely to seek informal services. This may reflect the effects of physical illness, which would increase the use of formal services, particularly general medical services, in older populations. Conversely, this may reflect cultural notions about appropriate care of older individuals, as surveyed by Aroian et al. (2005). This finding parallels that of Gong, Gage, and Tacata (2003), who found that age was negatively associated with use of the lay system and positively associated with use of the general medical domain.

English language proficiency was found to predict the use of formal services, but not informal services. There is evidence to suggest that immigrants who have a language barrier experience higher rates of stress, anxiety, and depression than those without a language barrier (Ding & Lee, 2009). Consequently, these individuals may seek services for these problems at a higher rate. These results suggest that English language proficiency increases the use of formal services (controlling for forms of distress), but may not affect use of informal services. Informal services are more likely to be community-based (e.g., a community or spiritual leader), and hence are more likely to offer services in the languages of the community (Callejas et al., 2008).

We predicted that the use of specialty mental health services would be predicted by variables associated with higher acculturation, as reported by previous studies. In fact, when we examine use of specialty mental health services we find two positive predictors of service use: DSM-IV disorder status and English language proficiency. DSM-IV mood/anxiety disorder status predicted increased used of specialty mental health services at a greater rate than the use of formal service (in general) or informal services. This may reflect the extent to which specialty mental health services are provided according to the DSM-IV conceptualization of distress, such that Asian American individuals who interpret distress in emotional terms may be more likely to seek services in accordance with that view. Hence, as with English language proficiency, DSM-IV disorder status may to some extent reflect acculturation to mainstream U.S. conceptualizations to distress. Previous research has demonstrated greater rates of service use and greater willingness to seek psychological help among Asian American individuals who report higher levels of acculturation to mainstream U.S. norms (Abe-Kim et al., 2007, Tata & Leong, 1995). In addition, studies with Chinese American populations have demonstrated that interpretation of distress in primarily psychological terms predicted increased help-seeking, while somatization of symptoms served as a barrier to receiving psychological help (Kung & Lu, 2008; Ying, 1990). The finding with regard to ELP supports the interpretation that use of formal services may reflect acculturative factors. In addition, the significance of ELP as a predictor of service use may reflect barriers in access to formal services for individuals without ELP (Callejas et al., 2008).

Results: Ethnic Subgroups

Given significant differences between Asian American ethnic subgroups with regard to social status, values, conceptualizations of distress, and willingness to seek treatment, we predicted that rates of service use and predictor variables would vary across ethnic groups. Notably, although rates of service use did not significantly vary across groups, many of the predictors were found to be significantly different for different ethnic subgroups. The demographic variables of age and education were found to be significantly different, reflecting the differential distribution of these variables within groups (U.S. Census Bureau, 2007). Rates of English language proficiency, past experiences of discrimination, and psychological distress were also found to vary across groups. Filipino Americans reported the highest levels of English language proficiency and discrimination, while Chinese Americans reported the highest levels of psychological distress.

Given that rates of service use do not vary across groups while predictor variables do vary, there is some evidence to suggest that predictor variables may differentially predict service use for each ethnic subgroup. Our final hypothesis asserted that predictor variables will differentially predict service use, and this is supported by our findings. Our final analysis compared the predictive value of demographic and psychosocial variables across ethnic groups and found significant differences in predictors of service use, with the most striking differences found in sources in distress.

For service use in general, DSM-IV mood/anxiety disorder status was found to predict service use for all groups. The strongest effect was found for the Chinese group, with the weakest effect found for the Filipino group. Psychological distress, controlling for DSM-IV status, predicted use of services for all groups at approximately equivalent rates.

However, for the Chinese subgroup, it was found that the presence of a probable substance use disorder predicted use of services at a high rate. These results suggest that some similarities exist between groups with regard to predictors of service use, particularly with regard to psychological distress as defined by DSM-IV mood and anxiety disorders; however, other forms of distress (e.g., substance use disorders) may influence service use for certain subgroups only.

When we compare usage of formal and informal services, we find that formal service use is predicted by the presence of a probable DSM-IV mood/anxiety disorder across all three groups, while the presence of a mood/anxiety disorder predicts informal service use for the Filipino group only. Once again, this may reflect the extent to which individuals interpreted distress in psychological terms. Similarly, psychological distress predicts formal service use for all three groups, but only predicts informal service use for the Chinese sample. The use of informal services is predicted by the presence of a probable IED diagnosis for the Vietnamese group, the presence of a mood/anxiety disorder for the Filipino group, and the presence of an eating disorder among the Chinese group. This further supports the idea that forms of distress predict service use patterns differentially for different ethnic subgroups.

Finally, we examined predictors of specialty mental health service use across ethnic subgroups. Once again, DSM-IV mood/anxiety disorder status was a positive predictor of service use for all groups. In addition, IED predicted specialty mental health service use for the Vietnamese sample. Distress, controlling for DSM-IV status, predicted service use for the Vietnamese and Filipino samples, but not the Chinese sample. This may indicate that Chinese Americans in the sample sought specialty mental health

services only for forms of distress encapsulated by DSM-IV diagnostic categories, or possibly that Vietnamese and Filipino Americans sought specialty mental health services for distress not encapsulated by the DSM-IV categories surveyed in the NLAAS. Research into differential patterns of service use for distress across ethnic groups is sorely lacking, and as such the interpretation of this finding is unclear. Of note is the finding with regard to Vietnamese Americans, such that Vietnamese reporting higher levels of discrimination were significantly less likely to seek specialty mental health services. Previous research has suggested that discrimination may impact service use through increased distress (Gee et al., 2007). It has also been argued that experiences of discrimination may decrease use of formal services due to mistrust (Sue & Sue, 1990). These results suggest that higher rates of discrimination predict lower rates of specialty mental health service use when controlling for distress, indicating an independent effect of discrimination that merits further investigation. This finding was non-significant for the Filipino and Chinese samples, suggesting that past experiences of discrimination may predict service use in a differential fashion for these groups (e.g., exclusively through increased distress).

Use of specialty mental health services was also predicted by higher English language proficiency in the Chinese American sample, consistent with previous findings indicating that limited English proficiency is a barrier to formal mental health services (Jang, Lee, & Woo, 1998). However, this effect was not found for any other ethnic group or for use of any other service. This may indicate that English language proficiency, when controlling for its associations with distress, may not be as important an independent factor across Asian American subgroups. Conversely, this may reflect problems with the scale used,

such that the limited range of values precludes significant findings. Future research should attempt to measure language proficiency more effectively so as to assess its implications for service use.

Future Research

The results of this study suggest a number of avenues for future research into help-seeking and distress among Asian American populations. Consistent positive relationships between DSM-IV mood/anxiety disorder status and use of health services for psychological problems, as well as positive relationships between ELP and service use, suggest that use of formal services may be related to acculturation factors and interpretations of distress, as suggested by previous studies (Ying, 1990; Tata & Leong, 1994; Abe-Kim et al., 2007). Unfortunately, the limitations of the NLAAS preclude an examination of the relationship between symptom expression and service use. The diagnostic interview employed in this survey used a "gateway" approach to DSM-IV diagnosis, such that only those individuals who reported that they had felt sad or hopeless most of the day, nearly every day were given the full depression questionnaire. Consequently, it is difficult at this time to examine the possible effects somatic expression of distress may have had on patterns of service use, and results may reflect only those individuals who adopt an acculturated interpretation of distress. Future studies should endeavor to examine somatization of distress and its effects on patterns of service use (Ying, 1990).

Significantly, Filipino Americans differed from the other groups with regard to DSM-IV disorder status: Filipinos in the sample reported significantly higher rates of probable eating disorder diagnoses. To date, research examining prevalence rates and correlates of

eating disorders in Filipino American populations is severely lacking. Extant research on eating attitudes and body satisfaction has primarily focused on cross-cultural rather than multicultural analyses, and has generally found that Filipino males exhibit patterns of disordered eating at a much higher rate than Caucasian American males (Kayano et al., 2008; Madanat, Hawks, Novella, & Lennileth, 2006). A single multicultural study by Yates, Edman, and Aruquete (2004) examined body mass index (BMI) and body dissatisfaction in Asian American subgroups in Hawaii. They found that Filipino American males reported the highest BMIs of all groups but demonstrated a female pattern of strong body dislike and preference for smaller body size. Our finding may thus reflect culture-specific concerns about body image, weight, and disordered eating. Further research on the prevalence and correlates of eating disorders among Filipino Americans is needed.

Also of note is the finding that psychological distress predicted service use independently of DSM-IV disorder status. One explanation for this finding is that the psychological distress scale reflects the presence of forms of distress not captured by the DSM-IV disorder statuses examined herein, for which Asian American adults seek services (e.g., psychotic disorders). Conversely, this may reflect problems with the diagnostic interview used in this study, and the psychological distress figures could reflect sub-threshold symptoms of DSM-IV disorders. Finally, this may reflect problems in the DSM-IV diagnostic categories themselves, which may fail to adequately assess psychological disorders as conceptualized and expressed by Asian American adults (e.g., somatization of distress). Independent effects of psychological distress, controlling for DSM-IV disorder categories, were found across multiple models in this study.

Additional research into the conceptualization and expression of psychological distress among Asian American adults, and the relationship between the expression of distress and service use, is recommended.

Research into the effects of different forms of distress on service use by Asian Americans is very limited. A previous study by Abe-Kim et al. (2007) found no differential effects of DSM-IV status on patterns of service use according to ethnicity; however, the variable of DSM-IV status was coded dichotomously in their study, masking important subgroup differences according to disorder type. This study has improved upon their design by disaggregating distress data so as to examine independent effects of different major categories of DSM-IV disorders. Results indicate that DSM-IV disorders differentially predict use of services across ethnic groups, such that individuals belonging to different Asian American ethnic subgroups sought services for different types of DSM-IV disorders. Further research is needed to determine patterns of service use for different diagnostic statuses across Asian American ethnic subgroups.

Limitations

Although these findings may have strong implications for future research, this study had some limitations. First, the use of a secondary data set for analysis constrained variable selection; for example, although acculturative factors have been identified as predicting service use, no scale of acculturative values was included in the NLAAS survey. Hence, some variables (i.e., education) serve as proxies for preferred variables (i.e., SES). In addition, the measurement of some variables was problematic: for example, the English language proficiency variable was comprised of a four-level scale based on subjective self-assessment, and as such differences between levels are difficult

to interpret and imprecise. The NLAAS surveyed both professional and folk sources of help, but did not assess lay sources such as friends and family, which may serve as a primary source of help for Asian American populations (Rogler & Cortes, 1993). Also, some scales were altered from their original format in the development of the NLAAS, and many of these scales have yet to be thoroughly validated with Asian American samples. For example, although the concordance of WHO-CIDI diagnoses with independent diagnoses made using the World Mental Health Structured Clinical Interview for DSM-IV (WMH-SCID 2000) has been assessed with a Latino sample, as yet no studies have examined concordance rates with an Asian American sample (Alegria et al., 2009). As such, it is unclear to what extent CIDI diagnoses approximate diagnoses given using other clinical diagnostic interviews.

Another limitation of this study is the poor match in timing between the DSM-IV disorder status variables (12 month prevalence) and the psychological distress variable (30-day functioning and distress). This limits the extent to which it can be argued that distress predicts service use independent of DSM-IV disorder status, and may then underestimate the extent of psychological distress over the course of the previous year. Future studies should attempt to examine concurrent measures of DSM-IV status and general psychological distress. In addition, we were unable to assess and control for the impact of acculturative stress in this study due to poor reliability of the scale, and a portion of the psychological distress reported by subjects may reflect distress associated with processes of acculturation. As previous studies have demonstrated that acculturative factors play a strong role in help-seeking behaviors among Asian Americans, future

research should consider the impact of acculturative stress on service use (Gee et al., 2007).

Finally, although this study was performed with a nationally-representative sample of Asian Americans sampled with sophisticated methodology, results may not necessarily generalize to the general population. Specifically, oversampling of the three target groups (Vietnamese, Filipino, and Chinese) may have resulted in a weighting of these effects in the full sample analyses. Consequently, findings with regard to subgroup differences are believed to be more generalizable to target groups. In addition, although sample sizes were very large for this study the rate of service use was extremely low; significant results may have been missed due to low base rates of occurrence. This limitation highlights both the serious underutilization of services by Asian American groups and the difficulties of conducting research with minority populations.

This study has improved upon previous research into service use, using a large, nationally-representative sample of Asian Americans. Previous findings with regard to the relationship between distress and service use have been supported, with partial support of previous findings with regard to gender, English language proficiency, age, and discrimination. This study is the first to examine differential patterns of use by Asian American ethnic subgroups according to forms of distress, and has provided evidence to suggest that subgroups may seek different services for different problems. These findings may have significant implications for both research and practice. The disaggregation of data into ethnic subgroups revealed service use differences masked by the overly-inclusive use of a single, monolithic group, highlighting both the reality of ethnic subgroup differences among Asian Americans and the need for future research to

consider results at the level of ethnic subgroups. As found in previous studies, there is evidence of considerable underutilization of services by Asian American groups relative to their population size and levels of reported distress. This study further illuminates the need for culturally-appropriate, linguistically-diverse services and suggests that distinctions in need for services lie at the level of ethnic subgroups.

In summary, our study highlights the need for more research into the correlates of help-seeking behavior among Asian American adults, specifically with regard to seeking services according to differential patterns of distress. These findings indicate that rates of service use among Asian American adults are very low despite evidence of diagnosable levels of psychopathology and psychological distress. In addition, patterns of service use according to forms of distress vary significantly at the level of ethnic subgroups, particularly with regard to the differential seeking of formal as opposed to informal services for psychological problems. There is some indication that past experiences of discrimination and limited English language proficiency may serve as barriers to service use for some Asian American subgroups. Further, the independent predictive power of the psychological distress measure, in combination with the consistently strong predictive power of probable DSM-IV mood/anxiety disorder statuses, may indicate that Asian American adults in our sample sought services for psychological distress expressed in a manner unaccounted for by current DSM-IV conceptualizations of distress. Finally, these findings support the assertion that group differences with regard to service use lie at the level of ethnic subgroups rather than at the level of a single, monolithic Asian American group, and suggest that future research in this domain should consider ethnic subgroup differences when examining help-seeking behavior. This study has expanded upon

previous research into help-seeking behavior among Asian Americans, and may have significant implications for future research and current practice.

APPENDIX A

Table 1

Predictors of Help-Seeking in a National Sample of Asian Americans: Descriptive Statistics for Predictor Variables, Full Sample (N = 2095)

Variables	*M (%)*	*SD*	Range
Gender (Female)	52.0%		
Age	41.2	14.77	18 - 95
Education			
0-11 years	15.1%		
12 years	17.8%		
13-15 years	25.3%		
≥ 15 years	41.9%		
English Language Proficiency	2.7	1.03	1 – 4
Experiences of Discrimination	6.9	6.41	0 - 45
Acculturative Stress*	2.3	1.41	0 – 9
DSM-IV Disorder Status			
Mood/Anxiety	11.7%		
Substance Use	1.3%		
IED	2.4%		
Eating Disorder	1.6%		
Distress	2.71	3.58	0 – 23

* *(n = 1636)*

Table 2

Descriptive Statistics for Outcome Variables, Full Sample (N = 2095)

Variables	Yes N (%)	*No* N
Any Service Use	131 (6.3)	1964
Formal Service Use	113 (5.4)	1982
Specialty Mental Health	79 (3.8)	2016
Informal Service Use	47 (2.2)	2048

Table 3

Intercorrelations of Service Use and Demographic Variables

Variables	1	2	3	4	5	6	7
1. Any Service	–						
2. Formal Service	.93**	–					
3. Informal Service	.44**	.22**	–				
4. Ment. Health Service	.77**	.83**	.24**	–			
5. Gender	.05*	.04	.05*	.05*	–		
6. Age	.00	.03	-.08**	.02	.00	–	
7. Education	.02	.04	.05	.04	-.08**	-.21**	–

$p < .05$. ** $p < .01$.

Table 4

Intercorrelations of Service Use and Psychosocial Variables

Variables	1	2	3	4	5	6	7	8	9	10	11
1. Any SU	–										
2. Formal SU	.93**	–									
3. Informal SU	.44**	.22**	–								
4. Mental Hth	.77**	.83**	.24**	–							
5. Discrimination	.06**	.05*	.06**	.04	–						
6. ELP	.07*	.07*	.05	.04	.30**	–					
7. Mood/Anxiety	.32**	.31**	.21**	.29**	.10**	.10**	–				
8. Substance	.12**	.12**	.10**	.11**	.12**	.05*	.19**	–			
9. IED	.06**	.07**	.10**	.07**	.13**	.09**	.17**	.04	–		
10. Eating Dis	.03	.02	.08**	.03	.03	.06**	.11**	.12**	.03	–	
11. Distress	.22**	.22**	.14**	.17**	.00	.15**	.33**	.09**	.10**	.12**	–

$p < .05$. ** $p < .01$

Table 5

Intercorrelations of Demographic and Psychosocial Variables

Variables	1	2	3	4	5	6	7	8	9	10	11
1. Gender	–										
2. Age	.00	–									
3. Education	-.08**	-.19**	–								
4. ELP	-.07**	-.35**	.42**	–							
5. Discrimination	-.10**	-.23**	.18**	.30**	–						
6. Mood/Anx	.05*	-.09**	.02	.10**	.16**	–					
7. Substance	-.03	-.10**	-.01	.12**	.06**	.19**	–				
8. IED	.02	-.10**	-.01	.13**	.10**	.17**	.04	–			
9. Eating Dis	.00	-.09**	-.03	.03	.11**	.11**	.12**	.03	–		
10. Distress	.08**	-.07**	.02	.00	.25**	.33**	.09**	.10**	.12**	–	
11. Ethnicity	-.03	-.11**	.28**	.30**	.19**	.05	.05	.05	.07	.10**	–

$p < .05$. ** $p < .01$.

Table 6

Mean Values or Frequencies for Predictor Variables as a Function of Service Use (Any)

Variable	Service Use (n = 131)	No Service Use (n = 1964)	χ^2
Gender			4.25*
Male	51	947	
Female	80	1017	
Age	41.35	41.21	83.02
Education			1.05
0-11 years	19	297	
12 years	22	350	
13-15 years	38	491	
≥ 15 years	52	826	
ELP	2.94	2.76	10.69*
Discrimination	8.71	6.88	58.44*
DSM-IV Status			
Mood/Anxiety	67	178	210.60**
Substance	9	19	32.45**
IED	8	42	8.30**
Eating Dis.	4	30	1.79
Distress	6.72	2.44	251.91**

* $p < .05$. ** $p < .01$.

Table 7

Mean Values or Frequencies for Predictor Variables as a Function of Formal Service Use

Variable	Service Use (n = 113)	No Service Use (n = 1982)	χ^2
Gender			3.64
Male	44	954	
Female	69	1028	
Age	43.29	41.10	86.01
Education			2.92
0-11 years	18	298	
12 years	22	350	
13-15 years	34	495	
≥ 15 years	39	839	
ELP	2.87	2.77	10.12*
Discrimination	8.42	6.91	56.32*
DSM-IV Status			
Mood/Anxiety	61	184	206.83**
Substance	8	20	29.88**
IED	8	42	11.29**
Eating Dis.	3	31	0.80
Distress	6.97	2.47	252.33**

* $p < .05$. ** $p < .01$.

Table 8

Mean Values or Frequencies for Predictor Variables as a Function of Informal Service Use

Variable	Service Use (n = 47)	No Service Use (n = 2048)	χ^2
Gender			6.14*
Male	44	954	
Female	69	1028	
Age	33.51	41.40	74.82
Education			5.96
0-11 years	4	313	
12 years	5	367	
13-15 years	13	516	
≥ 15 years	26	852	
ELP	3.11	2.77	5.52
Discrimination	9.77	6.93	71.09**
DSM-IV Status			
Mood/Anxiety	26	219	88.60**
Substance	4	24	18.77**
IED	6	44	22.23**
Eating Dis.	4	30	14.29**
Distress	6.83	2.61	150.70**

* $p < .05$. ** $p < .01$.

Table 9

Mean Values or Frequencies for Predictor Variables as a Function of Specialty Mental Health Service Use

Variable	Service Use (n = 79)	No Service Use (n = 2016)	χ^2
Gender			4.89*
Male	28	970	
Female	51	1046	
Age	42.56	41.17	86.05
Education			3.20
0-11 years	12	304	
12 years	16	356	
13-15 years	25	504	
≥ 15 years	26	852	
ELP	2.98	2.77	8.63
Discrimination	8.52	6.93	57.71*
DSM-IV Status			
Mood/Anxiety	47	198	181.63**
Substance	6	22	24.39**
IED	6	44	9.56**
Eating Dis.	3	31	2.43
Distress	6.91	2.55	240.57**

* $p < .05$. ** $p < .01$.

Table 10

Summary of Logistic Regression Analyses Predicting Any Service Use, Full Sample

Predictor	β	SE	Odds Ratio
Gender (Female)	0.29	0.20	1.34
Age	0.01	0.01	1.01
Education	-0.03	0.11	0.97
ELP	0.24	0.12	1.28*
Discrimination	0.00	0.02	1.00
DSM-IV Status			
Mood/Anxiety	1.66	0.21	5.27**
Substance	0.92	0.51	2.51
IED	-0.13	0.47	0.88
Eating Dis.	-0.71	0.66	0.49
Distress	0.14	0.02	1.15**

* $p < .05$. ** $p < .01$.

Table 11

Summary of Logistic Regression Analyses Predicting Formal Service Use, Full Sample

Predictor	β	SE	Odds Ratio
Gender (Female)	0.27	0.22	1.31
Age	0.02	0.01	1.02**
Education	-0.12	0.11	0.89
ELP	0.26	0.12	1.29*
Discrimination	0.00	0.02	1.00
DSM-IV Status			
Mood/Anxiety	1.80	0.25	6.02**
Substance	0.98	0.53	2.67
IED	0.10	0.48	1.10
Eating Dis.	-0.89	0.75	0.41
Distress	0.14	0.02	1.15**

* $p < .05$. ** $p < .01$.

Table 12

Summary of Logistic Regression Analyses Predicting Informal Service Use, Full Sample

Predictor	β	SE	Odds Ratio
Gender (Female)	0.63	0.34	1.89
Age	-0.03	0.02	0.97*
Education	0.42	0.19	1.53*
ELP	-0.03	0.19	0.97
Discrimination	0.01	0.03	1.01
DSM-IV Status			
Mood/Anxiety	1.42	0.37	4.11**
Substance	0.60	0.67	1.82
IED	0.91	0.52	2.49
Eating Dis.	0.61	0.66	1.83
Distress	0.12	0.03	1.12**

* $p < .05$. ** $p < .01$.

Table 13

Summary of Logistic Regression Analyses Predicting Specialty Mental Health Service Use, Full Sample

Predictor	β	SE	Odds Ratio
Gender (Female)	0.40	0.26	1.50
Age	0.02	0.01	1.02*
Education	-0.18	0.13	0.83
ELP	0.39	0.15	1.47**
Discrimination	-0.01	0.02	1.00
DSM-IV Status			
Mood/Anxiety	2.06	0.29	7.88**
Substance	0.70	0.56	2.01
IED	0.05	0.52	1.05
Eating Dis.	-0.33	0.73	0.72
Distress	0.11	0.03	1.11**

* $p < .05$. ** $p < .01$.

Table 14

Frequency of Service Use as a Function of Ethnicity

	Vietnamese N (%)	Filipino N (%)	Chinese N (%)	χ^2
Any Service Use	34 (6.5)	31 (6.1)	37 (6.2)	0.10
Formal Services	32 (6.2)	27 (5.3)	32 (5.3)	1.03
Specialty Mental	22 (4.2)	18 (3.5)	25 (4.2)	1.40
Informal Services	6 (1.2)	11 (2.2)	17 (2.8)	4.40

* $p < .05$. ** $p < .01$.

Table 15

Mean Values or Frequencies for Predictor Variables as a Function of Ethnicity

Variable	Vietnamese (n = 520)	Filipino (n = 508)	Chinese (n = 600)	χ^2
Gender				2.15
Male	243	235	284	
Female	277	273	316	
Age	43.1	41.9	41.6	276.61**
Education				214.44**
0-11 years	29.2%	10.4%	14.2%	
12 years	22.3%	19.1%	16.0%	
13-15 years	24.8%	33.1%	19.5%	
≥ 15 years	23.7%	37.4%	50.3%	
ELP	2.1	3.3	2.6	485.55**
Discrimination	4.2	8.9	7.1	365.76**
DSM-IV Status				
Mood/Anxiety	9.2%	12.0%	12.7%	4.26
Substance	0.6%	1.8%	1.2%	4.37
IED	1.4%	3.2%	2.3%	4.01
Eating Dis.	0.8%	2.9%	0.8%	11.13*
Distress	2.4	2.6	3.2	211.65**

* $p < .05$. ** $p < .01$.

Table 16

Summary of Logistic Regression Analyses Predicting Any Health Service Use, by Ethnic Subgroup

	Vietnamese			Filipino			Chinese		
Predictor	β	SE	OR	β	SE	OR	β	SE	OR
Gender (Female)	0.17	0.43	1.19	0.61	0.44	1.84	0.27	0.41	1.31
Age	0.01	0.02	0.49	0.01	0.01	1.01	0.00	0.02	1.00
Education	-0.01	0.23	1.01	-0.02	0.23	0.99	0.11	0.68	1.11
ELP	-0.05	0.30	0.95	0.28	0.31	1.33	0.30	0.24	1.35
Discrimination	-0.05	0.04	0.95	-0.01	0.03	1.00	0.05	0.03	1.05
DSM-IV Status									
Mood/Anx	1.98	0.52	7.23**	1.54	0.46	4.65**	2.21	0.43	9.12**
Substance	[a]			1.21	0.88	3.35	2.65	1.08	14.11*
IED	1.50	1.16	4.49	0.08	0.95	1.09	-0.61	0.92	0.54
Eating Dis.	[a]			-0.78	1.04	0.46	0.19	1.35	1.21
Distress	0.14	0.04	1.15**	0.21	0.06	1.23**	0.10	0.04	1.11*

* $p < .05$. ** $p < .01$.

a. Frequencies are insufficient for analysis.

Table 17

Summary of Logistic Regression Analyses Predicting Formal Health Service Use, by Ethnic Subgroup

	Vietnamese			Filipino			Chinese		
Predictor	β	SE	OR	β	SE	OR	β	SE	OR
Gender (Female)	0.00	0.43	1.00	0.96	0.49	2.61*	0.01	0.45	1.01
Age	0.02	0.02	1.02	0.02	0.02	1.02	0.01	0.02	1.01
Education	-0.07	0.23	0.94	0.01	0.25	1.02	-0.10	0.26	0.91
ELP	-0.12	0.30	0.89	0.35	0.33	1.42	0.36	0.25	1.43
Discrimination	-0.04	0.04	0.96	-0.01	0.03	0.99	0.03	0.04	1.03
DSM-IV Status									
Mood/Anx	1.78	0.54	5.94**	1.51	0.50	4.53**	2.61	0.48	13.65**
Substance	[a]			1.77	0.91	5.88*	2.57	1.07	13.12*
IED	1.74	1.12	5.71	0.34	1.00	1.40	-0.73	0.95	0.48
Eating Dis.	[a]			-1.70	1.33	0.18	0.36	1.38	1.43
Distress	0.13	0.04	1.14**	0.25	0.49	2.61*	0.09	0.05	1.10*

* $p < .05$. ** $p < .01$.

a. Frequencies are insufficient for analysis.

Table 18

Summary of Logistic Regression Analyses Predicting Informal Health Service Use, by Ethnic Subgroup

	Vietnamese			Filipino			Chinese		
Predictor	β	SE	OR	β	SE	OR	β	SE	OR
Gender (Female)	1.56	1.24	4.76	-0.07	0.74	0.93	0.46	0.59	1.58
Age	0.04	0.04	1.04	-0.05	0.03	0.95	-0.04	0.03	0.96
Education	1.01	0.57	2.74	-0.06	0.41	0.94	0.47	0.38	1.60
ELP	-0.06	0.64	0.95	0.17	0.55	1.12	0.18	0.33	1.20
Discrimination	-0.01	0.09	1.00	0.04	0.05	1.04	-0.02	0.05	0.98
DSM-IV Status									
Mood/Anx	2.31	1.33	10.11	1.54	0.46	15.01**	0.79	0.64	2.19
Substance	[a]			0.75	1.09	2.12	0.65	1.30	1.91
IED	3.46	1.35	31.72*	0.22	1.25	1.24	0.30	1.22	1.35
Eating Dis.	[a]			-0.24	1.45	0.79	2.68	1.26	14.62*
Distress	0.12	0.09	1.13	-0.01	0.10	1.00	0.10	0.04	1.11*

* $p < .05$. ** $p < .01$.

a. Frequencies are insufficient for analysis.

Table 19

Summary of Logistic Regression Analyses Predicting Specialty Mental Health Service Use, by Ethnic Subgroup

	Vietnamese			Filipino			Chinese		
Predictor	β	SE	OR	β	SE	OR	β	SE	OR
Gender (Female)	0.15	0.50	1.18	1.14	0.63	3.14	-0.24	0.50	0.79
Age	0.02	0.02	1.02	0.03	0.02	1.03	0.01	0.02	1.01
Education	0.09	0.26	1.10	-0.36	0.32	0.70	-0.13	0.32	0.88
ELP	-0.07	0.35	0.93	0.85	0.47	2.35	0.65	0.31	1.92*
Discrimination	-0.14	0.07	0.87*	-0.01	0.04	0.99	0.05	0.04	1.05
DSM-IV Status									
Mood/Anx	1.48	0.68	4.40*	2.17	0.62	8.74**	2.92	0.56	18.54**
Substance	[a]			1.69	0.97	5.42	0.71	1.10	2.02
IED	2.61	1.09	13.66*	-0.64	1.34	0.53	-0.24	0.92	0.79
Eating Dis.	[a]			-1.70	1.47	0.18	0.56	1.42	1.75
Distress	0.12	0.05	1.12*	0.25	0.08	1.28**	0.09	0.05	1.10

* $p < .05$. ** $p < .01$.

a. Frequencies are insufficient for analysis.

APPENDIX B

Figure 1. Example of computer-assisted interview (CAI) item from the Experiences of Discrimination scale, as viewed by NLAAS respondents.

DS1e

(RB, PG 52)

(In your day-to-day life how often have any of the following things happened to you? (Would you say almost everyday, at least once a week, a few times a month, a few times a year less than once a year, or never?))

People act as if they are afraid of you.

1 ALMOST EVERYDAY

2 AT LEAST ONCE A WEEK

3 A FEW TIMES A MONTH

4 A FEW TIMES A YEAR

5 LESS THAN ONCE A YEAR

6 (IF VOL) NEVER

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