THE RELATION BETWEEN DISTANCE AND COUNSELING TREATMENT OUTCOME AMONG CHINESE & VIETNAMESE CLIENTS

A Thesis Presented to the
Faculty of the College of Education
University of Houston

In Partial Fulfillment
of the Requirements for the Degree

Master of Education

by

Nazanin Delshad

May, 2012

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Abstract

Although the Asian population is vastly heterogeneous, previous research on the relation between driving distance, treatment outcome, and drop-out have examined Asian ethnicities together instead of as distinct ethnic groups. The current study examined Chinese and Vietnamese clients separately in order to investigate the relation between ethnicity, distance, and treatment outcomes (i.e., completion of treatment goals and number of days in treatment). Participant data was obtained from a de-identified database of clients who sought counseling services at an ethnic-specific agency. Findings indicate that driving distance from the agency is significantly related to treatment completion but is not significantly related to number of days in treatment. The interaction between ethnicity and distance was not statistically significant, however the results of this study suggest that further research is necessary to understand the impact that ethnicity and distance have on treatment outcome. Implications and limitations of this study are discussed.

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Chapter I

Review of the Literature

Asian Americans are one of the largest and fastest growing ethnic groups in the United States. There are currently more than 14 million Asians living in the United States and approximately 30% of all immigrants to the United States are Asian, making them the second largest population of immigrants in the United States (Lee, Martins, Keyes, & Lee, 2011; U.S. Census Bureau, 2010). In the mid-1800s, the Chinese became the first group of Asian immigrants to the U.S. and since then Asian immigration has fluctuated depending on various political issues occurring in different regions; however, the Chinese still remain the largest group of Asian Americans (Herrick & Brown, 1998; Iwamasa, Hsia, & Hinton, 2006; Parker, Gladstone, & Chee, 2001). A significant portion of the foreign-born Asian American population consists of refugees who have been forced to leave their countries, homes, and families in order to survive. Asian refugees are often exposed to various traumatizing psychosocial and physical events such as separation from loved ones, witnessing deaths of loved ones, war, concentration camps, torture, rape, robberies, loss of physical and financial resources, and finally discrimination and racism once settled in the host country, all of which put them at a higher risk of experiencing overwhelming psychological distress and mental health problems (Abe, Zane, & Chun, 1994; Herrick & Brown, 1998; Iwamasa et al., 2006; Kim, Jang, Chiriboga, Ma, & Schonfeld, 2010; Le Meyer, Zane, Cho, & Takeuchi, 2009; Lee & Lu, 1989; Leong & Lau, 2001; Lie, 2002; Mollica, Wyshak, & Lavelle, 1987; Silove & Ekblad, 2002; Silove, Steel, Bauman, Chey, & McFarlane, 2007; Takeuchi et al., 1998; Williams, Foo, & Haarhoff, 2006).

Asian Mental Health Service Underutilization and Drop-Out

Although Asians are more predisposed to mental illnesses their use of mental health services is noticeably lower than the general population as well as other ethnic groups (Abe-Kim et al., 2007; Bui & Takeuchi, 1992; Lee, Lei, & Sue, 2000; Lee et al., 2011; Leong & Lau, 2001; Matsuoka, Breaux, & Ryujin, 1997; Sue, 1977; Sue & Zane, 1987). Lee et al. (2011) reported a lifetime prevalence of mental health service utilization for Asians with any DSM-IV psychiatric disorder at 25%; this was significantly lower than the utilization rates for other racial and ethnic groups (White: 43%, Black: 34%, Hispanic: 35%, and Native American: 47%). Research has shown that the majority of Asians who meet criteria for a psychiatric disorder do not use mental health services and those who do are most likely U.S. born Asians as opposed to immigrant Asians (Abe-Kim et al., 2007; Le Meyer et al., 2009). One study found that 12% of Chinese and 14% of Vietnamese immigrants reported symptoms suggesting mental distress, yet only about 2% and 3% respectively saw a mental health professional to alleviate their symptoms (Sorkin, Nguyen, & Ngo-Metzger, 2011). Results of another study showed 20.5% of Chinese immigrants had experienced an episode of any major psychiatric disorder during their lifetime and yet only 9.5% had ever contacted a formal mental health agency (Spencer & Chen, 2004).

In the 1970s, 52% of Asians dropped out of treatment after the initial intake session compared to 30% of Whites; of those clients who did return after the first session, Asians averaged only two sessions whereas Whites attended on average eight sessions before drop out (Sue & McKinney, 1975). In accordance with those findings, Sue (1977) also reported that over half of Asian clients at public mental health facilities do not return

after their first visit. The improvement since the 1970s has been minimal. Abe-Kim et al. (2007) found that the use of mental health services during a 12-month period for Asians with any DSM-IV diagnosis was 34.1%, which was less than the general population (41.1%) based on the findings of the National Comorbidity Survey Replication (NCS-R) (Wang et al., 2005). One study examining the appointment attendance rates of Asians at a program designed to be ethnic-specific found a nonattendance rate of 30% (Akutsu, Tsuru, & Chu, 2004).

Asians who do use the mental health care system usually have more severe illness than their White counterparts (Durvasula & Sue, 1996). Most Asians hold traditional values that include heavy stigma attached to having mental illness and shame in expressing one's feelings to a stranger; thus Asians, especially Chinese, will often seek help from mental health professionals only as a final resort to obtain an immediate resolution to a crisis situation (Durvasula & Sue, 1996; Herrick & Brown, 1998; Kim et al., 2010; Lee & Lu, 1989; Leong & Lau, 2001; J. Lin, 1994; T. Lin, 1983; Parker et al., 2001; Root, 1985; Sue & Sue, 1977; Williams et al., 2006). Likewise, treating mental illness in Vietnamese is difficult because of the extremely high early termination rates due to the many cultural differences in therapy between the host population and Vietnamese (Atkinson & Gim, 1989; Pernice & Brook, 1996; Silove et al., 2007; Snodgrass et al., 1993; Sue & Zane, 1987).

Barriers to Mental Health Service Utilization

The premature termination of mental health care in the United States has become a primary issue of concern in recent years, especially for mental health professionals (Bados, Balaguer, & Saldana, 2007; Coodin, Staley, Cortens, Desrochers, & McLandress,

2004; Daniels & Jung, 2009; Herrick & Brown, 1998; Kruse, Rohland, & Wu, 2002; Olfson et al., 2009; Pinto-Meza et al., 2011; Rossi et al., 2002; Simon & Ludman, 2010; Wang et al. 2005). For example in 2007, approximately 24.3 million adults in the United States were diagnosed with serious psychological distress mainly in the form of either anxiety or mood disorders, however, less than half (44.6%) of those individuals received mental health services (Substance Abuse and Mental Health Services Administration, 2008). A meta-analysis of psychotherapy drop-out conducted by Wierzbicki & Pekarik (1993) showed an average drop-out rate of about 50% across 125 studies. Additional studies have shown dropout rates ranging from 20% to 40% for respondents who had received mental health treatment during the previous 12 months (Bados et al., 2007; Olfson et al., 2009; Wang, 2007; Young, Grusky, Jordan, & Belin, 2000). Even though the number of sessions the clients attend before dropping out of treatment may vary, most clients who terminate treatment early do so after the first session (Bados et al., 2007; Simon & Ludman, 2010; Sue, 1977).

Previous studies have found various predictors of mental health service use, most of which can be grouped into predisposing, enabling, and need factors according to the behavioral model of health service utilization (Abe-Kim et al., 2007; Andersen, 1995; Kim et al., 2010; Kruse et al., 2002; Leaf et al., 1988; Pescosolido & Boyer, 2010). Predisposing factors encompass the various demographic characteristics of individuals that have been shown to affect whether an individual stays in treatment. Demographic characteristics such as low socioeconomic status, income, or education have been reported to predict early termination of treatment (Barreto & Segal, 2005; Mitchell &

Selmes, 2007; Neighbors et al., 2007; Olfson et al., 2009; Reis & Brown, 1999; Sue, 1977; Wang et al., 2000; Wang et al., 2005; Wierzbicki & Pekarik, 1993).

Need factors incorporate the ways in which people view their health and experience symptoms of illness and how those views have an effect on whether or not they seek professional help (Andersen, 1995; Parker et al., 2001). Members of different cultures and ethnicities may consider their physical and mental health very differently from each other which, in turn, affects their perceived need for treatment (Herrick & Brown, 1998; Lee & Lu, 1989; Root, 1985). The presentation of depression, for example, is very different in Asian cultures than in Western cultures (Parker et al., 2001). Individuals from Asian cultures also consider somatic symptoms as more acceptable manifestations of mental illness than the verbal disclosure of symptoms that is embraced in Western cultures (Herrick & Brown, 1998).

Enabling factors refer to the necessary resources that may or may not be available to individuals in order to obtain and remain in treatment. Transportation problems or lack of nearby mental health facilities have repeatedly been shown to cause missed appointments and treatment dropout (Bados et al., 2007; Cosgrove, 1990; Jackson, Booth, McGuire, & Salmon, 2006; Lacy, Paulman, Reuter, & Lovejoy, 2004; Leaf et al., 1988; Leong & Lau, 2001; Mitchell & Selmes, 2007; Pekarik, 1983; Pekarik, 1992; Pesata, Pallija, & Webb, 1999; Root, 1985; Wang, 2007; Young et al., 2000). One of the strongest predictors of treatment drop-out has been found to be whether the treatment facility is located within the client's ethnic community (Flaskerud, 1986). For example, clients living farther than 3.3 miles away from the treatment center were found less likely than those living within that distance to begin treatment (Jackson et al., 2006). Pesata et

al. (1999) reported that 51% of respondents attributed their missed appointments primarily to transportation problems. In situations that the mental health agency is located outside of the client communities, the inconvenience of transportation difficulties and driving time may prevent clients from attending appointments regularly (Flaskerud, 1986). In a study of patients who dropped out of treatment, 40% did so because of external difficulties such as transportation problems (Bados et al., 2007). The scarcity of resources and services that result from residing in rural and underdeveloped areas that are too far away from treatment facilities has a significant effect on diagnosed individuals' ability to continue treatment (Bruwer et al., 2011; Pinto-Meza et al., 2011; Wang et al., 2005). The presence of enabling factors is especially important for ethnic minority individuals who may not be aware of the available services or have the means to access those services (Leong & Lau, 2001).

Asian Subgroups

Members of ethnic minority groups have been shown to be more lacking in enabling and need factors such as accessibility of resources and perceived need for help, thus causing them to terminate treatment prematurely more than White individuals (Bui & Takeuchi, 1992; Herrick & Brown, 1998; Kruse et al., 2002; Leaf et al., 1988; Matsuoka et al., 1997; Reis & Brown, 1999; Root, 1985; Sue, 1977; Sue & Sue, 1977; Wang, 2007; Wang et al, 2005; Wierzbicki & Pekarik, 1993). Among National Comorbidity Survey Replication respondents diagnosed with a mood or anxiety disorder in the past 12 months, approximately 80% of racial-ethnic minority individuals did not continue mental health services, which shows a strong association between racial-ethnic minority status and drop-out from mental health services (Byers, Arean, & Yaffe, 2012).

Previous studies addressing ethnic and racial differences mental health care and drop-out have combined all Asian ethnicities (Chinese, Cambodian, Japanese, Filipinos, etc.) into one large group. Reasons for this may be that Asian ethnicities as a collective hold similar values that can be clearly contrasted with Westerners and that participant sampling is much easier when all Asian sub-ethnicities are grouped together (Chu & Sue, 2011). The Asian population, however, is noticeably heterogeneous with respect to the many ethnic subgroups between which there are many differences regarding immigration and relocation experiences as well as how they understand mental health care and how long they stay in treatment (Abe-Kim et al., 2007; Akutsu et al., 2004; Barreto & Segal, 2005; Chung & Lin, 1994; Durvasula & Sue, 1996; Sorkin et al., 2011). These Asian subcultures hold various values and beliefs that inevitably determine their perception of mental illness and subsequent motivation to access services (Herrick & Brown, 1998). Consequently, combining these diverse Asian subgroups may result in erroneous conclusions regarding mental health utilization habits of this ethnic group as a whole and lead to inefficient treatment planning and service delivery (Uehara, Takeuchi, & Smukler, 1994).

Looking at two of these Asian subgroups in particular, an analysis of immigration-related factors on the lifetime prevalence of any mental health disorder found a lifetime prevalence of 18% for Chinese immigrants and approximately 14% for Vietnamese immigrants (Takeuchi et al., 2007). Southeast Asian (e.g., Vietnamese) ethnicities are more prone to attend initial appointments than East Asian (e.g., Chinese) ethnicities (Akutsu et al., 2004). Chinese immigrants have been found to be less likely than Vietnamese immigrants to schedule appointments for mental health problems

(Sorkin et al., 2011). Vietnamese refugees have also been found to be more proficient in English than Chinese Vietnamese refugees (Chung & Lin, 1994). Chinese immigrants have also reported less satisfaction and lower perceived helpfulness than Vietnamese immigrants with the mental health care they receive, a factor that may contribute to more premature terminations in the Chinese population (Abe-Kim et al., 2007). A study analyzing the help-seeking attitudes of Chinese Americans reported that approximately 15% of respondents with at least one psychiatric disorder received help from a mental health specialist (Kung, 2003). Even when matched with a same-ethnicity therapist, one third of Chinese American clients dropped out of treatment after the second session and by the sixth session two thirds of clients had failed to return (Lin, 1998). The frequent premature termination of mental health care often causes less successful treatment outcomes for those clients who drop out (Kung, 2003).

Rationale

The high drop-out rates found for these Asian subgroups are most often a result of a deficiency in the presence of the enabling factors such as awareness of available resources, language fluency, and access to nearby facilities (Abe-Kim et al., 2007; Leong & Lau, 2001). Due to their cultural conceptions regarding the cause and treatment of mental illness, need factors are especially lacking for Asian Americans which cause them to deny the presence of their distress (Herrick & Brown, 1998; Lee & Lu, 1989; Leong & Lau, 2001; Root, 1985). Although research has consistently shown that Asian American subgroups vary in their attitudes regarding mental health, little research has been conducted to uncover these within-group differences that may lead to drop-out from treatment (Chu & Sue, 2011).

Despite an extensive body of research examining the association between ethnicity and the outcome of counseling, the impact of ethnicity and distance on counseling treatment outcome has not yet been assessed by any published studies. The lack of research in this area creates a gap in the literature for two reasons. First, with respect to the association between ethnicity (e.g., Chinese or Vietnamese) and attendance at counseling sessions, ethnicity may be an independent predictor of unsuccessful treatment outcome. Additionally, the effect of distance on treatment outcome may vary according to ethnicity. Consequently, if there is an interaction between distance and ethnicity that has not been examined, the estimate of the true relation between distance and treatment outcome will be less precise causing a less accurate description of the relation between distance and treatment outcome. The clinical implications of which are a negative effect on counseling treatment outcome.

The purpose of this study was to examine the relations between distance, ethnicity, and treatment outcome with two goals in mind. First, the association between treatment outcome (i.e., successful completion of treatment and number of days in treatment), distance, and ethnicity (i.e., Chinese or Vietnamese) was investigated *while holding constant potential differences in medical (e.g., Axis I diagnosis) and socio-demographic (e.g., age, gender, etc.)* variables. Second, this study assessed whether ethnicity is a moderator variable that will affect the direction and/or strength of the relation between distance and treatment outcome as measured by completion or non-completion of treatment and number of days in treatment. It was hypothesized that both distance and Chinese ethnicity would independently contribute to unsuccessful treatment outcome and less days in treatment.

Chapter II

Method

Data

Participant data was selected from a de-identified database provided by Asian American Family Services (AAFS). AAFS was first established in 1994 to improve mental health care services provided to the Asian American population in Houston, TX and is currently the only non-profit social service agency providing bi-lingual and bi-cultural mental health services to the diverse pan-Asian population in Houston.

The database contains demographic and treatment information for 432 clients who received counseling services at that facility from 2004 to 2011. Only clients who had complete files were included in the analysis for this study.

Participants

Only Chinese and Vietnamese clients who received counseling services between 2004 and 2011 at AAFS were selected as participants for this study. The sample originally included *351* participants from which 65 clients, who were under 18 years of age, were removed. The final sample consisted of *286* clients of which 165 were Chinese (C) and 121 were Vietnamese (V). The total participant sample consisted of 207 female clients (C = 120; V = 87) and 78 male clients (C = 45; V = 33). The ages of the participants ranged from 18 to 90 years and the number of years the participants have resided in the United States ranged from 0 to 54 years.

Research Design

This study examined the relations between distance, ethnicity, and treatment outcome. Distance was defined as the number of miles that the client's residence was

away from AAFS. Clients identifying themselves as either Chinese or Vietnamese were evaluated in terms of their treatment outcome and distance away from the treatment facility. Treatment outcome was assessed through completion or non-completion of the treatment goals agreed upon by therapist and client during the intake session and the number of days that the client was in therapy.

Measures

Independent variables in this study included ethnicity (i.e., Chinese or Vietnamese), distance to treatment facility, age, gender, years in the United States, level of education, annual income, and comorbidity (if the client was diagnosed with more than one disorder). The dependent variables measured were treatment outcome as measured by number of days in treatment and completion or non-completion of the treatment goals as assessed and agreed upon by clinician and patient at intake. Ethnicity (i.e., Chinese or Vietnamese) was evaluated as a moderating variable between distance to treatment facility and completion or non-completion of treatment goals as well as number of days in treatment.

Data Analysis

Statistical analysis was performed using SPSS 20.0. Multivariate linear regression analysis was performed to examine whether distance and ethnicity interact with each other on length of treatment as well as the effects of age, gender, diagnosis, time in the U.S., and level of education. Binary logistic regression analysis was performed to examine the interaction between distance and ethnicity on treatment outcome as well as the effects of age, gender, diagnosis, time in the U.S., and level of education. Length of treatment is a continuous variable defined as the number of days the client stays in

treatment and treatment outcome is a dichotomous variable defined as completion or non-completion of predetermined treatment goals. In order to evaluate these interactions, a product term was created between distance and ethnicity. Independent variables that were coded dichotomously were gender (female = 0, male = 1), comorbid diagnosis (one disorder = 0, more than one disorder = 1), and education (less than high school = 0, high school and above = 1).

Chapter III

Results

Table 1 provides descriptive statistics for both the Chinese and Vietnamese samples. Both the Chinese and Vietnamese samples consisted of 27% males and 73% females. On average, Chinese patients were older than the Vietnamese patients (47.4 years and 40.8 years respectively). Individuals in the Chinese sample also had a higher level of education than Vietnamese patients (44% high school and above versus 22% high school and above). Vietnamese patients had higher annual household incomes than the Chinese patients ($37,071 and $33,460 respectively). Individuals from both groups had lived in the United States for about 16 years on average. Both groups included individuals who had one or more of the following diagnoses: Adjustment Disorder, Anxiety Disorder, Mood Disorder, and Psychotic Disorder. The most common diagnosis in the Chinese sample was Adjustment Disorder at 34% whereas Mood Disorder occurred more frequently in the Vietnamese sample (35%). Comorbidity, diagnosis of more than one disorder, occurred almost twice as frequently in the Vietnamese group than the Chinese group (13.2% versus 7.3%). On average, Vietnamese individuals lived further away from AAFS than Chinese clients at 13.2 miles and 11.2 miles respectively. Finally, slightly more Vietnamese clients (19.8%) completed treatment at AAFS than Chinese clients (19.4%).

Table 2 contains results of the binary logistic regression analysis with treatment completion as an outcome variable. The Nagelkerke R^2, which indicates the proportion of variation explained by this model, was .258. Independent significant predictors of treatment completion included gender, number of years in U.S., annual household

income, and distance from AAFS. Males were less likely to complete treatment compared to females (OR: .405). As the patients' number of years living in the U.S. increased, the odds of completing treatment decreased (OR: .945). Increase in annual household income was significantly associated with treatment completion (OR: 1.30). Increase in the number of miles traveled to AAFS significantly predicted non-completion of treatment (OR: .916). The interaction between ethnicity and distance from AAFS, however, was not statistically significant.

Table 3 contains results of the multivariate regression analysis with number of days in treatment as the dependent variable. Age, gender, number of years in U.S., level of education, comorbidity, and distance from AAFS did not have a significant effect on the number of days in treatment. Ethnicity of the client did approach significance ($p = .055$) in predicting number of days in treatment but was not statistically significant. Annual household income was the only independent significant predictor of the number of days that the clients stayed in treatment. Increase in annual household income predicted a decrease in the number of days that the client stayed in treatment ($B = -15.4$). The interaction between ethnicity and distance from AAFS was not statistically significant in predicting number of days in treatment.

Table 1.
Descriptive Statistics for Chinese and Vietnamese Clients.

Variable	Chinese (*n* = 165)	Vietnamese (*n* = 121)
Age (Years)	47.4 (SD = 15.3)	40.8 (SD = 13.5)
Gender		
Male	45 (27.3%)	33 (27.5%)
Female	120 (72.7%)	87 (72.5%)
Average Number of Years in U.S.	16.7 (SD = 11.3)	16.2 (SD = 10.3)
Level of Education		
Less Than High School	85 (55.9%)	95 (78.5%)
High School & Above	67 (44.1%)	26 (21.5%)
Average Annual Household Income ($)	33,460 (SD = 17,830)	37,071 (SD = 19,103)
Diagnosis		
Adjustment Disorder	56 (33.9%)	34 (28.1%)
Anxiety Disorder	22 (13.3%)	23 (19.0%)
Mood Disorder	43 (26.1%)	42 (34.7%)
Psychotic Disorder	7 (4.2%)	6 (5.0%)
Comorbidity	12 (7.3%)	16 (13.2%)
Average Distance from AAFS (miles)	11.2 (SD = 7.32)	13.2 (SD = 8.3)
Treatment Completed	32 (19.4%)	24 (19.8%)

Table 2.
Binary Logistic Regression Analysis Predicting Treatment Completion (n = 286)

Variable	*B*	SE *B*	Wald's Statistic	Odds Ratio	95% CI
Constant	.182	.996	.033	1.20	
Age	.002	.014	.030	1.00	.975-1.03
Gender (1 = Male, 0 = Female)	-.904*	.383	5.58	.405	.191-.857
Number of Years in U.S.	-.056*	.020	8.11	.945	.909-.983
Level of Education (0 = LHS, 1 = HS+)	.137	.389	.124	1.15	.535-2.46
Annual Household Income	.260*	.095	7.43	1.30	1.08-1.56
Comorbid Diagnosis (0 = Not Comorbid, 1 = Comorbid)	-.737	.668	1.22	.479	.129-1.77
Distance from AAFS	-.088*	.043	4.19	.916	.842-.996
Ethnicity (1 = Chinese, 0 = Vietnamese)	-1.15	.690	2.78	.317	.082-1.23
Distance * Ethnicity	.070	.059	1.42	1.07	.956-1.20

Note: *$p < .05$. **$p < .001$

Table 3.
Multivariate Regression Analysis Predicting Number of Days in Treatment (n = 286)

Variable	*B*	SE *B*	β
Constant	265	65.8	
Age	-1.09	.915	-.083
Gender (0 = Female, 1 = Male)	-31.7	29.0	-.072
Number of Years in U.S.	-2.11	1.22	-.121
Educational Attainment (0 = LHS, 1 = HS+)	-41.1	28.1	-.102
Annual Household Income	-15.4*	6.81	-.154
Comorbid Diagnosis (0 = Not Comorbid, 1 = Comorbid)	15.3	40.8	.025
Distance from AAFS	-.357	2.35	-.014
Ethnicity (1 = Chinese, 0 = Vietnamese)	93.4	48.4	.240
Distance * Ethnicity	-1.68	3.41	-.064

Note: *$p < .05$. **$p < .001$

Chapter IV

Discussion

The findings of the current study offer some interesting insights into mental health care utilization patterns for Chinese and Vietnamese individuals. An understanding of some of the utilization patterns for these particular Asian ethnicities can aid in treatment planning and help prepare mental health care professionals to provide more culturally effective treatment strategies for these individuals. As expected, some of the results of this study were in agreement with previous research but others were not.

Variables Predicting Treatment Completion or Non-Completion

Previous studies have presented conflicting reports regarding the effect of gender on treatment adherence and drop-out (Mojtabai, Olfson, & Mechanic, 2002; Olfson et al., 2009; Pinto-Meza et al., 2011; Wang et al., 2000). The results of the current study indicate that, among Chinese and Vietnamese individuals, males are more likely than females to discontinue counseling treatment. Chinese and Vietnamese men may attach more stigma to therapy and therefore rush to perceive themselves as cured in order to end treatment. It would be valuable to include other Asian ethnicities in this analysis of gender to see whether the effect is similar across all subgroups.

The number of years that the client was in the United States was shown to have an adverse effect on treatment completion in this study. This finding was unexpected since previous researchers have stated that acculturation and residing in the United States longer is associated with higher rates of mental health treatment utilization and adherence (Barreto & Segal, 2005; Sorkin, Nguyen, & Ngo-Metzger, 2011; Spencer & Chen, 2004). One explanation for these results in the current study is that the individuals who had been

in the U.S. longer may have already had their own social support network, which may have caused them to leave treatment. Another reason for these results may be that the individuals who had been in the United States longer had become more accustomed to the culture, which may have lessened the severity of their distress and led to termination of treatment. In future studies, it may be informative to compare number of days or years in the United States with self-rated questionnaires for severity of distress.

Analysis of the effect annual household income has on treatment completion and number of days in treatment produced interesting observations. Increase in annual household income significantly predicted completion of treatment, which is in accordance with results of previous studies (Olfson et al., 2009; Reis & Brown, 1999; Sue, 1977; Wang et al., 2005; Wierzbicki & Pekarik, 1993). However, increase in annual household income was also significantly associated with a decrease in the number of days a client was in treatment. The only explanation offered for these outcomes is that those individuals with higher annual household incomes were able to attend sessions on a more regular basis and complete their treatment plan at a faster rate than those clients who had lower annual household incomes. Therefore, clients with lower incomes may have been engaged in treatment for a longer period of time but may not have attended the number of therapy sessions necessary to complete treatment. It would be advantageous to include the number of therapy sessions attended by the clients in the current data analysis in order to ascertain whether this rationale is substantiated.

Analysis of the data also presented the finding that an increase in the number of miles from the client's residence to the treatment center is associated with an increase in the probability that the client will not complete treatment. This outcome is in agreement

with previous studies reporting that longer distance to the treatment facility and transportation problems predict treatment drop-out (Flaskerud, 1986; Jackson et al., 2006). Clients who had to travel longer distances to the treatment facility may have chosen to seek services from other mental health care providers who were nearer to their residence. Following up with those clients who did not complete treatment would be worthwhile to determine whether they terminated treatment because of travel distance to the facility and/or transportation services.

Conclusions and Future Directions

There were several limitations to this study that should be brought to attention in order to improve future studies. The sample sizes of both the Chinese and the Vietnamese groups were somewhat small and this may have led to inaccurate results since some variables, such as ethnicity, may have had a significant effect if the sample sizes been larger. Additionally, the data used in the analysis was pre-selected hence there was no opportunity to analyze many useful variables, such as number of treatment sessions, that were not included in the dataset. Lastly, due to geographic and sampling restrictions, caution should be used when generalizing these results to all Chinese or Vietnamese individuals.

The results of the current study advance our understanding of the mental health care utilization patterns of Chinese and Vietnamese individuals. The findings suggest that when working with individuals from these ethnicities, it may be useful tailor treatment plans for the men to include interventions that would keep them in therapy. It would also be beneficial for mental health professionals to be aware that recent Chinese and Vietnamese immigrants to the United States are not necessarily at a higher risk of

dropping out than those individuals who have been in the U.S. a longer period of time. Lastly, these results show that, for Chinese and Vietnamese individuals, the distance between their residence and the treatment center may facilitate or hinder their completion of treatment. The implication of which, is that treatment completion rates may be improved if treatment facilities are more concentrated in neighborhoods where Chinese and Vietnamese individuals predominantly reside. Finally, the results of the current study supplement previous findings that although Asian subgroups may have similar cultures, there are significant within-group differences that must be taken into account.

Future research should continue build on the differences between Asian subgroups regarding treatment adherence or drop-out. It would be valuable to add certain measures that would help explain the effects that specific variables may have on treatment completion. Some of these measures are number of treatment sessions, self-evaluations of the amount distress experienced at the start and end of treatment, and follow-up with clients who end treatment to uncover the cause of termination. It would also be advantageous for future research to consider whether the client's diagnosis has an effect on the interaction between distance and treatment completion or number of therapy sessions attended.

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