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Utilization of Mental Health Services
by Asian American College Students
at Emory University

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Utilization of Mental Health Services by Asian American College Students at Emory University

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University of Illinois at Urbana-Champaign
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An abstract of
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Abstract

Utilization of Mental Health Services
by Asian American College Students
at Emory University

By Linda Thu Vo

Asian American students are faced with multifaceted and complex issues in addition to traditional students' concerns. Most of their concerns and stigma are related to their cultural values and norms. In addition, the way they perceive their needs and describe their emotional problems contribute to the lower diagnosis and recognition of mental health issues and low service utilization rate among Asian American students. Thus, persons of Asian descent constitute a high-risk group for mental distress.

The mental health status and services utilization rates and predictors of use have not recently been assessed for Asian American students at Emory University. Therefore, this study used the Diffusion of Innovations Theory as a guide to assess the use of mental health services using two national surveys collected by Emory University Student Health and Counseling Services (i.e., ACHA-NCHA and HMS). The study utilized a secondary, quantitative design to assess mental health status, mental health services utilization, knowledge and perceptions of mental health services, and best predictors of mental health services use.

The findings showed that the prevalence of any mental illness among Asian American students (.9% - 10.6%) at Emory University was much lower than among white students (10% - 22.3%). Asian American students had more negative feelings than white students had; and reported fewer positive feelings. However, they reported less felt need for mental health assistance. Fewer Asian American students (3.3% - 26.1%) had ever used mental health services than white students had (10.4% - 52.1%), although equal proportions (35%-43%) had used campus counseling. They also used other support less, including friends and roommates. They had less knowledge about mental health services, perceived more public stigma, were more likely to feel that therapy was less helpful, and less likely to know someone who had used it before. The findings of this study also showed that needs felt is the best predictor of mental health services use by Asian American students. Asian culture is vital to address the mental health of Asian American students. Therefore, efforts should focus on assessing the values and needs of Asian American students using qualitative methods.

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Acknowledgements

First, I would like to share the motivation behind assessing mental health of Asian American students at Emory University. This thesis topic closely relates to me, which made this whole process more than just professional development. This was a self-discovery and personal enhancement, making it a very valuable experience for me. I am an Asian American, emerged in two culture, with large family generational gaps, as well as being a first college and first U.S.-born from a low socioeconomic background with adverse childhood experiences. I am a student burdened by economic hardships, financial independence, and family issues during any academic enrollment. Emory University has been the first place that finally succeeded in finding and providing me with appropriate mental health services.

I would like to thank several people that have made this thesis possible. Without out them, I would not have been able to do this. First, I would like to thank my thesis advisor, Nancy Thompson, PhD, MPH, who has been an amazing mentor and instructor. I have had the pleasure of experiencing her effective and engaging teaching style of guiding students through behavioral theories and statistical analyses of behavioral constructs. With her facilitation and guidance, I have greatly enhanced my understanding of behavioral science and statistical skills. This thesis would not have been successful without her expertise, and words cannot explain my appreciation for her service as my thesis advisor. I greatly admire her as a mentor, professor, and expert in this field.

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Lastly, I would like to dedicate this thesis to a beloved friend, Shelly Berda, a victim of the mental health system. May 15, 2011

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Introduction

Background and Significance

Depression affects at least 6.7% of the United States (U.S.) population in a given year and it is the leading cause of disability in the United States for people ages 15-44 (Kessler, Chiu, Demler, & Walters, 2005; The World Health Organization [WHO], 2004). Most mental disorders, such as depression, have first onset by age 24, which calls for a need to address the mental health of young adults. Since 65% of this age group is in educational institutions, the mental health of college students is priority (Kessler et al., 2005). Since 2000, the percentage of diagnosed depression has increased among college students from 10% to 15%, as reported on the American College Health Assessment-National College Health Assessment (Hunt & Eisenburg, 2010; Prescott, 2008). In particular, competitive schools similar to Emory University cause great academic pressure, which is associated with many mental health problems including substance abuse (McCabe, West, Wechsler, 2007).

Among these students, Asian Americans are a population that has unmet needs in mental health care. They comprise about 4% of the total population, are the fastest growing, and most ethnically diverse group in the U.S., yet little is known and documented about Asian American mental health (Murray and Lopez, 1996; Satcher, 1999; U.S. Department of Health and Human Services [USDHHS], 2001). Asian Americans have been stereotyped as being a "model minority" and perceived to have few social, psychological, and health problems compared to others (Sue & Morishima, 1982). In actuality, Asian Americans have more mental distress and are more likely to consider

suicide than non-Hispanic whites (Choi, Rogers & Werth, 2007; Eisenberg, Golberstein & Gollust, 2007; Kisch, Leino & Silverman, 2005; Sorking, Pham, Metzger, 2009).

While the general population may lack access to mental health care, college students do not face this problem. College students have near-universal health insurance as well as access to free campus mental health and primary care services (Kessler et al., 2005). In spite of their coverage, of college students who screened positively for depression, 36% has received any care or treatment in the past year (Eisenberg, Golberstein & Gollust, 2007). Given their high rate of coverage, factors other than access prohibit students from seeking appropriate care or adhering to recommended treatment (Hunt & Eisenburg, 2010). Some barriers that hinder students from seeking help include a lack of perceived need for help, lack of awareness of health services or insurance coverage, and skepticism about the effectiveness of available help (Eisenberg, Gollust, Golberstein & Hefner, 2007).

Studies have found that Asian Americans reported lower rates of use of mental health-related services compared to the general population (Abe-Kim et al., 2007; Gonzolez et al., 2010; Herrick & Brown, 1998; Meyer, Zane, Cho & Takeuchi, 2009; Snowden & Cheung, 1990; Sorking et al., 2009; Sue, Fujino, Hu, Takeuchi & Zane, 1991; Zhang, Snowden, & Sue, 1998). Others have reported that Asian American students, as well as those of lower socioeconomic status, those who are more religiously devout, males, and international exchange students, are more likely to seek care infrequently (Eisenberg et al., 2007; Eisenberg, Downs, & Zivin, 2009). However, one study of college students shows that Asian Americans reported higher rates of mental health services use than other minorities (Yorgason, Linville & Zitzman, 2008).

Studies have found Asian American mental health and service utilization to be associated with many cultural factors such as language barriers, availability of culturally appropriate services, family and community cohesiveness, intergenerational cultural dissonance, stigma, generational status, lack of awareness, and somatization (e.g., Abe-Kim et al., 2007; Eisenberg, Golberstein & Gollust, 2007; Leong & Lau, 2001; Rosenthal & Wilson, 2008). As noted above, research conducted on the mental health status and treatment of Asian American students provides inconsistent conclusions (Rosenthal & Schreiner, 2000). In addition, little research has been conducted to investigate how Asian students deal with mental health problems, their perceptions and knowledge about mental health services, and the most significant factors that affect their utilization of these services.

Theoretical Framework

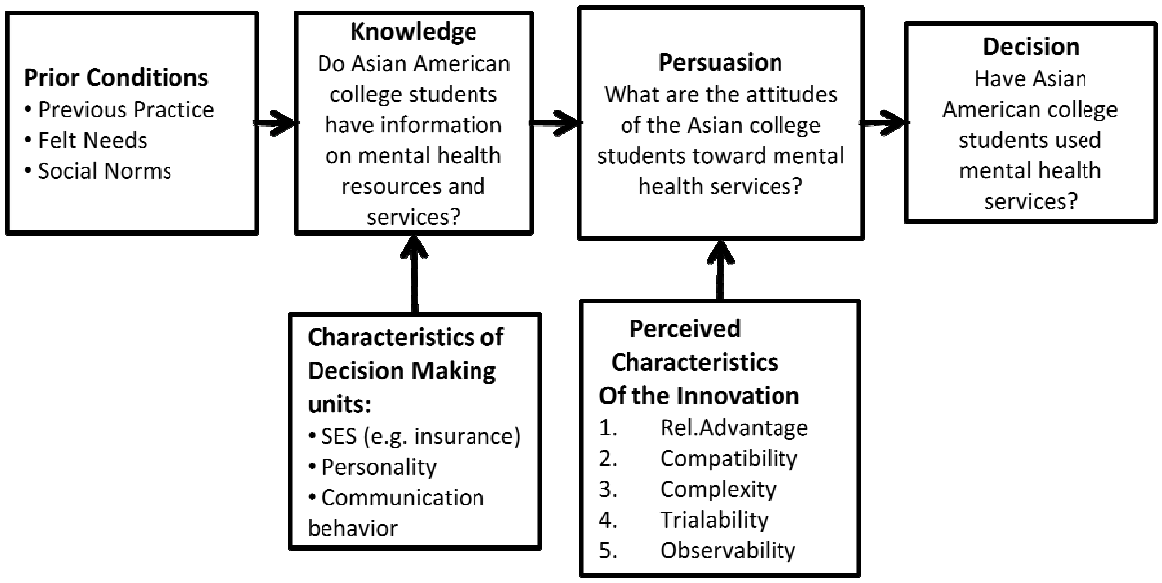
This research study utilizes Diffusion of Innovations Theory and the other psychosocial concepts found in the literature, such as acculturation and Asian American identity. The Diffusion of Innovations Theory posits that existing prior conditions and the characteristics of the target population supersede the adoption process of an innovation, which is the campus mental health service in this case (Oldenburg & Glanz, 2008). Then, these factors feed into how the population is persuaded by the characteristics of the innovation to decide to adopt it.

No mental health research among Asian Americans has used the Diffusion of Innovations Theory to study mental health services or help seeking. These behaviors are uncommon among the Asian culture, making them an innovation for this population. The cultural factors (e.g., acculturation, attitudes toward help seeking, generational status)

could be assessed by the Diffusion of Innovations constructs such as prior practices, social norms, perceived needs, socioeconomic status, communication factors, and compatibility with culture.

Using Diffusion of Innovations Theory, the study proposes to study Asian American college students' perceptions and use of mental health services (Figure 1). The influence of Asian culture and social norms on these students has an effect on how they practice coping, perceive mental health, and utilize available mental health services. Thus, assessing these constructs and concepts contributes to the development of strategies that are effective for reaching out to and educating Asian American students about mental health and services.

Figure 1. Diffusion of Innovations Theory (DOI) Framework



Measures from the National College Health Assessment (ACHA-NCHA) and the Healthy Mind Study (HMS) map onto the appropriate constructs in Figure 1. Within the framework of Diffusion of Innovation, the measures assess: the association of different factors to mental health utilization, the best predictors of mental health services use, and

factors that make significant differences among subsets of Asian Americans (by age, gender, or ethnicity). Moreover, this study provides an approximate prevalence of mental distress and information regarding the mental health status of Asian American students at Emory University.

Research Questions

The factors associated with mental health services utilization by Asian American students have not recently been assessed for Emory University. Therefore, this study uses the Diffusion of Innovations Theory as a guide to assess the use of mental health services by Asian students at Emory University using two national surveys (i.e., ACHA-NCHA and HMS) collected by Emory University Student Health and Counseling Services (EUSHCS). Moreover, the datasets asses their perceptions about mental health services based on their knowledge and prior experiences. Lastly, the study identifies factors that potentially predict Asian student's utilization of mental health services. This provides a better understanding to address the use of mental health services as an innovation to their mental health practices. The questions that this study answers include:

1. What is the mental health status of Asian American students at Emory University?
2. What is the utilization rate of mental health services reported by Asian American students at Emory University?
3. What are the knowledge and perceptions of Asian American students at Emory University about mental health services?
4. Which constructs of the Diffusion of Innovations Theory correlate with utilization of mental health services by Asian American students at Emory University?

Literature Review

Mental Health of College Students

College students demonstrate high rates of mental health problems. A study that used data from the National Epidemiologic Survey on Alcohol and Related Conditions found that among college-aged individuals, the most common disorders are alcohol use and personality disorders for college-attending individuals (Blanco et al., 2008). Data from the ACHA-NCHA across thirteen universities found that about 1.5% of students have attempted suicide in the past (Kisch, Leino & Silverman, 2005). In a review article, as many as 43% of college students nationally have felt depressed or have emotional distress (Miller & Chung, 2009).

At a large university, a cross-sectional survey found that depression or anxiety have a prevalence of 15.6% for undergraduates and 13% for graduate students (Eisenberg et al., 2009). Moreover, those with financial struggles have higher risk for mental health problems. Rosenthal and Schreiner (2000) found that first year students at a college experienced higher levels of stress, and 13% of the students reported depressive symptoms and 14% reported anger issues. In a systematic review, Hunt and Eisenberg (2010) found that about 6% of undergraduate and 4% of graduate students have considered suicide and about 17% have been screened for depression in another study. They found that those who have lower socioeconomic background, relationship stressors, or low social support, or victims of sexual violence are more at risk for depression or anxiety-related symptoms than other students (Hefner & Eisenberg, 2009; Hunt &

Eisenberg, 2010). Overall, there is a need to address the mental health of college students.

Mental Health of Asian Americans and Asian American College Students

A study conducted in six counties in California found that, among the East Asian subgroup, the most common mental health issues are depression, which ranged from 14% to 38% among the counties, and schizophrenia, which ranged from 11% to 26% (Baretto & Segal, 2005). A study using an Asian American sample from the National Latino and Asian American Study (NLAAS) found that U.S.-born Asian Americans have more suicide ideation than immigrant Asian Americans (Duldulao, Takeuchi & Hong, 2009). Moreover, from the same sample, lower social and economic circumstances, which the authors called downward social mobility are associated with major depression in the past 12 months for Asian immigrants (Nicklett & Burgard, 2009). Also compared to non-Latino whites, Asian American adults are significantly more likely to report mental health distress symptoms (Nicklett & Burgard, 2009; Sorkin et al, 2009).

In contrast, Blanco et al. (2008) found that Asian American, black or Hispanic students have better odds of good general health and mental health than whites have. However, in a suicide protocol, authors summarized that Asian Americans experience greater psychological distress than the average college students, and that it tended to be more severe when Asian Americans first use mental health services (Choi, Rogers & Werth, 2007). From the ACHA-NCHA collective data of thirteen universities, the authors found that Asian students have significantly higher odds of seriously consider attempting suicide compared to white students (Kisch et al., 2005).

Asian American is a multiethnic race that consists of many different traditions and cultures. The literature has shown mixed results for the mental health status of Asian Americans by acculturation. According to a review article, many studies have shown that low acculturated Asian Americans are more likely to suffer from mental distress and illnesses than those who are more acculturated (Suinn, 2010). However, in an editorial, Takeuchi and colleagues (2007) commented that recent empirical studies found that some immigrants have better mental health than U.S.-born minorities. A study of minority students from a private university in northern California found that females and those with second-generation status reported the most severe difficulties (Sullivan et al., 2007).

Moreover, Asian American students have to balance two cultures, which vary in values resulting in family conflicts or intergenerational differences (Lee, Su & Yoshida, 2005). Studies have shown that the conflict between family traditional values and mainstream culture have caused stress and exacerbated anxiety for some Asian youth, particularly for those with a parent-child intergenerational cultural gap (Choi, He, & Harachi, 2008; Lee , Su, & Yoshida 2005; Ying, Coombs, & Lee, 1999). Similarly, Vietnamese American students, who are less identified with Vietnamese culture, are more likely to have symptoms of depression (Nguyen & Peterson, 1992).

For Asian American students, family conflict is found to correlate with distress symptoms in a study at a large university (Lee et al., 2005). A focus group in Maryland found that some of the stresses that affect Asian American young adults are pressure from parents for high academic achievement, model minority stereotype, family conflicts, family obligations, and discrimination (Ang & Huan, 2006; Lee et al., 2009). A study among adolescents to develop an academic expectation, and stress inventory among

Asian Americans found two factors that are consistent with literature: perceived family involvement and support as pressure to excel, and feelings of shame, including exclusion or withdrawal of support (Ang & Huan, 2006). In addition to these issues, Asian American college students who perceive racial discrimination are more likely to have psychological distress, as found among Vietnamese American college students (Lam, 2007) and Chinese American college students (Ying, Lee, & Tsai, 2007).

Utilization Characteristics

Mental health services use by the general college student population diagnosed with mental illness is low. Proportions of those who are diagnosed and are treated ranged from 20% to 40% (Miller & Chung, 2009). Blanco and colleagues (2008) found that among the general population of college-attending individuals, mental health treatment rates are lower than among the general population of non-college-attending individuals at similar age. Moreover, a study, which was conducted among universities that are partners of the American Foundation for Suicide Prevention, found that students who have moderately severe to severe depression are not receiving any treatment (Garlow et al., 2008). A study using the National Co-morbidity Survey Replication (NCS-R) found that of those who had a mental disorder, 41% had used any mental health services in the past year (Eisenberg et al., 2007). Similarly, a study among college students found that more than 75% of students who reported clinically high levels of distress have not received counseling (Rosenthal & Wilson, 2008). This shows that students may have much distress and risk of mental health problems but are underutilizing mental health services available to them at their university, which are generally at no cost or low cost.

A study that used data from the Epidemiological Catchment Area (ECA) found that Asian Americans are significantly less likely to use mental health services than white Americans (Zhang et al., 1998). Using data from the Collaborative Psychiatric Epidemiologic Survey (CPES), a study found that Asians are less likely to use anti-depressant drugs than non-Latino whites (Gonzalez et al., 2010). Asian Americans fear embarrassing and dishonoring their family's face, which is the concept of honor, dignity, and reputation, so many do not use counseling (Kim, 2010).Factors such as acculturation, Asian values, and lack of culturally appropriate mental health services contribute to the low use by Asian Americans (Abe-Kim et al., 2007; Kim, 2010; Hunt & Eisenberg, 2010).

Cross-sectional studies found that succeeding generations (2nd generation and later) and those who are more highly acculturated have more positive attitudes toward mental health services and higher levels of help-seeking behaviors (e.g., Abe-Kim et al., 2007; Atkinson & Grim, 1989; Bui & Takeuchi, 2002; Chung et al., 2003; Crane, Ngai, Larson & Hafen, 2005; Leong & Lau, 2001; Meyer et al., 2009; Suinn, 2010). Higher odds of use are seen among a higher acculturated compared to less acculturated individuals (Gonzalez et al., 2010). Similarly, using data from the NLAAS, studies found that U.S. born individuals have higher mental health use rates and ratings of helpfulness of the services than those who are born outside the U.S. (Abe-Kim et al., 2007; Meyer et al., 2009; Ta et al., 2010).

However, other research has found that Asian American college students at an East Coast university who are enculturated (i.e., adapting to the norms of their indigenous culture) into the Asian culture are more negative towards help-seeking, and therefore

used fewer services (Kim, 2007). Another study of college students found that generational status is not a significant predictor of counseling services use (Sullivan et al., 2007).

Prior Conditions

Felt Needs. Studies have shown that Asian Americans are not aware of their mental health problems, nor do they understand mental health care services (Kirmayer & Robbins, 1996; Leong, 1994; Yeung et al., 2004; Zhang et al., 1998). A study conducted at a large university found that Asian students were less likely than white students to perceive a need for help, especially those who screened positive for depression (Eisenberg et al., 2007; Zivin, et al. 2009). Thus, in order to assess the underutilization of mental health services among high risk groups, researchers and administrators need to understand that Asian Americans may not see their emotional distress as a problem.

Studies have shown that Asian Americans, from a collective culture, perceived success as related to external factors, but ascribed failures to personal and internal factors (Kwon, 1995). Of importance is the fact that Asian American culture is a collective culture, where cohesiveness is valued. Studies showed that recognizing that mental distress is lower for people with higher family cohesiveness, and believed a low need for mental health services (Crane et al., 2005; Keeley &Wiens, 2008; Reinherz , Paradis, Giaconia, Stashwick, & Fitzmaurice, 2003; Ta et al., 2010). On the other hand, people with lower family cohesion have increased risk for depressive symptoms and needs. Studies found increased refusal of initial mental health treatment and higher dropout rates among people with lower family cohesion (Keeley &Wiens, 2008; Reinherz et al., 2003; Ying, Lee, &Tsai, 2007). One study found that Asian American students at a public

university sought social support when they perceived high levels of family conflict, but problem solving when low (Lee et al., 2005). These are the coping strategies that Asian American students found effective to help their stress.

Previous Practice. For Asian Americans, somatization of their problems, which they suppress emotional and psychological symptoms into physical symptoms, is less stigmatizing in their culture (Borowsky et al., 2000; Herrick & Brown, 1998; Lin & Cheung, 1999; National Asian American Pacific Islander Mental Health Association [NAAPIMHA], 2007; Yeung et al., 2004). For example, those with mental health problems described to their therapist or presented symptoms such as poor appetite, pains, indigestion, constipation, or cold hands or feet (Leong & Lau, 2001). As a result, Asian Americans tend to seek primary care instead of mental health services, which argues for integrative primary care clinics (Meyer et al., 2009). Moreover, due to the emphasis on physical discomfort and views of mental illness as physiological imbalances, Asian Americans have also depended upon and reached out to alternative medicine (e.g., herbalists, psychic healers) and even religion to cope with their problems (Fancer, TonMeyer, Ho & Paternitti, 2009; Lee et al, 2009; Lin & Cheung, 1999; Yueng et al., 2004).

Asian American college students benefit from increased esteem and confidence to succeed as well as greater peer support (Gloria & Ho, 2003). These alternative coping strategies and practices may have contributed to lower mental health services utilization among Asian American college students. However, a study, using the ECA study data, found that Asian American students are less likely to discuss or mention their mental health problems to a friend or relative (Zhang et al., 1998). Cultural norms of face-saving

explain this finding. Thus, even other practices such as social support are lower among Asian Americans.

Social Norms. Stigma is a key factor that impedes mental health service in the U.S. (Corrigan, 2004). There are two levels of stigma: one is public, when stereotypes are generalized to people with mental illness in general, and one is personal stigma, when stereotypes lead to personal feelings of incompetence and hopelessness about the problem (Cooper, Coorigan, & Watson, 2003; Corrigan, 2004). Self-stigma and concordance with stereotypes have been found to be significant predictors of negative outcomes for those who are depressed. Those with these characteristics are less likely to seek help (Eisenberg et al., 2009; Golberstein, Eisenberg, & Gollust, 2008; Rusch, Corrigan, Todd & Bodenhausen, 2010; Vogel, Wade & Hackler, 2007).

A video intervention study across two community colleges of African American, Latino, and Asian students that aimed to reduce public stigma found that Asian American students are the only group that significantly changed their perceptions post-intervention (Rao et al., 2007). Advocacy and educational campaigns with contact yielded the most robust changes in public stigma (Corrigan and Waassel, 2008). An intervention aimed at first-year undergraduates used mock counseling session, testimony, and presentation of counselors (Hayes et al., 2008). This intervention is found to contribute to the increase of counseling use at a university. Hobson (2009) conducted a brochure education intervention but found that this method is not effective in reducing stigma beliefs. Thus, interactive educational campaigns may be effective in reducing stigma. There are benefits of disclosure on quality of life, which correlated with reduced stigma, as

Corrigan and colleagues (2010) found in a study with consumers of serious mental health illnesses at two community-based rehabilitation programs.

Eisenberg and colleagues (2009) found that Asian students have the highest mean of personal stigma compared to other students in a study across thirteen colleges nationwide. Studies have shown that Asian American college students perceived people with mental illness as dangerous and want segregation from them (Cooper et al., 2003; Corrigan, 2004; Rao, Feinglass, & Corrigan, 2007). A secondary analysis of a cross-sectional national survey, NLAAS, found that among Asian Americans, perceived discrimination is associated with informal service use, but less associated with formal service use (Spencer et al., 2010). A study among Asian American female students from a large Northeastern region university found that Asian cultural values mediated the relationship of perceived stigma about counseling and intention to seek help (Miville & Constantine, 2007). Thus, Asian values and culture contribute to existence of stigma among Asian American toward mental health services.

In addition to general stigma, mental health is still taboo (silent in voice) in the Asian American culture (Lee et al., 2009; NAAPIMHA, 2007). People hide or deny it, and sometimes they believed that depression is nonexistent in Asian culture (Lee et al., 2009). Along with intergenerational cultural dissonance between Asian American generations, cultural barriers and high stigma exist even within the family (Chow, Jaffee & Snowden, 2003). Parents perceived students' education as a pathway and tool for empowerment and liberation for a better future (Phan, 2005). Therefore, seeking mental health services is highly shameful, immoral, and causes losing face for the family (Chow

et al., 2003; Fancher et al., 2009; Herrick & Brown, 1998; Leong & Lau, 2001; Ta et al., 2010; Yeh, et al., 2004).

Knowledge

A study of undergraduate students (n=266) at a university found that at least a third of the student population do not have any knowledge about mental health services and about coverage at their college (Yorgason et al., 2008). This study also found that the top four sources of information are from friends, fellow students, advertisements, and the internet. Yorgason and colleagues (2008) found that there are no significant differences among ethnic groups for knowledge. A cross-sectional study at a Midwestern university found that 49% of students knew where to go for mental health care during enrollment and 59% are aware of the free campus counseling services. (Eisenberg et al., 2007). No research has examined specific knowledge of mental health services among Asian Americans in comparison to other student populations. They merely looked at whether Asian Americans have used mental health services.

Persuasion

Relative Advantage. The underutilization of mental health services by Asian American is believed to be contributed by their preference and ratings of alternative sources of support as advantageous over mental health services. These alternative sources included alternative treatments (e.g., herbalists, faith healers, and traditional medicine), friends, and family (Fancer et al., 2009; Givens, et al., 2007; Lee et al, 2009; Lin & Cheung, 1999; Yeung et al., 2004). Asian Americans prefer to talk to friends or families to professionals for psychological difficulties (Givens et al., 2007; Zhang et al., 1998;

Yorgason, 2008). As found, 12% of Asian Americans in the Los Angeles area talked with their friends or relatives compared to 4% talking to professionals. However, Asian Americans are significantly less likely to mention their mental health problems to any sources (friends, relative, or professionals) compared to whites (Zhang et al., 1998).

Moreover, Asian Americans prefer individual therapy to group therapy, counseling to medications and a logical, rational, structured approach (problem solving) to affective, reflective, ambiguous one (emotional) (Lee et al., 2005; Sato, 1979). The Asian American values of interpersonal harmony, self-control, self-restraint, deference to authority figures, and the discouragement of expression of disagreement and negative feelings have contributed to the preference of an active counselor that uses logical and structure style (Kwon, 1995). Therefore, counselors, who facilitate indigenous support system and who conduct consultation, are more desired (Atkinson, Wampold, Low, Matthews, & Ahn, 1998). In addition, research found that Asian American students at a West Coast university used more indirect, less open communication styles compared to their European American counterparts (Park & Kim, 2008). With these factors, an approach-oriented coping that involved problem solving, social support, active coping, planning, emotional support, and religion is more effective for Asian Americans than avoidance-oriented coping, which comprised of self-distraction, denial, disengagement, emotional venting (Lee et al., 2005).

Compatibility. Because Asian Americans are so ethnically diverse (decreasing order of most prevalent population: Chinese, Japanese, Vietnamese, Korean), there is a dearth of trained bi- or multilingual and culturally- sensitive personnel in mental health services and of culturally appropriate interventions (Lee et al., 2009; NAAPIMHA,

2007). Studies have shown that one of the major barriers to mental health services use is the lack of culturally appropriate services and culturally competent providers (Lee et al., 2009; Leong, & Lau, 2001; Sue et al., 1991; Zhang et al., 1998). Asian Americans feel that mental health providers would not understand the nuances of their culture, such as the interdependent family relationship values, making it hard to open up to strangers (Fancer et al., 2009; Leong & Lau, 2001).

A study of a predominantly white school found that Asian American students who identified with more cultural values are more like to perceive stigma about counseling and less likely to use mental health services in the future (Mivill & Constantine, 2007). A study among Asian American college students at a university showed that higher acculturation in Asian American students increased their willingness to seek help for academic reasons due to a better match in culture and beliefs (Mallincokrodt, Shigeoka, & Suzuki, 2005). Research has shown that Asian American college students generally prefer a counselor with similar values, even if the counselor is of different ethnicity (Atkinson et al., 1998; Kim, 2010; Kim et al., 2005). As Kim (2010) reviewed in the literature, a greater degree of shared worldview led to better perceptions of the counselors and increased motivation in help seeking. Moreover, Kwon (1995) suggested that Asian Americans fare worse in group therapy due exacerbated shameful feelings from disclosure. Asian ethnic subgroups have different values and belief systems, which make therapy complex. For example, Filipino Americans value personal space of one to two feet, make frequent brief eye contact at eye level, and look down or away as a sign of respect (Sanchez & Gaw, 2007). Such values affect minute details in therapy, and nonverbal communication by therapist could make a difference in the perception of Asian

American clients. Thus, culturally appropriate services are necessary to address sensitive mental health issues among Asian American college students.

Complexity. Another barrier is language, particularly for first generation Asian Americans or international exchange students. Thus, there is a need for bilingual providers to avoid translation services, which contributed to Asian American consumers' skepticism, distrust due to lack of confidentiality, and face-saving concerns (Abe-Kim & Takeuchi, 1992; Bui & Takeuchi, 2002; Fancer et al., 2009; Meyer et al., 2009; USDHHS, 2001). However, this should not be a concern for college students, because they should have a competent level of English.

As mentioned, shame and face-saving are important to Asian Americans. Therefore, fear of such may impede their help-seeking behaviors. Thus, confidentiality is a concern for Asian Americans (Kim, 2010). They want their issues protected and do not want their use of mental health services, which they perceive as failure, shared with anyone, particularly their parents. Kim (2010) reviewed the literature and found that confidentiality needs to be emphasized to clients to ease their concerns.

Summary

Mental health utilization among Asian Americans is found to be generally low but many suffer from psychological distress. Many cultural factors such as family conflicts, balance of two cultures, academic pressures, and others contribute to distress. They do not report emotional problems, but rather somatic symptoms, due to a lack of terms to describe distress, and mental health is still taboo in their culture. With the lack of mental health awareness and terminology, along with stigma, assessing mental health among

Asian Americans is somewhat difficult. Assessment of knowledge among Asian American students is needed to further determine the mental health needs among this population. With the complex issues, and cultural norms and values, further investigation of mental health services use by Asian American students is needed to understand what may persuade them to use services for mental health issues.

Methods

Design

The design of this study was a quantitative, secondary analysis of two datasets. These datasets were specific to Emory University as part of two national studies. This study was submitted to Institutional Review Board at Emory University, determined to be non-human research, and withdrawn from further review (See Appendix A).

American College Health Assessment-National College Health Assessment (ACHA-NCHA). The standard ACHA-NCHA measures student health status, physical health, perceived substance use, and mental health status and perceptions. EUSHCS conduct this assessment every three years. They added eleven custom questions about school affiliation, stress, substance use, religious beliefs, and patient satisfaction to this administration. The survey used for this study was collected from Monday, October 6, 2008 through Monday, October 27, 2008. The sample was randomly selected based on the list of students' information retrieved from the Registrar. The surveys were collected via sending a secure email link to the survey to the participants. Every tenth responder was offered a $10 gift card, and every respondent was entered into a drawing, where three responders could receive a $100 gift card. A pre-survey letter was mailed to

students in the random sample, including a pen as a pre-incentive. Two reminder emails were sent to non-responders (EUSHCS, 2010).

Healthy Minds Study (HMS). The HMS focuses on understanding unmet needs and access to mental health services. This survey provides measures for a comprehensive overview and context of mental health issues, including attitudes, healthcare utilization, stigma, social support, academic outcomes, and others. The survey is collected every-other year using an Internet survey in partnership with Dr. Eisenberg at the University of Michigan, which is the main site. The data used for this study were collected in 2009 during the spring semester. The Emory University Student Health and Counseling Services provided the HMS with a randomly selected list of 1,000 students over the age of eighteen.

Participants, regardless of survey completion status, were entered into a sweepstake conducted on June 15, 2009 by Survey Sciences Group, LLC (SSG) for cash prizes totaling $4000 (ten $250 and three $500 prizes). In addition, pre-notification letters were sent to all participants via U.S. Mail with a $1 bill token of appreciation. Email invitations were sent within one week after the pre-notification letters should have been received. In addition, up to four follow-up reminder emails were spent to those who had not yet completed the survey or declined to participate with spacing of 2-4 days each (Office for Student Studies, 2010).

Study Sample

ACHA-NCHA. For this study, data from both the ACHA-NCHA and HMS were from the same cohorts of students during the school year of 2008-2009. The ACHA-NCHA collected data from 1394 students at Emory University in fall 2008. The original

ACHA-NCHA student sample, which was reflective of the student population at Emory University, was comprised of 64.2% white / Caucasian (n=895), 9.9% black (n=138), 2.8% Hispanic/ Latino (n=39), 15.1% Asian (n=211), 0.1% Indian American/ Alaskan/ Hawaiian Native (n=2), 1.2% other races (n=17), and 6.6% biracial/multiracial respondents (n=92). Of the sample, 11.3% were international students (n=158) and 86.5% were not international students (n=1206). For this study, the selected sample (n=977) was non-international Asian and white students (Table 1).

Table 1. ACHA-NCHA Sample

	Counts	%
Total Sample	**1394**	
Missing International Status	30	2.2%
International students	158	11.3%
Non-International students	1206	86.5%
white / Caucasian, non-Hispanic	835	69.2%
Asian American	142	11.8%
black / African American	118	9.8%
Hispanic / Latino	31	2.6%
Indian/ Alaskan/ Hawaiian Native American	2	0.2%
Other Races	10	0.8%
Biracial/Multiracial	68	5.6%

HMS. The HMS collected data from 999 students at Emory University in spring 2009. The HMS sample was representative of the Emory University student population. The sample consisted of 52.9% white / Caucasian (n=528), 12.0% black (n=120), 4.3% Hispanic/ Latino (n=43), 21.4% Asian (n=214), and 0.3% Indian American/ Alaskan/ Hawaiian Native respondents (n=3). Ninety-one respondents (9.1%) did not provide answers for race/ethnicity, which eliminated possible cases that could be included in this study sample (n=742) (Table 2).

Table 2. HMS Sample

	Counts	%
Total Sample	**999**	
Black , non-Hispanic	120	12.0%
Hispanic / Latino	43	4.3%
Indian/Alaskan/Hawaiian Native	3	0.3%
white, non-Hispanic	528	52.9%
Asian, non-Hispanic	214	21.4%
Pacific Islander	0	0.0%
Missing	91	9.1%
Total Study Sample	**742**	
white, non-Hispanic	528	71.2%
Asian, non-Hispanic	214	28.8%

Measures

Asian Americans. The datasets were filtered by "Asian American" measures, and included only Asian and whites respondents for analysis. Designation as Asian American on ACHA-NCHA was determined by a response of yes to "Asian or Pacific Islander" to the item, "What is your race/ethnicity;" a response of no to all other race categories; and a response of no to "Are you an international student?" Designation as Asian American on the HMS was determined by a response of "Asian/Asian-American" or "Pacific Islander" to the item "How do you usually describe your race and/or ethnicity." Since the ACHA-NCHA does not distinguish between Asian and Pacific Islander as separate items, this study kept consistency by utilizing cases on the HMS that identified as "Asian" or "Pacific Islander" as well. However, there was no "Pacific Islander" in the HMS study sample. There was no question to measure international student status. Therefore, international status was not included in the filter for the HMS dataset.

Research question 1: Mental Health Status. Research question 1, examining mental health status, was assessed using the mental health section of the ACHA-NCHA. Questions about diagnosis or treatment of certain mental health illnesses, stress, or

emotions were included. “Have you been diagnosed by a professional for any of the following diseases” was used to measure the mental health status by identifying the mental health problems in this population. The response options to this questions ranged from 1 to 6: “No”, “yes, diagnosed but not treated”, “yes, treated with medication”, “yes treated with psychotherapy”, “yes treated with medication and psychotherapy”, and “yes other treatment”. Any yes was coded as yes to the corresponding mental health problems. These items were summed to get an overall number of diagnoses score. Then any diagnoses were coded as yes for prevalence of mental health illness and no for not having any mental health illness.

In addition to diagnoses, this study utilized the ACHA-NCHA questions on respondents’ emotional health: “have you ever” for three time periods of “last 2 weeks”, “last 30 days”, and “last 12 months”. The questions are followed by items such as “felt things were hopeless”, “felt overwhelmed by all you had to do”, “felt exhausted (not from physical activity)”, “felt very lonely”, “felt sad”, “felt overwhelming anxiety”, “felt overwhelming anger”, and “felt so depressed it was difficult to function” with a total of eight items. The items were each coded dichotomously individually and then summed for overall negative emotions felt score. The suicide-related items from this question, such as intentional injury and suicide ideation, were summed separately to assess suicide risk.

The HMS had fourteen general well-being items beginning with “in the past month, how often did you feel…” (e.g. “satisfied”, “that people are basically good”, “that you liked most parts of your personality”). The answer choices were frequency scales: “never”, “once or twice”, “about once a week”, “2 or 3 times a week”, “almost every day”, and “every day.” These reflect positive emotional health. The HMS also utilized the

question “over the last 2 weeks, how often have you been bothered by any of the following problems”, which allowed respondents to check all the problems they had experienced and then rated them on a frequency scale of “not at all”, “several days”, “more than half the days”, and “nearly every day”. These nine items were dichotomized and summed for a negative emotion score. Several days or more was coded as yes. Problems listed included health issues of “feeling restless so that it is hard to sit still”, “feeling tired easily”, “muscle tension, aches, or soreness”, “trouble falling asleep or staying asleep”, “trouble concentrating on things”, and “becoming easily annoyed or irritable”. Negative emotion items (e.g. “little interest or pleasure in doing things”) were dichotomized and summed as well. Each of these score was prorated to a scale that scored up to ten. An overall emotion score was calculated by subtracting the negative emotions from the positive emotions and prorated onto a scale of ten. Analysis of variance (ANOVA) tests were performed to determine statistical difference between Asian American and white students.

Questions about intentional self-injury, suicidal ideation, and suicide attempts in the past year were assessed to inform mental health status of Asian American students. From the HMS, two questions assessed intentional self-injury: “in the past year have you ever done any of the following intentionally” and “on average, how often in the past year did you hurt yourself on purpose without intending to kill yourself”. Using these questions, percentages and descriptive statistics were reported about the mental health status and suicide risk among Asian American students. Chi Square statistics were performed to determine statistical differences in the proportions of diagnoses and cases between Asian American and white students.

Research question 2: Mental Health Services Utilization Rate. Research question 2, assessing utilization of mental health services, was determined by students' responses to the service use items on the ACHA-NCHA. These included "have you ever received psychological or mental health services from any of the following?" and "have you ever received psychological or mental health services from your current college/ university's Counseling or Health Services?" The items from the original questions provided descriptive data on where respondents seek help (e.g. counselor/therapist, psychiatrist, other medical providers, or minister/ priest/rabbi/other clergy). Using the diagnoses questions, variables were also created for medication, psychotherapy, combined treatment, and other treatment. A variable was computed from these questions and the treatment variables to determine any use of mental health service from the ACHA-NCHA. The number of Asian American students who utilized mental health services was expressed as a percentage of all Asian American included in this study to determine utilization rate. ANOVA was performed on ratings of satisfaction with campus counseling services in the ACHA-NCHA to determine differences between Asian American and white students.

The HMS provided past 12 months and current receipt of mental health services using the following questions: "in the past 12 months have you received counseling or therapy for your mental or emotional health from a health professional (such as psychiatrist, psychologist, social worker, or primary care doctor)"; "are you currently receiving counseling or therapy"; and "who wrote your most recent prescription for the medication(s) [psychostimulants, antidepressants, anti-psychotics, anti-anxiety medications, mood stabilizers, or sleep medications] you noted in the last question?").

New dichotomous variables were created to determine past and current medication use, campus mental health services use, non-campus mental health services use, and current use of counseling. A variable was computed from the new variables to determine any use of mental health service from the HMS. The number of Asian American or white students who utilized mental health services was expressed as a percentage of all Asian American or white students responding to the HMS to determine utilization rate. Chi Square tests were performed to determine significant differences between the two populations.

Intention to Utilize Mental Health Services. Intention to utilize mental health services was determined from response to the intent-to-use item "If in the future you were having a personal problem that was really bothering you, would you consider seeking help from a mental health professional" on the ACHA-NCHA. Percentages expressed the number of students intending to use mental health services in the future over all students responded. Only the ACHA-NCHA included an intention item.

Research Question 3. Students' perceptions were assessed using the Diffusion of Innovations constructs of Felt Needs, Previous Practice, Social Norms, and the Persuasion variables (Relative Advantage, Compatibility, Complexity, and Observability). Chi Squares, ANOVA tests, and descriptive statistics were performed to assess differences in knowledge and perceptions between Asian American and white students.

Knowledge about Mental Health Services. Knowledge about mental health services was determined by responses to the ACHA-NCHA item, "Have you received information on the following topics" and the custom item "Are you aware of the

following services offered through Health Education and Promotion?" Mental health-related items, such as depression, eating disorders, suicide prevention, and others, were summed to create a knowledge score with possible range of 0 to 8 indicating any knowledge about mental health services. Other information, such as injury prevention, nutrition, and others, were summed on a possible range of 0 to 11. ANOVA tests were performed to determine significant mean differences between Asian American and white students in knowledge. Similar items were calculated for desired information and tested for mean significant difference between the two populations.

On the HMS, the knowledge question, "if you need to seek professional help for your mental or emotional health while attending Emory University, you would know where to go", uses a Likert-type scale from "strongly agree" to "strongly disagree". A variable was computed from responses of "agree" and "strongly agree" to determine any knowledge about mental health services. Knowledge about insurance coverage of mental health services were calculated from responses of "yes, it definitely would", and "no it definitely would not". Overall knowledge score was summed from knowledge of mental health services and insurance coverage. Chi Square tests and percentages were presented to determine knowledge about mental health services among the populations.

Felt Needs. The ACHA-NCHA items that assessed felt needs were "how would you describe your general health?"; "within the last 12 months, have any of the following affected your academic performance"; and "within the last 12 months, how would you rate the overall level of stress you have experienced," scored on a Likert-type scale from "no stress" to "tremendous stress." Any response that indicated that the student was feeling less than ideal, that his/her academic performance has been affected, having or

more than average amount of stress was be coded as having felt need. Each category was summed and dichotomized. These categories, which were computed from problems, stress, health, and performance affected, were summed and coded into a felt need variable, as "no need felt", "little needs felt", some needs felt", "a lot of needs felt", and "overwhelming needs to function".

The HMS items for felt needs were "in the past 12 months, did you think you needed help for emotional or mental problems, such as feeling sad, blue, anxious, or nervous" and two response statements for the question "in the past 12 months, which of the following explain why you have not received medication or therapy for your mental or emotional health." The statements are "I have not any need for mental health services" and "I haven't had the chance to go but I plan to." The responses that the student believed help was needed, and plan to seek help were coded dichotomously as having felt needs per category; and would talk to no one was coded as no felt need. An overall needs felt score was calculated by subtracting the no felt need item from a summed of the felt need items.

Previous Practice. The ACHA-NCHA did not have measures on previous practices for mental health. The HMS measured previous practices of seeking counseling or support from a roommate, friend, family member, religious counselor, support group, and other non-clinical source. The question "in the past 12 months, have you received counseling or support for your mental or emotional health from…" was reported dichotomously. Percentages were reported to determine the source most used previously. Any yes to the options was reported as having previous practice for mental health that is

not professional mental health services. A sum of the six sources of non-clinical source was calculated and dichotomized for having previous practice.

Social Norms. The ACHA-NCHA provided no social norms measures for mental health items. The HMS measures of discrimination, public and personal stigma and institutional support for mental health issues provided social norms and stigma information. The public stigma and personal stigma statements were rated on a 6-point scale from strongly agree to strongly disagree. The public statements include "most people would willingly accept someone who has received mental health treatment as a close friend"; "most people feel that receiving mental health treatment is a sign of personal failure"; "most people think less of a person who has received mental health treatment". The personal stigma statements were similar with "I" in place of "most people". Acceptance of someone receiving mental health treatment items were reverse coded. ANOVA tests were performed to determine significant differences in the stigma items between Asian American and white students.

Relative Advantage. The ACHA-NCHA had no measure for relative advantage. The HMS measures for relative advantage included seeking emotional support from other sources and the rating of such sources. The questions "if you were experiencing serious emotional distress, whom would you talk to about this" and "if you had a mental health problem that you believed was affecting your academic performance, which people at school would you talk to" provided information on the source of help (roommate, friend, family member, religious, support, other non-clinical sources) that a student would seek. In addition, the "I get a lot of support from other sources, such as family and friends" to the question "in the past 12 months, which of the following explain why you have not

received medication or therapy for your mental or emotional health" provided a preference to the source of help to mental health services. An ordinal 5-point scale from "strongly disagree" to "strongly agree" provided a score for the items "I get the emotional help and support I need from my family" and "my friends really try to help me." These items measured the perceived advantage of the previous practices for mental health support.

For measures of the perceived advantage of the innovation (mental health services), the following questions were included: "how helpful on average do you think therapy or counseling is, when provided competently for people your age who are clinically depressed" and "how helpful on average do you think medication is, when provided competently, for people your age who are clinically depressed." These items were rated on a 4-point scale from "very helpful" to "not at all helpful," and measured the effectiveness of mental health services. The following reasons for not receiving mental health services were included: "I prefer to deal with issues on my own"; "I question the quality of my options"; "I question whether medication or therapy is helpful"; "I have had a bad experience with medication and/or therapy"; and "the problem will get better by itself." These items measured the ineffectiveness of mental health services.

The points for each of the dichotomous items are zero for no and one for yes. The ordinal scales were reverse coded to start with zero for the "not at all helpful" or "strongly disagree" options. These items were coded into a summed score for the advantage of other/ alternative practices, and ineffectiveness and effectiveness of mental health services. Each of the scores was prorated onto a scale of ten. The overall effectiveness of mental health services was calculated by subtracting ineffectiveness

score from effectiveness score of mental health services. Relative advantage of mental health services compared to alternative support was calculated by subtracting alternative support from mental health service effectiveness. A negative score indicates that mental health service was perceived as less compared to alternative practices; and a positive score indicated that mental health service was perceived as relatively better than alternative practices. This relative advantage code provided both the magnitude and the direction of the preferences of the practices. ANOVA tests were performed to assess significant differences in the practices between Asian American and white students.

Compatibility. The ACHA-NCHA provided no measure of compatibility of mental health services for students. The HMS responses to the question "in the past 12 months, which of the following explain why you have not received medication or therapy for your mental or emotional health" provided information on students' perception that the innovation did not fit their beliefs, culture, or needs. These items were "people providing services aren't sensitive enough to cultural issues"; "people providing services aren't sensitive enough to sexual identity issues"; "I have a hard time communicating in English"; "I question the quality of my options"; "I don't think anyone can understand my problems"; "I question how serious my needs are", and "the problem will get better by itself". These items were scored from the dichotomous options of yes as one and no as zero. Lower scores indicated the better compatibility as perceived by Asian American students.

Complexity. The ACHA-NCHA provided no measure of complexity of mental health services. These constructs were assessed by the student's perception of the characteristics of mental health services on the HMS. Complexity included the items

regarding the inconvenience of the services from the following question: “in the past 12 months, which of the following explain why you have not received medication or therapy for your mental or emotional health?” The following inconveniences of mental health services constituted complexity for utilization: “the location is inconvenient”; “the hours are inconvenient”; “the number of sessions is too limited”; and “the waiting time until I can get an appointment is too long.” These items were scored from the dichotomous options of yes as one and no as zero.

In addition, complexity included concerns that mental health services may pose threats. Items that addressed students’ concerns were included: “there are financial reasons (too expensive, no insurance)”; “I am concern about privacy”; “I worry about what others will think of me”; “I worry that my actions will be documented on my academic record”; “I worry that my actions will be documented on my medical record”; “I worry that someone will notify my parents”; and “I fear being hospitalized.” These items were scored from the dichotomous options of yes as one and no as zero. Higher scores indicated greater complexity perceived by Asian American students. Chi Squares tests and percentages were presented to determine the differences between Asian American and white students.

Observability. The ACHA-NCHA provided no measures of observability. The HMS provided this information with the question “as far as you know how many of your close friends or family have ever sought professional help for an emotional or mental health problem?” From the 3-point scale from “none” to “3 or more” with a “don’t know” option, “none” and “don’t know” were coded as no observability, and exposure to any who have sought professional help was coded as observable.

Demographics. Demographic characteristics that were used included age, gender, ethnicity, and health insurance from the ACHA-NCHA. Age, gender, race/ethnicity, and student class status were the demographic characteristics used from the HMS. These demographic characteristics assessed significant differences among different groups.

Analysis

PASW SPSS version 18 (SPSS Inc., Chicago, IL) was used for data analysis. Descriptive statistics informed about missing data and using cross tabulation, implausible data were identified. Descriptive statistics were used to describe the study population. Chi Squares were performed to determine significant differences between Asian American and white students. ANOVA tests were performed to determine mean differences between the groups.

Research questions 1 through 3 were analyzed using descriptive statistics, Chi Squares, and ANOVA tests. Proportions stratified by race described mental health status, utilization rate, intention to use mental health services, knowledge, and perceptions. Means by race were used to describe emotions, knowledge, stigma, perceptions of mental health services (e.g., satisfaction, relative advantage) The Social Norm items were tested for internal consistency (Cronbach's alpha = .953) and factored into one scale. The significance level for each analysis was set at alpha=0.05.

Research question 4 was analyzed using logistic regression. The dependent variable was past utilization of mental health services. Odds ratios (OR) were reported for the logistic regression model. The independent variables included demographics; the prior conditions of felt needs, previous practice, and social norms; knowledge; and

perceptions of relative advantage, compatibility, complexity, and observability. Felt needs, previous practices, social norms (public and personal stigma and acceptance) knowledge, compatibility, complexity, and observability were nominal variables and some with ordinal characters. Relative advantage had scores ranging from negative (-20) to positive (10).

Results

Demographics. As shown in Table 3, the majority of the white and Asian American participants in the ACHA-NCHA were female (68.5%, n=572 and 69.7%, n=99, respectively). Asian American and white students were similar with respect to sexual orientation and enrollment status. About 4% of the Asian American students were other than heterosexual; 1.4% (n=2) were homosexual, 1.4% (n=2) were bisexual, and 0.7% (n=1) were unsure. About 4% of the Asian American respondents were part-time students. There was a significant difference ($\chi^2 = 57.443$, p=0.00) in the class year between Asian American and white students who responded to the ACHA-NCHA. More than two thirds of the Asian American respondents were undergraduate students whereas only 40% of the white respondents were undergraduates. The two samples also differed by relationship status. Significantly more white respondents were married (21.0%, n=175) compared to Asian American respondents (9.2%, n=13). A significantly higher percentage of the Asian American students were reliant on their parent's health care plan (52.8%, n=75), whereas only 41.8% (n=235) white students were on their parent's plan and an even greater proportion (42.5%, n=362) were on the university plan. Almost two-

thirds of the white students (62.5%, n = 522) had a GPA of A, compared to fewer than half (48.6%, n = 69) of the Asian American students.

Table 3. Study Demographics of the ACHA-NCHA

	White		Asian		χ2	P-value
Gender	**833**	**99.8%**	**141**	99.3%	**0.134**	**n.s.**
Female	572	68.5%	99	69.7%		
Male	261	31.3%	42	29.6%		
Sexual Orientation	**829**	99.3%	**142**	100.0%	**3.286**	**n.s.**
Heterosexual	765	91.6%	137	96.5%		
Gay/Lesbian	23	2.8%	2	1.4%		
Bisexual	30	3.6%	2	1.4%		
Other Orientation or Unsure	64	6.7%	1	0.7%		
Year in School	**829**	**99.3%**	**140**	**98.6%**	**57.443**	**0.000**
1st year undergraduate	116	13.9%	34	23.9%		
2nd year undergraduate	58	6.9%	28	19.7%		
3rd year undergraduate	76	9.1%	20	14.1%		
4th year undergraduate	74	8.9%	15	10.6%		
Graduate/Professional	491	58.8%	42	29.6%		
Other	14	1.7%	1	0.7%		
Enrollment Status	**834**	**99.9%**	**142**	**100.0%**	**1.167**	**n.s.**
Full-Time	787	94.3%	136	95.8%		
Part-Time	47	5.6%	6	4.2%		
Relationship Status	**831**	**99.5%**	**142**	**100.0%**	**21.423**	**0.000**
Not in a relationship	368	44.1%	80	56.3%		
In rel'p, not living together	229	27.4%	48	33.8%		
In rel'p, living together	234	28.0%	14	9.9%		
Marital Status	**833**	**99.8%**	**141**	**99.3%**	**13.046**	**0.011**
Single	639	76.5%	129	90.8%		
Married / Partnered	175	21.0%	13	9.2%		
Other	19	2.3%	2	1.4%		
Primary Source of Health Insurance	**834**	**99.9%**	**142**	**100.0%**	**12.427**	**0.014**
University Plan	355	42.5%	50	35.2%		
Parent's Plan	349	41.8%	75	52.8%		
Other Plan, No Plan, Unsure	130	15.5%	17	12.0%		
Approximate GPA	**834**	**99.9%**	**142**	**100.0%**	**11.436**	**0.010**
A	522	62.5%	69	48.6%		
B	223	26.7%	56	39.4%		
Other or N/A	89	10.7%	17	12.0%		

The HMS sample was more evenly distributed by gender than the ACHA-NCHA sample. The HMS sample consisted of about 54% female students and 46% male students for each subgroup of Asian American and white students. The only significant demographic difference for the HMS sample was class year. Similar to the difference for the ACHA-NCHA sample, significantly ($\chi2= 11.243$, $p=0.001$) more Asian Americans were undergraduate students (67.8%, n=145) compared to the whites (54.4%, n=287). Out of those who answered for sexual orientation, 3.8% of Asian American students and

6.7% of white students were other than heterosexual. Among those who reported relationship status, about 55% of the Asian students and 43% of the white students were single. Among those who reported their financial situation, only 16% of the white and 17% of the Asian American students reported that they were struggling financially. As for the family's financial situation growing up, the majority of both Asian American (54.07%) and white (55.8%) students reported that they grew up with a comfortable financial situation. Only a third of each group had health coverage through the university plan; the majority of each group was on their parent's plan (Table 4).

Table 4. Study Demographics of the HMS

	White	%	Asian	%	χ2	P-value
Gender	**528**		**214**		**0.011**	**n.s.**
Female	286	54.2%	115	53.7%		
Male	242	45.8%	99	46.3%		
Year in School	**528**		**214**		**11.243**	**0.001**
Undergraduate	287	54.4%	145	67.8%		
Graduate	241	45.6%	69	32.2%		
Sexual Orientation	**181**	**34.3%**	**54**	**25.2%**	**2.553**	**n.s.**
Heterosexual	169	93.4%	52	96.3%		
Gay/Lesbian	4	2.2%	0	0.0%		
Bisexual	7	3.9%	1	1.9%		
Other	1	0.6%	1	1.9%		
Relationship Status	**181**	**34.3%**	**51**	**23.8%**	**3.239**	**n.s.**
Single	77	42.5%	28	54.9%		
In a relationship	56	30.9%	14	27.5%		
Married or domestic partnership	45	24.9%	9	17.6%		
Divorced	3	1.7%	0	0.0%		
Current Financial Situation	**181**	**34.3%**	**53**	**24.8%**	**0.092**	**n.s.**
It's a financial struggle	28	15.5%	9	17.0%		
It's tight but I'm doing fine	106	58.6%	31	58.5%		
Finance aren't really a problem	47	26.0%	13	24.5%		
Family's Financial Situation Growing Up	**181**	**34.3%**	**53**	**24.8%**	**3.724**	**n.s.**
Very poor, not enough to get by	4	2.2%	2	3.8%		
Had enough to get by, but not many 'extras'	35	19.3%	15	28.3%		
Comfortable	101	55.8%	29	54.7%		
Well to do	41	22.7%	7	13.2%		
Primary Source of Health Insurance	**173**	**32.8%**	**48**	**22.4%**	**1.421**	**n.s.**
University Plan	58	33.5%	16	33.3%		
Parent's employer insurance	90	52.0%	25	52.1%		
Other, None, Unsure	25	14.5%	7	14.6%		

Research Question 1—What is the mental health status of Asian American students at Emory University?

Diagnoses A significant difference existed between Asian American and white students in the ACHA-NCHA sample for diagnosis or treatment of any mental illness in the past 12 months ($\chi 2$= 10.188; p = 0.001). Only half as many of the Asian American students (10.6%, n=15) had been diagnosed or treated for at least one type of mental illness in the past 12 months compared to white students (22.3%, n=186). White students (mean= 0.5054) had, on average, more diagnoses compared to Asian Americans (mean = 0.2958). ANOVA also showed this difference to approach significance ($F_{1,975}$ = 3.63, p = 0.057).

For both groups, the two most prevalent problems in the past 12 months were anxiety and depression (Table 5). White students were significantly more likely diagnosed with each of these conditions. Anxiety made up a greater proportion of the diagnoses or treatments in the past 12 months for Asian American students (66.7%, n = 10) than for white students (62.4%, n = 116). Conversely, depression, made up a smaller proportion of diagnoses or treatments in the past month for Asian American students (46.7%, n = 7) than for white students (59.7%, n=111).

About 8.5% (n = 12) of the Asian American students and 22% (n = 186) of the white students had ever had depression in their lifetime. Among those who reported ever having depression, 50% of Asian American students (n=6) and 55.9% of white students (n=104) had been diagnosed or treated in the past 12 months. This difference was not significant.

Other differences in diagnoses or treatments in the past 12 months included anorexia, insomnia, and panic. Asian American students (2.8%, n=4) were more likely to experience anorexia than white students (0.8%, n=7), a difference that was significant ($\chi 2 = 4.268$, $p = 0.039$). In contrast, white students approached ($0.05 < p < 0.10$) being more likely to experience both insomnia (4.8 %, n=40) and panic (4.7%, n=39) than Asian American students (1.4%, n=2 and 1.4%, n=2, respectively).

Table 5. Mental Health Diagnoses (ACHA-NCHA)

	White	%	Asian	%	χ2	P-value
Types of Mental Illness Diagnosed or Treated in last 12 months						
ADHD	28	3.4%	3	2.1%	0.608	n.s.
Anorexia	7	0.8%	4	2.8%	4.268	0.039
Anxiety	116	13.9%	10	7.0%	5.069	0.024
Bipolar Disorder	13	1.6%	2	1.4%	0.018	n.s.
Bulimia	5	0.6%	2	1.4%	1.118	n.s.
Depression*	111	13.3%	7	4.9%	7.995	0.005
Insomnia	40	4.8%	2	1.4%	3.374	0.066
OCD	17	2.0%	2	1.4%	0.251	n.s.
Other Addiction	1	0.1%	1	0.7%	2.029	n.s.
Other Mental Illness	17	2.0%	2	1.4%	0.251	n.s.
Other Sleep Problems	14	1.7%	1	0.7%	0.991	n.s.
Panic	39	4.7%	2	1.4%	3.212	0.073
Phobia	8	1.0%	1	0.7%	0.086	n.s.
Schizophrenia	0	0.0%	1	0.7%	5.886	n.s.
Sleep	14	1.7%	1	0.7%	0.759	n.s.
Substance Abuse	6	0.7%	2	1.4%	0.711	n.s.
Ever Had Depression	**186**	**22.3%**	**12**	**8.5%**	**13.816**	**0.000**
Diagnosed in last 12 months	104	55.9%	6	50.0%	.160	n.s.
Diagnosed at other time	82	44.1%	6	50.0%		

Reports of mental illness diagnoses were much lower in the HMS study. According to the HMS study, 0.9 % of the Asian American students and 10.2% of the white students reported ever having any mental illness diagnosis (Table 6). This is in comparison to 10.6% of Asian American students and 22.3% of white students being diagnosed or treated for mental illness in the past 12 months according to the ACHA-NCHA. As with the ACHA-NCHA, the mean number of mental illness diagnoses reported on the HMS significantly differed between Asian American (mean = 0.024) and white (mean = 0.177) students ($F_{1,739} = 13.137$, $p = 0.000$).

Table 6. Mental Health Diagnoses (HMS)

	White	%	Asian	%	χ2	P-value
Ever Have Any Mental Illness Diagnosis	54	10.2%	2	0.9%	18.787	0.000
No, none of these	118	22.3%	45	21.0%	0.141	n.s.
Don't Know	1	0.2%	1	0.5%		
Depression or other mood disorder*	34	6.4%	2	0.9%	9.960	0.002
Anxiety	32	6.1%	1	0.5%	11.176	0.001
Attention disorder or learning disability	13	2.5%	0	0.0%	5.348	0.021
Eating Disorder	9	1.7%	1	0.5%		
Psychosis	0	0.0%	0	0.0%		
Personality Disorder	1	0.2%	0	0.0%		
Substance Abuse Disorder	4	0.8%	1	0.5%		

As in the ACHA-NCHA sample, there were significant differences between Asian Americans and whites for anxiety and depression, but the differences were much greater; anxiety was only 0.5% prevalent and depression was only 0.9% prevalent among the HMS Asian American students. According to the HMS (Table 6), there was also a difference in attention disorder/ learning disabilities between the two populations ($\chi 2 = 5.348$, $p = 0.021$). While 2.5% of the white students has ever been diagnosed with these difficulties, none (0.0%) of the Asian American students had.

Out of those who reported any mental health related issues in the last 4 weeks on the HMS, 8.0% of Asian American students (n = 4) and 15.3% of white students (n = 27) had an anxiety attack in the last four weeks. With regard to other specific symptoms of anxiety, the majority of each group had issues with anxiety or nervousness, tiredness, muscle tension or aches, sleeping problems, and irritability in the last four weeks for at least several days and to most more than half the days (Table 7). Muscle tension or aches affected a greater proportion of Asian American students (75.8%) than white students (55.0%). Chi Square showed this difference to be significant ($\chi 2 = 6.142$, $p = 0.046$).

Table 7. Mental Health in Last 4 Weeks (HMS)

	White	%	Asian	%	χ2	P-value
Anxiety Attack	**27**	**15.3%**	**4**	**8.0%**	**1.773**	**n.s.**
Bothered by nervous, anxious, on edge, or worrying	**176**	**33.3%**	**49**	**22.9%**	**4.621**	**n.s.**
Not at all	34	19.3%	16	32.7%		
Several Days	106	60.2%	27	55.1%		
More than half the days	36	20.5%	6	12.2%		
Feeling restless so hard to sit still	**140**	**26.5%**	**33**	**15.4%**	**2.828**	**n.s.**
Not at all	98	70.0%	19	57.6%		
Several Days	37	26.4%	11	33.3%		
More than half the days	5	3.6%	3	9.1%		
Getting tired every easily	**139**	**26.3%**	**33**	**15.4%**	**1.919**	**n.s.**
Not at all	49	35.3%	9	27.3%		
Several Days	66	47.5%	15	45.5%		
More than half the days	24	17.3%	9	27.3%		
Muscle tension, aches, or soreness	**140**	**26.5%**	**33**	**15.4%**	**6.142**	**0.046**
Not at all	63	45.0%	8	24.2%		
Several Days	53	37.9%	20	60.6%		
More than half the days	24	17.1%	5	15.2%		
Trouble falling asleep or staying asleep	**138**	**26.1%**	**33**	**15.4%**	**0.497**	**n.s.**
Not at all	46	33.3%	13	39.4%		
Several Days	67	48.6%	13	39.4%		
More than half the days	25	18.1%	7	21.2%		
Trouble concentrating on things	**140**	**26.5%**	**33**	**15.4%**	**2.946**	**n.s.**
Not at all	73	52.1%	17	51.5%		
Several Days	55	39.3%	10	30.3%		
More than half the days	12	8.6%	6	18.2%		
Becoming easily annoyed or irritable	**139**	**26.3%**	**33**	**15.4%**	**1.67**	**n.s.**
Not at all	50	36.0%	8	24.2%		
Several Days	69	49.6%	19	57.6%		
More than half the days	20	14.4%	6	18.2%		

Suicide Risk. According to the ACHA-NCHA, 12% of each group of students ever intentionally hurt themselves (Table 8). The recency did not differ statistically. About 16% of each group of students in the ACHA-NCHA had ever seriously thought about committing suicide. Once again, the recency did not differ statistically. About 4% of the Asian American students and 5% of the white students had ever attempted suicide. Out of those who ever considered suicide, 31% of white and 23% of Asian American students ever actually attempted suicide. For both groups, those who seriously considered committing suicide were likely to attempt suicide.

Table 8. Suicide Risk Ever (ACHA-NCHA)

	White	%	Asian	%	χ2	P-value
Intentionally Hurt Yourself Ever	**100**	**12.0%**	**17**	**12.0%**	**0.000**	**n.s.**
Last 2 Weeks	5	5.0%	3	17.6%	5.560	n.s.
Last 30 days	3	3.0%	1	5.9%		
Last 12 months	15	15.0%	4	23.5%		
Seriously think about committing suicide Ever	**137**	**16.4%**	**22**	**15.5%**	**0.047**	**n.s.**
Last 2 Weeks	5	3.6%	2	9.1%	2.299	n.s.
Last 30 days	4	2.9%	0	0.0%		
Last 12 months	30	21.9%	6	27.3%		
Attempted Suicide	43	31.4%	5	22.7%	0.674	n.s.
Attempted Suicide	**43**	**5.1%**	**5**	**3.5%**	**0.672**	**n.s.**
Last 2 Weeks	0	0.0%	1	20.0%	11.792	0.019
Last 30 days	1	2.3%	0	0.0%		
Last 12 months	3	7.0%	2	40.0%		

The suicide risk reported was lower on the HMS than ACHA-NCHA; about 2% of each student group had seriously thought about committing suicide in the past year (Table 9). Of those who seriously considered suicide, three (50%) white students (50%) had made plans for committing suicide, and one (16.7%) had made an attempt. Among Asian American students who seriously thought about suicide, none (0.0%) had made plans, and one (100%) had attempted suicide in the past year.

Table 9. Suicide Risk in Past Year (HMS)

	White	%	Asian	%
Seriously think about committing suicide*	**174**	**33.0%**	**49**	**22.9%**
No	168	3.4%	48	2.0%
Yes	6	1.7%	1	2.04%
Made a plan for committing suicide	3	50.0%	0	0.0%
Attempted suicide	1	16.7%	0	0.0%
Attempted Suicide*	**6**	**1.1%**	**1**	**0.5%**
No	5	0.9%	1	0.5%
Yes	1	0.2%	0	0.0%

*No significant difference according to Chi Square test

About four percent of each student group from HMS had intentionally hurt themselves in the past year. Three Asian American students (1.4%) and ten white students (1.9%) and had used more than one method of self-injury. Of those who intentionally hurt themselves, the most common methods did not significantly differ between Asian American and white students. The majority of the Asian students had hurt themselves once or twice in the past year, while this was true of less than half of the

white students. Among those who had self-injured, the greatest frequency of self-injury was one time in the past year (Table 10).

Table 10. Intentional Self Injuries in Past Year (HMS)

	White	%	Asian	%
Ever Intentionally Hurt Yourself*	23	4.4%	8	3.7%
Ways used to hurt yourself on purpose, without intending to kill self*				
No, none of these	147	27.8%	40	18.7%
Cut Self	3	13.0%	2	25.0%
Burn Myself	0	0.0%	1	12.5%
Punch or Bang Myself	6	26.1%	3	37.5%
Scratched Myself	4	17.4%	1	12.5%
Pulled my hair	8	34.8%	2	25.0%
Bit myself	4	17.4%	2	25.0%
Interfered with healing wounds	6	26.1%	0	0.0%
Carved words or symbols into skin	2	8.7%	0	0.0%
Rubbed sharp objects into skin	1	4.3%	1	12.5%
Punched or Banged an object to hurt myself	4	17.4%	5	62.5%
Other	2	8.7%	0	0.0%
Frequency of hurting yourself on purpose, without intending to kill yourself*				
Once or Twice	11	47.8%	6	75.0%
Once a month or less	10	43.5%	1	12.5%
2 or 3 times a month	0	0.0%	1	12.5%
Nearly every day or every day	2	8.7%	0	0.0%
Frequency of Self Injuries*				
1	7	30.4%	5	62.5%
2	6	26.1%	1	12.5%
3	2	8.7%	0	0.0%
4	3	13.0%	1	12.5%
6	4	17.4%	0	0.0%
10	1	4.3%	0	0.0%
24	0	0.0%	1	12.5%

*No significant difference according to Chi Square test

Emotional Well-Being. According to the ACHA-NCHA, 96% of the white students and 89% of Asian American students had ever felt any negative emotions. There was a significant difference ($\chi 2 = 11.305$, $p=0.001$) between the groups. The number of negative emotions acknowledged differed, as well. The mean number of negative emotions acknowledged by Asian American students was 4.72, compared to 4.36 for white students. More Asian American students (20.4%) acknowledged all eight negative emotions assessed than did white students (12%), and this difference was significant ($\chi 2 = 31.768$, $p=0.000$). Higher percentages of Asian American students had ever felt hopeless, lonely, sad, depressed, anxious, and angry compared to white students (Table 11). Fewer

Asian American students reported having ever felt overwhelmed or exhausted, although these were the most common negative emotions felt by both white and Asian American students.

Table 11. Negative Emotions Ever (ACHA-NCHA)

	White		Asian		χ2	P-value
Felt things were hopeless	**308**	**36.9%**	**72**	**50.7%**	**9.992**	**0.002**
In last 12 months	173	56.2%	24	33.3%	26.994	0.000
In last 30 days	46	14.9%	14	19.4%		
In last 2 weeks	89	28.9%	37	51.4%		
Felt overwhelmed by all you had to do	**762**	**91.3%**	**117**	**82.4%**	**9.560**	**0.002**
In last 12 months	166	21.8%	18	15.4%	14.663	0.005
In last 30 days	145	19.0%	22	18.8%		
In last 2 weeks	451	59.2%	77	65.8%		
Felt exhausted (not from physical activity)	**729**	**87.3%**	**116**	**81.7%**	**2.393**	**n.s.**
In last 12 months	155	21.3%	20	17.2%	3.701	n.s.
In last 30 days	153	21.0%	23	19.8%		
In last 2 weeks	421	57.8%	73	62.9%		
Felt very lonely	**478**	**57.2%**	**94**	**66.2%**	**4.226**	**0.040**
In last 12 months	184	38.5%	27	28.7%	12.927	0.012
In last 30 days	131	27.4%	25	26.6%		
In last 2 weeks	163	34.1%	42	44.7%		
Felt very sad	**488**	**58.4%**	**88**	**62.0%**	**1.006**	**n.s.**
In last 12 months	211	43.2%	23	26.1%	14.971	0.005
In last 30 days	107	21.9%	21	23.9%		
In last 2 weeks	170	34.8%	44	50.0%		
Felt so depressed that it was difficult to function	**216**	**25.9%**	**44**	**31.0%**	**1.715**	**n.s.**
In last 12 months	129	59.7%	12	27.3%	22.299	0.000
In last 30 days	36	16.7%	11	25.0%		
In last 2 weeks	51	23.6%	21	47.7%		
Felt overwhelming anxiety	**400**	**47.9%**	**73**	**51.4%**	**0.793**	**n.s.**
In last 12 months	190	47.5%	23	31.5%	12.586	0.013
In last 30 days	87	21.8%	14	19.2%		
In last 2 weeks	123	30.8%	36	49.3%		
Felt overwhelming anger	**246**	**29.5%**	**58**	**40.8%**	**7.844**	**0.005**
In last 12 months	136	55.3%	25	43.1%	11.954	0.018
In last 30 days	54	22.0%	16	27.6%		
In last 2 weeks	56	22.8%	17	29.3%		

On the HMS, significantly less Asian American students felt happy, interested in life, satisfied, that they contributed to society, belonged to a community, and that own life had a sense of direction compared to white students, and Asian American students felt these less often, as well (Table 12). Significantly less Asian American students also felt that "society is becoming a better place for people," that "people are basically good," that "the way society works make sense," and that "I'm good at managing responsibilities of

daily life" than white students, but there was no significant trend in frequency. The remaining emotions were significantly more often felt; a significant ordinal trend was observed for "my life has a sense of direction and meaning" and that "you have experiences that challenge you to grow and become better person." Overall, Asian American students had significantly less of the positive emotions assessed than white students did.

Table 12. Positive Emotions In Past Month (HMS)

	White	%	Asian	%	χ2	P-value
Happy	**172**	**32.6%**	**42**	**19.6%**	**12.443**	**0.000**
Once or Twice	2	1.2%	5	11.9%	15.359	0.004
Once a Week	6	3.5%	4	9.5%		
Once or Twice a Week	33	19.2%	12	28.6%		
Almost Everyday	86	50.0%	22	52.4%		
Everyday	53	30.8%	8	19.0%		
Interested in life	**174**	**33.0%**	**43**	**20.1%**	**12.173**	**0.000**
Once or Twice	0	0.0%	3	7.0%	20.605	0.000
Once a Week	6	3.4%	5	11.6%		
Once or Twice a Week	23	13.2%	12	27.9%		
Almost Everyday	73	42.0%	18	41.9%		
Everyday	78	44.8%	13	30.2%		
Satisfied	**161**	**30.5%**	**34**	**15.9%**	**16.765**	**0.000**
Never	1	0.6%	3	8.8%	21.694	0.001
Once or Twice	3	1.9%	6	17.6%		
Once a Week	15	9.3%	8	23.5%		
Once or Twice a Week	43	26.7%	10	29.4%		
Almost Everyday	78	48.4%	15	44.1%		
Everyday	40	24.8%	9	26.5%		
That you had something important to contribute to society	**145**	**27.5%**	**29**	**13.6%**	**16.415**	**0.000**
Never	4	2.8%	6	20.7%	18.422	0.002
Once or Twice	11	7.6%	8	27.6%		
Once a Week	20	13.8%	7	24.1%		
Once or Twice a Week	38	26.2%	12	41.4%		
Almost Everyday	73	50.3%	11	37.9%		
Everyday	34	23.4%	6	20.7%		
That you belonged to a community	**137**	**25.9%**	**31**	**14.5%**	**11.420**	**0.001**
Never	0	0.0%	2	6.5%	11.705	0.039
Once or Twice	14	10.2%	6	19.4%		
Once a Week	29	21.2%	11	35.5%		
Once or Twice a Week	25	18.2%	9	29.0%		
Almost Everyday	59	43.1%	13	41.9%		
Everyday	53	38.7%	9	29.0%		
That our society is becoming a better place for people	**90**	**17.0%**	**19**	**8.9%**	**8.105**	**0.004**
Never	19	21.1%	11	57.9%	8.702	n.s.
Once or Twice	27	30.0%	12	63.2%		
Once a Week	42	46.7%	7	36.8%		
Once or Twice a Week	44	48.9%	9	47.4%		
Almost Everyday	35	38.9%	8	42.1%		
Everyday	11	12.2%	2	10.5%		

Table 12. Positive Emotions In Past Month (HMS) Cont'd

	White	%	Asian	%	χ2	P-value
That people are basically good	**132**	**25.0%**	**29**	**13.6%**	**11.748**	**0.000**
Never	10	7.6%	4	13.8%	10.418	n.s.
Once or Twice	13	9.8%	11	37.9%		
Once a Week	24	18.2%	5	17.2%		
Once or Twice a Week	37	28.0%	9	31.0%		
Almost Everyday	65	49.2%	14	48.3%		
Everyday	30	22.7%	6	20.7%		
That the way our society works makes sense	**111**	**21.0%**	**24**	**11.2%**	**9.842**	**0.002**
Never	17	15.3%	6	25.0%	6.410	n.s.
Once or Twice	23	20.7%	13	54.2%		
Once a Week	29	26.1%	7	29.2%		
Once or Twice a Week	47	42.3%	12	50.0%		
Almost Everyday	41	36.9%	8	33.3%		
Everyday	23	20.7%	4	16.7%		
That you liked most parts of your personality	**153**	**29.0%**	**34**	**15.9%**	**13.841**	**0.000**
Never	0	0.0%	1	2.9%	12.005	0.035
Once or Twice	8	5.2%	5	14.7%		
Once a Week	17	11.1%	9	26.5%		
Once or Twice a Week	23	15.0%	8	23.5%		
Almost Everyday	85	55.6%	14	41.2%		
Everyday	45	29.4%	12	35.3%		
That you're good at managing the responsibilities of your daily life	**150**	**28.4%**	**37**	**17.3%**	**9.988**	**0.002**
Never	4	2.7%	2	5.4%	5.997	n.s.
Once or Twice	7	4.7%	6	16.2%		
Once a Week	16	10.7%	5	13.5%		
Once or Twice a Week	42	28.0%	10	27.0%		
Almost Everyday	76	50.7%	21	56.8%		
Everyday	32	21.3%	6	16.2%		
That you have warm and trusting relationships with others	**160**	**30.3%**	**36**	**16.8%**	**14.237**	**0.000**
Once or Twice	**7**	4.4%	10	27.8%	15.429	0.004
Once a Week	11	6.9%	4	11.1%		
Once or Twice a Week	30	18.8%	7	19.4%		
Almost Everyday	69	43.1%	17	47.2%		
Everyday	61	38.1%	12	33.3%		
That you have experiences that challenge you to grow and become a better person	**162**	**30.7%**	**40**	**18.7%**	**11.050**	**0.001**
Never	1	0.6%	1	2.5%	7.636	n.s.
Once or Twice	4	2.5%	5	12.5%		
Once a Week	11	6.8%	4	10.0%		
Once or Twice a Week	34	21.0%	9	22.5%		
Almost Everyday	62	38.3%	15	37.5%		
Everyday	66	40.7%	16	40.0%		
Confident to think or express your own ideas and opinions	**162**	**30.7%**	**40**	**18.7%**	**11.050**	**0.001**
Never	1	0.6%	2	5.0%	15.243	0.009
Once or Twice	2	1.2%	5	12.5%		
Once a Week	13	8.0%	3	7.5%		
Once or Twice a Week	31	19.1%	7	17.5%		
Almost Everyday	66	40.7%	20	50.0%		
Everyday	65	40.1%	13	32.5%		
That your life has a sense of direction / meaning	**150**	**28.4%**	**36**	**16.8%**	**10.884**	**0.001**
Never	1	0.7%	4	11.1%	11.803	0.038
Once or Twice	14	9.3%	4	11.1%		
Once a Week	13	8.7%	6	16.7%		
Once or Twice a Week	33	22.0%	9	25.0%		
Almost Everyday	53	35.3%	13	36.1%		
Everyday	64	42.7%	14	38.9%		

With respect to negative feelings in the past month, almost three times more Asian American students had trouble falling or staying asleep than white students did (Table 13). In contrast, less Asian American students than white students felt down and tired or little energy. No other negative feelings differed significantly between the groups.

Table 13. Negative in Past Month (HMS)

	White		Asian		χ2	P-value
Little interest or pleasure in doing things	**84**	**15.9%**	**23**	**10.7%**	**3.287**	**n.s**
Several days	67	79.8%	17	73.9%		
More than half the days	13	15.5%	4	17.4%		
Nearly Everyday	4	4.8%	2	8.7%		
Feeling Down	**94**	**17.8%**	**24**	**11.2%**	**4.942**	**0.026**
Several days	79	84.0%	16	66.7%		
More than half the days	8	8.5%	4	16.7%		
Nearly Everyday	7	7.4%	4	16.7%		
Trouble Falling or staying asleep	**118**	**22.3%**	**139**	**65.0%**	**5.866**	**0.015**
Several days	68	57.6%	83	59.7%		
More than half the days	30	25.4%	40	28.8%		
Nearly Everyday	20	16.9%	16	11.5%		
Feeling tired or having little energy	**139**	**26.3%**	**39**	**18.2%**	**5.481**	**0.019**
Several days	86	61.9%	24	61.5%		
More than half the days	36	25.9%	7	17.9%		
Nearly Everyday	17	12.2%	8	20.5%		
Poor appetite or overeating	**82**	**15.5%**	**29**	**13.6%**	**0.469**	**n.s**
Several days	47	57.3%	20	69.0%		
More than half the days	23	28.0%	5	17.2%		
Nearly Everyday	12	14.6%	4	13.8%		
Feeling bad about yourself - you are a failure/ let your family down	**77**	**14.6%**	**26**	**12.1%**	**0.755**	**n.s**
Several days	54	70.1%	19	73.1%		
More than half the days	17	22.1%	3	11.5%		
Nearly Everyday	6	7.8%	4	15.4%		
Trouble concentrating on things	**71**	**13.4%**	**21**	**9.8%**	**1.851**	**n.s**
Several days	49	69.0%	14	66.7%		
More than half the days	18	25.4%	3	14.3%		
Nearly Everyday	4	5.6%	4	19.0%		
Moving or speaking so slowly that other people noticed	**24**	**4.5%**	**10**	**4.7%**	**0.006**	**n.s**
Several days	20	83.3%	6	60.0%		
More than half the days	3	12.5%	2	20.0%		
Nearly Everyday	1	4.2%	2	20.0%		
Thoughts that you would be better off dead or of hurting yourself	**12**	**2.3%**	**9**	**4.2%**	**2.069**	**n.s**
Several days	10	83.3%	8	88.9%		
More than half the days	2	16.7%	0	0.0%		
Nearly Everyday	0	0.0%	1	11.1%		
Any of the Above Problems is Difficult	**165**	**31.3%**	**44**	**20.6%**	**0.778**	**n.s**
Yes	12	7.3%	5	11.4%		
No	153	92.7%	39	88.6%		

Asian Americans had a significantly lower positive emotion mean (1.58) than whites (2.79). This difference was statistically significant ($F_{1, 741}$=15.096, p=0.000) Likewise, they had a significantly ($F_{1, 741}$=104.626, p=0.000) lower overall emotions mean (0.48) than whites (1.3103). There was no significant difference for the negative emotion mean (Asian Americans = 1.10, whites = 1.48).

Research Question 2—What is the utilization rate of mental health services by Asian American students at Emory University?

The percentage of Asian American in the ACHA-NCHA who had ever used mental health services (e.g., counselor, psychiatrist, medical provider, clergy, or university health counseling) was 26.1%. This was significantly lower than the percentage of white students (52.1%) in the ACHA-NCHA who used these services (Table 14). Out of those who had used a mental health service before, the greatest proportion of both subgroups used a counselor/psychologist. The second most used service for Asian American students was university health/counseling, compared to psychiatrists for white students. More Asian American students (27%) used clergy as a mental health service than white students (17%) did. Out of those who had ever used a mental health service, 39% (20% of study population) of the white students and 35% (9% of study population) of the Asian American students had treatment in the past 12 months. Significantly, more white students who had treatment in the past 12 months had medications only as treatment as compared to Asian American students. In contrast, more Asian American students (53.8%) used psychotherapy in the past 12 months than white students (24.4%). With regard to the future, significantly less Asian American students

(64.1%) than white students (84.1%) would consider seeking help from a mental health professional in the future for emotional/mental health.

Table 14. Mental Health Services Use (ACHA-NCHA)

	White	%	Asian	%	χ2	P-value
Ever use a mental health service	**435**	**52.1%**	**37**	**26.1%**	**32.920**	**0.000**
Counselor / Psychologist	384	88.3%	25	67.6%	12.62	0.000
Psychiatrist	181	41.6%	10	27.0%	0.6459	n.s.
Other medical provider	112	25.7%	8	21.6%	0.014	n.s.
Clergy	75	17.2%	10	27.0%	2.207	n.s.
University Health / Counseling	153	38.6%	13	35.1%	0.126	n.s.
Treatment in past 12 months	**168**	**20.1%**	**13**	**9.2%**	0.008	n.s.
Out of those ever used MH service		38.6%		35.1%		
Medication	89	53.0%	4	30.8%		
Psychotherapy	41	24.4%	7	53.8%		
Both Medication and Psychotherapy	61	36.3%	4	30.8%		
Other	4	2.4%	2	15.4%		
Consider seeking help from Mental health professional in future	**702**	**84.1%**	**91**	**64.1%**	**31.68**	**0.000**

About 34% of white students had ever used more than one mental health service compared to about 11% of Asian American students. The mean number of mental health services was significantly less for Asian American students (0.4648) compared to white students (1.0838). This difference was significant ($F_{1,975} = 30.001$, $p = 0.000$).

As shown in Table 15, there was no significant difference in the proportion of Asian American and white students who used a campus health/counseling center. However, Asian American students reported being more dissatisfied with the services than white students did (mean satisfaction 2.86 vs. 3.73). This mean difference was significant ($F_{1,132} = 5.381$, $p = 0.039$).

Table 15.Campus Mental Health Services Use (ACHA-NCHA)

	White	%	Asian	%	χ2	P-value
Ever use campus counseling center	**120**	**14.4%**	**14**	**9.9%**	**14.17**	**0.000**
Very Dissatisfied	9	7.5%	2	14.3%		
Somewhat Dissatisfied	20	16.7%	3	21.4%		
Neither	14	11.7%	5	35.7%		
Somewhat Satisfied	29	24.2%	3	21.4%		
Very Satisfied	48	40.0%	1	7.1%		

As with diagnoses, the HMS yielded a lower percentage of mental health services use by both Asian American (3.3%) and white students (10.4%) than the ACHA-NCHA (26.1% and 52.1%, respectively). Chi Square test showed a significant difference between the races in mental health services use reported on the HMS (Table 16). More of Asian American students (80%) had less than six visits in the past 12 months compared to whites. No Asian American student was currently receiving therapy at the time of the HMS, compared to 9.2% (n=16) of white students. Out of those who had ever used any mental health services, Asian American students had only used provider in the community, provider in another location, the student counseling center, or the student health services, whereas whites had also tried inpatient psychiatric hospital and the psychology center.

Table 16. Mental Health Services Use (HMS)

	White	%	Asian	%	χ2	P-value
Ever Use Any Mental Health Services	**55**	**10.4%**	**7**	**3.3%**	**10.154**	**0.001**
Counseling or Therapy past 12 months	39	70.9%	5	71.4%	0.000	n.s.
Visits in past 12 months 1 to 3	12	30.8%	2	40.0%	8.055	n.s.
4 to 6	7	17.9%	2	40.0%		
7 to 9	5	12.8%	0	0.0%		
10 or more	15	38.5%	1	20.0%		
Currently Receiving Counseling or Therapy	16	29.1%	0	0.0%	1.833	n.s.
Any non-campus mental health services	22	40.0%	2	28.6%	0.090	n.s.
Psychiatric Emergency Service	0	0.0%	0	0.0%		
Inpatient psychiatric hospital	1	1.8%	0	0.0%		
Partial hospitalization program	0	0.0%	0	0.0%		
Provider in the community	12	21.8%	1	14.3%		
Provider in another location	8	14.5%	1	14.3%		
Other	2	3.6%	0	0.0%		
Campus Services	24	43.6%	3	42.9%	0.000	n.s.
Student counseling center	19	34.5%	3	42.9%		
Student Health Services	6	10.9%	1	14.3%		
Psychological Center	2	3.6%	0	0.0%		
Psychology Department	0	0.0%	0	0.0%		
Outpatient Psychotherapy Training Center	1	1.8%	0	0.0%	0.406	n.s.
Medications in past 12 months	37	67.3%	3	42.9%	0.2019	n.s.
Current Medications	37	67.3%	3	42.9%		
Any discussion about meds with other professional in past 12 months	29	78.4%	1	33.3%	2.928	n.s.
1 to 2 times	8	27.6%	1	100.0%		
3-5 times	15	51.7%	0	0.0%		
more than 5 times	6	20.7%	0	0.0%		

About 6% of Asian American students and 21% of white students who had ever used any mental health services were currently using medications. Significantly fewer Asian American students used medications or used them in the past 12 months than white students (Table 16). Only one of three (33%) Asian American students who used medication in the past 12 months reported having discussed their medication with any health professional; whereas 78% of white students had discussed with a health professional, and most had done so between three and five times.

Research Question 3— What are the knowledge and perceptions of Asian American students at Emory University about mental health services?

Knowledge. On the ACHA-NCHA, most students had received some type of health information. However, no students reported having received any mental-health-related information at Emory University. The most frequently received type of information for both groups was alcohol and drug use. The next most frequent information for Asian American students was sexual assault, followed by physical activity. These two categories were reversed for white students.

Overall, Asian students reported receiving significantly more information than white students (Table 17). On average, Asian American students reported receiving 4.16 types of information compared to 3.21 for white students ($F_{1,975} = 14.911$, $p = 0.000$). There was no difference between groups in awareness of mental health services provided by the university; on average, each group was aware of 2.1 services. These services

included sleep, substance abuse, disordered eating, and stress reduction resources offered through the Health Education and Promotion Office.

Table 17. Knowledge (ACHA-NCHA)

	White	%	Asian	%	χ2	P-value
Mental Health info received	**0**	**0.0%**	**0**	**0.0%**		
Depression/Anxiety	0	0.0%	0	0.0%		
Eating disorders	0	0.0%	0	0.0%		
Grief and loss	0	0.0%	0	0.0%		
How to help others in distress	0	0.0%	0	0.0%		
Relationship difficulties	0	0.0%	0	0.0%		
Sleep difficulties	0	0.0%	0	0.0%		
Stress reduction	0	0.0%	0	0.0%		
Suicide prevention	0	0.0%	0	0.0%		
Other Info	**693**	**83.0%**	**131**	**92.3%**	**7.878**	**0.005**
Alcohol and other drug use	482	57.7%	108	76.1%	17.05	0.000
Cold/Flu/Sore throat	312	37.4%	56	39.4%	0.222	n.s.
Injury prevention	211	25.3%	55	38.7%	11.102	0.001
Nutrition	397	47.5%	81	57.0%	4.381	0.036
Physical activity	482	57.7%	95	66.9%	4.227	0.040
Pregnancy prevention	328	39.3%	78	54.9%	6.549	0.010
Problem use of Internet/computer games	0	0.0%	0	0.0%		
Sexual assault/Relationship violence prevention	475	56.9%	103	72.5%	12.301	0.000
Sexually transmitted disease/infection (STD/I) prevention	421	50.4%	89	62.7%	7.307	0.007
Tobacco use	245	29.3%	46	32.4%	0.541	n.s.
Violence Prevention	245	29.3%	49	34.5%	1.539	n.s.

In terms of information wanted, the majority of the students were interested in any type of health information and more than one type of information (Table 19). On average, Asian American students wanted 8.56 types of information compared to 6.71 types for white students ($F_{1,975} = 10.534$, $p = 0.001$). Significantly, more Asian American students were interested in alcohol and other drug use, cold/ flu/ sore throat, grief and loss, injury prevention, physical activity, problem use of internet or computer games, relationship difficulties, relationship difficulties, and sleep difficulties. The most frequent type of information in which both groups of students were equally interested was stress reduction. This was followed by nutrition, physical activity, and sleep, but Asian American students wanted these types of information more than white students. Tobacco use was of least interest to Asian Americans, while problems with use of internet/computer games were of least interest to white students (Table 18).

Table 18. Intention to Learn (ACHA-NCHA)

	White	%	Asian	%	χ2	P-value
Any info Wanted	**621**	**74.4%**	**117**	**82.4%**	**4.228**	**0.040**
Alcohol and other drug use	179	21.4%	50	35.2%	12.831	0.000
Cold/Flu/Sore throat	316	37.8%	70	49.3%	6.659	0.010
Depression/Anxiety	371	44.4%	72	50.7%	1.927	0.165
Eating disorders	197	23.6%	46	32.4%	5.031	0.025
Grief and loss	252	30.2%	63	44.4%	11.18	0.001
How to help others in distress	408	48.9%	78	54.9%	1.787	0.181
Injury prevention	240	28.7%	59	41.5%	9.372	0.002
Nutrition	478	57.2%	96	67.6%	5.375	0.020
Physical activity	414	49.6%	86	60.6%	5.859	0.016
Pregnancy prevention	237	28.4%	50	35.2%	2.727	0.099
Problem use of Internet/computer games	132	15.8%	45	31.7%	20.635	0.000
Relationship difficulties	251	30.1%	63	44.4%	11.389	0.001
Sexual assault/Relationship violence prevention	293	35.1%	62	43.7%	3.855	0.050
Sexually transmitted disease/infection (STD/I) prevention	296	35.4%	58	40.8%	1.529	0.216
Sleep difficulties	411	49.2%	87	61.3%	7.047	0.008
Stress reduction	489	58.6%	90	63.4%	1.167	0.280
Suicide prevention	230	27.5%	47	33.1%	1.843	0.175
Tobacco use	148	17.7%	36	25.4%	4.619	0.032
Violence Prevention	260	31.1%	58	40.8%	5.209	0.022

On the HMS, significantly fewer Asian American students (17.3%) than white students (26.1%) knew where to seek help for emotional or mental health needs (Table 19). Fewer Asian American than white students also knew about their insurance coverage for mental health services, a difference that approached significance ($0.05<p<0.10$). Only about 19% of Asian students and one-third of white students knew about both where to seek services and insurance.

Table 19. Knowledge (HMS)

	White	%	Asian	%	χ2	P-value
Know where to go for help	**138**	**26.1%**	**37**	**17.3%**	**6.613**	**0.01**
If you needed to seek professional help for your mental or emotional health while attending your school, you would know where to go	174	33.0%	49	22.9%	0.52	n.s.
Strongly disagree	3	1.7%	1	2.0%		
Disagree	11	6.3%	3	6.1%		
Neither agree nor disagree	22	12.6%	8	16.3%		
Agree	72	41.4%	20	40.8%		
Strongly agree	66	37.9%	17	34.7%		
Know about insurance coverage	**49**	**9.3%**	**7**	**3.3%**	**3.116**	**n.s.**
Do you know if your health insurance plan would provide any coverage for a visit to a mental health professional (psychiatrist, psychologist, clinical social worker, etc.)?						
Yes, it definitely would	48	9.1%	7	3.3%	7.135	n.s.
I think it would but am not sure	70	13.3%	15	7.0%		
I have no idea	49	9.3%	21	9.8%		
I think it would not but am not sure	4	0.8%	2	0.9%		
No, it definitely would not	1	0.2%	0	0.0%		

When examining the facilitators of students' receipt of mental health services, the majority of both groups of students reported it was their own decisions to seek help. While no Asian American students reported encouragement or pressure from friends, fully one-third of white students gave these reasons (Table 20).

Table 20. Important Reasons to the Receipt of Mental Health Services (HMS)

	White	%	Asian	%	χ2	P-value
I decided on my own to seek help	41	75.9%	5	71.4%	0.068	0.795
A friend encouraged me to seek help	15	27.8%	0	0.0%	2.579	0.108
Friend pressured me to seek help	3	5.6%	0	0.0%	0.409	0.522
Family member encouraged me to seek help	12	22.2%	1	14.3%	0.233	0.629
Family member pressured me to seek help	2	3.7%	1	14.3%	1.484	0.223
Someone other than a friend or family member encouraged me to seek help	5	9.3%	0	0.0%	0.706	0.401
Was mandated to seek help by campus staff	1	1.9%	1	14.3%	3.021	0.082
I acquired more information about my options from	1	1.9%	0	0.0%	0.132	0.717
Other	6	11.1%	0	0.0%	0.863	0.353

Perceptions. Students' perceptions were assessed using the Diffusion of Innovations constructs of Felt Needs, Previous Practice, Social Norms, and the Persuasion variables (Relative Advantage, Compatibility, Complexity, and Observability). Each of these was presented separately.

Felt Needs. Asian American and white students did not differ in their need felt for services (Table 21). About the same percentage of Asian American (1.4%) and white (1.2%) students from the ACHA-NCHA reported having overwhelming health needs. While Asian American students were more likely to report no stress or average stress, white students were more likely to report more than average or tremendous stress. The groups did not differ with regard to having any health concerns, but Asian American students were more likely than whites to report their health as good, rather than very good. The main problem cited by both groups was academics, but the impact of problems upon academic functioning did not differ between groups.

Table 21. Felt Needs (ACHA-NCHA)

	White	%	Asian	%	χ2	P-value
Needs Felt	**702**	**84.1%**	**119**	**83.8%**	**3.933**	**n.s.**
No Needs Felt	133	15.9%	23	16.2%		
Little needs	185	22.2%	38	26.8%		
some needs	264	31.6%	46	32.4%		
a lot needs	243	29.1%	33	23.2%		
overwhelming needs to function	10	1.2%	2	1.4%		
Any Stress Last 12 months	**501**	**60.0%**	**71**	**50.0%**	**5.001**	**0.025**
No stress	2	0.2%	4	2.8%		
Less than average stress	43	5.1%	6	4.2%		
Average stress	285	34.1%	59	41.5%		
More than average stress	397	47.5%	60	42.3%		
Tremendous stress	104	12.5%	11	7.7%		
Any Health Concern	**24**	**2.9%**	**3**	**2.1%**	**0.262**	**n.s.**
Excellent	180	21.6%	31	21.8%		
Very good	447	53.5%	57	40.1%		
Good	179	21.4%	50	35.2%		
Fair	22	2.6%	3	2.1%		
Poor	2	0.2%	0	0.0%		
Any Difficulty Dealing with Problems in Last 12 Months	**562**	**67.3%**	**92**	**64.8%**	**0.347**	**n.s.**
Academics	351	62.5%	69	75.0%	2.238	n.s.
Career-related issue	218	38.8%	38	41.3%	0.038	n.s.
Death of a family member or friend	101	18.0%	11	12.0%	2.227	n.s.
Family problems	169	30.1%	34	37.0%	1.055	n.s.
Intimate relationships	233	41.5%	33	35.9%	1.168	n.s.
Other social relationships	177	31.5%	36	39.1%	1.47	n.s.
Finances	211	37.5%	36	39.1%	0.001	n.s.
Health problem of a family member or partner	119	21.2%	18	19.6%	0.235	n.s.
Personal appearance	124	22.1%	28	30.4%	2.264	n.s.
Personal health issue	121	21.5%	19	20.7%	0.108	n.s.
Sleep difficulties	165	29.4%	27	29.3%	0.012	n.s.
Other	48	8.5%	15	16.3%	4.515	0.034

Out of the issues that affect their academic performance (Table 22), allergies, cold/ flu/ sore throat, concern for family or friend, discrimination, drug use, gambling, internet use/ computer games, roommate difficulties, and stress affected Asian American students significantly more than white students. After adjustment for the 31 tests, however, only discrimination was significantly different between the groups. There were no significant differences in the number of issues affecting each student group ($F_{1,435} = 0.71$, $p = 0.400$) or severity of these problems ($F_{1,975} = 1.191$, $p = 0.280$).

Table 22. Issues Affecting Academic Performance (ACHA-NCHA)

	White	%	Asian	%	χ2	P-value
Academic Function Affected	395	47.3%	71	50.0%	0.353	n.s.
Alcohol use	10	1.2%	3	2.1%	0.774	n.s.
Allergies	13	1.6%	8	5.6%	11.321	0.003
Anxiety	127	15.2%	23	16.2%	1.038	n.s.
Assault (physical)	1	0.1%	1	0.7%	2.029	n.s.
Assault (sexual)	4	0.5%	2	1.4%	2.791	n.s.
ADHD	34	4.1%	4	2.8%	0.609	n.s.
Cold/ Flu / Sore Throat	82	9.8%	23	16.2%	6.769	0.034
Concern for Family Member / Friend	64	7.7%	15	10.6%	6.746	0.034
Chronic Health Problem	22	2.6%	4	2.8%	0.136	n.s.
Chronic Pain	15	1.8%	3	2.1%	4.092	n.s.
Death of family member/friend	26	3.1%	4	2.8%	1.597	n.s.
Discrimination	1	0.1%	3	2.1%	17.859	0.000
Drug use	4	0.5%	3	2.1%	11.913	0.003
Eating disorder/problem	6	0.7%	1	0.7%	2.875	n.s.
Finances	28	3.4%	2	1.4%	2.164	n.s.
Gambling	15	1.8%	4	2.8%	6.584	0.010
Homesickness	14	1.7%	2	1.4%	0.519	n.s.
Injury	8	1.0%	2	1.4%	1.048	n.s.
Internet use/computer games	63	7.5%	20	14.1%	10.016	0.007
Learning disability	10	1.2%	3	2.1%	5.935	n.s.
Participation extracurricular activities	75	9.0%	18	12.7%	1.96	n.s.
Pregnancy (yours or partners)	14	1.7%	4	2.8%	0.873	n.s.
Relationship difficulties	70	8.4%	15	10.6%	0.789	n.s.
Roommate difficulties	22	2.6%	10	7.0%	9.119	0.010
STD/I	2	0.2%	1	0.7%	6.223	0.045
Sinus infection/ear infection/strep throat	31	3.7%	5	3.5%	0.711	n.s.
Sleep difficulties	106	12.7%	24	16.9%	2.771	n.s.
Stress	173	20.7%	40	28.2%	7.559	0.023
Work	73	8.7%	15	10.6%	1.132	n.s.
Other	10	1.2%	5	3.5%	5.292	n.s.
Depression	79	9.5%	12	8.5%	0.613	n.s.

On the HMS, there was a significant differences in the level of needs felt by white students and Asian students. Significantly, more of white students felt the need for help for their emotional or mental health problems in the past 12 months. Slightly more white students felt more need. Same amount (2.3%) of both groups felt that the problems they dealt with were difficult. Significantly, more of white students reported that they would talk to someone if needed emotional support or help than Asian students did. The same percentage of students felt that their emotional or mental difficulties had hurt their academic performance (Table 23).

Table 23. Felt Needs (HMS)

	White	%	Asian	%	χ2	P-value
'Needs Felt'					**7.102**	**0.029**
No need	9	82.6%	3	90.2%		
few need	436	11.9%	193	5.1%		
Many need	83	4.7%	18	3.3%		
Felt need help for emotional or mental health problems in past 12 months	**71**	**13.4%**	**15**	**7.0%**	**6.160**	**0.013**
I have need for mental health services	**36**	**6.8%**	**11**	**5.1%**	**0.720**	**n.s.**
I haven't had the chance to go but I plan to	**3**	**0.6%**	**0**	**0.0%**	**1.220**	**n.s.**
In the past 4 weeks, how many days have you felt that emotional or mental difficulties have hurt your academic performance?						
None	101	19.1%	26	12.1%		
1-2 days	45	8.5%	11	5.1%		
3-5 days	14	2.7%	8	3.7%		
6 or more days	14	2.7%	4	1.9%		

***Previous Practice*.** Asian American students were significantly less likely than white students to report any use of non-clinical mental health support in the past on the HMS (Table 24). Significantly fewer Asian American students than white students used a roommate, friend who is not a roommate, or family member for mental /emotional health support. None of the Asian American students reported having used a support group in the past. Overall, Asian American students (mean = 0.33) reported a lower number of

non-clinical supports than white students (mean = 0.59) and the difference was significant ($F_{1,693} = 9.777$, $p = 0.002$).

Table 24. Non-Clinical Previous Practice of Mental Health (HMS)

	White	%	Asian	%	χ2	P-value
Any previous non-clinical use of MH support	**144**	**28.9%**	**32**	**16.2%**	**12.773**	**0.001**
Roommate for mental health/emotional health support	60	12.0%	12	6.1%	5.394	0.002
Friend (who is not a roommate)	110	22.1%	25	12.7%	7.966	0.005
Family member	102	20.5%	22	11.2%	8.355	0.004
Religious counselor or other religious contact	17	3.4%	5	2.5%	0.353	n.s.
Support group	4	0.8%	0	0.0%	1.591	n.s.
Other non-clinical source	3	0.6%	1	0.5%	0.022	n.s.

Social Norms. Asian American students (mean = 0.78) were less likely than white students (mean = 2.15) to agree with the statement "Most people would willingly accept someone who has received mental health treatment as a close friend" (Table 25). Conversely, they were more likely (mean = 2.00) than white students (mean = 1.39) to agree that they would willingly accept someone who has received mental health treatment as a close friend. They were also more likely than white students to agree with the statements "Most people feel that receiving mental health treatment is a sign of personal failure," and "Most people think less of a person who has received mental health treatment." The two groups did not differ on whether they felt receiving mental health treatment was a sign of personal failure, or whether they would think less of a person who has received mental health treatment. There was no difference between groups in having experienced discrimination occasionally ($\chi 2 = 0.499$, $p = 0.48$).

Table 25. Social Norms ANOVA (HMS)

	Mean	Sum of Squares	df	Mean Square	F	Sig.	Eta	Eta^2
Most people would willingly accept someone who has received mental health treatment as a close friend	2.150	4.429	1	4.429	3.910	0.049	0.132	0.017
	0.780	250.360	221	1.133				
	2.220	254.789	222					
Most people feel that receiving mental health treatment is a sign of personal failure	2.690	4.715	1	4.715	2.330	0.128	0.102	0.010
	3.040	447.160	221	2.023				
	2.770	451.874	222					
Most people think less of a person who has received mental health treatment	2.530	12.457	1	12.457	7.140	0.008	0.177	0.031
	3.100	383.835	220	1.745				
	2.650	396.293	221					
D7A: I would willingly accept someone who has received mental health treatment as a close friend	1.390	13.875	1	13.875	24.188	0.000	0.316	0.100
	2.000	125.052	218	0.574				
	1.520	138.927	219					
D7C: I feel that receiving mental health treatment is a sign of personal failure	3.970	5.650	1	5.650	1.176	0.279	0.073	0.005
	3.580	1052.522	219	4.806				
	3.890	1058.172	220					
I would think less of a person who has received mental health treatment	3.880	5.552	1	5.552	1.058	0.305	0.069	0.005
	3.500	1149.688	219	5.250				
	3.800	1155.240	220					
In the past year, how many times have you been treated unfairly because of your race, ethnicity, or cultural background?	0.020	0.013	1	0.013	0.496	0.482	0.047	0.002
	0.040	5.825	220	0.026				
	0.030	5.838	221					
Stigma Factored Score	.0648	7.683	1	7.683	7.753	.005	.102	.010
	-.160							
	.000							

Relative Advantage. The majority of the students reported on the HMS that if they experienced emotional distress, they would talk to a friend who is not a roommate (Table 26). The next source of support for both groups was family member, then a roommate, and religious counselor. Overall, less of Asian American students report using non-clinical sources of support than white students did. Significantly less Asian American students reported using roommate, friend, or family member as a source of support for emotional distress than white students.

In terms of mental health problems affecting academic performance, the first and second choices were reversed for the two groups. Asian American students most frequently reported talking to a professor from one of their classes, whereas white

students most frequently reported that they would talk to an academic advisor. For both, their third most reported personnel to talk to was student services staff.

Regarding the past 12 months, Asian American students (5.1%) were significantly less likely than white students (9.8%) to agree that they got a lot of support from other sources such as family and friends. The groups did not differ with respect to preferring to deal with issues on their own.

Table 26. Non-Clinical Mental Health Support (HMS)

	White	%	Asian	%	χ2	P-value
If you were experiencing serious emotional distress, whom would you talk to about this						
Roommate	51	9.7%	11	5.1%	4.087	0.043
Friend (who is not a roommate)	124	23.5%	36	16.8%	4.044	0.044
Family member	123	23.3%	32	15.0%	6.471	0.011
Religious counselor or other religious contact	27	5.1%	4	1.9%	4.021	0.045
Support group	5	0.9%	2	0.9%	0.000	n.s.
Other non-clinical source	12	2.3%	2	0.9%	1.48	n.s.
If you had a mental health problem that you believed was affecting your academic performance, which people at school would you talk to						
Professor from one of my classes	53	10.0%	22	10.3%	0.008	n.s.
Academic advisor	73	13.8%	18	8.4%	4.182	0.041
Another faculty member	21	4.0%	4	1.9%	2.09	n.s.
Teaching assistant	3	0.6%	1	0.5%	0.029	n.s.
Student services staff	27	5.1%	12	5.6%	0.072	n.s.
Dean of students or class dean	23	4.4%	7	3.3%	0.468	n.s.
Other non-clinical source	12	2.3%	2	0.9%	1.48	n.s.
Past 12 months						
I get a lot of support from other sources, such as family and friends	**52**	**9.8%**	**11**	**5.1%**	**4.307**	**0.038**
I prefer to deal with issues on my own	**57**	**10.8%**	**18**	**8.4%**	**0.932**	**n.s.**

As presented in Table 27, Asian American students (mean = 0.41) sought support from fewer other sources than white students (mean = 0.65), a significant difference ($F_{1,739} = 8.565$, $p = 0.004$). In particular, Asian Americans sought less support from family ($F_{1,740} = 10.027$, $p = 0.002$) and friends ($F_{1,740} = 8.166$, $p = 0.004$). Overall, Asian American students (mean = 2.19) judged other support to be less effective than did white students (mean = 3.41; $F_{1,737} = 9.298$, $p = 0.002$).

Table 27. Other Support ANOVA (HMS)

		Mean	Sum of Squares	df	Mean Square	F	Sig.	Eta	Eta Squared
Other help	Between	0.649	8.944	1	8.944	8.565	0.004	0.107	0.011
	Within	0.407	771.688	739	1.044				
	Total	0.579	780.632	740					
Support people at school	Between	0.450	1.795	1	1.795	2.131	0.145	0.054	0.003
	Within	0.341	622.516	739	0.842				
	Total	0.418	624.310	740					
Family support	Between	1.046	23.871	1	23.871	10.027	0.002	0.116	0.013
	Within	0.650	1761.624	740	2.381				
	Total	0.931	1785.495	741					
Friends support	Between	1.068	20.019	1	20.019	8.166	0.004	0.104	0.011
	Within	0.706	1813.999	740	2.451				
	Total	0.964	1834.018	741					
Effective-ness of other support	Between	1.456	41.703	1	41.703	9.435	0.002	0.112	0.013
	Within	0.932	3270.773	737	4.431				
	Total	1.310	3312.476	738					

Significantly fewer Asian American students than white students believed that therapy and medication are helpful for those who are clinically depressed (Table 28). The groups did not differ with respect to the reasons for not receiving medication or therapy for their mental or emotional health.

Table 28. Effectiveness of Mental Health Services (HMS)

		White	%	Asian	%	χ2	P-value
Therapy is effective						**15.321**	**0.002**
A little Helpful	1	32	6.1%	17	7.9%		
Quite Helpful	2	81	15.3%	21	9.8%		
A lot Helpful	3	57	10.8%	8	3.7%		
Medication is effective						**13.015**	**0.005**
A little Helpful	1	56	10.6%	15	7.0%		
Quite Helpful	2	72	13.6%	21	9.8%		
A lot Helpful	3	41	7.8%	6	2.8%		
In the past 12 months which of the following explain why you have not received medication or therapy for your mental or emotional health.							
I question the quality of my options		6	1.1%	2	0.9%	0.056	n.s.
I question whether medication or therapy is helpful		13	2.5%	4	1.9%	0.234	n.s.
I have had a bad experience with medication and/or therapy		4	0.8%	1	0.5%	0.189	n.s.
The problem will get better by itself		13	2.5%	9	4.2%	1.626	n.s.

Both groups of students rated mental health services more positively than other sources of support (Table 29). When comparing mental health services relative to other

sources of support, however, Asian students (mean = 0.11) had less positive scores than white students (mean = 0.55). This difference was significant ($F_{1, 741} = 7.607$, p = 0.006).

Table 29. Mental Health Effectiveness ANOVA (HMS)

			Sum of Squares	df	Mean Square	F	Sig.	Eta	Eta Squared
effectiveness of mental health services	Between	2.001	139.655	1	139.655	14.354	0.000	0.138	0.019
	Within	1.044	7199.481	740	9.729				
	Total	1.725	7339.136	741					
Mental health service is effective	Between	2.172	134.895	1	134.895	13.659	0.000	0.135	0.018
	Within	1.231	7307.947	740	9.876				
	Total	1.900	7442.842	741					
Mental health service is not effective	Between	0.170	0.041	1	0.041	0.053	0.818	0.008	0.000
	Within	0.187	577.182	740	0.780				
	Total	0.175	577.224	741					
Mental health services better than other support	Between	0.520	7.897	1	7.897	6.224	0.013	0.091	0.008
	Within	0.293	938.873	740	1.269				
	Total	0.455	946.770	741					
Relative Advantage	Between	0.545	28.727	1	28.727	7.607	0.006	0.101	0.010
	Within	0.111	2794.675	740	3.777				
	Total	0.420	2823.402	741					

Compatibility. As shown in Table 30, three Asian American students agreed that people providing services are not sensitive enough to cultural issue, compared to none of the white students (Chi square = 7.453, p = 0.006). Similarly, three times as many Asian American students (1.9%) agreed that they did not think that anyone could understand their problems, which approached significance (Chi Square = 2.773, p = 0.096). On average, however, Asian American students' incompatibility scores (mean = 0.14) did not differ from those of white students (0.10; $F_{1, 738} + 1.022$, p = 0.312).

Table 30. Incompatibility (HMS)

	White	%	Asian	%	χ2	P-value
Not Compatible	39	7.4%	15	7.0%	0.032	n.s.
People providing services aren't sensitive enough to cultural issues	0	0.0%	3	1.4%	7.453	0.006
People providing services aren't sensitive enough to sexual identity issues	0	0.0%	1	0.5%	2.478	n.s.
I question the quality of my options	6	1.1%	2	0.9%	0.056	n.s.
The problem will get better by itself	13	2.5%	9	4.2%	1.626	n.s.
I question how serious my needs	30	5.7%	10	4.7%	0.295	n.s.
I don't think anyone can understand my problems	3	0.6%	4	1.9%	2.773	n.s.

Complexity. Three Asian American students were concerned about notification of parents, compared to none of the white students (Table 31). Otherwise, there were no differences between groups with respect to any complexity items.

Table 31. Complexity (HMS)

	White	%	Asian	%	χ2	P-value
Complex	35	6.6%	10	4.7%	1.023	n.s.
The location is inconvenient	4	0.8%	3	1.4%	0.683	n.s.
I don't have time	25	4.7%	9	4.2%	0.093	n.s.
The number of sessions is too limited	1	0.2%	1	0.5%	0.440	n.s.
The waiting time until I can get an appointment is too long	0	0.0%	0	0.0%		
There are financial reasons (too expensive, no insurance)	10	1.9%	4	1.9%	0.000	n.s.
I am concerned about privacy	7	1.3%	6	2.8%	1.948	n.s.
I worry about what others will think of me	5	0.9%	2	0.9%	0.000	n.s.
I worry that my actions will be documented on my academic record	4	0.8%	1	0.5%	0.189	n.s.
I worry that my actions will be documented in my medical record	3	0.6%	2	0.9%	0.309	n.s.
I worry that someone will notify my parents	0	0.0%	3	1.4%	7.453	0.006
I fear being hospitalized	1	0.2%	1	0.5%	0.440	n.s.

Observability. Significantly fewer Asian American students (16.8%) than white students (31.0%) knew someone close who had sought professional help for a mental or emotional health problem (Table 32). Asian American students most frequently knew one or two persons who had done so, while white students most frequently knew at least three persons who had sought mental health services. Thus, white students had more exposure to mental health services use than Asian American students and were, therefore, more familiar with them.

Table 32. Observability (HMS)

	White	%	Asian	%	χ2	P-value
As far as you know, how many of your close friends or family have ever sought professional help for an emotional or mental health problem						
None	10	1.9%	12	5.6%	28.045	0.000
At least 1 or 2	62	11.7%	26	12.1%		
3 or more	95	18.0%	9	4.2%		
Don't know	7	1.3%	1	0.5%		
Other people I know have used mental health	**157**	**29.7%**	**35**	**16.4%**	**14.213**	**0.000**

Research Question 4—What constructs of the Diffusion of Innovations Theory correlate with utilization of mental health services by Asian American students at Emory University?

Any Use of Mental Health Services. Regression model in the ACHA-NCHA used felt needs and knowledge as independent variables and any use of mental health services as dependent variable to predict use by Asian American students. On the HMS, the outcome dependent variable was small so had low power for prediction. Bivariate correlations tests were performed to help determine relevant independent variables.

ACHA-NCHA. Since the ACHA-NCHA had only one perception measure, felt needs, previous use, and knowledge, these were entered into the model to predict any use of mental health services according to the ACHA-NCHA data. Race, student status, and insurance status were entered as control factors (Table 33). The model was a good fit ($\chi2$= 5.075, p = 0.750) and was significant ($\chi2$= 96.871, p = 0.000).

Table 33. Regression Model for Any Use (ACHA-NCHA)

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B)	
								Lower	Upper
Step 1[a]	Grad_Undergrad			11.104	2	.004			
	Grad_Undergrad(1)	**.436**	**.131**	**11.099**	**1**	**.001**	**1.546**	**1.197**	**1.998**
	Grad_Undergrad(2)	.203	.675	.091	1	.763	1.225	.326	4.601
	insurance(1)	21.746	27812.859	.000	1	.999	2.780E9	.000	.
	FNEED			73.074	4	.000			
	FNEED(1)	**.814**	**.222**	**13.481**	**1**	**.000**	**2.256**	**1.461**	**3.484**
	FNEED(2)	**1.237**	**.209**	**35.207**	**1**	**.000**	**3.447**	**2.290**	**5.187**
	FNEED(3)	**1.715**	**.216**	**63.296**	**1**	**.000**	**5.559**	**3.643**	**8.483**
	FNEED(4)	**2.287**	**.706**	**10.496**	**1**	**.001**	**9.842**	**2.468**	**39.251**
	AWARE			3.615	4	.461			
	AWARE(1)	.210	.235	.800	1	.371	1.234	.779	1.955
	AWARE(2)	.330	.198	2.763	1	.096	1.391	.943	2.052
	AWARE(3)	.101	.181	.308	1	.579	1.106	.775	1.577
	AWARE(4)	.256	.183	1.956	1	.162	1.292	.902	1.849
	Constant	-23.412	27812.859	.000	1	.999	.000		

Felt need was significant in the model and showed a dose-response relationship. The odds ratio for the lowest need group was 2.419, and this increased to 9.835 in the highest need group; those with greater needs are more likely to use mental health services than those with lesser needs. Knowledge was not significant with the other variables controlled. Graduate students (1) were about 55% more likely to use mental health services compared to undergraduates, and the difference was significant. Although other status (2) had higher odds to use mental health services, this was not significant. Having insurance also was not a significant predictor of use of mental health services for Asian American students in the ACHA-NCHA.

HMS. Bivariate correlations showed that felt needs, observability, knowledge, insurance, stigma, and relative advantage were significantly correlated with the dependent variable, ever use of mental health services, by Asian American students (Table 34). Needs felt and observability were the two independent variable most correlated with use of mental health services by Asian American students.

Table 34. Correlations with Ever Use (HMS)

	Pearson Correlation	Sig. (2-tailed)
Any Need Felt	.474**	0.000
Observable	.416**	0.000
Know score	.377**	0.000
Insurance	.351**	0.000
Stigma	.346**	0.000
Relative	.182**	0.007
Complexity	-0.041	0.554
Compatibility	0.05	0.463
PRE_4: Grad vs. Undergrad	0.042	0.543

According to the bivariate correlation test, stigma and insurance were highly correlated with four independent variables that were correlated with the dependent variable (Table 35).

Table 35. Correlations among Independent Variables (HMS)

	P-Practice	Stigma	Felt Needs	insurance	Grad/ Und	know	Relative	Compatible	Complexity	Observable
Previous Practice	1	.743** .000	.462** .000	.738** .000	.075 .273	.563** .000	-.056 .418	-.449** .000	.342** .000	.665** .000
Stigma	.743** .000	1	.461** .000	.903** .000	.104 .131	.716** .000	.139* .042	-.483** .000	.332** .000	.814** .000
Felt Needs	.462** .000	.461** .000	1	.439** .000	.005 .938	.302** .000	-.094 .172	-.417** .000	.312** .000	.478** .000
insurance	.738** .000	.903** .000	.439** .000	1	.077 .261	.766** .000	.149* .029	-.480** .000	.369** .000	.814** .000
Grad/ Und	.075 .273	.104 .131	.005 .938	.077 .261	1	.109 .110	.141* .040	.033 .634	-.058 .399	.100 .143
Know	.563** .000	.716** .000	.302** .000	.766** .000	.109 .110	1	.344** .000	-.204** .003	.196** .004	.636** .000
Relative	-.056 .418	.139* .042	-.094 .172	.149* .029	.141* .040	.344** .000	1	.433** .000	-.212** .002	.269** .000
Compatible	-.449** .000	-.483** .000	-.417** .000	-.480** .000	.033 .634	-.204** .003	.433** .000	1	-.633** .000	-.423** .000
Complexity	.342** .000	.332** .000	.312** .000	.369** .000	-.058 .399	.196** .004	-.212** .002	-.633** .000	1	.321** .000
Observable	.665** .000	.814** .000	.478** .000	.814** .000	.100 .143	.636** .000	.269** .000	-.423** .000	.321** .000	1

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

Based on the results of the bivariate correlations, felt needs, observability, relative advantage, knowledge, and previous practice were included in the model, which was a good fit ($\chi 2 = .16$, $p = .911$) and significant ($\chi 2 = 36.016$, $p = 0.000$). A backward step-out regression model was performed to determine the most significant predictor of mental health services use among Asian American students. As seen in Table 36, knowledge was the first to step out of the model, meaning it is the least significant predictor of mental health services use by Asian American students. Relative advantage was next, followed by previous practices. Although not significant in this model, the OR showed that those having knowledge, previous practice, and rating mental health services better than other support were more likely to use mental health services than those who did not.

Table 36. Regression Model for Any Use (HMS)

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B) Lower	Upper
Step 1[a]	FeltNeeds	2.520	1.181	4.552	1	0.033	12.427	1.227	125.806
	Observable(1)	17.147	2905.317	0.000	1	0.995	27986173.981	0.000	.
	Relative	0.126	0.162	0.604	1	0.437	1.135	0.825	1.560
	knowscore	**0.417**	**0.822**	**0.257**	**1**	**0.612**	**1.517**	**0.303**	**7.596**
	PPractice(1)	1.240	1.361	0.830	1	0.362	3.455	0.240	49.736
	Constant	-24.108	2905.318	0.000	1	0.993	0.000		
Step 2[a]	FeltNeeds	2.528	1.172	4.650	1	0.031	12.534	1.259	124.772
	Observable(1)	17.320	2913.566	0.000	1	0.995	33252556.221	0.000	.
	Relative	**0.152**	**0.155**	**0.967**	**1**	**0.325**	**1.164**	**0.860**	**1.577**
	PPractice(1)	1.428	1.309	1.191	1	0.275	4.171	0.321	54.220
	Constant	-24.064	2913.567	0.000	1	0.993	0.000		
Step 3[a]	FeltNeeds	2.473	1.157	4.567	1	0.033	11.853	1.227	114.457
	Observable(1)	17.855	2879.520	0.000	1	0.995	56785908.920	0.000	.
	PPractice(1)	**1.194**	**1.228**	**0.944**	**1**	**0.331**	**3.299**	**0.297**	**36.631**
	Constant	-24.117	2879.520	0.000	1	0.993	0.000		
Step 4[a]	**FeltNeeds**	**2.496**	**1.148**	**4.730**	**1**	**0.030**	**12.131**	**1.280**	**114.991**
	Observable(1)	**18.434**	**2957.916**	**0.000**	**1**	**0.995**	**101370263.475**	**0.000**	**.**
	Constant	-23.830	2957.916	0.000	1	0.994	0.000		

The two variables remaining in the step out of the regression model were felt needs and observability. Asian American students having felt needs were significantly (p=0.30) more likely (OR=12.131) to use mental health services than those who did not.

Table. 37. Regression Model if Term Removed (HMS)

Variable		Model Log Likelihood	Change in -2 Log Likelihood	df	Sig. of the Change
Step 1	**FeltNeeds**	**-16.076**	**6.519**	**1**	**.011**
	Observable	-14.381	3.127	1	.077
	Relative	-13.136	.638	1	.424
	Knowscore	-12.947	.261	1	.610
	PPRACTICE	-13.289	.944	1	.331
Step 2	**FeltNeeds**	**-16.361**	**6.827**	**1**	**.009**
	Observable	-14.715	3.536	1	.060
	Relative	-13.472	1.050	1	.305
	PPRACTICE	-13.660	1.425	1	.233
Step 3	**FeltNeeds**	**-16.847**	**6.750**	**1**	**.009**
	Observable	-16.628	6.312	1	.012
	PPRACTICE	-14.017	1.090	1	.296
Step 4	**FeltNeeds**	**-17.514**	**6.993**	**1**	**.008**
	Observable	**-17.718**	**7.400**	**1**	**.007**

Removing felt needs from any of the step-out would result in a significant (p=0.008) change as seen in Table 38. Removing observability from the last step-out would cause a significant change (p=0.007). Thus, the best predictor of mental health services use by Asian American students is needs felt, followed by having someone close, friends or relatives, using mental health services previously.

Discussion

Mental illness, particularly depression, affects the college population with a prevalence of 10%-15%, and there have been needs among Asian Americans in the area of mental health. Combining these two concerns, this study examined mental health status, services utilization, and related factors using the DOI, comparing Asian American students to non-Latino white students.

The reported prevalence of any mental illness among Asian American students (0.9% - 10.6%) at Emory University was much lower than for white students (10% - 22.3%). On the other hand, more Asian American students than white students endorsed a number of negative feelings on the ACHA-NCHA and on the HMS, including hopelessness, loneliness and sadness. Fewer of them also endorsed positive feelings such as being interested in life or that they belonged to a community.

In terms of utilization, fewer Asian American students (3.3% - 26.1%) have ever used mental health services than white students have (10.4% - 52.1%), although equal proportions (35%-43%) have used campus counseling. Asian American students also used other support less, including friends and roommates.

Asian American students reported less felt need for mental health assistance, although, on average, they rated their difficulty with the load of problems they dealt with higher than white students did. Asian American students endorsed more public stigma related to mental health, but overall have less stigma than white students did, as they perceived that others and themselves would accept someone who had received mental health services as a friend. Asian American students have less knowledge about where to

get mental health services and health care coverage. They felt therapy is less helpful, but did not differ from white students with respect to overall compatibility and complexity of the service. Fewer Asian American students have exposure to someone who have used mental health services before.

Using data from the ACHA-NCHA, felt needs significantly predicted mental health service use by Asian American students as well as being graduate students. On the HMS, most of the constructs were predictors of service use at the bivariate level but in a regression model, felt needs is the best predictor of mental health services use. Having someone close, such as a friend or relative, who have used mental health services before is also an important variable, as it is not removed from the model as with felt needs and would cause significant change if removed.

Consistent with the literature, Emory University white and Asian American students have a prevalence of mental illness between 10% and 20% (Hunt & Eisenberg, 2010; Rosenthal & Schreiner, 2000). Moreover, 60% of those diagnosed with depression have ever received mental health treatment, whereas the literature found about 40% have used any in the past year (Eisenberg et al., 2007). Due to the lack of terminology to identify mental health or the stigma associated with it, given face-saving concerns in the Asian culture, misdiagnoses may happen. Because the Asian culture does not recognize mental health terminology, assessment tools may be invalid for the way the Asian population may describe symptoms. In their literature review about Asian American mental health, Lin and Cheung (1999) found an issue of somatization; Asian patients described physical symptoms when in distress, which may lead physicians to diagnose other physical health rather than mental health problems.

Also consistent with the literature, Asian American students reported greater distress than white students did (Choi et al., 2007; Kisch et al., 2005). Although the actual diagnoses of mental health illness are lower among Asian American, they experience more negative emotions and distress, overall, as found in this study. Aside from discrimination due to one's background, Asian American students experienced many other distresses associated with their identity and college experience. They are tasked with identity issues, family conflicts, family obligation and pressure for academic achievement, all of which add to their stress (Chow et al, 2003; Lee et al., 2009; Phan, 2005).

While the literature suggested more acculturated Asian Americans have better mental health and are more likely to use mental health services than those who are less acculturated (e.g. Abe-Kim et al., 2007; Meyer et al., 2009), these persons may actually have more distress, and therefore more need for mental health services. Since Asians tend to somatize their symptoms, many mental illnesses are probably misdiagnosed or missed. Therefore, it may seem as though they have better mental health. This also may depend on how many generations of acculturation they have had. Those who are more than 3rd generation Asian American may identify much more with Western culture and little of Asian culture, which may contribute to their willingness to receive mental health services and have better mental health. However, if these people have parents who identified more with Asian values, then emotional problems may be present due to family conflicts and dissonance (Suinn, 2010).

Those who are second generation or acculturated to Western culture but also enculturated into Asian culture suffer much more distress and would be less likely to use

mental health services, as seen in a study with Asian American college students (Kim, 2007). Much research studied acculturation to Western culture but little studied U.S. born Asian Americans, who are enculturated into their Asian background. These people would fall in the middle of the acculturation scale used by many studies, since they identify with two cultures. As Suinn (2010) explained, limitations in the literature due to the acculturation scale left unclear relationships to mental health status and help seeking. For reasons such as lack of mental health terms in the Asian culture, Asian Americans who are more acculturated and may be enculturated could be under-diagnosed for mental health issues and distress. This may be the reason for fewer mental health diagnoses but Asian American students reported more emotional distress compared to white students in this study. Since the surveys did not have measures of acculturation, it is hard further assess this issue with the population.

Another explanation is that the samples of Asian American and white students in the ACHA-NCHA and the HMS are significantly different in class status. More white students are graduate students, and more of Asian American students are undergraduates. Graduate students experience more stress with academics, work, and life balance, so more may have mental health issues and/or diagnoses. This could lead to more mental health services use. Undergraduate students are less likely to work and may be less stressed about family and professional development, so their mental health status may be better. Moreover, graduate students are less likely to experience peer pressure compared to the younger undergraduates, so they may be more willing to seek mental health services.

The results of the HMS differed from the ACHA-NCHA, perhaps because their measures differed and the ACHA-NCHA lacked items that could be mapped onto persuasion and other concepts. In addition, each had different numbers of measures that could be summed for specific constructs. For example, ACHA-NCHA had better knowledge-related items than HMS, since it measured specific pieces of information received. ACHA-NCHA also had better felt needs items, since there was a long list of ways in which academic performance is affected.

Having felt need is a significant predictor in the regression model. It is shown that Asian American students felt less need than white students did. Consistent with the literature, Asian American students did not perceive a need for help, even if they have emotional distress (Eisenberg et al., 2007; Zivin, et al. 2009). For this reason, they are less likely to receive or seek help for mental or emotional problems. In addition, they may somatize their issues (Borowsky et al., 2000), so they may feel a need for medical services rather than mental health services. Moreover, people in the Asian culture are more likely to describe mental illness as a failure of one's own character, which leads to shame and dishonoring of family, as Kwon (1995) discussed in the literature review of Asian American mental health treatment. Because of this belief, Asian American students may feel less need for help because they feel the need to solve problems on their own, to achieve and overcome failure. This may also explain why other constructs are not significant in predicting mental health use.

The finding that only 19% of Asian American and 30% of white students knew about both where to seek mental health services and insurance coverage is consistent with the findings of a study conducted among undergraduate students, in which only 38% have

ever heard about the available mental health services (Yorgason et al., 2008). The majority of the literature found investigated stigma, mental health status, and help-seeking behaviors but few researchers had examined awareness of mental health services. Information on whether students actually receive information or know where to go for help, like the survey items used in this study to measure knowledge, is important for exploring utilization characteristics. It is important that students have accurate knowledge about the services provided, and where to find them. Without such knowledge, misconceptions about mental health services lead to stigma and lack of use among the students. This lack of knowledge may be another reason that the HMS knowledge score is not a significant predictor of mental health services use.

The findings of the existence of stigma by Asian American students, using data from the HMS, are consistent with the stigma and perceptions that Kwon (1995) described. More Asian American students did perceive stigma compared to white students; but are more accepting of those who receive mental health services. Mental health illnesses are stigmatized in the Asian culture, so fewer Asian American students may want to use mental health services if needed.

Consistent with other findings (Zhang et al., 1998), Asian American students are less likely to discuss with or seek support from friends of family compared to whites. This phenomenon could be explained by the Asian values of shame, face-saving, self-control, and mental illness as personal failure. Such beliefs lead Asian American students not to disclose their issues to others, especially their family, in order to save family honor. While the Asian culture is cohesive and collective, face-saving is very important. They could help and support each other and share happiness. However, stigma exists for

personal failures and dishonor, and mental illness is considered both of these. Thus, disclosure is difficult for Asian Americans.

As difficult as it is for Asian American students to seek mental health services, the students in this sample also reported a lack of culturally sensitive services. As the literature suggested, a mismatch in the values and worldviews of the client and counselors hinders a productive relationship (Kim et al., 2005). Asian Americans students deal with complex issues such as balancing two cultures, family conflicts, family obligations, and academic pressure (Kim et al., 2005; Lee et al., 2009; Phan, 2005). They need mental health services to be sensitive to the issues they deal with and respect their culture. Among Asian values, face saving is as important as emotional control. Kim (2010) suggested more cognitive-oriented therapy rather than emotion-oriented strategies for clients who value emotional control. For face-saving concerns, group therapy exacerbated the shame felt by Asian Americans, and as noted by Kwon (1995), made therapy complex; factors ranging from belief systems to minute details, such as eye contact, made a difference.

Culturally appropriate counseling services should address issues that are complex for Asian American student help seekers, as well. These students want counselors to recognize Asian values, and that privacy, documentation, or notification of parents are concerning for them. At Emory University, culturally appropriate counseling services are available. This is a strength for Emory University because it would be able to help Asian American students who have recognized the need for help and seek it.

As reported in this study, notification of parents was a concern for Asian American students but not white students. Understanding these values would help service

providers recognize how Asian American students address or recognize their needs, what service components are compatible, and what strategies to use and emphasize with Asian American student clients. While the availability of culturally appropriate services are beneficial, the Emory University Student Health and Counseling Services need to address Asian American students' concerns, e.g. confidentiality, perception of mental health needs, values, and misconceptions in order to promote use of mental health services.

Conclusion

Asian American students are faced with multifaceted and complex issues in addition to traditional students' concerns. Thus, they have more emotional distress than other students would. However, because of their culture, the way they perceive their needs and describe their emotional problems contributes to the lower diagnosis and recognition of mental health issues and a low service utilization rate among Asian American students. Most of the concerns of Asian American students about mental health services and stigma are related to their cultural values and norms. Thus, persons of Asian descent constitute a high-risk group for mental distress.

The finding of this study showed that needs felt is the best predictor of mental health services use by Asian American students. If they do not perceive any need for mental health, then it is unlikely they consider mental health services, even if they have accurate knowledge, little stigma, or positive perceptions about mental health services. Although the study population perceived little needs, they did report more distress and more likely to be affected academically by problems. This incongruence in needs felt and

actual distress may be due to their cultural beliefs, such as self-control and personal failures. This also explains their perception of public stigma but lower personal stigma.

The importance of this study is that it demonstrates that Asian culture is vital to address the mental health of Asian American students. Therefore, efforts by Emory University should focus on promotion of their culturally appropriate services and the assessments of the values and needs of Asian American students. Moreover, to understand their needs, qualitative research is necessary. While research has found a number of different contributing factors, a framework is needed for effective intervention targeting mental health-related issues among Asian American students.

Strengths and Limitations

Although there are pre-validated scales in the surveys used, they are not assessed for construct validity for constructs of the DOI. Since they are validated for other constructs and possibly other theories, the items may not accurately measure DOI constructs, which may have affected the results of the regression model. Moreover, while the ACHA-NCHA items are strong measures of felt needs and knowledge, other DOI constructs were missing. Therefore, it is not possible to produce a full DOI regression model using ACHA-NCHA data. The HMS, although more complete, have complex skip patterns and survey items that did not precisely measure the DOI constructs. For example, the relative advantage construct requires that two alternatives be compared to one another; however, the HMS items measured both mental health services and alternative, without a direct comparing. Systematically, measurement is different between these two types of survey questions. The systematic differences between the ACHA-

NCHA and HMS may have caused the differences in the findings of mental health status and use between the two datasets.

The Asian race is a very ethnically diverse group. This variability makes detecting differences between groups more difficult. Furthermore, the study participants at Emory University may not be representative of the Asian American university student population nationally. Another limitation is that the study focused on Emory students only, so it is not generalizable to Asian American students at other types of colleges. Without comparing to other colleges, it is impossible to assess where Emory University stands.

Other possible limitations of this study include recall bias and social desirability bias. Mental health is a sensitive topic for this population and so it may be difficult to recall and report accurate information on the topic. It is possible that those who agreed to participate in the surveys speak up more than others in the Asian population would. While this holds true, social factors such as isolation and interaction have substantial influences on mental health so the study potentially has underreported the status of Asian American students' mental health.

One of the strengths of this study is that the surveys, National College Health Assessment and Healthy Minds, are pre-validated questions. The studies in which these two surveys belong used random probability sampling designs, making the study samples representative of Emory University student population, by race. Another strength is that this study used the DOI to assess factors associated with mental health services use by Asian American students. This is strength because mental health service is an innovation to the Asian culture. Taking a DOI approach allowed for assessing of multiple factors,

that resemble constructs of other theories. For example, felt need is similar to perceived severity or susceptibility in Health Belief Model; previous practices or trialability are similar to self-efficacy; relative advantage and compatibility are similar to subjective norms and behavioral beliefs; complexity are similar to perceived behavioral control. Moreover, DOI could assess the current stage at which Asian American students reside to determine how to drive use of mental health services.

Implications

Mental health is a public health problem and the Asian population has been an understudied population in this regard. In addition, mental health among the Asian student population is deemed very important because they are at risk and hard to reach. While learning to reach to the Asian population could ultimately prevent suicides, other problems associated with mental health could be addressed as well. Physical illnesses are associated with mental health problems, due to both stress and somatization. More importantly, however, the student population is one that has access to health care and mental health services, so learning about barriers within this population could inform efforts to address the problems and help to build better programs.

In dealing with student mental health issues, particularly among Asian Americans or other minorities, campus counseling centers or mental health services should conduct regular assessments to determine the needs of the students in their services. This might be an outcome-based assessment, as one urban college used to help improve their practices (Reynolds & Chris, 2008). Such assessments could help target specific needs of racial-ethnic minority groups, as recommended by Resnick (2006), when implementing multicultural guidelines in university counseling center. Moreover, as the literature

suggested, Asian Americans tend to somatize their symptoms and more often seek help from primary care services or physicians (Meyer et al., 2009). For this reason, needs assessments and interventions should consider a more integrative health care approach by conducting brief screenings at the student health clinics. In addition, these screenings should consist of language in which Asian Americans use to describe their mental health symptoms due to their somatization.

For Asian Americans, Kim (2010) suggested that confidentiality is needed to be emphasized to clients, since face-saving and shame are very important values in their culture as well as emotional control, which suggests that therapy should focus on problem solving more than emotional strategies. Therapy approaches not considering the values, for example, group therapy could exacerbate shameful feelings (Kwon, 1995) and be counterproductive. Future intervention programs and efforts should take these relative advantages of strategies for Asian American students into consideration to address their mental health needs and surrounding concerns.

Cultural competency is imperative for when providing mental health services for Asian Americans. By understanding their complex problems and being sensitive to their beliefs and values, mental health services could help Asian Americans find ways to solve problems and improve their mental health. More important is to address their needs in their terms, because if they do not see a need, no matter how effective an innovation is, they would not use it. Therefore, a needs assessment should be conducted first, as in any public health practice. Once a better understanding of Asian American students' needs is achieved, as achieved by this study for Emory University, a culturally appropriate education and awareness campaign could address knowledge, misconceptions, concerns,

and stigma that surround mental health and treatment, by each major ethnic subgroup's beliefs and values. Only then, along with culturally appropriate and sensitive services and placement of interventions, Asian American students' mental health could be improved. At Emory University efforts are currently focusing on addressing mental health needs in student populations most at risk, e.g., international, Asian American, male and black students. The findings and recommendations from this thesis would help these target efforts for Asian American students as part of a Substance Abuse and Mental Health Services Administration (SAMSHA) suicide prevention grant.

Recommendations for Future Research and Practice

There are mixed results in the literature about Asian American students' mental health and service use, particularly among the different generations. Although different factors such as acculturation, Asian values, identity issues are explored through many studies, identification of best practices and a model to help explain and encourage mental health services among this population are needed. Therefore, a rigorous qualitative research should be conducted explore the differences in values among Asian ethnic groups, factors that contribute to any emotional distress, and attitudes about mental health services. Culturally appropriate language should be used to explore issues most relevant to the culture in depth. In particular, research should compare the different issues experienced by the various generations of Asian Americans. Such rigorous qualitative research could help to explain their underuse of mental health services and begin to fill the gaps in the literature.

Exploring different existing theories as well as original qualitative research could help develop a framework effective for this population. Using what is found in the

literature about values and utilization characteristics, comprehensive research effort should explore such a framework. The Asian culture and the issues Asian Americans that faced are complex. Therefore, the psychosocial, personal, cultural, and other factors that impinged upon Asian Americans need to be considered within a large-scale study to assess the interrelationships of such complex factors.

No published literature is found to use the DOI to assess how cultural and other factors affect Asian students' decisions and attitudes about campus mental health services. The DOI is a framework that consists of constructs applicable to many preexisting concepts. It brings together concepts across many different theories and provides an assessment of stage of readiness to adopt a certain behavior, in particular an innovation. Original research should design instruments that would measure DOI constructs and concepts relevant to the Asian student population and their cultural values. Such research would lead to theoretical frameworks that work and fit to study mental health in this population and make a difference.

In addition, there is a dearth of literature that investigates awareness and knowledge of mental health services among the college student population. More research is needed on this construct to help determine appropriate means for communication and sharing of information, which influence attitudes and decisions to use mental health services. It seems as though most of the college studies to date have assumed students were aware of mental health services, just because this information is supposedly included in their orientation. Targeted and specific knowledge-related items are needed, not just a few items asking whether students know where to go for help or if their insurance covers mental health services. It is more than just awareness in

knowledge, as mental health service is more than just a product. It is complex involving a system, which with inaccurate knowledge leads to misconceptions. With misconceptions, there would be low utilization of that service. For this reason, an assessment of students' knowledge should examine specific items, e.g., spans of service provided, any caveat to its use, process of getting help or using the service, or any policy related to the service.

Moreover, the findings of this study suggest that Asian American students at Emory University may not perceive the need for mental health support or help, despite the distress they may feel. Immediate actions through qualitative needs assessment could help explore factors associated with their perceptions of needs and learn about what type of support they may need from the university. Although there are culturally appropriate counseling services at Emory University, what the Asian American students need may not be counseling; it may be support groups, skill groups, or others. This qualitative needs assessment would provide information on what steps need to be taken and the language they use to describe mental health-related issues that they face.

With the data on language Asian American students use to describe mental health issues, primary interventions, such as brief screenings at the student health clinic, could be developed. Given that the literature and this study showed that Asian Americans describe mental health problems through physical symptoms, e.g., muscle tensions or sleep problems, they would more likely to use and seek primary health care for the problems. Also, in general those with mental health problems tend to have physical health issues. For this reason, the clinic is a vital place of intervention to access those at risk in this population.

Lastly, future research involving the datasets of ACHA-NCHA or HMS should include multi-year comparisons, as well as producing updated findings. Those using these datasets should consult and collaborate with the principal investigator of the studies or the data management teams of the datasets. These large datasets sometime have inconsistent coding of answers, e.g. 1=yes and 2=no vs. 0=no and 1=yes. Moreover, some variables such as the different races are not mutually exclusive, which adds more efforts in identifying multiethnic cases and cleaning up the data. Having the main codebook of the data management team would be extremely helpful in reducing errors and increasing efficiency working with the datasets. Also, working with them would help understand their coding so that a coding of the program analysis could be developed (e.g., syntax). With a template for cleaning and analysis would help with the ease of conducting updated analysis on these datasets as well as multi-year comparisons. In addition, given the difference in results from the two datasets although the students are from the same cohort of academic year, investigators should examine the sampling design between the two studies. Tremendously less Asian American students used mental health services on the HMS, making it less powerful to do a full regression model. The HMS consists of many factors that could be mapped onto the DOI constructs, making it appropriate and suitable for regression model. However, the small sample of Asian American users makes it less so. An examination of any systematic differences between the ACHA-NCHA and HMS (e.g., sampling or research design) would provide results that are more accurate and better fit for regression models.

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Appendix A

EMORY UNIVERSITY

Institutional Review Board

March 31, 2011

Linda Vo
Rollins School of Public Health
Emory University

RE: Determination: No IRB Review Required
49960 - *Utilization of Mental Health Services by Asian American College Students*
PI: Linda Vo

Dear Ms. Vo:

Thank you for requesting a determination from our office about the above-referenced project. Based on our review of the materials you provided, we have determined that it does not require IRB review because it does not meet the definition(s) of "research" involving "human subjects" or the definition of "clinical investigation" as set forth in Emory policies and procedures and federal rules, if applicable. Specifically, in this project, you will use de-identified data from the National College Health Assessment and Healthy Minds study to inform Emory University about the mental health of Asian American students, their attitudes, and use of mental health services.

This determination could be affected by substantive changes in the study design, subject populations, or identifiability of data. If the project changes in any substantive way, please contact our office for clarification.

Thank you for consulting the IRB.

Sincerely,

Sarah K. Clark, CIP
Senior Research Protocol Analyst
This letter has been digitally signed

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