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Predictors of Mental Health Help-seeking Attitudes among Older Chinese Immigrants

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Predictors of Mental Health Help-seeking Attitudes among Older Chinese Immigrants

by

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Abstract

Chinese older adults are a growing population in Canada and data suggest that they are vulnerable to mental health issues. However, research has noted that older adults, especially ethnic minority seniors, underutilize mental health services. The influence of cultural factors on attitudes toward seeking mental health services may be a barrier to mental health utilization among Chinese older adults. Thus, the primary purpose of this study was to investigate a model of attitudes toward seeking mental health services among Chinese older adults. The secondary purpose of this study was to examine the relationships among mental health help-seeking attitudes, mental health utilization, and intentions to use mental health services among Chinese older adults. The current study assessed an adapted model (Kim, Atkinson, & Umemoto, 2001) of mental health help-seeking attitudes that included the predictors of personal factors (e.g., age, gender), environmental factors (e.g., social support), acculturation (participation in the host culture) and enculturation (maintenance of the heritage culture) among 149 middle-aged and elderly Chinese immigrants in Canada (M_{age} = 73.92 years; *SD* = 9.99; range: 55 to 95 years old). Although acculturation and enculturation were distinct processes among Chinese older adults, the model of help-seeking attitudes did not demonstrate good fit when evaluated using structural equation modelling. Acculturation and enculturation did not mediate the relationship among the predictors of age, gender, education, and perceived social support, and mental health help-seeking attitudes. More positive attitudes were evident among younger participants and respondents with better social support, but Chinese older adults had less positive attitudes than comparative samples. Attitudes were not related to seeking help from professionals (e.g. family physician), but were associated with seeking help from non-professionals (e.g., family and friends). In terms of mental health utilization, 8% of participants reported seeking help from a

family physician, while 11% had sought help from non-professionals. This is the first study to apply the adapted model (Kim et al., 2001) to older Chinese adults and contributes a number of important findings, despite theoretical and methodological limitations inherent to cross-cultural research. The results of this study provide suggestions for future research and implications for practice.

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Chapter One: **Introduction**

Canada's population is both aging and becoming increasingly culturally diverse. Currently, one in seven Canadians is over the age of 65 and this population has increased in size by over 11% in the past five years (Statistics Canada, 2007). Those aged 65 and over comprise nearly 14% of Canada's total population, and this is expected to grow to nearly 25% by the year 2036 (Statistics Canada, 2007).

It is anticipated that Canada's population will consist of 19% to 23% of visible minorities (i.e., persons, other than Aboriginal peoples, who are non-Caucasian in race or non-white in colour) by 2017 and around one-half of all visible minorities will be of either South Asian or Chinese descent (Statistics Canada, 2005). Immigrants (i.e., individuals not born in Canada and/or did not have Canadian citizenship at birth) comprise a relatively large share of seniors. For example, in 2001, 57% of individuals between the ages of 65 and 84 were immigrants, while only 17% of the non-senior population were immigrants (Statistics Canada, 2008). In Alberta, 26% of immigrant seniors belonged to a visible minority group in 2001, a proportion that has grown five-fold since 1981 (Statistics Canada, 2008).

The immigrant population is older than the non-immigrant population, with about 19% of all immigrants aged 65 and over, compared to 11% of non-immigrants in 2001 (Statistics Canada, 2008). Among Chinese communities in Canada, about 10% of individuals are over the age of 65 and it is expected that this proportion will grow in the coming years (Statistics Canada, 2001). Middle-aged sons and daughters aged 55 to 64, who are most often responsible for accessing care for their parents, are also aging

(Statistics Canada, 2002). These population projections have important implications for the provision of mental health services.

Results from the Canadian Community Health Survey indicate that, in comparison to middle-aged adults between the ages of 45 to 64, individuals 65 years old and above were less likely to report a mental health consultation with any health professional (Crabb & Hunsley, 2006). Mental health underutilization among older adults is a consistent finding across studies, and is prominent among ethnic minority seniors, who are especially underserved by mental health professionals (Biegel, Farkas, & Song, 1997; Choi & Gonzalez, 2005; Crabb & Hunsley, 2006; Karlin & Norris, 2005; Unützer et al., 2003).

With respect to the disclosure of mental health problems and utilization, Asian Americans are less likely to disclose problems and use services compared to White Americans (Zhang, Snowden, & Sue, 1998). Differences in attitudes toward seeking professional psychological help have been attributed to cultural beliefs among Chinese, Korean, and Vietnamese immigrant communities (Fung & Wong, 2007). Specifically, participants ascribing to Western models of illness had more positive help-seeking attitudes, while those subscribing to supernatural beliefs had more negative attitudes (Fung & Wong, 2007). Among ethnic minority older adults, cultural factors, such as a reluctance to discuss mental health issues with non-family members, and systemic issues, such as limited mental health programs for ethnic minority elderly, likely impact mental health utilization rates (Biegel et al., 1997; Zhang et al., 1998).

There is evidence that immigrant Chinese older adults are in need of mental health services despite reports of their underutilization. Data indicate that rates of

depression among older Chinese immigrants are nearly twice that found in the general elderly Canadian population, and that a larger proportion of Chinese Canadian immigrants self-report poor to fair mental health than White Canadians (Lai, 2000; Tiwari & Wang, 2006). Similarly, seniors who immigrated to Canada after 1981 report less positive health and lower well-being than Canadian-born seniors (Statistics Canada, 2008). Some research also indicates that elderly Asian American/ Pacific Islander women are at higher risk for suicide compared to other racial groups of the same gender and age (Sue, Cheng, Saad, & Chu, 2012). Although elderly Asian immigrants form a particularly vulnerable group, little research has examined the influence of factors, such as cultural beliefs or levels of cultural adaptation, on attitudes toward mental health services and the mental health utilization among this growing sub-population (Kung, 2004; Leong & Lau, 2001).

Attitudes toward mental health help-seeking are important to assess because positive help-seeking attitudes consistently predict intentions to seek mental health services (Bayer & Peay, 1997; Mackenzie, Gekoski, & Knox, 2006). The extent to which attitudes are preventing Chinese older adults from seeking help must be examined since help-seeking attitudes have been cited as a barrier to accessing mental health services (Robb, Haley, Becker, Polivka, & Chwa, 2003; Sareen, Cox, Afifi, Yu, & Stein, 2005; Woodward & Pachana, 2009).

1.1 Current Study

The current study assessed a model adapted from Kim, Atkinson, and Umemoto (2001) of attitudes toward seeking mental health services, and examined mental health utilization and intentions to utilize mental health services among 149 middle-aged and

elderly Chinese immigrants in Canada (M_{age} = 73.92 years; *SD* = 9.99; range: 55 to 95 years old). The model of help-seeking attitudes is based on personal factors (e.g., age, gender), environmental factors (e.g., social network), and two processes of cultural adaptation: *acculturation* and *enculturation* (described below). As such, the current study addressed the following goals among older adult Chinese immigrants aged 55 and above: (1) determined whether acculturation and enculturation are distinct processes, (2) determined the extent to which personal factors, environmental factors, acculturation, and enculturation, predicted attitudes toward mental health help-seeking, and (3) examined the relationships among mental health help-seeking attitudes, mental health utilization, and intentions to utilize mental health services.

1.2 Guiding Theoretical Model

In research exploring the relationship among Asian cultural values and the counselling process, a theoretical framework has emerged detailing the influences of personal factors (e.g., Asian ethnicity, gender) and environmental factors (e.g., peer groups, geographical location) on the processes of acculturation and enculturation among Asian Americans, and their combined influences on the counselling experience (Kim et al., 2001). Kim and colleagues (2001) defined acculturation as the degree to which an individual adheres to the cultural norms of the dominant society while, enculturation is defined as a process of retaining the cultural norms of an individual's indigenous culture. Thus, similar to Berry and colleagues' (2002) framework, the process of cultural adaptation can be distinguished along two dimensions: preference for developing relationships with other ethnocultural groups, and preference for maintaining one's heritage culture.

The theoretical model described by Kim and colleagues (2001) was adapted for use with a middle-aged and elderly population in the current study. Personal factors, environmental factors, components of the acculturation and enculturation processes, and the extent to which these factors predicted older Chinese immigrants' attitudes toward mental health help-seeking, and were related to mental health utilization and intentions to utilize mental health services were examined (see Figure 1). With respect to the dimensions of acculturation and enculturation for Chinese culture and Canadian culture, literature in the area of cultural adaptation has come to recognize the importance of assessing both cultural behaviours and values, and examining these dimensions separately (e.g., Kim, Atkinson, & Yang, 1999; Phinney, 1996).

Alternative models discussing health service utilization are available, such as the Health Belief Model (see Janz and Becker, 1984) and the Theory of Planned Behaviour (see Ajzen, 1991). However, these models do not include the predictors of cultural adaptation specifically. This is despite research that discusses the likelihood of cultural factors being barriers to mental health service utilization (e.g., Biegel et al., 1997; Kung, 2004; Zhang et al., 1998). The Kim et al. (2001) model provides a framework from which factors related to cultural adaptation, and the influence of cultural adaptation on help-seeking attitudes, can be better contextualized for Asian populations.

For the current study, I chose predictors in the model based on the available literature. In terms of outcome variables, the discussion below will focus on the attitudes toward mental health help-seeking, as the literature base for mental health utilization and intentions to utilize mental health services among Chinese older adults is limited.

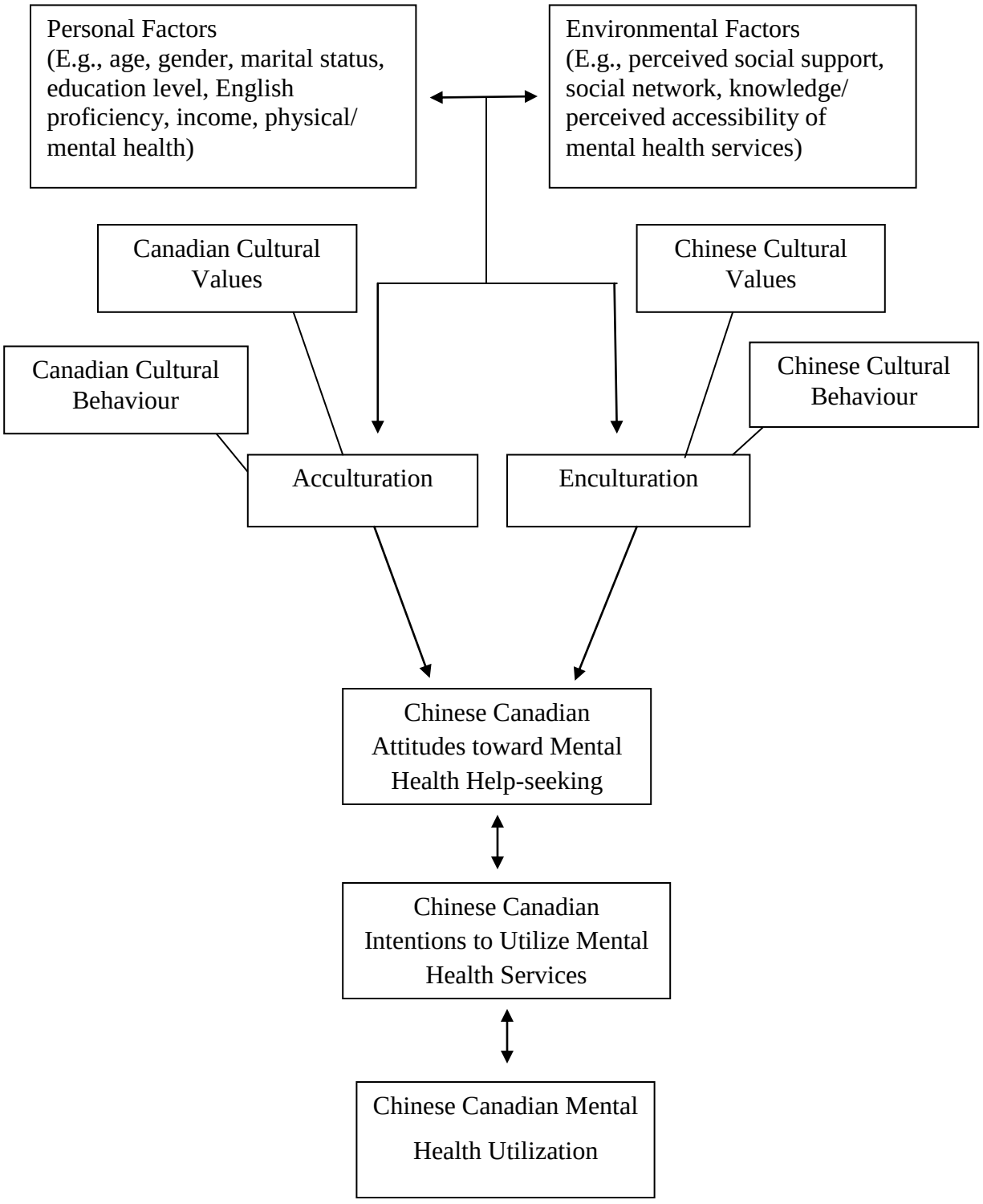

Figure 1. A contextual model of the relationship among Chinese Canadian individual variables and mental health help-seeking outcomes (adapted from Kim et al., 2001).

1.3 Predictors

1.3.1 Personal Factors

1.3.1.1 Age

When compared to their younger counterparts, White older adults held relatively positive attitudes toward seeking psychological help, favoured seeking help from primary care physicians, and preferred psychotherapy over psychotropic medication (Angermeyer, Breier, Deitrich, Kenzine, & Matschinger, 2005; Mackenzie et al., 2006; Mackenzie, Scott, Mather, & Sareen, 2008; Robb et al., 2003;Woodward & Pachana, 2009). Older age has also been associated with more positive mental health help-seeking attitudes among Vietnamese and Korean American immigrants (Luu, Leung, & Nash, 2009; Shin, Berkson, & Crittenden, 2000).

1.3.1.2 Gender

In a review of the literature conducted by Jackson et al. (2007), female gender was found to consistently predict positive attitudes toward mental health help-seeking and was associated with higher rates of mental health utilization. Similarly, female Americans aged 55 and older were found to hold more positive attitudes toward professional mental health services than same-aged males (Mackenzie et al., 2008). Based on Canadian data, researchers have reported that being female is significantly associated with increased odds of consulting any health professional regarding mental health or emotional problems (Crabb & Hunsley, 2006).

Research examining gender as a predictor of help-seeking attitudes and mental health utilization among community samples of Chinese Americans is equivocal. One study found that gender did not predict mental health help-seeking attitudes (Ting &

Hwang, 2009), another found women to have more positive attitudes than men (Tata & Leong, 1994), and yet another study found that Chinese American women were 158 times more likely to seek help for mental health issues than Chinese American men (Kung, 2003). Thus, the relationship among gender, mental health help-seeking attitudes, and service utilization among Chinese older adults needs to be clarified.

1.3.1.3 Marital Status

Compared to married persons, widowed, or divorced females living alone were consistently found to hold more positive attitudes toward mental health help-seeking and engage in higher rates of mental health utilization (Jackson et al., 2007). For example, being an unmarried Canadian female aged 45 and over significantly increased the likelihood of mental health consultations with health professionals (Crabb & Hunsley, 2006). However, among Chinese Americans, being married is a significant predictor for positive mental health help-seeking attitudes (Ying & Miller, 1992).

1.3.1.4 Education Level

In previous research, individuals with lower levels of education reported less positive help-seeking attitudes toward mental health professionals than participants with secondary education (Knipscheer & Kleber, 2005; Sheikh & Furnham, 2000). For middle-aged and elderly adults (aged 45 and over), higher levels of education were associated with increased odds of consulting a health professional for mental health or emotional problems in Canada (Crabb & Hunsley, 2006). However, education had no relationship to mental health utilization among Chinese Canadian immigrants (Chen, Kazanjian, & Wong, 2008). Thus, the relationship between education and mental health help-seeking attitudes among Chinese older adults requires further investigation.

1.3.1.5 English Proficiency

To date, studies investigating the role of English proficiency on mental health help-seeking attitudes among Chinese samples have not been conducted. However, studies investigating language barriers facing Chinese adults and the utilization of mental health services provide some insight.

For Chinese in the U.S. and England, self-reported low English proficiency has been found to interfere with mental health utilization and was a barrier to seeking mental health services (Kung, 2004; Li, Logan, Yee, & Ng, 1999). However, among Chinese immigrants in British Columbia, English ability was not a barrier to mental health utilization because most respondents consulted health practitioners who spoke Chinese (Chen et al., 2008). For Chinese older adults, self-reported English proficiency is likely to have an impact on mental health utilization, particularly for clients who do not have access to Chinese mental health professionals.

1.3.1.6 Income

Chinese Americans with low economic resources often lack medical insurance, and the cost of mental health treatment is a significant barrier to accessing services (Kung, 2004; Kung & Tseng, 2006). Although Canadians have basic health care benefits, mental health services in the public domain have long waiting lists and provide limited coverage. The costs associated with private mental health care are prohibitively expensive. Data from the 1994 National Population Health Survey in Canada suggest that individuals in the highest income bracket (i.e., an annual household income greater than $60,000) were slightly overrepresented among psychologists' clients, although it is

unclear whether these psychologists were employed in private practice or publicly funded settings (Hunsley, Lee, & Aubry, 1999).

1.3.1.7 Physical Health and Mental Health

In order to investigate mental health utilization, participants' perceived need for mental health services must be evaluated (Andersen, 1995). In previous research, subjective reports of participants' mental and physical health significantly predicted mental health utilization, with self-reported poor physical health associated with increased utilization (Crabb & Hunsley, 2006; Jackson et al., 2007; Rabinowitz, Gross, & Feldman, 1999; Sareen et al., 2005). For example, older Canadian adults with symptoms of depression and a high number of chronic health conditions were significantly more likely to consult a health professional for a mental health or emotional problem, likely due to increased distress associated with physical illness (Crabb & Hunsley, 2006).

The self-reported mental health status of Chinese participants has been found to influence attitudes toward seeking mental health services (Loo, Tong, & True, 1989; Shen & Takeuchi, 2001). Moreover, self-reported mental health or psychological distress has been associated with higher rates of mental health utilization (Jackson et al., 2007; Rabinowitz et al., 1999; Sareen et al., 2005).

1.3.2 Environmental Factors

1.3.2.1 Perceived Social Support

Perceived social support has been defined as the knowledge and belief that some social relationships will be a source of comfort and support if needed (Kumar & Browne, 2008). Among Asian American university students and Chinese female immigrants, increased perceived social support was associated with more positive mental health help-

seeking attitudes (Liao, Rounds, & Klein, 2005; Mo, Mak, & Kwan, 2006). Among American college students, knowing someone who had previously sought help resulted in more positive attitudes toward seeking mental health services (Vogel, Wade, Wester, Larson, & Hackler, 2007). Given these findings, it is likely that perceived social support shapes attitudes toward mental health help-seeking among older Chinese immigrants.

1.3.2.2 Social Network

A social network is defined as a web of identified social relationships surrounding an individual (Kumar & Browne, 2008), and in a sample of primarily White American college students, members of a student's social network were found to prompt students to seek mental health services 92% to 95% of the time (Vogel et al., 2007). For older adult Chinese Americans who report small social networks and few social supports, there may be a reliance on adult children and friends for information, advice, and help in accessing mental health services (Wong, Yoo, & Stewart, 2005). Based on these findings, social networks may influence mental health help-seeking attitudes and mental health utilization among Chinese older adults.

1.3.2.3 Knowledge of Available Mental Health Resources

In order to utilize mental health care services, clients must know of the availability of services (Andersen, 1995). Among Chinese samples in the U.S. and the U.K., lack of knowledge regarding mental health services was a major barrier to accessing care, and consequently contributed to low rates of utilization (Kung, 2004; Li et al., 1999; Loo et al., 1989). Among Canadian participants with a perceived need for mental health services, nearly 16% "did not know how to get help" (Sareen et al., 2005, p. 648). These studies would suggest that knowledge of available mental health resources

and services would be important to assess when investigating mental health utilization among older Chinese immigrants.

There are a number of organizations in Calgary, such as the Calgary Chinese Elderly Citizens' Association, that can provide counselling in Chinese. Furthermore, the Emotional Health Carnival, an annual event in Calgary's Chinatown, has endeavoured to increase knowledge about mental health issues in the last 10 years and promote the availability of counselling services for Chinese-speaking individuals.

1.3.2.4 Perceived Accessibility to Mental Health Resources

According to Andersen (1995), having the means and know-how to access available mental health services is another factor to consider when investigating mental health utilization. Among Asian female immigrants, a perceived inaccessibility to culturally appropriate mental health services resulted in more negative attitudes toward mental health help-seeking (Fung & Wong, 2007). These findings suggest that perceived inaccessibility to services and negative help-seeking attitudes would result in reduced rates of mental health utilization.

1.3.3 Acculturation and Enculturation

Processes of cultural adaptation influence attitudes toward help-seeking among immigrant populations (e.g., Atkinson & Gim, 1989; Atkinson, Lowe, & Matthews, 1995; Kung, 2003). Therefore, I assessed the processes of acculturation and enculturation in the current study to better understand their influence on attitudes toward seeking mental health services.

1.3.3.1 Models of Acculturation/ Cultural Adaptation

In recent years, models of acculturation or cultural adaptation have become more sophisticated, recognizing that cultural identities and practices are complex constructs. However, there has not been a consistent conceptual and operational representation of the processes of cultural adaptation (Kim, Laroche, & Tomiuk, 2004; Lam, 1995; Rudmin, 2003; Salant & Lauderdale, 2003). There are some who refer to the process of cultural adaptation as "acculturation" and speak of it as a single dimension, whereby individuals move along a continuum of involvement in their culture of origin to involvement in their host culture (Kim et al., 2004). Others have conceptualized cultural adaptation as involving two distinct processes, acculturation (increased participation in the host culture) and enculturation (participation in the ethnic community), which is gaining favour in the empirical literature (e.g., Cheung-Blunden, & Juang, 2008; Fung & Wong, 2007; Kim et al., 2004; Ryder, Alden, & Paulhus, 2000; Ryder, Dere, Krawcyzk, Paulhus, & Brotto, 2009).

Berry's framework for cultural adaptation is often cited as a bidimensional approach to cultural adaptation (e.g., Kim & Abreu, 2001; Ryder et al., 2000) as it discusses both maintenance of relations with other ethnocultural groups and the maintenance of cultural heritage (see Berry, 1980, 1984, and 1990). Furthermore, Berry, Poortinga, Segall, and Dasen (2002) denoted four possible cultural adaptation strategies, *integration, assimilation, separation,* and *marginalization,* depending on the degree of involvement along the two cultural dimensions.

To maintain clarity in the present study, I have chosen to adopt the term *cultural adaptation* to refer to the overall process of negotiating cultural identities that includes

both acculturation (adoption of host culture) and enculturation (maintenance of heritage culture). The term "acculturation" will be reserved for denoting research that has utilized a unidimensional model of cultural adaptation.

Research has concluded that Asian Americans can incorporate a second cultural orientation without losing their culture of origin, espouse both Asian and Western cultural beliefs, and engage in Asian and Western cultural behaviours (Miller, 2007). Furthermore, empirical analyses of the dimensionality of cultural adaptation among Chinese participants confirmed that the bidimensional model is a more valid and useful operationalization than the unidimensional approach (Ryder et al., 2000; also see Abe-Kim, Okazaki, & Goto, 2001; Cheung-Blunden, & Juang, 2008; Huynh, Howell, & Benet-Martínez, 2009; Lieber, Chin, Nihira, & Mink, 2001).

The majority of research investigating the influence of cultural adaptation on attitudes toward mental health help-seeking has utilized unidimensional measures that assessed enculturation but not acculturation (although researchers often refer to this as "acculturation"; e.g., Atkinson & Gim, 1989; Atkinson et al., 1995; Kung, 2003). For example, Kung (2003) assessed "acculturation" by inquiring about participants' use of Chinese language and participation in Chinese cultural activities, without asking about use of English language or participation in American cultural activities. In such research, it was assumed that individuals reporting increased Chinese cultural behaviours were less engaged with American culture, which reflects a unidimensional conceptualization of cultural adaptation. Therefore, the current study examined both enculturation and acculturation of older Chinese Canadian immigrants to more accurately capture the process of cultural adaptation and its impact on mental health help-seeking attitudes.

1.3.3.2 Acculturation of Chinese Older Adults

Research on the acculturation of Asian older adults is scarce, however there are some findings relevant to the present study. A study among Korean American older adults indicated that low acculturation was a significant risk factor for depression, since accepting Western ways led to an increased likelihood that older adults would reveal information and express themselves (Jang, Kim, & Chiriboga, 2005). Similarly, among older Chinese American immigrants, increased levels of acculturation increased their likelihood of using mental health services (Nguyen, 2011). These findings suggest that increased acculturation might facilitate the use of mental health services, and perhaps positively influence attitudes toward seeking mental health services.

1.3.3.3 Enculturation of Older Chinese Adults

Research indicates that maintenance of cultural beliefs and values among Chinese Canadian older adults is quite high. Traditional health practices, use of Traditional Chinese Medicine (TCM), and health maintenance using preventive diet were widely reported behaviours among Chinese Canadians over the age of 55 (Lai & Surood, 2009). Moreover, Canadian immigrants from Mainland China with lower education and a non-Western religion reported higher levels of identification with traditional Chinese health beliefs and practices (Lai & Surood, 2009).

For Chinese elders, research has been equivocal as to whether the maintenance of traditional cultural values is a protective or risk factor associated with symptoms of mental illness, such as depression (Lai, 2004b; Mjelde-Mossey, Chi, & Lou, 2006). Research suggests that prevalence rates of psychiatric disorders may be lower in Chinese societies due to the protective advantage of traditional Chinese values and that ethnic

identity is a strong predictor of psychological well-being among Chinese Americans (Chae & Foley, 2010; Leung, 1998). However, studies have shown that rates of depression, somatization, and posttraumatic stress disorder among Chinese Americans are at least as high as those for other Americans (Lee, Lei, & Sue, 2001). In addition, a study conducted with Asian immigrant elders over the age of 65 found that stress due to a perceived cultural gap between elders and their adult children was associated with high levels of depression (Mui & Kang, 2006).

1.3.3.4 Enculturation: Chinese Culture and Mental Health

Cultural beliefs have a direct impact on peoples' explanatory models of illness, affecting the way illness is understood and how remedies are sought (Kleinman, 1980). In some TCM texts, psychiatric illnesses were attributed to ghosts, evil winds, infection, nutritional deficiency, somatic illness, emotional stress, and congenital factors (Liu, 1981). In other Chinese medical texts, mental disease was believed to be due to an imbalance of the yin and the yang, two elements that could lead to disease if they varied from the normal (Veith, 1955). As a result, fasting, acupuncture, and herbal drugs are primary treatment methods in TCM because the status of the mind cannot be changed without changing the status of the body (Leung, 1998; Liu, 1981; Park, 2011).

In Canada, between 2002 and 2003, Chinese Canadians were 1.5 times more likely to use complementary and alternative medicine (e.g., acupuncture, massage therapy, herbalists), than non-Chinese Canadians (Roth & Kobayashi, 2008). It would appear that TCM remedies continue to be popular among Chinese Canadians, but whether or not TCM services are sought for mental health issues is unknown at this time. Asian cultural beliefs and beliefs about mental illness negatively impact attitudes toward

mental health help-seeking (Chen & Mak, 2008; Fung & Wong, 2007; Jang, Chiriboga, & Okazaki, 2009; Jang et al., 2005; Narikiyo & Kameoka, 1992; Sheikh & Furnham, 2000).

For many Chinese adults, the combined influences of Confucianism, Taoism, Buddhism, and cultural values such as filial piety and the preservation of *face*, a social and internalized sanction for enforcing moral standards, influence mental health treatment decisions (Chan-Yip & Kirmayer, 1998; Lin & Lin, 1981; Veith, 1955). Research has associated adherence to Asian values with more negative mental health help-seeking attitudes and suggests that the underutilization of professional mental health services by Chinese populations may be due to a cultural preference to consult family, friends, or traditional healers instead (Chan-Yip & Kirmayer, 1998; Kung, 2004; Li & Browne, 2000; Shea & Yeh, 2008; Yang, Phelan, & Link, 2008).

Previous studies that have examined the influence of "acculturation" on Asian and Chinese American university students' attitudes toward seeking psychological help and mental health utilization have been equivocal (e.g., Atkinson & Gim, 1989; Leong, Wagner, & Tata, 1995; Tata & Leong, 1994). Some studies have found that increases in "acculturation" increase help-seeking attitudes (Atkinson & Gim, 1989; Tata & Leong, 1994; Zhang & Dixon, 2003), while others have found the opposite (Hamid, Simmonds, & Bowles, 2009; Kim & Omizo, 2003), or no relationship (Atkinson et al., 1995). However, all of these studies measured "acculturation" using the Suinn-Lew Asian Self-Identity Acculturation Scale (SL-ASIA; Suinn, Rickard-Figueroa, Lew, & Vigil, 1987). The SL-ASIA has come under criticism as it is based on a unidimensional model of cultural adaptation and thus, is more accurately conceptualized as assessing enculturation

because it only inquires about heritage cultural practices (see Abe-Kim et al., 2001; Kim & Abreu, 2001). Therefore, it is likely that studies using the SL-ASIA provide an incomplete depiction of cultural adaptation and its influence on attitudes toward mental health help-seeking.

Recent research investigating the impact of enculturation and acculturation on attitudes toward seeking mental health services has concluded that increased acculturation and lower enculturation were significantly associated with more positive attitudes (David, 2010; Fung & Wong, 2007; Kim, 2007; Leong, Kim, & Gupta, 2011; Liao et al., 2005), while other studies did not find a relationship between cultural adaptation and attitudes (Kim & Omizo, 2010; Ting & Hwang, 2009). However, the extent to which enculturation affects older adults' attitudes toward mental health help-seeking and mental health utilization has yet to be investigated.

1.4 Primary Outcome Variable

1.4.1 Attitudes toward Mental Health Help-seeking

Attitudes toward mental health help-seeking have been theorized to be a key variable for accessing mental health services, and some research supports this proposal (Andersen, 1995; Bayer & Peay, 1997; Mackenzie et al., 2006). Although previous research has found that White older adults have more positive mental health help-seeking attitudes than adults less than 65 years of age (Mackenzie et al., 2008; Robb et al., 2003; Woodward & Pachana, 2009), ethnic minority populations have more negative attitudes toward seeking mental health services because of cultural values that stigmatize mental illness (Fung & Wong, 2007; Loya, Reddy, & Hinshaw, 2010; Soorkia, Snelgar, & Swami, 2011). In addition, older adults with more negative attitudes about mental illness

were less willing to seek mental health services, while those who had previously sought help held more positive help-seeking attitudes (Segal, Coolidge, Mincic, & O'Riley, 2005; Woodward & Pachana, 2009). It may be that negative attitudes are a barrier to mental health utilization among older Chinese adults.

The bulk of studies investigating mental health help-seeking attitudes have utilized the Attitudes Toward Seeking Professional Psychological Help Scale (ATSPPHS; Fischer and Turner, 1970; e.g., Atkinson & Gim, 1989; Atkinson et al., 1995; Hamid et al., 2009; Tata & Leong, 1994; Zhang & Dixon, 2003). However, the ATSPPHS has been criticised for its' outdated language (e.g., gender-specific pronouns), student-based standardization sample, poor to moderate subscale reliabilities, and truncated range of responses (Mackenzie, Knox, Gekoski, & Macaulay, 2004). The shortcomings of the ATSPPHS were addressed through the development of the Inventory of Attitudes toward Seeking Mental Health Services (IASMHS; Mackenzie et al., 2004). For reasons that will be discussed further in the Methods chapter, the IASMHS was better suited to the investigations of the current study.

1.5 Secondary Outcome Variables

1.5.1 Mental Health Utilization

Mental health utilization research typically poses "yes/no" questions to participants regarding their use of professional mental health services for emotional or psychological problems. Among the few studies of Asian immigrants' help-seeking behaviours for emotional distress, low utilization and a tendency to consult physicians has been reported (Chen et al., 2008; Kung, 2003; Le Meyer, Zane, Cho, & Takeuchi, 2009; Loo et al., 1989; Mo et al., 2006). Among samples of Chinese Americans and a

sample of Chinese immigrants in Hong Kong, the majority of participants never sought professional help and preferred to consult friends and seek alternative treatments (e.g., herbalists, acupuncturists, ministers) for mental health concerns (Kung, 2003; Loo et al., 1989; Mo et al., 2006). Older participants (56 years old and above) were more likely to consult a medical or mental health professional, while younger participants (55 years old and below) were more likely to seek informal help (Kung, 2003; Mo et al., 2006).

Among Chinese immigrants in Canada, mental health consultations primarily occurred with general practitioners (Chen et al., 2008). For older immigrants (i.e., participants who were 25 years old or older when they arrived in Canada), more years in Canada, more non-mental health visits to general practitioners, and more years of education increased the rate of mental health visits (Chen et al., 2008).

Only 28% of Asian Americans born outside of the U.S. reported use of specialty mental health services (e.g., delivered by a psychiatrist, a psychologist, a counsellor, or another mental health professional), compared to 54% of Asian Americans born in the U.S. (Le Meyer et al., 2009). Furthermore, the older an Asian American individual was when they first immigrated to the U.S., the lower the likelihood of mental health utilization (Le Meyer et al., 2009).

1.5.2 Intentions to Utilize Mental Health Services

Due to the expected mental health underutilization among Chinese participants, studies have often included help-seeking likelihood ratings as a means to examine intentions to seek professional mental health services (e.g., Kung, 2003, Mo et al., 2006). In such studies, respondents were asked to rate the possibility of their seeking mental health help from various sources, such as family or friends, medical doctors, or social

workers. For example, among Mainland Chinese immigrants in Hong Kong, social workers were most positively viewed as potential sources of mental health services compared to informal sources (e.g., family or friends), general health professionals, and mental health professionals (Mo et al., 2006). For Chinese immigrants, when mental health utilization is low or not reported, intentions to seek mental health services may provide useful information regarding the likelihood of accessing services.

1.6 Contribution, Rationale, and Significance of Current Study

The influence of enculturation on mental health help-seeking attitudes and behaviours among Chinese participants has been examined in the extant literature (e.g., Atkinson & Gim, 1989; Kung, 2003; Mo et al., 2006; Zhang & Dixon, 2003). However, these studies have relied upon college or university student samples and have not examined a wide range of factors that may influence attitudes toward mental health help-seeking, utilization, or intentions. Therefore, the current study extends the existing literature by investigating a model that examines personal factors, environmental factors, acculturation, and enculturation in relation to attitudes and intentions toward mental health help-seeking and mental health utilization among Chinese older adults. The current study is also unique in that it extends the research on attitudes toward mental health help-seeking beyond an undergraduate sample and incorporates a bidimensional model of cultural adaptation.

The current study makes theoretical, methodological, and clinical contributions. Theoretically, the study evaluates an adaptation and extension of the model put forth by Kim et al. (2001) to examine the extent to which personal factors, environmental factors, acculturation, and enculturation interact to influence attitudes toward mental health help-

seeking, mental health utilization, and intentions to utilize mental health services. The study also provides additional theoretical evidence for the bidimensional model of cultural adaptation that assesses participation in the host culture (acculturation) and maintenance of the heritage culture (enculturation).

Methodologically, this is the first study to assess the bidimensional model of cultural adaptation among Chinese older adults using the Vancouver Index of Acculturation (VIA; Ryder et al., 2000). In addition, this is the first study to examine mental health help-seeking attitudes among Chinese older adults using the Inventory of Attitudes toward Seeking Mental Health Services (IASMHS; Mackenzie et al., 2004). As a result, this study is able to examine the psychometric properties of scales assessing cultural adaptation and attitudes toward seeking mental health services with an understudied population.

In terms of clinical contributions, this study provides timely information regarding a growing proportion of the Canadian population. The study provides useful information for mental health professionals by indicating which factors influence attitudes toward seeking mental health services and utilization among Chinese older adults. This study also provides details related to rates of mental health utilization among Chinese older adults and discusses potential services barriers.

1.7 Research Questions and Hypotheses

This study uses an adapted theoretical model (Kim et al., 2001) to investigate attitudes toward mental health help-seeking among Chinese older adults, a group that has been largely overlooked in the literature. Specifically, three research questions are posed and addressed for the total sample; however, the preliminary and secondary research

questions are also examined separately for *middle-aged* (55 to 64 years old) and *elderly* participants (aged 65 and above) to examine potential cohort differences. The age split of cohorts was based on convention in other research (see Mackenzie et al., 2008; Statistics Canada, 2002).

1.7.1 Preliminary Research Question: Acculturation and Enculturation

Before addressing the primary research question, a preliminary question is posed: are acculturation and enculturation distinct processes among Chinese older adults? Based on the literature reviewed, I hypothesized that acculturation and enculturation are separate constructs that demonstrate concurrent and discriminant validity among older Chinese Canadian immigrants.

1.7.2 Primary Research Question: Model of Attitudes toward Mental Health Help-seeking

To what extent does an adapted theoretical model (Kim et al., 2001) predict attitudes toward mental health help-seeking among Chinese older adults (see Figure 2)? More specifically, what is the extent to which a model of personal factors, environmental factors, acculturation, and enculturation, predicts attitudes toward mental health help-seeking among Chinese older adults?

1.7.2.1 Primary Research Hypotheses

I hypothesized that the adapted theoretical model, with acculturation and enculturation as mediators, would adequately describe the relationship among the variables of age, gender, education level, perceived social support, and attitudes toward mental health help-seeking among Chinese older adults. I hypothesized that the inclusion of acculturation and enculturation would provide predictive utility in the model, above

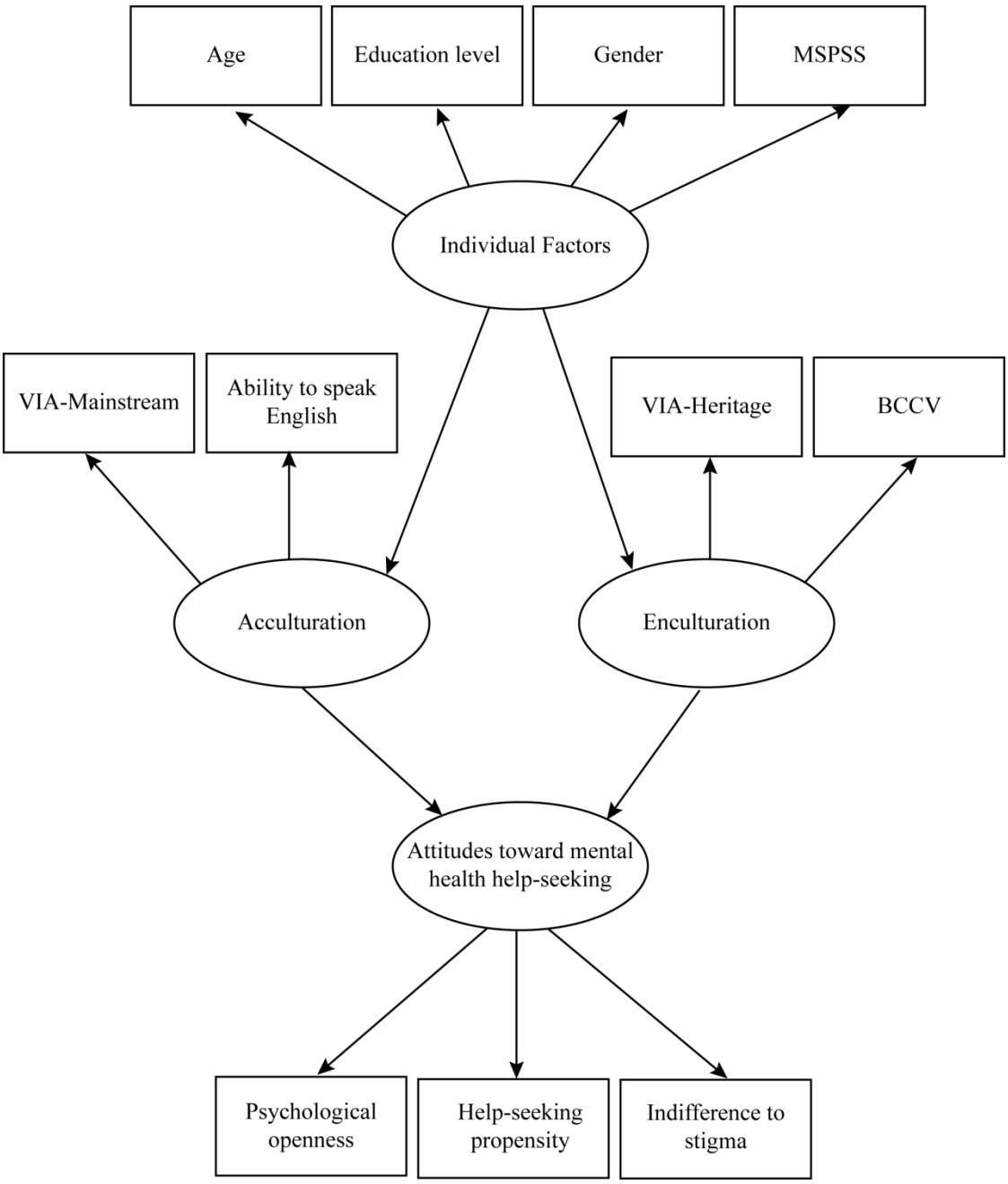

Figure 2. Initial structural equation model of attitudes toward seeking mental health services among Chinese older adults. Latent constructs are shown in ellipses, and observed variables are shown in rectangles. MSPSS = Multidimensional Scale of Perceived Social Support. VIA = Vancouver Index of Acculturation. BCCV = Belief in Chinese Culture and Values scale.

and beyond the variables of age, gender, education, and perceived social support.

Based on the extant literature, I made the following hypotheses:

1. Age was hypothesized to have an inverse relationship with help-seeking attitudes;
2. Females were hypothesized to have a more positive attitude toward seeking mental health services than males;
3. Education level would have a positive relationship with help-seeking attitudes;
4. Perceived social support would have a positive relationship with mental health help-seeking attitudes;
5. Enculturation was hypothesized to have an inverse relationship with help-seeking attitudes.
6. No hypothesis was made for the relationship between acculturation and help-seeking attitudes.

1.7.3 Secondary Research Question

1.7.3.1 Attitudes, Mental Health Utilization, and Intentions

How are mental health help-seeking attitudes related to rates of mental health utilization and intentions to utilize mental health services among Chinese older adults? Based on previous research, a positive relationship between attitudes toward seeking mental health services and mental health utilization was hypothesized. In addition, based on previous mental health utilization research, I hypothesized that Chinese older adults' utilization rates would be low (e.g., a minority of participants would report utilization of mental health services in the last year).

Hypotheses about older Chinese adults' intentions to utilize mental health services, the relationship between help-seeking attitudes and intentions, and the relationship between intentions and utilization were not made, as there is a dearth of literature in this area. Nonetheless, as this is the only study I know of to assess mental health utilization among Chinese older adults, a number of exploratory analyses could be conducted to examine factors that affect utilization, such as self-reported health and cohort differences.

Chapter Two: **Method**

2.1 Participants

Middle-aged adult and elderly Chinese Canadian immigrants, defined as individuals 55 years old and above born outside of Canada who self-identified as being of Chinese descent, were recruited for this study. Participants spoke Cantonese or Mandarin and were community-dwelling individuals and lodge residents of a long-term care centre whose cognitive abilities were not compromised. More specifically, for community-dwelling participants, I engaged interviewees in conversation and used my clinical judgement to assess their cognitive abilities. For lodge residents of a long-term care centre, staff had previously conducted formal cognitive assessments and identified interviewees that did not demonstrate cognitive impairment. Throughout all of the interviews, respondents showed no evidence of cognitive impairment.

2.1.1 Sample Size

It was expected that a sample size of at least 100 participants was necessary to conduct the proposed structural equation modeling analyses (Schumacker & Lomax, 2004; Tabachnick & Fidell, 2007). To ensure maximal representation of the population under investigation and allow for some initial exploration of possible cohort effects within the Chinese population, participants were recruited using a number of strategies.

2.1.2 Recruitment Techniques

Organizations, individuals, and sites that had participated in research conducted for my Master's thesis were contacted regarding the current study. Specifically, the Calgary Chinese Elderly Citizens' Association (CCECA), Chinese Community Service Association, Calgary Chinese Christian Mission of Canada (CCCM), and Wai Kwan

Manor were contacted to assist in the recruitment of participants. Program directors and managers were approached and provided with information regarding the purpose, intent, and requirements to participate in the study. Of the organizations contacted, CCECA, CCCM, and Wai Kwan Manor allowed me to approach organization members and tenants to recruit participants.

At CCECA and CCCM, research assistants and I made presentations in Cantonese and Mandarin to senior support and social groups operated by these organizations. The presentations described the purpose of the project and provided some details regarding the nature and content of interviews (e.g., time commitment, areas of focus). At Wai Kwan Manor, the building manager and tenants' association provided permission to leave 120 recruitment notices written in Traditional Chinese characters under the doors of each unit. The handout described the purpose and nature of the research study and included my contact information (see Appendix A).

Recruitment presentations were also made in English during a team meeting of the Alberta Health Services' Community Geriatric Mental Health Services. I described the study and requested that staff and clinicians give eligible clients a recruitment notice in either written Traditional Chinese or Simplified Chinese (see Appendix A). Similar presentations and requests were made to both the Northeast and Northwest Home Care teams of Alberta Health Services.

Other recruitment sites included the Wing Kei Care Centre, the Tsung Tsin Benevolent Association, the Chinese Emotional Health Carnival, and Carter Place. At the Wing Kei Care Centre, lodge residents within the long-term care centre were interviewed. Staff at Wing Kei identified eligible participants and confirmed that the lodge residents

interviewed did not have cognitive deficits associated with dementia or other conditions. At both the Tsung Tsin Benevolent Association and Carter Place, organization members and residents, respectively, were informed of the research project through posted notices in Traditional Chinese that indicated a date and time when interviews would be conducted on site. At both of these sites, research assistants and I were on site for a full day and multiple one-on-one interviews were conducted simultaneously.

At the Chinese Emotional Health Carnival, an annual event promoting emotional health in the Chinese community, announcements about the research project were made in Cantonese and Mandarin prior to panel discussions. Potential participants were also approached and provided a handout in Traditional or Simplified Chinese characters. Interested participants were asked to leave a name and phone number so they could be contacted to participate in this study.

Recruitment notices in Traditional Chinese and Simplified Chinese were also posted at Our Lady of Perpetual Help Church, the Southgate Alliance Church, and the Westside Calgary Chinese Alliance Church. Relevant service providers were also identified and contacted. Specifically, Chinese-speaking counsellors at the Centre for Newcomers, Calgary Family Services, and Calgary Immigrant Women's Association were informed of the research project and approached to assist in recruitment by giving Traditional Chinese recruitment notices to eligible clients. Similarly, staff and social workers at Linkages and the City of Calgary Immigrant Sector Council of Calgary were contacted to discuss the research project and asked to identify other older adult or Chinese community resources that could be included in recruitment efforts. The numbers of participants recruited from these sites are noted in Appendix B.

2.2 Procedure

2.2.1 Translation Procedure

Translation and pilot-testing of the protocol was conducted in consultation with the World Health Organization's guidelines (2007) for the process of translation and adaptation of instruments, pre-testing, and cognitive interviewing (see Appendix C). Separate Cantonese and Mandarin protocols were created to reflect linguistic differences and ensure accurate phrasing in both languages. Two dyads of bilingual undergraduate Psychology-major research assistants, fluent in Cantonese and Mandarin translated and back-translated questionnaires and research materials in which Chinese versions were unavailable (i.e., Informed Consent/ Information Sheet, Multidimensional Scale of Perceived Social Support, list of chronic health conditions, Knowledge and Perceived Accessibility of Available Mental Health Resources, Inventory of Attitudes toward Seeking Mental Health Services, Mental Health Utilization, and Intention to Utilize Mental Health Services). The remaining questionnaires were available in Chinese (see Measures section). The WHO guidelines were provided as instructions to the translators.

Two pilot participants representative of the intended sample (i.e., middle-aged and elderly Chinese immigrants) were administered the protocol as described below, then interviewed regarding the adapted instruments. Pilot participants were asked about the length of the protocol and how demanding participation was. Pilot participant feedback was taken into account when deciding upon the final research protocol, particularly in the area of Chinese character selection. The protocol was also revised following consultations with two bilingual (Chinese- and English-speaking) individuals familiar with the research project who have also conducted research with Chinese older adults

(i.e., Liza Chan, Phyllis Luk,). For every iteration of the protocol, research assistant dyads were consulted to resolve issues or discrepancies, and an individual fluent in Cantonese and Mandarin familiar with the research project (i.e., Ket Tieu) was also consulted regarding character selection and phrasing of items. Thus, the Cantonese version of the protocol was translated and back-translated six times, while the Mandarin version was translated and back-translated four times. (The final back-translation of the Informed Consent/ Information Sheet from the Cantonese protocol is presented in Appendix D, followed by the original consent sheet in English).

2.2.2 Interview Training

I provided interview training to four research assistants that consisted of a two-hour didactic training session on clinical interviewing skills, behavioural observations, and issues relevant to interviewing older adults. Research assistants also participated in a two-hour role-playing exercise, where each dyad administered the protocol to one another while I observed and provided feedback. Didactic training was also provided for how to handle issues that may arise during the recruitment or interviewing of participants.

2.2.3 Interview Procedure

Bilingual research assistants and I interviewed participants face-to-face in their preferred language (Cantonese or Mandarin) after verbal consent was obtained. Participants received a copy of the consent/ information sheet and their names were entered into a draw for a $100 gift certificate to T&T Supermarkets, regardless of whether or not the protocol was administered to completion. Following each interview, behavioural observations were recorded (see Appendix E).

Ethical approval for this study was received from the University of Calgary Conjoint Faculties Research Ethics Board. A handout of Chinese-speaking mental health resources and counsellors was available to provide to participants who expressed a need or interest in seeking help. None of the participants requested such information, and none were deemed to be in need of such information based on my clinical judgment.

2.3 Measures

2.3.1 Predictors: Personal and Environmental Factors

Personal factors were assessed with a socio-demographic questionnaire previously used in research with Chinese older adults (D. Lai, personal communication, January 10, 2008; see Appendix F). The following self-report scales were then administered in the order presented in the Appendix.

2.3.1.1 Perceived Social Support

The Multidimensional Scale of Perceived Support (MSPSS; Zimet, Dahlem, Zimet, & Farley, 1988; see Appendix G for Cantonese back-translation followed by English original) is a 12-item measure of the subjective adequacy of social support from three specific sources: family, friends, and significant other. Response options are provided on a seven-point scale (from 1 being *very strongly disagree*, to 7 being *very strongly agree*), with higher scores indicating greater perceived social support, and scores range from 12 to 84 for the total scale.

Zimet and colleagues (1988) found the measure to be reliable among a sample of 275 undergraduate university students with a mean age of 18.60 (*SD* = 0.88). The total MSPSS was found to have a Cronbach's alpha equal to .88, while the family, friends, and significant other subscales had Cronbach's alphas of .87, .85, and .91, respectively (Zimet

et al., 1988). Factor analyses confirmed that the MSPSS is comprised of three subscales with minimal and moderate correlations among the subscales (Zimet et al., 1988).

The MSPSS had Cronbach's alphas that ranged from .87 to .94 with older adults with Generalized Anxiety Disorder (GAD) and older adults without a diagnosable mental disorder (M_{age} = 67.53, *SD* = 6.77, 96% Caucasian, no Asian participants; Stanley, Beck, & Zebb, 1998). A three-factor solution was found for older adults without diagnosable mental health conditions, while a two-factor solution (Family and Significant Others) was found for older adults with GAD (Stanley et al., 1998).

The MSPSS has been translated and back-translated into Cantonese or Traditional Chinese characters (MSPSS-C) and used with two samples of adolescents from Hong Kong (Cheng & Chan, 2004; Chou, 2000). In both studies, two factors were extracted from the MSPSS, Friend and Family, as items from the Significant Other subscale were combined onto the Friends subscale. The MSPSS-C demonstrated high internal consistency overall (Cronbach's alpha = .89) and high internal consistency for the Friend (.76 to .94) and Family subscales (.78 to .86; Cheng & Chan, 2004; Chou, 2000). A Chinese translation of the MSPSS was administered to college students in the U.S. (*n* = 302) and China (*n* = 273; Zhang & Norvilitis, 2002). Although the three-factor structure was not replicated, as only one factor was found, the authors concluded that this should not prohibit the use of the MSPSS with Chinese populations (Zhang & Norvilitis, 2002).

2.3.1.2 Social Network

Information regarding older adults' social networks was collected to contextualize perceived social support. Adult children are often primary caregivers to their older adult parents and are an important source of social support to older adults (Statistics Canada,

2002), which may be particularly true among Chinese families where living with extended family members is a common cultural practice, especially for those aged 65 and over (Statistics Canada, 2001). Thus, participants in the current study were asked to report their current living arrangements, the number of children they have, and the ages and geographical proximity of their children (see Appendix F).

2.3.1.3 Physical Health and Mental Health

The Medical Outcomes Study 36-item Short Form (SF-36) is the most commonly used general health-related quality of life measure and has been translated into over 40 languages (Yu, Coons, Drugalis, Ren, & Hays, 2003). The measure consists of 36 Likert-scale items assessing eight health domains: Physical Functioning, Bodily Pain, General Health Perceptions, Vitality, Social Functioning, role limitations due to emotional problems (Role-Emotional), role limitations due to physical problems (Role-Physical), and Mental Health (The SF-36 is copyrighted material and therefore, is not presented in the Appendix). Table 1 presents the descriptions of what each scale assesses and the interpretation of scores. Items are also weighted and used to calculate Physical Component Summary (PCS) and Mental Component Summary (MCS) scale scores, indicators of overall general physical and mental health status, respectively. Responses to items are summed and standardized, yielding scale scores from 0 to 100, with higher scores indicating better health status (Ware Jr. et al., 2008). The SF-36 and its subscales have demonstrated good to excellent internal consistencies, with Cronbach's alphas in the range of .81 to .93 for a normative sample, with the exception of the Social Functioning subscale, which had an alpha coefficient of .68 (Ware Jr. & Gandek, 1998).

Table 1

Summary of SF-36 Scale Information

Scale	Definition	
	Low Score	High Score
Physical Functioning (PF)	Significant limitations in performing physical activities due to health	Little to no limitations in performing all physical activities due to health
Role-Physical (RP)	Problems conducting work or other activities due to physical health issues	Few problems completing work or other daily tasks because of physical health
Bodily Pain (BP)	High levels of pain that interfere with normal activities	No pain and no impact of pain on daily activities
General Health (GH)	An evaluation of general health that is poor and likely to get worse	A favourable evaluation of health
Vitality (VT)	Feelings of tiredness and being worn out	Feeling full of energy all or most of the time
Social Functioning (SF)	Extreme or frequent interference with normal social activities due to physical or emotional problems	An ability to perform daily social activities without interference from physical or emotional problems
Role-Emotional (RE)	Problems completing work or other activities due to emotional problems	No problems with work or other daily activities because of emotional problems
Mental Health (MH)	Frequent feelings of nervousness and depression	Feelings of peace, happiness, and calm all or most of the time
Physical Component Summary (PCS)	Limitations in self-care, physical, social, and role activities, severe bodily pain, frequent tiredness, rated health as "poor"	No physical limitations, disabilities, or decrements in well-being, high energy level, rated health as "excellent"
Mental Component Summary (MCS)	Frequent psychological distress, social, and role disability due to emotional problems, rated health as "poor"	Frequent positive affect, no psychological distress and limitation in usual social and role activities due to emotional problems, rated health as "excellent"

Note. Scale definitions from Ware Jr. et al., 2008.

The SF-36 has been translated into Chinese and validated for use with Chinese participants (Ren, Anick, Zhou, & Gandek, 1998). The Chinese version of the SF-36 has Chang, 1998). In the U.S., the Chinese translation of the SF-36 had internal consistencies (Cronbach's alphas) that ranged from .38 to .90 for Chinese older adults aged 55 to 96 (Ren & Chang, 1998). Psychometric properties of the SF-36 with a sample of older Chinese Canadian immigrants are not available (D. Lai, personal communication, November 6, 2012).

The current study used a Chinese version of the SF-36 obtained from QualityMetric Incorporated (2005). QualityMetric also provided scoring software, entitled QualityMetric Health Outcomes™ Survey Scoring Software 2.0 (Scoring Software 2.0, Saris-Baglama et al., 2007), which calculated dimension scores and component summary scale scores.

As an additional measure of health status, participants were asked to report chronic medical conditions from an adapted list previously used with older Canadian adults (Crabb and Hunsley; 2006) and the general Canadian population (Statistics Canada, 2009; see Appendix H). Chronic health conditions reported by Chinese older adults were compared to a sample of 551 Canadian-born White participants residing in Calgary aged 55 to 80 derived from the 2007 Canadian Community Health Survey (CCHS; Statistics Canada, 2009).

2.3.1.4 Knowledge and Perceived Accessibility of Available Mental Health Resources

Items assessing knowledge of available mental health resources and perceived access to mental health services were adapted from previous research (Fung & Wong, 2007; Knipscheer & KIeber, 2005; see Appendix I). Participants provided a yes or no

response when asked about knowledge regarding mental health resources, while perceived accessibility was rated on a four-point scale, from 1 being *totally disagree*, to 4 being *totally agree*

2.3.2 Acculturation and Enculturation

The Vancouver Index of Acculturation (VIA; Ryder et al., 2000) is a bidimensional measure of cultural adaptation that assesses the heritage (enculturation) and mainstream (acculturation) dimensions of culture change (Gamst, Liang, & Der-Karabetian, 2011; see Appendix M). The VIA is a 20-item scale with two subscales, the Heritage dimension and the Mainstream dimension. An individual's level of acculturation and enculturation is summarized by calculating a subscale mean for their scores on the Mainstream and Heritage dimension, respectively (Gamst et al., 2011). Scores on each dimension range from 10 to 90.

The VIA and its subscales have demonstrated good internal consistency with various samples. Specifically, the Heritage subscale had alpha coefficients ranging from .83 to .92 and Mainstream subscale coefficients that ranged from .80 to .89 with Puerto Rican and Indian American mothers, adults of East Asian descent, Chinese and Indo-Asian immigrants, North American sojourners in Taiwan, and Muslim adults (Asvat & Malcarne, 2008; Hsu et al., 2012; Kennedy, Parhar, Samra, & Gorzalka, 2005; Sood, Mendez, & Kendall, 2012). A meta-analysis of published studies involving the VIA found alpha coefficients that ranged from .66 to .92 for the Heritage subscale (14 studies) and .70 to .89 for the Mainstream subscale (13 studies) for participants with an average age of 22.47 (*SD* = 5.73; Huynh et al., 2009).

Respondents of Chinese descent were well represented in the VIA standardization samples, so the measures' items demonstrated good homogeneity for Chinese participants (Huynh et al., 2009). Moreover, the VIA has reliably assessed the bidimensional characteristics of cultural adaptation in ethnic Chinese (Huynh et al., 2009; Ryder et al., 2009).

The VIA has exhibited a two, orthogonal factor solution encompassing Heritage items and Mainstream items across four ethnic subsamples (Fung & Wong, 2007; Gamst et al., 2011; Ryder et al., 2000). In addition, the VIA has demonstrated concurrent and convergent validity through statistically significant correlations among the Heritage and Mainstream subscales and a number of key demographic indicators, such as percentage of time lived in the West, generational status, and percentage of time that English is spoken at home (Gamst et al., 2011; Sood et al., 2012). The VIA has been translated into Chinese and the version utilized in the current study was obtained from the authors of the Chinese translation (J. Teng and A. Ryder, personal communication, April 1, 2009).

In this study, two additional measures of enculturation developed for use with Chinese Canadian immigrant populations were administered (Lai & Chau, 2007). The Chinese Health Beliefs (CHB) scale contains 12 items that assess levels of agreement regarding health beliefs related to eating, health maintenance, and functions of traditional Chinese medicine. The CHB scale has an internal consistency (Cronbach's alphas) ranging from .80 to .85 for older Chinese Canadians (Lai & Chau, 2007; Lai & Surood, 2009). The Belief in Chinese Culture and Values (BCCV) scale has 11 items and assesses agreement with statements regarding language use, gender roles, interracial marriage, food and diet, and parent-child relationships. The BCCV scale has an internal consistency

(Cronbach's alpha) of .82 for older Chinese Canadians (Lai & Chau, 2007). Higher scores on both of these scales indicate a stronger endorsement of Chinese cultural beliefs and values, suggesting a higher level of enculturation (Lai & Chau, 2007). Lai and Chau's translated versions of the scales were used in the current study (see Appendix N and O).

2.3.3 Primary Outcome Variable: Attitudes toward Mental Health Help-seeking

Mental health help-seeking attitudes were assessed with the Inventory of Attitudes toward Seeking Mental Health Services (IASMHS; Mackenzie et al., 2004; see Appendix J for Cantonese back-translation followed by English original). The IASMHS consists of 24 items and three subscales (Psychological Openness, Help-seeking Propensity, Indifference to Stigma), with higher scores indicating more positive attitudes toward seeking mental health services.

The internal consistency of the IASMHS varies across studies. The IASMHS had Cronbach's alphas that ranged from .76 to .87 for a community sample of 206 participants with a mean age of 45.60 (*SD* = 17.80, range: 15 to 89 years old; Mackenzie et al., 2004). Cronbach's alphas for the IASMHS and its subscales ranged from .70 to .88 for Caucasian and South Asian undergraduate university students and Filipino Americans (David, 2010; Loya et al., 2010). For a sample of 49 adults aged 65 to 91 years from Auckland, New Zealand, Cronbach's alphas ranged from .45 to .89 (James & Buttle, 2008; H. Buttle, personal communication, November 22, 2012). Among 94 British Muslims of South Asian descent with mean age of 31 (*SD* = 10.3), Cronbach's alphas ranged from .67 to .77 (Pilkington, Msetfi, & Watson, 2012). A Chinese translation of the IASMHS noted Cronbach's alphas that ranged from .71 to .82 with Chinese participants

in Taiwan (M_{age} = 25.36; *SD* = 10.25, range: 18 to 74 years old; Loo, Oei, & Raylu, 2011).

2.3.4 Secondary Outcome Variable: Mental Health Utilization

To assess mental health utilization, a series of questions from the "Consultation about Mental Health Module" of the Canadian Community Health Survey were adapted (Statistics Canada, 2007; see Appendix K). It should be noted that the term "emotional" health was added to questions about mental health, as it is a term that may be less stigmatized among Chinese participants (Lai, 2003). Participants were also asked if they had been prompted to seek help regarding their emotional or mental health, and if so, whom they had been prompted by (e.g., spouse, child, friend, health professional), based on previous research that indicated the importance of assessing social network influence on mental health utilization (Vogel et al., 2007).

2.3.5 Secondary Outcome Variable: Intentions to Utilize Mental Health Services

For this study, a procedure for assessing intentions to seek mental health services used in previous research was adapted to collect proxy information regarding mental health utilization (see Kung, 2003; Mackenzie et al., 2006; Mo et al., 2006). Participants were asked to rate their likelihood of seeking help from a list of people if they were to experience significant emotional or mental health problems in the future. Ratings were made using a seven-point scale, where 1 is *very unlikely* and 7 is *very likely* (see Appendix L).

2.4 Plan for analyses

2.4.1 Preliminary Analyses

Preliminary analyses included an examination of sample characteristics using descriptive analyses and evaluations of the internal consistencies of the MSPSS, VIA Chinese Health Beliefs scale (CHB), Belief in Chinese Culture and Values scale, (BCCV) and the IASMHS using Cronbach's alpha. To evaluate the alpha coefficients, Cicchetti's (1994) guidelines were applied as follows: < .70 was "unacceptable", .70 - .79 was "fair", .80 - .89 was "good", and ≥ .90 was "excellent". Data were screened and examined for outliers, normality, linearity, and homoscedasticity using procedures recommended by Tabachnick and Fidell (2007). There were no missing data.

In order to assess the primary research question, confirmatory factor analyses were conducted using structural equation modelling (described below) for the MSPSS, VIA, and the IASMHS. The reliability, validity, and factor structure of the MSPSS, VIA, and IASMHS were examined in detail because the extant literature did not provide an indication of how these scales would perform with Chinese older adults.

2.4.2 Preliminary Research Question: Acculturation and Enculturation

Are acculturation and enculturation distinct processes among Chinese older adults? Based on the literature reviewed, it was hypothesized that acculturation and enculturation could be reliably separated as distinct constructs that demonstrate concurrent and discriminant validity among Chinese older adults.

Procedures used by Ryder and colleagues (2000) were adapted to investigate the psychometric properties of the VIA. Subscale intercorrelations were calculated to examine the VIA subscales for orthogonality (Ryder et al., 2000). Concurrent validity of

the Heritage subscale and discriminant validity of the Mainstream subscale were examined through correlations with other measures of enculturation, the CHB and the BCCV. Ryder and colleagues (2000) conducted a principal components analysis and extracted two components, reflecting items on the Heritage and Mainstream subscales, so a confirmatory factor analysis was conducted in the current study to determine the factorial validity of the VIA.

To further evaluate the bidimensional model of cultural adaptation, participants were categorized into Berry's framework of cultural adaptation strategies (i.e., marginalized, assimilated, separated, and integrated; 1990) based on VIA Heritage and Mainstream subscale scores. For example, a participant with a lower score on the Heritage subscale than the Mainstream subscale was categorized as assimilated. The presence of distinct cultural adaptation strategies among older Chinese adults would extend empirical support for the bidimensional model of cultural adaptation to older adults, which has not been evaluated in the extant research.

2.4.3 Primary Research Question: Model of Attitudes toward Mental Health Help-seeking

The primary research question of this study was, to what extent does an adapted model (Kim et al., 2001) of personal factors, environmental factors, and mediators of acculturation and enculturation predict attitudes toward mental health help-seeking among Chinese older adults? To address this research question, structural equation modelling (SEM) was conducted in AMOS (version 20; Arbuckle, 2011).

As there is little theory relating Kim et al.'s (2001) model to older adults, the model depicted in Figure 1 was modified based on the extant literature. Based on

Anderson and Gerbing's (1984) finding (as cited by Anderson & Gerbing, 1988) that a sample size of 150 would be sufficient to obtain a converged and proper solution for models with three or more indicators per factor, perceived social support was combined with three other personal factors (i.e., age, education, gender). Doing so also served to reduce the number of paths to be estimated in SEM and offset the potential issue of insufficient power (Kline, 2011). In addition, English proficiency was added as a feature of acculturation based on the existing convention in the extant literature (see Matsudaira, 2006; Salant & Lauderdale, 2003), and BCCV was added as an indicator of enculturation to more closely heed Anderson and Gerbing's (1984) suggestion. Thus, the model of mental health help-seeking attitudes depicted in Figure 2 was examined for overall fit using five goodness-of-fit indices indicated by available guidelines (Boomsma, 2000; Bryne, 2010; Cole, 1987; Raykov, Tomer, & Nesselroade, 1991; Schreiber, Stage, King, Nora, & Barlow, 2006).

Specifically, x^2 and its significance level were reported because a significant x^2 can indicate poor fit (Boomsma, 2000; Cole, 1987). The standardized root mean square residual (SRMR) is an index that should be less than .05 in a well-fitting model, and an Adjusted Goodness-of-Fit Index (AGFI) should be greater than .80 for an indicator of good fit (Bryne, 2010; Cole, 1987). Root mean square error of approximation (RMSEA) values less than .05 indicate good fit, and values between .06 and .08 suggest acceptable fit (Boomsma, 2000; Schreiber et al., 2006). The Comparative Fit Index (CFI) should have a value close to .95 to indicate good fit (Bryne, 2010; Schreiber et al., 2006). In general, a majority of the five indices should fall within the recommended ranges to indicate a well-fitting model (Schreiber et al., 2006). Parameter estimates (i.e., path

coefficients and standard errors of the estimates with their respective statistical significance and level of significance, and covariances among latent variables) of theoretically relevant variables were also presented to examine the model in more detail (Boomsma, 2000; Raykov et al.,1991; Schreiber et al., 2006).

The comparative fit of the initial model (Figure 2) was tested over a model with only socio-demographic predictors (i.e., education level, age, gender, and perceived social support; Figure 3). A better fitting model with measures of cultural adaptation would support the notion that cultural factors influence mental health help-seeking attitudes. Any modifications to the initial model were guided by theoretical, statistical, and practical indications, and changes in model fit were examined (Bryne, 2010).

In the event that a well-fitting model could not be identified, a hierarchical multiple regression analysis was planned to investigate the primary research hypothesis. It was hypothesized that the inclusion of enculturation and acculturation (VIA Heritage and Mainstream subscales) would provide incremental utility in the prediction of help-seeking attitudes above and beyond age, education level, gender, and perceived social support.

Hypotheses about the relationships among age, gender, education level (three levels), perceived social support, enculturation, and mental health help-seeking attitudes were examined through Pearson product-moment correlations, a one –way independent analysis of variance (ANOVA), and an independent t-test. Relationships among additional socio-demographic variables (e.g., marital status, health status), acculturation, and help-seeking attitudes among Chinese older adults were evaluated through Pearson-product moment correlations and one-way ANOVAs.

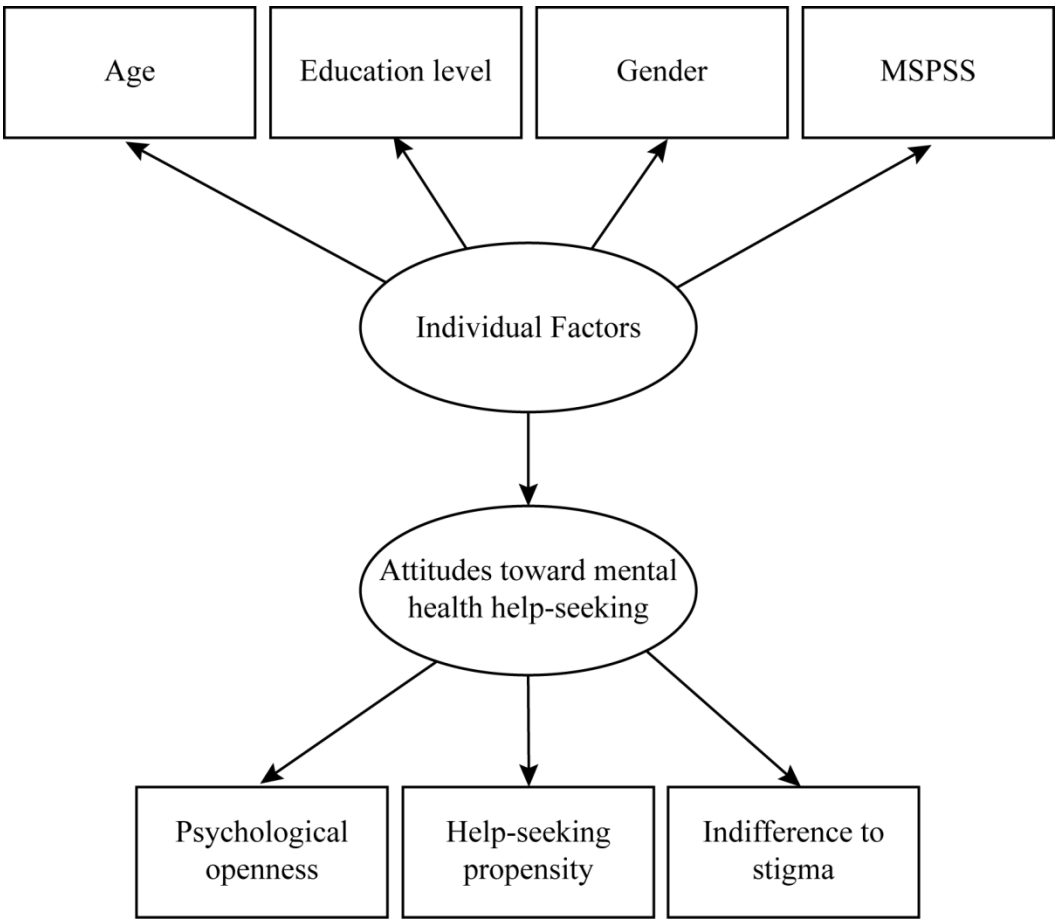

Figure 3. Comparative structural equation model of attitudes toward seeking mental health services among Chinese older adults. Latent constructs are shown in ellipses, and observed variables are shown in rectangles. MSPSS = Multidimensional Scale of Perceived Social Support.

2.4.4 Secondary Research Question: Attitudes, Mental Health Utilization, and Intentions

How are attitudes toward seeking mental health services related to rates of mental health utilization and intentions to utilize mental health services among Chinese older adults? Based on previous research, a positive relationship between help-seeking attitudes and utilization was hypothesized. It was also hypothesized that utilization rates among Chinese older adults would be low (e.g., a minority of participants would report utilization of mental health services in the last year).

Point-biserial and Pearson product-moment correlations were calculated to examine the relationships among attitudes, utilization, and intentions; these were also calculated to compare middle-aged and elderly respondents. Descriptive analyses were performed to examine mental health utilization and the intentions to utilize mental health services among Chinese older adults. A chi-square analysis compared mental health utilization between middle-aged (45 to 64 years old) and elderly (65 years old and above) participants. Three paired t-tests were conducted to explore differences in the reported likelihood of seeking help from a family physician compared to a psychologist, a psychiatrist, and a social worker; a significance level of $p < .02$ was set after a Bonferonni correction was applied to protect against Type I error. Point-biserial correlations were calculated to explore the relationships between self-reported health and mental health utilization.

Chapter Three: **Results**

3.1 Participants

3.1.1 Sample Size

In total, 157 participants were interviewed. Eight participants who completed an average of 39% of the interview questions withdrew from the study because they lost interest. Analyses indicated that non-completers did not significantly differ from completers in terms of gender, marital status, age, and length of time lived in Canada, so these cases were removed. Thus, a sample of 149 participants was obtained.

3.1.2 Interview Procedure

Participants were interviewed in their homes, at community centres, at a long-term care center, and in shopping mall food courts. The majority of interviews were completed in one hour (range: 45 minutes to two hours). Most interviews were conducted in Cantonese (68%), while the remainder were conducted in Mandarin. Four research assistants and I conducted interviews, and I was present for all interviews. Behavioural observations of participants were recorded after each interview (e.g., visual or hearing difficulties, comprehension or language issues), but noteworthy observations regarding cognitive or language abilities were not made.

3.1.3 Socio-demographic Characteristics of Participants

The socio-demographic characteristics of the sample are presented in Table 2. As indicated, the sample was mostly comprised of married females who had immigrated from either Mainland China or Hong Kong. The majority of participants were naturalized citizens, who reported that they understood a little English, and spoke either a little or no English at all. Most respondents reported a Protestant religious background.

Table 2

Socio-demographic Characteristics of Chinese Older Adults (N = 149)

Characteristic		*n*	%
Gender	Female	110	70
	Male	47	30
Marital status	Single[a]	65	42
	Married	92	58
Country of birth	Hong Kong	29	20
	Macau	3	2
	Mainland China	102	69
	Malaysia	3	2
	Southeast Asia[b]	10	7
	Taiwan	2	1
Country prior to Canada	Hong Kong	70	47
	Mainland China	54	36
	Taiwan	6	4
	Vietnam	6	4
	Other	13	9
Citizenship status	Landed immigrant	44	28
	Naturalized citizen	113	72
Education	No formal or elementary	46	31
	Junior or senior high	51	34
	Post-secondary	52	35
Able to comprehend English	No	58	37
	Yes, a little	66	42
	Yes, well	33	22
Able to speak English	No	62	40
	Yes, a little	63	40
	Yes, well	32	21
Religion	Ancestor worship	4	3
	Buddhist	19	13
	Catholic	10	7
	Protestant	61	41
	Combination	7	5
	None reported	48	32
Gross monthly income (individual)	Less than $1,499	69	46
	$1,500 - $4,000+	25	17
	Not reported	55	37

Note. Total of percentages is not 100 because of rounding.
[a] Single: individuals who were never married and individuals who were divorced/ separated/ widowed. [b] Southeast Asia: Cambodia, Thailand, Vietnam, Indonesia, and the Philippines.

The average age of participants was 73.92 years (*SD* = 9.99; range: 55 to 95 years old). Interviewees reported that they lived in Canada an average of 21.96 years (*SD* = 11.56; range: 1 to 74 years), and that they had lived in Calgary a mean of 19.55 years (*SD* = 11.56; range: 1 to 46 years). Thus, participants had lived an average of 31% (*SD* = 17.67) of their lives in Canada.

In terms of reported incomes, 3% of participants stated that they were "very well satisfied" with their income, 56% said they were "adequately satisfied," 22% were "not very well satisfied," 5% were "very inadequately satisfied," and 15% "did not know" how satisfied they were with their incomes.

When asked about frequency of language use, 79% of participants spoke Chinese "all the time," 18% used Chinese "most of the time," and 3% spoke Chinese "half of the time." In examining languages spoken at home, 83% of older adults spoke only Chinese at home, 11% used a combination of Chinese and English, and 5% spoke Chinese and another language (e.g., Vietnamese, Taiwanese) in their home.

When asked about cultural identity, most interviewees saw themselves as being "Chinese-Canadian" (71%), while smaller proportions saw themselves as "Chinese" (24%) or "Canadian" (5%). Among respondents, 7% thought Chinese culture was "very unimportant," 28% said culture is "somewhat unimportant," 40% believed it to be "somewhat important," and 24% thought Chinese culture was "very important."

3.2 Measures

3.2.1 Multidimensional Scale of Perceived Support

Table 3 presents internal consistencies and descriptive data for the MSPSS (Zimet et al., 1988). As shown in Table 3, the internal consistencies of the total scale, Family

Table 3

Internal Consistencies and Descriptive Data for the Multidimensional Scale of Perceived Social Support (MSPSS)

	Total MSPSS		Family Subscale		Friends Subscale		Significant Other Subscale	
	Cronbach's alpha (α)	*M (SD)*	Cronbach's alpha (α)	*M (SD)*	Cronbach's alpha (α)	*M (SD)*	Cronbach's alpha (α)	*M (SD)*
Current Sample	.93	4.89 (0.92)	.91	5.05 (1.02)	.91	4.68 (1.10)	.80	4.95 (0.99)
Zimet et al., 1988[a]	.88	5.80 (0.86)	.87	5.80 (1.12)	.85	5.85 (0.94)	.91	5.74 (1.25)
Cheng & Chan, 2004[b]	--	--	.78	--	.76	--	.69	--
Chou, 2000[c]	.89	--	.86	--	.94	--	--	--
Stanley, Beck, & Zebb, 1998[d]	.87 – .94	6.40 (0.75)	--	6.30 (1.09)	--	6.40 (0.91)	--	6.60 (0.92)

Note. Dashes indicate unavailable data.
[a]Undergraduate university sample (N = 275, M_{age} = 18.60, SD = 0.88). [b]Hong Kong Chinese adolescents (N = 2,105, M_{age} = 14.80, SD = 1.58). [c]Chinese adolescents (N = 475, M_{age} = 17.50, SD = 0.70). [d]Community-dwelling older adults (N = 94, M_{age} = 67.53, SD = 6.77, 96% Caucasian).

subscale, and Friends subscale were "excellent" according to guidelines discussed by Cicchetti (1994). The means of the MSPSS for Chinese older adults were all significantly lower ($p < .001$) than those reported with a sample of predominantly White older adults (Stanley et al., 1998).

A maximum likelihood factor analysis with oblique rotation was conducted because the factors were theorized to be correlated, and results indicated that a two-factor solution fit the data better. The factor loadings of a three-factor solution did not replicate the factor structure reported by Zimet et al. (1988) because two of the extracted factors contained a mixture of items from the Significant Other and Friends subscales that could not be clearly interpreted. Moreover, the third eigenvalue extracted was less than one.

On the other hand, a two-factor solution explained 65% of the variance and replicated the findings reported by Cheng and Chan (2004). The first factor included items from the Significant Other and Friends subscales, had rotated factor loadings that ranged from .42 to .89, and explained 55% of the variance. The second factor included items from the Family subscale, had factor loadings that ranged from -.72 to -.97, and explained 10% of the variance in the data. Both extracted factors had eigenvalues larger than one (6.64 and 1.14, respectively), and a scree plot diagram indicated that a two-factor solution was appropriate. Furthermore, an oblique rotation was warranted because the two factors extracted were strongly correlated ($r = -.63$).

A confirmatory factor analysis (CFA) of the MSPSS using structural equation modelling (SEM) found minimal support for the factor structure reported by Zimet et al. (1998), $x^2(51, N = 149) = 198.47$, $p < .001$, SRMR = .06, AGFI = .72, RMSEA = .14, CFI = .89. Post-hoc modifications to the model based on a two-factor solution (Cheng &

Chan, 2004) did not result in improved model fit, $x^2(53, N = 149) = 252.93$, $p < .001$, SRMR = .08, AGFI = .68, RMSEA = .16, CFI = .86; unstandardized parameter estimates for the three-factor and two-factor models of the MSPSS are presented in Appendix P.

3.2.2 Social Network

Interviewees had an average of 3.01 children (*SD* = 1.75; range: 0 to 10 children). The average number of individuals in a household was 2.23 (*SD* = 1.28; range: 1 to 6 individuals). With respect to living arrangements, 24% of respondents lived alone, 34% lived with a spouse, 18% lived with their adult children, and 9% lived with their grandchildren. An additional 9% of the sample lived in a lodge setting of a long-term care centre or lived with additional relatives. While the majority of participants either lived alone or with their spouses, there were quite a number of respondents who lived in multigenerational households.

Most Chinese older adults indicated that their children were geographically close enough to provide help (90%). Among interviewees with adult children, 20% of Chinese older adults said they would prefer to live with their children, 74% reported that they would like to live in a separate household near their children, and 1% said that they would prefer to live far away from their adult children.

3.2.3 Physical Health and Mental Health

Chinese older adults reported an average of 2.17 health conditions (*SD* = 2.02). Fourteen percent of the sample reported no health diagnoses, 32% reported one condition, 25% had two diagnosed health conditions, 11% had three conditions, 5% noted four conditions, and 12% had five or more health conditions.

Table 4 presents the percentage of chronic health conditions reported by Chinese older adults and a comparative sample of 551 Canadian-born White participants residing in Calgary aged 55 to 80 derived from the 2007 Canadian Community Health Survey (CCHS 2007; Statistics Canada, 2009). Among White participants, 22% reported no chronic health conditions, 29% had one diagnosed condition, 26% noted two conditions, 16% had three health conditions, 6% had four conditions, and 2% had five or more conditions. White older adults in Calgary reported an average of 1.62 chronic conditions (SD = 1.30), which was lower than the average number of conditions reported by the Chinese sample, $t(698) = 3.57$, $p < .001$.

Table 5 presents internal consistencies and descriptive data for the SF-36. As shown in Table 5, most of the dimensions of the SF-36 demonstrated "excellent" (Role-Physical, Role-Emotional), "good" (Physical Functioning, Bodily Pain), or "fair" internal reliabilities (Mental Health, General Health Perceptions), according to Cicchetti's (1994) guidelines. However, the Vitality and Social Functioning subscales had "unacceptable" values of coefficient alpha by the same standards (Cicchetti, 1994). In comparison to the Chinese American elderly in Ren and Chang's study (1998), interviewees in the current study reported fewer problems completing tasks due to physical (Role-Physical scale, $t(366) = 2.49$, $p = .013$) or emotional problems (Role-Emotional scale, $t(366) = 3.78$, $p < .001$).

3.2.3.1 SF-36 Quality Indicators

The authors of the SF-36 recommended that data be examined through a number of quality indicators to ensure validity of the measure (Ware et al., 2008). Based on the quality indicator procedures described by Ware and colleagues (2008), the SF-36 data

Table 4

Summary of Reported Chronic Health Conditions

	Current Sample (N = 149)		CCHS Sample (N = 551)[a]	
Chronic Health Condition Reported	*n*	%	*n*	%
High blood pressure	61	38	195	35
Arthritis	38	24	199	36
Cataracts	29	19	--	--
Allergies	25	17	--	--
Diabetes	23	15	52	9
Back problems	21	14	122	22
Fibromyalgia	16	11	--	--
Heart disease	16	11	65	12
Migraine	8	5	44	8
Thyroid	8	5	--	--
Bowel disorders	7	5	34	6
Chemical sensitivities	7	5	--	--
Glaucoma	7	5	--	--
Ulcers	7	5	14	3
Bronchitis	5	3	9	2
Cancer	5	3	30	5
Chronic fatigue	5	3	--	--
Incontinence	4	3	59	11
Stroke	4	3	11	2
Asthma	4	2	34	6
Emphysema	2	1	8	2
Other	32	21	--	--

Note. Total of percentages is not 100 because of rounding. Dashes indicate unavailable data. CCHS = Canadian Community Health Survey 2007. Other health conditions = osteoporosis, hearing problems, vision problems.

[a]Data from Canadian-born Calgarians aged 55 to 80 and above (Statistics Canada, 2009).

Table 5

Internal Consistencies and Descriptive Data for the SF-36

		Current Sample	Ren & Chang, 1998[a]	Lai, 2004[b]	Ren et al., 1998[c]	Ware & Gandek, 1998[d]
Physical Component Summary	α	.93[e]	--	--	--	.92
	M (*SD*)	44.96 (9.01)	--	51.20 (8.60)	--	--
Mental Component Summary	α	.93[e]	--	--	--	.88
	M (*SD*)	47.91 (9.51)	--	48.90 (10.10)	--	--
Physical Functioning	α	.89	.88	--	.92	.93
	M (*SD*)	69.19 (25.90)	69.20 (22.30)	81.20 (19.30)	79.40 (23.40)	--
Role-Physical	α	.94	.88	--	.82	.89
	M (*SD*)	68.96 (29.72)	59.10 (41.60)	78.10 (36.60)	67.50 (37.30)	--
Bodily Pain	α	.85	.84	--	.78	.90
	M (*SD*)	65.56 (26.71)	64.10 (24.5)	82.20 (24.60)	62.30 (21.90)	--
General Health Perceptions	α	.71	.56	--	.82	.81
	M (*SD*)	57.66 (20.97)	54.60 (20.70)	62.20 (20.50)	58.80 (22.70)	--
Vitality	α	.58	.76	--	.73	.86
	M (*SD*)	59.48 (19.29)	60.20 (19.80)	65.40 (22.40)	59.00 (20.30)	--
Social Functioning	α	.65	.57	--	.54	.68
	M (*SD*)	76.59 (22.80)	75.80 (23.60)	87.30 (20.20)	75.10 (22.70)	--
Role-Emotional	α	.96	.90	--	.88	.82
	M (*SD*)	74.33 (31.00)	58.30 (44.90)	83.70 (33.90)	61.20 (43.70)	--
Mental Health	α	.73	.38	--	.74	.84
	M (*SD*)	71.28 (18.20)	67.90 (19.80)	79.20 (17.30)	63.90 (20.40)	--

Note: α = Cronbach's alpha. Dashes indicate unavailable data.
[a]Sample of 219 Chinese American elderly (M_{age} = 69.00, *SD* = 7.60). [b]Samples of 896 to 925 older Chinese Canadians between the ages of 54 and 74. [c]Sample of 156 Chinese American adults (M_{age} = 54.00, *SD* not reported). [d]Sample of 2,474 representative of the General U.S. population. [e]Cronbach's alpha was calculated using all items of the SF-36.

collected appeared to be valid for the current sample.

Table 6 presents the correlations among each health dimension and the Physical Component Summary (PCS) and Mental Component Summary (MCS). As shown in Table 6, each health dimension demonstrated a pattern of correlations that was consistent with theorized relationships within the SF-36 (Ware et al., 2008). However, some caution may need to be exercised in the interpretation of some scales (i.e., Vitality and Social Functioning) due to low internal consistency.

3.2.4 Knowledge and Perceived Accessibility of Available Mental Health Resources

Chinese older adults were asked if they knew where to seek professional "emotional or mental health" services, and 70% said they did not know where to go. For the 30% of participants who knew where to seek mental health services: 15% said they would go to a health centre or medical clinic, 8% said they would go to a community or cultural association (e.g., CCECA, CCSSA), 1% said they would call an information line, and 5% provided "other" responses, such as going to Calgary Family Services and going to church to ask for help.

When Chinese older adults were asked whether they had access to culturally sensitive mental health services, 7% "totally agreed," 42% "agreed," 13% "disagreed," 1% "totally disagreed," and 37% of the sample did not respond to the question. When participants were asked whether mental health workers could meet their language needs, 11% "totally agreed," 40% "agreed," 11% "disagreed," 1% "totally disagreed," and 37% did not provide a response.

Table 6

Correlations among SF-36 Scales and Component Summary Measures for Chinese Older Adults (*N* = 149)

	Correlations	
Scale	PCS	MCS
Physical Functioning	.82	.22
Role-Physical	.67	.54
Bodily Pain	.75	.54
General Health	.67	.51
Vitality	.48	.65
Social Functioning	.60	.70
Role-Emotional	.42	.72
Mental Health	.35	.73
PCS		.33
MCS	.33	

Note. PCS = Physical Component Summary. MCS = Mental Component Summary. All coefficients are significant at $p < .001$.

3.2.5 Preliminary Research Question: Acculturation and Enculturation

Table 7 presents internal consistency and descriptive data for the VIA. It should be noted that Abu-Bader and colleagues (2011) and Hsu et al. (2012) reported the sum of scores on the VIA subscales. Thus, to compare across studies, subscale sums are presented for the current study. As indicated, compared to students of East Asian heritage, Chinese older adults were more enculturated and less acculturated. Moreover, when the Chinese sample was split into *middle-aged* (55 to 64 years old) *and elderly* (65 years old*)* categories, middle-aged participants (n = 30) were more acculturated (M = 56.73, SD = 11.79) than elderly participants (n = 119; M = 48.85, SD = 12.95) on the VIA-Mainstream subscale, F (1, 147) = 9.20, p = .003. Level of enculturation for middle-aged and elderly participants did not significantly differ on the VIA Heritage subscale (M = 68.97, SD = 10.65, and M = 71.02, SD = 10.42, respectively).

The psychometric properties of the VIA described below support the hypothesis that acculturation and enculturation are distinct phenomena among older Chinese immigrants. As expected, scores on the Heritage and Mainstream subscales were not significantly correlated among the Chinese older adults in this study *(*r = -.10, p = .229). For the current sample, the mean inter-item correlations for the Heritage and Mainstream subscales were .36 and .34, respectively. These values are lower than those reported by Ryder and colleagues (2000), who noted a mean inter-item correlation of .52 for the Heritage subscale and .45 for the Mainstream dimension with a Chinese undergraduate sample.

The VIA Heritage subscale demonstrated concurrent validity with the Belief in Chinese Culture and Values scale (BCCV; r = .40, p < .001), such that strong beliefs in

Table 7

Internal Consistencies and Descriptive Data for the Vancouver Index of Acculturation (VIA) Subscales

	VIA Heritage Subscale		VIA Mainstream Subscale	
	Cronbach's alpha (α)	*M* (*SD*)	Cronbach's alpha (α)	*M* (*SD*)
Current Sample	.83	70.06 (10.05)$_d$	.84	50.40 (13.10)$_e$
Ryder et al., 2000[a]	.91	--	.89	--
Abu-Bader, Tirmazi, & Ross-Sheriff, 2011[b]	--	46.00 (5.20)	--	30.40 (8.90)
Hsu et al., 2012[c]	.86	68.26 (10.54)$_d$	.88	59.91 (11.96)$_e$

Note. Dashes indicate missing data. Means in a column sharing subscripts are significantly different from each other.
[a]Sample of 204 Chinese undergraduate students (M_{age} = 19.82, *SD* = 1.28). [b]Sample of older Muslims (M_{age} = 63.00, *SD* = 10.20). [c]Sample of "first generation" East Asian heritage students (M_{age} = 21.00, *SD* = 2.22).

Chinese culture and values were associated with higher levels of enculturation. The Mainstream subscale of the VIA demonstrated discriminant validity with BCCV scores (r = -.20, p = .013), as stronger endorsement of Chinese culture and values was associated with lower levels of acculturation. Chinese Health Belief scores were not related to either the Heritage (r = .14, p =.083) or Mainstream dimensions (r = .10, p = .218) of the VIA.

A maximum likelihood factor analysis with varimax rotation was conducted as the two factors were theorized to be orthogonal, and the factor structure described by Ryder et al. (2000) was replicated. Two factors were extracted that explained 38% of the variance. The first factor explained 20% of the variance and included items from the Heritage subscale, while the second factor explained 18% of the variance and included items from the Mainstream subscale. Factor loadings for the Heritage and Mainstream subscales ranged from .31 to .83, and from .45 to .75, respectively.

A confirmatory factor analysis of the VIA resulted in a lack of support for the hypothesized model reported by Ryder et al. (2000), $x^2(169, N = 149) = 497.66$, $p < .001$, SRMR = .10, AGFI = .69, RMSEA = .12, CFI = .71; unstandardized parameter estimates are presented in Appendix Q. Post-hoc modifications to the model were not conducted as previous research has not indicated an alternative factor structure for the VIA.

Scores across the VIA dimensions were used to categorize participants into one of Berry's four cultural adaptation strategies (i.e., marginalized, assimilated, separated, and integrated; 1990). Based on their relative scores on the VIA Heritage and Mainstream subscales, 33 participants were categorized as *marginalized* (M_{Heritage} = 6.15, SD = 0.73, range: 4.60 – 7.00; $M_{\text{Mainstream}}$ = 4.30, SD = 0.79, range: 2.10 – 5.00), 42 participants were considered to be *assimilated* (M_{Heritage} = 6.33, SD = 0.68, range: 4.60 – 7.00; $M_{\text{Mainstream}}$ =

5.95, *SD* = 0.57, range: 5.10 – 7.00), 42 participants were categorized as *separated* (M_{Heritage} = 8.00, *SD* = 0.61, range: 7.20 – 9.00; $M_{\text{Mainstream}}$ = 3.79, *SD* = 0.86, range: 1.40 – 5.00), and 32 participants were deemed to be *integrated* (M_{Heritage} = 7.74, *SD* = 0.54, range: 7.10 – 9.00; $M_{\text{Mainstream}}$ = 6.27, *SD* = 0.84, range: 5.10 – 9.00). As indicated in Table 8, a number of differences were observed across the cultural adaptation categories.

3.2.6 Chinese Health Beliefs and Belief in Chinese Culture and Values scales

Table 9 presents internal consistency and descriptive data of the Chinese Health Beliefs scale (CHB) and the Belief in Chinese Culture and Values scale (BCCV). As indicated in Table 9, study participants were less likely to endorse Chinese cultural beliefs and values when compared to respondents in the Lai and Chau (2007) study.

3.2.7 Inventory of Attitudes toward Seeking Mental Health Services (IASMHS)

Table 10 presents the internal consistencies and descriptive data of the IASMHS. As shown in Table 10, although the Psychological Openness subscale demonstrated "unacceptable" reliability (α = .43) for Chinese older adults in this study, its internal consistency was comparable to a value reported with older adults aged 65 and over in New Zealand (α = .45; H. Buttle, personal communication, November 22, 2012). As indicated, Chinese older adults had less positive attitudes toward seeking mental health services and were less psychologically open than the community sample in Mackenzie et al. (2004) and older adults in New Zealand (James & Buttle, 2008).

A maximum likelihood factor analysis with oblique rotation was conducted because the three factors were theoretically related, and the factor structure of the IASMHS reported by Mackenzie et al. (2004) was not replicated. The three-factor solution explained 29% of the variance in IASMHS scores among Chinese older adults.

Table 8

Summary of Differences across Cultural Adaptation Categories among Chinese Older Adults (N = 149)

Variable	Marginalized *M (SD)*	Assimilated *M (SD)*	Separated *M (SD)*	Integrated *M (SD)*	*F* (3, 145)
Age (years)	76.48 (10.20)	70.67_{a} (10.10)	$77.79_{a,b}$ (9.11)	70.47_{b} (8.39)	6.17**
Years in Canada	21.31 (8.43)	$27.24_{a,b}$ (11.71)	19.07_{a} (12.20)	19.47_{b} (11.35)	4.64*
IASMHS	55.64 (12.73)	62.40 (11.50)	58.81 (10.56)	61.06 (11.98)	2.32
BCCV	3.57 (0.47)	$3.26_{a,b}$ (0.67)	3.90_{a} (0.60)	3.72_{b} (0.65)	8.47**
CHB	2.24 (0.62)	2.06 (0.50)	2.17 (0.57)	2.24 (0.10)	0.89

Note. IASMHS = Inventory of Attitudes toward Seeking Mental Health Services total score. BCCV = Belief in Chinese Culture and Values scale. CHB = Chinese Health Beliefs scale. Means in a row sharing subscripts are significantly different from one another.
* $p < .05$. ** $p < .001$.

Table 9

Internal Consistency and Descriptive Data for Measures of Chinese Enculturation

	Chinese Health Beliefs scale		Belief in Chinese Culture and Values scale	
	Cronbach's alpha (α)	*M* (*SD*)	Cronbach's alpha (α)	*M* (*SD*)
Current Sample	.79	2.17 (0.56)$_c$	.82	3.61 (0.65)$_d$
Lai & Chau, 2007 [a]	.80	2.48 (0.40)$_c$	.82	3.72 (0.60)$_d$
Lai & Surood, 2009 [b]	.85	2.47 (-----)	----	----

Note. Dashes indicate unavailable data. Means in a column sharing subscripts are significantly different from one another.
[a]Sample of 2,214 Chinese Canadian immigrants (M_{age} = 69.74, *SD* = 8.70). [b]Sample of 2,272 Chinese Canadian immigrants (M_{age} = 69.80, *SD* = 8.70).

Table 10

Internal Consistencies and Descriptive Data for the Inventory of Attitudes toward Seeking Mental Health Services (IASMHS)

	Total IASMSHS		Psychological Openness subscale		Help-seeking Propensity subscale		Indifference to Stigma subscale	
	Cronbach's alpha (α)	*M* (*SD*)	Cronbach's alpha (α)	*M* (*SD*)	Cronbach's alpha (α)	*M* (*SD*)	Cronbach's alpha (α)	*M* (*SD*)
Current Sample	.72	59.60 $(11.79)_{e,g}$	.43	12.20 $(5.04)_{f,h}$	.79	24.94 (6.14)	.72	22.46 (6.42)
Mackenzie et al., 2004[a]	.87	69.19 $(14.36)_{e}$	.82	21.79 $(6.76)_{f}$	.76	23.98 (5.35)	.79	23.42 (6.22)
David, 2010[b]	--	--	.88	25.01 (7.52)	.84	28.30 (5.42)	.76	28.38 (5.42)
James & Buttle, 2008[c]	.89	68.56 $(12.34)_{g}$	.45	17.07 $(6.84)_{h}$	.62	26.60 (5.64)	.84	22.40 (6.37)
Tieu, 2008[d]	.74	55.08 (10.11)	.59	15.44 (6.11)	.76	26.65 (5.12)	.79	23.58 (6.37)

Note. Dashes indicate unavailable data. Means in a column sharing subscripts are significantly different from each another. [a]Community sample of 206 participants ranging in age from 15 to 89 years old (M_{age} = 45.60, *SD* = 17.80). [b]Sample of 118 Filipino Americans (M_{age} = 30.20, *SD* = 10.65). [c]Sample of 49 adults 65 to 91 years old from Auckland, New Zealand; Values for Cronbach's alphas obtained from H. Buttle, personal communication, November 22, 2012. [d]Chinese version of IASMHS used with a community sample of 53 Chinese Canadians 55 years old and above (M_{age} = 69.79, *SD* = 10.23).

The first factor explained 16% of the variance, had rotated factor loadings that ranged from .34 to .76, and included items from the Help-Seeking Propensity subscale (without item 22; see Appendix J for IASMHS items) and an item from the Indifference to Stigma scale (item 6). The second factor explained 9% of the variance, had rotated factor loadings that ranged from .30 to .70, and items represented the Indifference to Stigma subscale (without item 6) with one item from the Psychological Openness subscale (item 7). The third factor explained 4% of the variance and had rotated factor loadings of -.41 and .51 because only two items loaded on this factor (18 and 22). A number of items did not load onto any factors (items 1, 4, 9, 12, and 21), and item 14 was cross-loaded onto the second and third factor. The goodness-of-fit test was significant (x^2 (207, N = 149) = 378.44, p < .001) and the factors were mildly correlated with one another (first and second factor: r = .20; first and third factor: r = -.20; second and third factor r = .07), which suggested that an oblique rotation was appropriate.

A confirmatory factor analysis of the hypothesized model of three factors (Psychological Openness, Help-seeking Propensity, and Indifference to Stigma; Mackenzie et al., 2004) resulted in minimal support for the original model, x^2(249, N = 149) = 530.91, p < .001, SRMR = .10, AGFI = .73, RMSEA = .09, CFI = .64; unstandardized parameter estimates from the CFA are presented in Appendix R. Exploratory factor analyses were not conducted because previous research has not suggested an alternative factor structure. Given the above findings, analyses and conclusions involving the IASMHS data were interpreted with caution.

3.3 Primary Research Question: Model of Attitudes toward Mental Health Help-seeking

The extent to which an adapted model (Kim et al., 2001) of personal factors, environmental factors, mediators of acculturation and enculturation described attitudes toward mental health help-seeking among Chinese older adults was examined using SEM. The hypothesized model depicted in Figure 2 was examined for fit. The covariance matrix was analyzed through maximum likelihood estimation in AMOS 20 (Arbuckle, 2011).

Support for this initial model was minimal, $x^2(43, N = 149) = 88.77$, $p < .001$, SRMR = .10, AGFI = .85, RMSEA = .09, CFI = .78 (see Figure 4 for standardized estimates; Table 11 presents the unstandardized estimates of the initial model). As indicated in Figure 4, enculturation appears to mediate the relationship among individual factors and mental health help-seeking attitudes, while acculturation does not.

As planned, a model with only socio-demographic variables as predictors of mental health help-seeking attitudes was explored (see Figure 3). However, this comparative model was underidentified because there were more parameters to be estimated than available data points (Byrne, 2010), and a solution was not obtained.

Based on theoretical speculation and statistical indications, post-hoc modifications to the initial model were made for exploratory purposes. As indicated in Figure 4 and Table 11, gender was not a significant variable in the initial model. Moreover, research on the relationship between gender and help-seeking attitudes among Chinese participants has been equivocal (see Tata & Leong, 1994; Ting & Hwang, 2009). Thus,

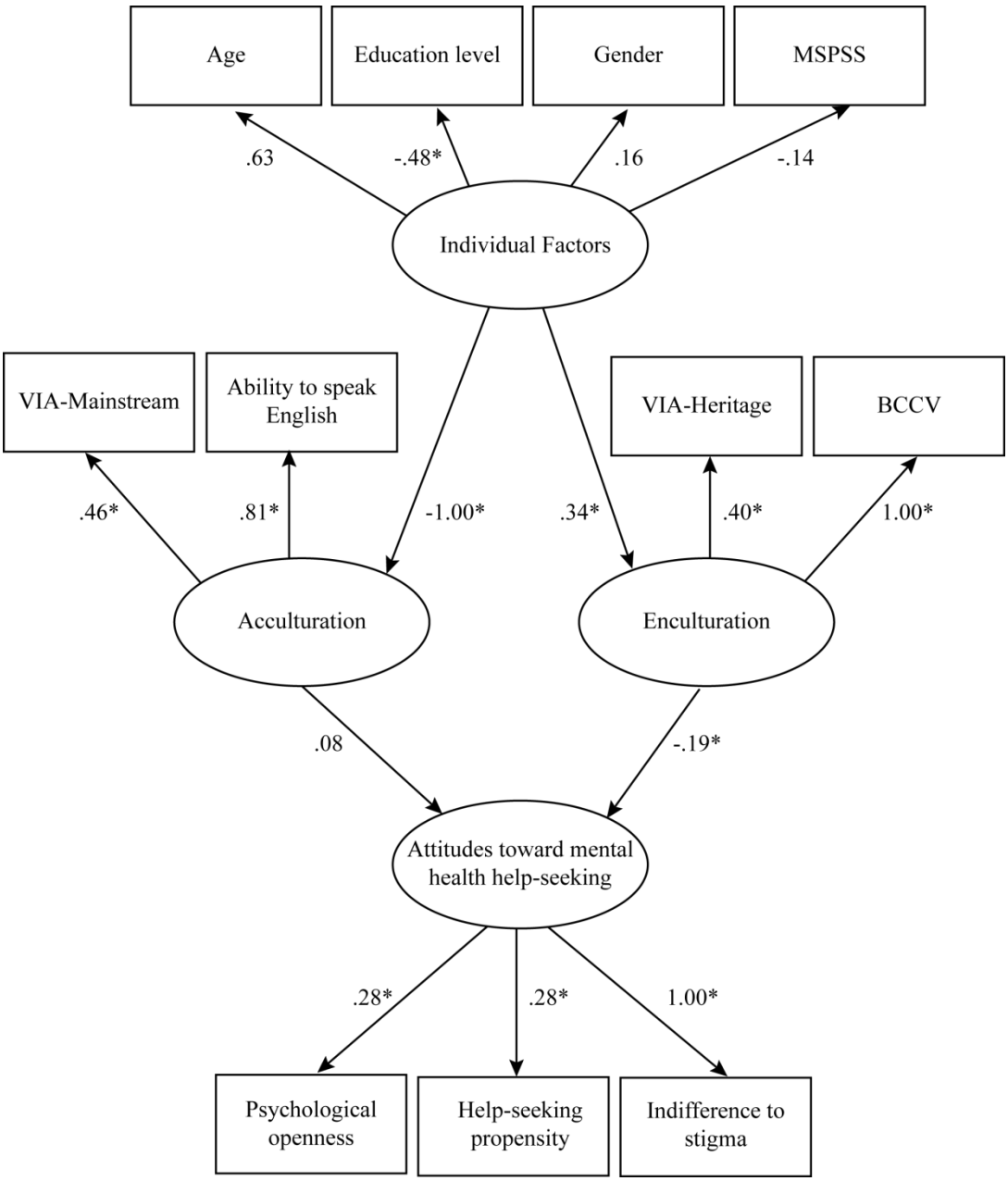

Figure 4. Standardized coefficients for initial structural equation model of attitudes toward seeking mental health services among Chinese older adults. Latent constructs are shown in ellipses, and observed variables are shown in rectangles. MSPSS = Multidimensional Scale of Perceived Social Support. VIA = Vancouver Index of Acculturation. BCCV = Belief in Chinese Culture and Values scale. * $p < .05$.

Table 11

Unstandardized Estimates of Initial Structural Equation Model of Attitudes toward Seeking Mental Health Services among Chinese Older Adults (N = 149)

Latent Variable	Observed/ Latent Variable	Estimate	*SE*	*t*-value
Individual factors	Age	1.00		
	Education level	-0.06	0.01	-4.61
	Gender	0.01	0.01	1.65
	MSPSS total	-0.02	0.01	-1.43
	Acculturation	-0.10	0.02	-4.47
	Enculturation	0.03	0.01	3.07
Acculturation	VIA-Mainstream	1.00		
	Ability to speak English	1.02	0.22	4.59
	Help-seeking attitude	0.87	1.09	0.80
Enculturation	VIA-Heritage	1.00		
	BCCV	1.54	0.29	5.38
	Help-seeking attitude	-2.88	1.45	-1.99
Help-seeking attitude	Psychological Openness	0.22	0.06	3.58
	Help-seeking Propensity	0.27	0.08	3.52
	Indifference to Stigma	1.00		

Note. SE = Standard error. MSPSS = Multidimensional Scale of Perceived Social Support. VIA = Vancouver Index of Acculturation. BCCV = Belief in Chinese Culture and Values scale.

gender was removed from the hypothesized model, and a modified model of attitudes toward seeking mental health services was evaluated (see Figure 5).

Fit indices of the modified model were comparable to those of the initial model, and did not suggest that model fit was improved with the removal of gender, $x^2(33, N = 149) = 70.70$, $p < .001$, SRMR = .10, AGFI = .85, RMSEA = .09, CFI = .81 (see Figure 6 for standardized estimates; Table 12 presents the unstandardized estimates of the modified model). As indicated in Figure 6, it again appears that enculturation mediates the relationship among individual factors and help- seeking attitudes. Additional modifications to the model were not conducted as there was no theoretical basis to do so.

Although both models failed to provide adequate fit, when path regression coefficients of the models are compared, there are fewer significant paths in the modified model than the initial model. The presence of more significant paths suggests that the initial model may be a slightly better fit to the data than the modified model and therefore, the initial model will be examined further in the Discussion section.

Due to the poor fit of the hypothesized structural equation models, a hierarchical multiple regression was conducted. In the regression analysis, total IASMHS scores were the dependent variable, the independent variables of age, gender, education level, and MSPSS scores were entered in the first block of the regression, and VIA Heritage (VIA-H) scores and VIA Mainstream (VIA-M) scores were entered in the second block. Without indices of acculturation and enculturation, 9% of the variance in IASMHS scores was explained by the predictors of age, gender, education level, and perceived social support, $F(4, 144) = 3.57$, $p = .008$. The addition of VIA-H and VIA-M accounted for an additional 2% of the variance in attitude scores, $F(6, 142) = 2.78$, $p = .014$, $R^2 = .11$.

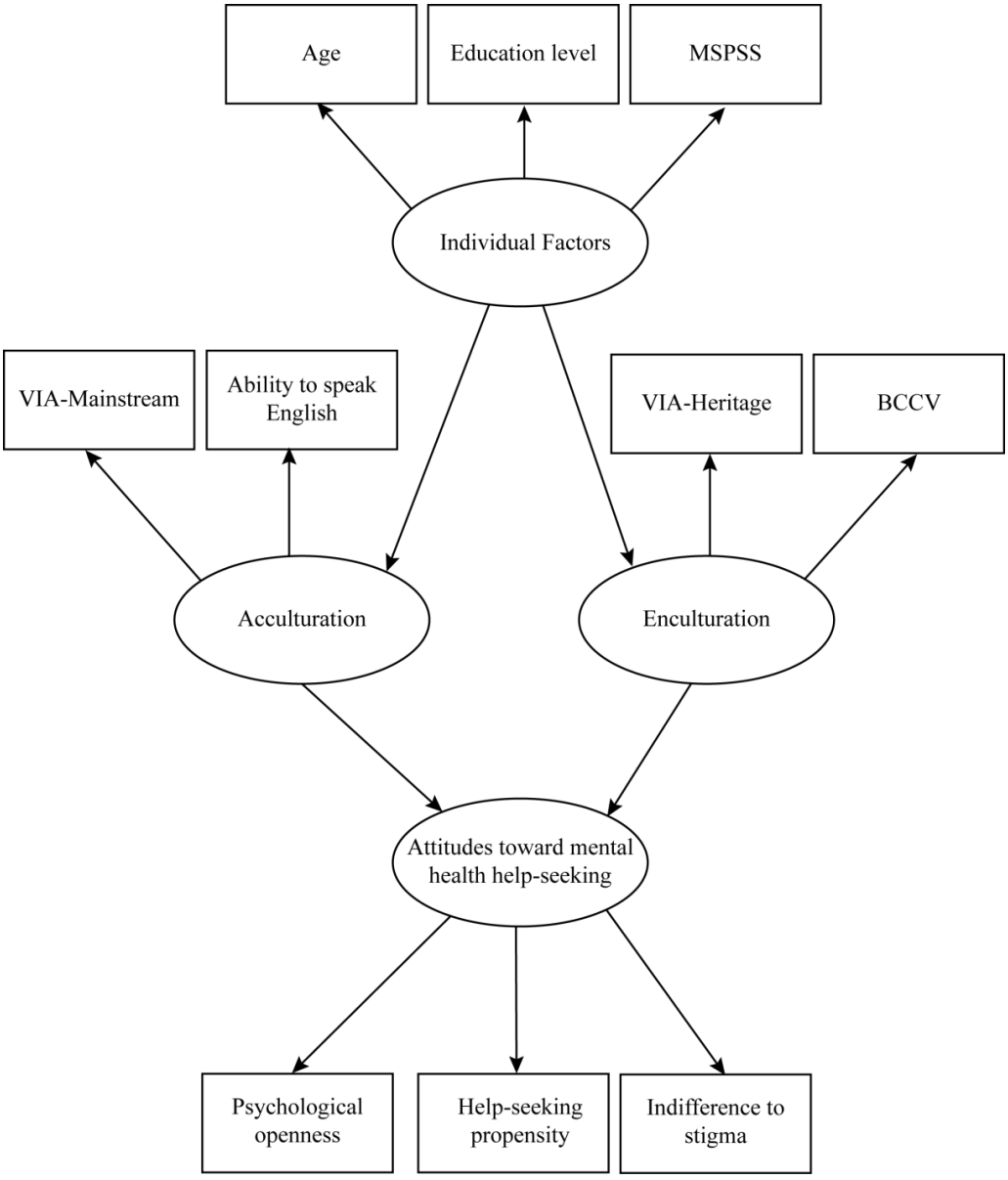

Figure 5. Modified structural equation model of attitudes toward seeking mental health services among Chinese older adults. Latent constructs are shown in ellipses, and observed variables are shown in rectangles. MSPSS = Multidimensional Scale of Perceived Social Support. VIA = Vancouver Index of Acculturation. BCCV = Belief in Chinese Culture and Values scale.

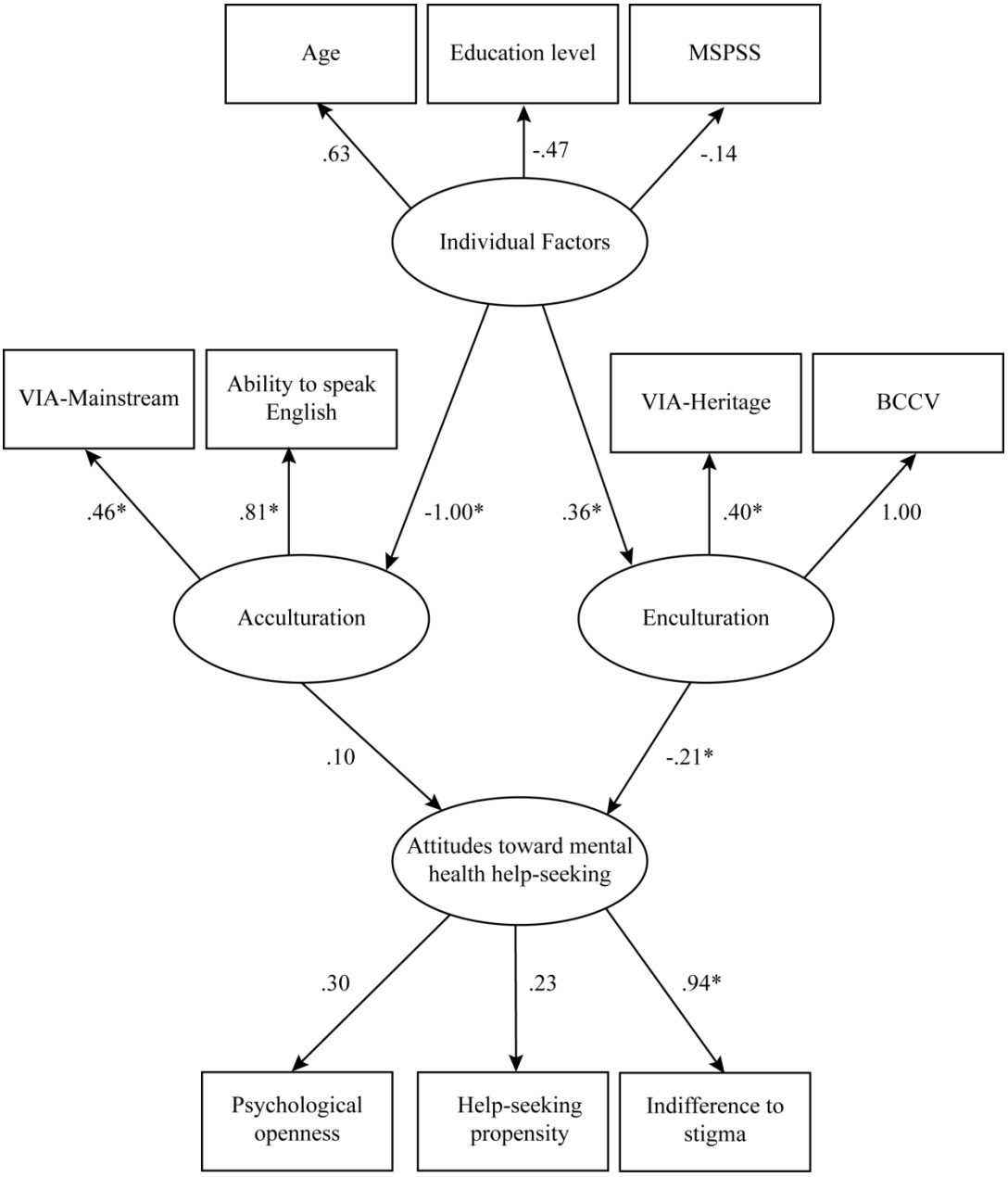

Figure 6. Standardized coefficients for modified structural equation model of attitudes toward seeking mental health services among Chinese older adults. Latent constructs are shown in ellipses, and observed variables are shown in rectangles. MSPSS = Multidimensional Scale of Perceived Social Support. VIA = Vancouver Index of Acculturation. BCCV = Belief in Chinese Culture and Values scale. * $p < .05$.

Table 12

Unstandardized Estimates of Modified Structural Equation Model of Attitudes toward Seeking Mental Health Services among Chinese Older Adults (N = 149)

Latent Variable	Observed/ Latent Variable	Estimate	*SE*	*t*-value
Individual factors	Age	1.00		
	Education level	-0.06	0.01	-4.57
	MSPSS total	-0.02	0.01	-1.51
	Acculturation	-0.10	0.02	-4.48
	Enculturation	0.02	0.01	3.02
Acculturation	VIA-Mainstream	1.00		
	Ability to speak English	1.02	0.22	4.56
	Help-seeking attitude	0.97	1.08	0.89
Enculturation	VIA-Heritage	1.00		
	BCCV	1.54	0.29	5.38
	Help-seeking attitude	-2.94	1.44	-2.05
Help-seeking attitude	Psychological Openness	0.25	0.16	1.62
	Help-seeking Propensity	0.29	0.18	1.60
	Indifference to Stigma	1.00		

Note. SE: Standard error. MSPSS = Multidimensional Scale of Perceived Social Support. VIA = Vancouver Index of Acculturation. BCCV = Belief in Chinese Culture and Values scale.

However, the difference in the F-statistic with VIA-H and VIA-M as additional predictors was not significant, $F_{change} = 1.19$, $p = .306$.

The hypothesis that age would have an inverse relationship with help-seeking attitudes was supported because increasing age was associated with less positive attitudes toward seeking mental health services, $r = -.18$, $p = .030$. Married respondents reported more positive mental health help-seeking attitudes than single interviewees (i.e., never married or divorced/ separated/ widowed), $t(147) = 2.70$, $p = .008$.

The hypothesis that females would have a more positive attitude toward seeking mental health services than males was not supported, nor was the hypothesis that education level would be related to help-seeking attitudes. Participants who reported that they could speak and understand English well had more positive help-seeking attitudes than those who could not speak and understand English ($F(2, 146) = 3.76$, $p = .026$, and $F(2, 146) = 5.29$, $p = .006$, respectively). Chinese older adults with a monthly income of $1,500 to $4,000 held more positive attitudes than those a lower income (less than $500 to $1,499 per month), $F(2, 146) = 5.81$, $p = .004$.

The hypothesis that perceived social support would be positively related to help-seeking attitudes was supported because increased social support was associated with more positive help-seeking attitudes ($r = .23$, $p = .006$). Among Chinese older adults, living with more individuals was associated with a more positive help-seeking attitude, $r = .22$, $p = .007$.

Overall physical health and overall mental health were associated with more positive help-seeking attitudes, $r = .33$, $p < .001$, and $r = .22$, $p = .007$, respectively. As

indicated in Table 13, increased help-seeking propensity and increased indifference to stigma were associated with better physical and mental health.

The hypothesis that enculturation would have an inverse relationship with help-seeking attitudes was partially supported because less positive attitudes were related to stronger endorsement of Chinese health beliefs, r = -.17, p = .037, and Chinese culture and values, r = -.24, p = .004. However, neither the enculturation nor acculturation dimensions of the VIA were correlated with help-seeking attitudes.

3.4 Secondary Research Question: Attitudes, Mental Health Utilization, and Intentions

The hypothesis that Chinese older adults' mental health help-seeking attitudes would be associated with seeking help from a professional (e.g., family doctor, psychiatrist, psychologist, nurse, social worker) was not supported (r_{pb} = -.08, p = .343), but more positive attitudes were related to seeking help from a non-professional (e.g., spouse, child, friend; r_{pb} = .18, p = .032). In addition, positive help-seeking attitudes were associated with intentions to seek help from a psychologist for future emotional health problems (r = .17, p = .042), but not from other professional and non-professional sources of help listed (e.g., general practitioner, counsellor, close family members; see Appendix L).

For middle-aged participants (55 to 64 years old), help-seeking attitudes were not related to seeking help from a professional (r_{pb} = -.34, p = .066) or a non-professional (r_{pb} = .31, p = .098). Among middle-aged interviewees, more positive help-seeking attitudes were negatively related to intentions to seek help from close family members for future

Table 13

Summary of SF-36 and the Inventory of Attitudes toward Seeking Mental Health Services (IASMHS) Subscale Correlations

	IASMHS subscale		
SF-36 scale	Psychological Openness	Help-seeking Propensity	Indifference to Stigma
Physical Functioning	.10	.36**	.35**
Role-Physical	.05	.22**	.21**
Bodily Pain	.12	.06	.09
General Health	.10	.24**	.23**
Vitality	.04	.28**	.11
Social Functioning	.05	.24**	.27**
Role-Emotional	.14	.07	.11
Mental Health	-.18	.26**	.27**
Physical Component Summary	.07	.29**	.28**
Mental Health Component Summary	.08	.18*	.18*

Note. IASMHS: Inventory of Attitudes toward Seeking Mental Health Services
* $p < .05$. ** $p < .01$.

mental health problems (r = -.44, p = .015), but not significantly related to seeking help from other professionals and non-professionals (see Appendix L).

Mental health help-seeking attitudes among elderly Chinese participants (65 years old and above) were not associated with seeking help from a professional (r_{pb} = -.02, p = .855) or a non-professional (r_{pb} = .11, p = .242). Among elderly respondents, more positive attitudes were related to intentions to seek help from a psychologist for future emotional health issues (r = .18, p = .048), but not from other professional and non-professional sources of help listed (see Appendix L).

Among Chinese older adults, rates of mental health utilization were low (e.g., a minority of participants reported utilization of mental health services in the last year) as hypothesized. All 8% (n = 12) of interviewees who sought help from a professional consulted a family physician. For the 11% (n = 16) of respondents who sought help from non-professionals, most spoke to a friend (5%), while the remainder consulted their spouse (2%), clergy/minister/priest (1%), Traditional Chinese Medicine practitioner (1%), or some combination (2%). Additional information regarding mental health utilization is presented in Table 14. Middle-aged (55 to 64 years old) and elderly (aged 65 and over) respondents did not differ with respect to mental health utilization, x^2 (1, N = 149) = 1.13, p = .288.

Chinese older adults' intentions to seek help from various individuals if an emotional or mental health problem arose in the future are presented in Table 15. As indicated, there were some significant differences in help-seeking intentions.

For participants in this study, self-reported physical health status was not correlated with mental health utilization (r_{pb} = -.12, p = .145). However, lower mental

Table 14

Additional Mental Health Utilization Responses of Chinese Older Adults (N = 149)

Question	Response	*n*	%
Know someone who has sought MHS	No	131	87
	Yes	18	13
Person who sought MHS	Spouse	5	3
	Family member	2	1
	Friend	9	6
	Other	3	2
Prompted to seek MHS	No	134	89
	Yes, and did	6	4
	Yes, and did not	10	7
Person who prompted to seek MHS	Spouse	3	2
	Child	2	1
	Friend	6	4
	Health professional	1	1
	Other	4	3

Note. Total of percentages is not 100 because of rounding. MHS = Mental health services.

Table 15

Chinese Older Adults' (N = 149) Average Likelihood Ratings for Seeking Mental Health Services from Various Individuals

Individual	Mean likelihood rating *(SD)*
Myself	4.86 (1.82)
General practitioner	$4.85\ (1.80)_{a,b,c}$
Close family member	4.77 (1.86)
Close friend	4.40 (1.80)
Psychologist	$4.25\ (1.91)_{a}$
Counsellor	3.57 (1.90)
Clergy, minister, priest	3.52 (2.09)
Psychiatrist	$3.50\ (1.87)_{b}$
Social worker	$3.45\ (1.82)_{c}$
Traditional Chinese Medicine Practitioner	3.02 (1.78)
Telephone counselling service	2.93 (1.65)
Pharmacist	2.57 (1.54)

Note. Likelihood ratings range from 1 (*very unlikely*) to 7 (*very likely*). Means in a column sharing subscripts are significantly different from each other at $p < .02$.

health status was associated with increased mental health utilization (r_{pb} =-.17, p = .041). Among middle-aged participants, physical health status was not associated with seeking help from a professional or a non-professional. Lower mental health status among middle-aged Chinese interviewees was related to seeking help from a professional (r_{pb} = -.56, p = .145), but was not associated with seeking help from a non-professional (r_{pb} = -.10, p = .613).

For elderly Chinese respondents, neither physical health status, nor mental health status were related to seeking help from a professional or a non-professional.

Chapter Four: **Discussion**

The primary purpose of this study was to investigate a model of attitudes toward seeking mental health services among Chinese older adults. The model included personal and environmental factors (i.e., age, gender, education level, and perceived social support), acculturation, and enculturation. The secondary purpose of this study was to examine the relationships among mental health help-seeking attitudes, mental health utilization, and intentions to use mental health services among Chinese older adults. This discussion will focus on the representativeness of the sample, the issue of model fit, mental health help-seeking attitudes among Chinese older adults, theoretical and methodological issues related to cultural adaptation, the psychometric properties of the Inventory of Attitudes toward Seeking Mental Health Services (IASMHS; Mackenzie et al., 2004) with Chinese older adults, and the rates of mental health utilization reported by participants in this study.

4.1 Participants: Representativeness of Current Sample

The demographic characteristics of Chinese older adults in this study were similar to the profile of Chinese Canadian immigrants reported by Statistics Canada (2001). According to Statistics Canada (2001), most members of the Chinese community in Canada were born in the People's Republic of China or Hong Kong and immigrated to Canada within the last 20 years. Participants in the current study were primarily from Mainland China and Hong Kong and had been in Canada an average of 21.96 years (*SD* = 11.56). Among Chinese Canadians, nearly one-third had either a bachelor's degree or post-graduate degree, and seniors aged 65 and over reported an average income of approximately $1,500 per month (Statistics Canada, 2001). Approximately one-third of

older Chinese adults in the current study had some post-secondary education, and the majority reported a monthly income of less than $1,499.

There are noticeable differences between Statistics Canada (2001) data and the current sample in terms of gender and language ability. Women may be overrepresented in this study because they comprise 70% of the current sample, but only 54% of Chinese seniors in Canada are women (Statistics Canada, 2001). Similarly, Chinese older adults in this study reported lower rates of English language abilities (60% could understand English and 63% could speak English) than the 85% of Chinese Canadians who could carry on a conversation in either English or French (Statistics Canada, 2001). It appears that this study was successful in recruiting older adults who may not have been able to participate in Statistics Canada research due to language barriers.

4.2 Model of Attitudes toward Mental Health Help-seeking

A structural equation model of attitudes toward seeking mental health services among Chinese older adults was evaluated through maximum likelihood methods. The hypothesized model (see Figure 2) was not supported by goodness-of-fit indices. A respecified model with the variable of gender removed (see Figure 5) also failed to indicate good fit to the data. When path regression coefficients of the models were compared, there were fewer significant paths in the modified model than the initial model, which suggests that the initial model may be a slightly better fit to the data. Thus, the initial model is the basis for discussion.

A few studies have examined attitudes toward seeking mental health services among ethnic minority samples using structural equation modelling. A model of mental health help-seeking attitudes was evaluated among community-dwelling Chinese participants in Hong Kong and positive attitudes were significant predictors of intentions

to seek help for psychological issues (Mo & Mak, 2009). Models of attitudes that examined stigma among college students in the U.S. reported that increased stigma was associated with less positive attitudes toward seeking mental health services, especially for South Asian students (Loya et al., 2010; Vogel, Wade, & Hackler, 2007). However, only Liao and colleagues (2005) have considered the role of cultural adaptation as a mediator in a model of mental health help-seeking attitudes.

More specifically, Liao et al. (2005) used path analysis to evaluate a model of attitudes toward psychological counselling that included perceived social support, self-concealment, acculturation, and enculturation as predictors of attitudes among Asian American university students (M_{age} = 22.60, *SD* not reported; range: 17 to 45 years). There was significant improvement in model fit when acculturation and enculturation were included as both acculturation and enculturation were significantly correlated with help-seeking attitudes (Liao et al., 2005). Moreover, decreased enculturation was more strongly associated with positive mental health help-seeking attitudes than increased acculturation (Liao et al., 2005). Attitudes toward seeking mental health services were also found to significantly mediate the modelled relationship between cultural adaptation and wiliness to seek help (Liao et al., 2005).

Although the models were similar, I was unable to replicate the findings of Liao et al. (2005). There are four possible explanations. First, the current sample was much older and likely more enculturated. Compared to Liao et al.'s (2005) undergraduate student sample, older adults have lived longer in their native countries and therefore have had more opportunities to learn and maintain their heritage culture. Similarly, the age at which the Chinese older adults immigrated would have an impact on their level of

acculturation compared to university students. For example, if an older adult immigrated at a later age and proceeded to live with family members, he or she may not have had many opportunities to engage with Canadian culture or learn English. Indeed, post-hoc analyses suggest that among Chinese older adults, older age at immigration was associated with lower abilities to speak and comprehend English (r = -.62, p < .001, and r = -.63, p < .001, respectively). Although research has not compared the level of acculturation and enculturation among younger and older adults, it is likely that differences exist based on the literature that supports intergenerational conflict due to differences in rates of cultural adaptation (e.g., Lee, 1996; Mui & Kang, 2006).

Second, the sample size in this study may have had insufficient power. The rule of thumb regarding sample size for structural equation modelling (SEM) is N:q, where N is the ratio of cases to q, the number of model parameters to be estimated (Kline, 2011). Indeed, Kline (2011) suggested that an ideal sample size-to-parameters ratio is 20:1, a less than ideal ratio is 10:1, and ratios below 10:1 are less trustworthy. In the initial model of attitudes among Chinese older adults, 23 parameters were estimated. With a sample size of 149, the ratio of sample size-to-parameters is approximately 6.48, which may partially explain the poor fit of the model. If Kline's (2011) suggestion regarding sample size-to-parameters ratio is heeded, the ideal sample size for this study would have been 230 to 460 participants. Recruiting older Chinese adults into research projects that involve in-depth interviews related to mental health issues is challenging. Thus, for pragmatic reasons, a larger sample was not feasible for this study.

Third, problems with the structural validity of the MSPSS, the VIA, and the IASMHS were additional challenges that arose in this study, possibly accounting for poor

model fit. The structural validity of scales is a concern because the number of factors underlying questionnaires, the relationships among factors within scales, and the contribution of factors to test items should conform to the theoretical definition of each construct (Hoyle & Smith, 1994). Furthermore, the structural validity of measures needs to be upheld prior to identifying relationships among a scale and other measures, and, in order to assign meaning to a construct, measures and indicators of each construct must be acceptably unidimensional (Anderson & Gerbing, 1988; Hoyle & Smith, 1994). The structural validity of the MSPSS, the VIA, and the IASMHS do not clearly adhere to the above guidelines because there were challenges in replicating the factor structure of the MSPSS and the IASMHS in this sample. In addition, all of these scales are theorized to assess multiple dimensions of their respective constructs. Thus, the lack of structural validity of the MSPSS, the VIA, and the IASMHS may have contributed to the lack of fit.

The last issue concerning model fit is related to the lack of theory available to guide model respecification. Researchers concur that modifications to structural equation models must be guided by theory and not by statistical indications alone (Anderson & Gerbing, 1988; Byrne, 2010). Given the paucity of research in the area of cultural adaptation and attitudes toward seeking mental health services in general, and even more so with older adults, it was unclear how to respecify the initial model based on theoretical considerations. Typically, when a SEM solution demonstrates unacceptable overall fit, indicators can be respecified by relating the variable to a different factor, deleting a variable, relating an indicator to multiple factors, or correlating measurement errors (Anderson & Gerbing, 1988). However, given the need for a theoretical rationale to

execute such model modifications, alternative models of mental health help-seeking attitudes could not be investigated, thereby reducing the potential for improving fit.

Taken together, the issues of sample characteristics, sample size, structural validity, and lack of available theory for modelling attitudes toward seeking mental health services may contribute to the observed poor model fit. Nonetheless, given that this is the first study to evaluate a model of help-seeking attitudes that includes aspects of acculturation and enculturation among Chinese older adults, it still provides a number of important findings.

4.3 Attitudes toward Seeking Mental Health Services

In this study, Chinese older adults had significantly less positive mental health help-seeking attitudes and were less psychologically open than a community sample in Canada (age range: 15 to 89 years old) and older adults (age range: 65 to 91 years old) in New Zealand (James & Buttle, 2008; Mackenzie et al., 2004). Although White older adults have more positive mental health help-seeking attitudes than younger adults (see Mackenzie et al., 2008; Robb et al., 2003; Woodward & Pachana, 2009), ethnic minority older adults may not have such positive attitudes. Indeed, ethnic minority samples have been found to hold more negative attitudes toward seeking psychological services because of adherence to cultural values that stigmatize mental illness (Fung & Wong, 2007; Loya et al., 2010; Soorkia et al., 2011). However, it should be noted that the factor structure of the IASMHS was not replicated in the current study, and that the internal consistency of the Psychological Openness subscale was considered “unacceptable”.

4.3.1 Age and Help-seeking Attitudes

For Chinese older adults in this study, increasing age was found to be significantly related to less positive attitudes. This finding contradicts research with

White participants and Vietnamese and Korean American immigrants because older age was associated with more positive attitudes among these samples (Angermeyer et al., 2005; Luu et al., 2009; Mackenzie et al., 2006; Mackenzie et al., 2008; Shin et al., 2000; Robb et al., 2003; Woodward & Pachana, 2009).

Among Vietnamese American immigrants (M_{age} = 43.27, *SD* not reported; range: 18 to 75 years old) and Korean American immigrants (M_{age} = 42.00, *SD* = 15.80, range not reported), increased age was associated with more positive attitudes toward seeking professional psychological services (Luu et al., 2009; Shin et al., 2000). However, both of these studies had younger participants than the Chinese older adults in the current study. It is possible that age and mental health help-seeking attitudes are positively related up to a certain age and that the relationship then inverts with older participants. There is some support for such a non-linear relationship because older adults (65 years and above) in New Zealand were found to have more negative attitudes than adults 25 to 64 years old (James & Buttle, 2008). However, due to the cross-sectional nature of this research, it is unclear whether such a relationship can be attributed to age or cohort factors.

4.3.2 Gender, Education, and Help-seeking Attitudes

In the current study, Chinese older adults' attitudes were not related to gender or education level. Among samples of Asian Americans, gender has inconsistently predicted help-seeking attitudes. Mental health help-seeking attitudes among Asian American students (M_{age} = 21.09, *SD* = 3.97) were not significantly different between women and men (Ting & Hwang, 2009), but were significantly different between male and female Asian American students (M_{age} = 24.73, *SD* = 7.74; Tata & Leong, 1994). Among community-dwelling Chinese Americans (M_{age} = 37.81, *SD* = 12.58), women with a

diagnosable psychiatric condition were 158 times more likely to seek help for mental health issues than men with a diagnosable condition (Ying & Miller, 1992).

The inconsistent effect of gender on help-seeking attitudes among Chinese samples may be due to differences in cultural adaptation between women and men. More acculturated Asian women may be more open to acknowledging a need for help than men (Tata & Leong, 1994), while less enculturated women may have a greater tolerance for stigma associated with mental illness than men (Ting & Hwang, 2009), although neither of these studies assessed cultural adaptation using a bidimensional model. Women in the current study did not differ from men in terms of acculturation and enculturation (as assessed by the VIA), which may explain the lack of differences in attitudes.

In terms of the relationship between education and attitudes toward seeking mental health services, studies have reported that increased levels of education are associated with more positive attitudes for ethnic minority and White participants (Knipscheer & Kleber, 2005; Sheikh & Furnham, 2000). However, among Chinese Canadian immigrants, education was not found to have a significant relationship to mental health utilization (Chen et al., 2008). It is likely that the quality of education that Chinese older adults received differs in several respects, as they were educated many years ago in a foreign country. Therefore, the relationship between education and help-seeking attitudes among Chinese older adults is more difficult to discern.

4.3.3 Social Support and Help-seeking Attitudes

In this study, greater perceived social support was related to positive help-seeking attitudes, which is consistent with previous research among Asian American university students and Chinese female immigrants (Liao et al., 2005; Mo et al., 2006). Social support networks are an important source of advice and information for health-related

issues among Chinese older adults (Pang, Joran-Marsh, Silverstein, & Cody, 2003). Positive values and behaviours related to help-seeking are often transmitted and encouraged by members of a support network, so Chinese immigrants with increased social support may be more receptive to formal support (Mo et al., 2006).

4.4 Issues Related to Cultural Adaptation

The literature indicates that cultural adaptation influences attitudes toward help-seeking among immigrant populations (e.g., Atkinson & Gim, 1989; Atkinson et al., 1995; Kung, 2003). However, research examining the relationship between the bidimensional framework of cultural adaptation and attitudes toward seeking mental health services among ethnic minorities has been mixed. In some studies, enculturation and acculturation were not significantly associated with attitudes toward mental health services (Kim & Omizo, 2010; Ting & Hwang, 2009), while in other research, higher acculturation and lower enculturation were significantly related to more positive mental health help-seeking attitudes (David, 2010; Fung & Wong, 2007; Kim, 2007; Leong et al., 2011; Liao et al., 2005). Cultural beliefs, especially as they relate to beliefs about mental illness, have been found to negatively impact mental health help-seeking attitudes among ethnic minority adult and older adult samples (Chen & Mak, 2008; Fung & Wong, 2007; Jang et al., 2005; Jang et al., 2009; Narikiyo & Kameoka, 1992; Sheikh & Furnham, 2000). For Chinese older adults of the current study, middle-aged (55 to 64 years old) participants were found to be more acculturated than elderly (65 years old and above) participants, while both groups were equally enculturated, as assessed by the VIA.

In the current study, neither the VIA Mainstream dimension nor the VIA Heritage dimension were significantly associated with mental health help-seeking attitudes.

However, there was a significant association between endorsing beliefs in Chinese culture and values and less positive attitudes toward seeking mental health services.

As indicated, the VIA was not related to attitudes and provided no incremental predictive power in the model. Conceptual and methodological limitations with the construct of cultural adaptation, which the VIA is intended to measure, may explain the lack of findings.

Cultural adaptation is a theoretical construct that has yet to be fully validated (Lam, 1995) and measures vary because it is unclear how lifestyle dimensions (e.g., language preferences, ethnic norms) and psychological dimensions (e.g., attitudes, cognitions, behaviours) are affected by culture change (Gamst et al., 2011; Lam, 1995; Matsudaira, 2006). Furthermore, cultural adaptation scales have no established external criteria because most scales have been validated against demographic variables that do not directly reflect the broader definition of culture change (Matsudaira, 2006). Indeed, much of the research with the VIA has examined convergent validity with demographic variables, such as the generation-status of participants and the percentage of time English is spoken at home (see Hsu et al., 2012; Sood et al., 2010).

It is important to note that studies using the VIA have, with one exception (Abu-Bader et al., 2011), focused exclusively on younger participants (mean ages between 19 and 34; Asvat & Malcarne, 2008; Huynh et al., 2009; Hsu et al., 2012; Sood et al., 2012; Swagler & Jome, 2005; Ting & Hwang, 2009). Asian elderly immigrants encounter the combined challenges of aging and cultural adaptation (Lee et al., 2001), and have to balance adapting to age-related changes, such as declining health, with adjusting to differences in socio-cultural environment, like learning English as a second language at a

late stage in life (Arthur & Merali, 2005). Since the VIA was developed from items intended for youth (Ryder et al., 2000), it may not be capturing the unique challenges facing Chinese older adults. For example, there are items on the VIA assessing comfort level at work with Chinese and North American individuals that may not apply to retired participants (see Appendix M). On the other hand, the BCCV was developed for use with Chinese older adults (Lai & Chau, 2007; see Appendix O) and it assesses internal cultural beliefs that are more specific to the maintenance of Chinese cultural values than the Heritage items of the VIA.

An additional challenge for cultural adaptation studies is the issue of translation. Translation is no simple matter, even when conducted by experts, because of the need for construct equivalence across cultures (Cohen, 2007). Although methods of translation have been documented (e.g., WHO guidelines, 2007), procedures for establishing score equivalence are not well known, and cautious interpretation of findings from research where scales have been translated into other languages is encouraged (Lam, 1995). The problems of conceptualizing and measuring cultural adaptation may have accounted for the inconsistent relationships among acculturation, enculturation, and attitudes toward mental health help-seeking among Chinese older adults in the current study.

4.5 Psychometric Properties of the IASMHS

Conclusions regarding the IASMHS are made tentatively as the internal consistency of the Psychological Openness subscale was deemed “unacceptable”. There is limited research detailing the psychometric properties of the IASMHS in studies with Chinese and ethnic minority participants, and published studies have not presented data on the scale’s factor structure (e.g., Loo et al., 2011; Pilkington et al., 2012).

Cronbach's alpha for the Psychological Openness subscale was .71 among a sample of Chinese participants in Taiwan (M_{age} = 25.36; *SD* = 10.25, range: 18 to 74 years old; Loo et al., 2011), and .67 among South Asian Muslims in the U.K. (M_{age} = 31.00, *SD* = 10.30; Pilkington et al., 2012). The only other study to examine the internal consistency of Psychological Openness among older adults in New Zealand also reported a low value of .45 (James & Buttle, 2008; H. Buttle, personal communication, November 22, 2102). These findings suggest that the items on the subscale may be influenced by age factors and cultural factors among ethnic minority samples.

Age factors may be influencing the internal consistency of the Psychological Openness subscale, and it is possible that due to cohort differences, there are varying levels of psychological openness that are not being captured by the IASMHS subscale. Unfortunately, the internal consistencies of the IASMHS subscales among other older adult samples are not available (C. Mackenzie, personal communication, November 20, 2012). Among the Chinese samples, certain items on the subscale may be indirectly assessing cultural values, such as not discussing problems with individuals outside of the family (see Appendix J). Thus, the Psychological Openness subscale may be impacted by different levels of enculturation among participants.

The internal consistency of the Psychological Openness subscale may be lower for ethnic minority samples due to differences in the conceptualization of openness. The items of the IASMHS Psychological Openness subscale were derived from the "interpersonal openness regarding one's problems" factor of the Attitudes Toward Seeking Professional Psychological Help Scale (ATSPPHS, Fischer & Turner, 1970, as cited by Mackenzie et al., 2004), and it has been suggested that the openness factor of the

ATSPPHS more closely represents a personality measure, rather than an attitudinal factor (Fischer & Turner, 1970). Openness is not commonly used as a distinct dimension in the taxonomy of personality traits in Chinese culture (Cheung et al., 2008), and a translated version of the short form of the ATSPPHS was not culturally equivalent in Mainland China (Fang, Peiterse, Friedlander, & Cao, 2011). There is a possibility that psychological openness is not a coherent construct among Chinese older adults, and that the lack of cross-cultural equivalence of openness is affecting the internal consistency of Psychological Openness in the current study.

4.6 Mental Health Help-seeking Attitudes and Utilization

In this study, the relationship between attitudes toward seeking mental health services and mental health utilization was not significant, which may be due to truncated variability in utilization since only 8% (n = 12) of Chinese older adults reported seeing a health professional (i.e., family physician) for mental health issues. Also, the Chinese older adults in this sample had more negative mental health help-seeking attitudes than a predominantly White community sample (M_{age} = 45.60, SD = 17.80; Mackenzie et al., 2004) and older adults in New Zealand (age range: 65 to 91 year old; James & Buttle, 2008). Attitudes significantly predict behaviour (Krauss, 1995). Thus, the low utilization rates in the current study may be explained by the more negative attitudes among this sample.

The 8% of Chinese older adults who sought help for mental health issues is less than the 13% and 22% of older adults (aged 65 and over) in Quebec and Florida, respectively, who sought help (Préville et al., 2009; Robb et al., 2003), but closer to the 4% to 6% of Chinese immigrants in the U.S. (age range: 18 to 65 years old) who sought help (Abe-Kim, Takeuchi, & Hwang, 2002; Kung, 2004; Loo et al., 1989). There is

evidence that Chinese immigrants are less likely to seek help for mental health problems (Chen et al., 2008; Parker, Chan, & Tully, 2006), as are older adults (Mackenzie, Reynolds, Cairney, Streiner, & Sareen, 2012; Préville et al., 2009), leading to a pattern of underutilization. In the current study, associations among attitudes and seeking help from professionals and non-professionals were not found between middle-aged (55 to 64 years old) and elderly (65 years old and above) participants. Thus, it is likely that older Chinese adults are faced with a number of cultural, knowledge, and practical barriers when seeking mental health services.

Chinese cultural beliefs generally do not lend themselves to positive help-seeking attitudes (Witt, Poulin, Ingersol, & Deng, 2011). Chinese older adults likely hold strong cultural beliefs and values that negatively affect help-seeking attitudes and behaviours due to the stigma associated with mental illness and emotional distress (Leong & Lau, 2001; Witt et al., 2011). Moreover, there is evidence that Chinese persons may hold negative conceptualizations of mental illness (e.g., devaluing persons with mental illness, believing mental illness to be a sign of weakness; Ryder, Bean, & Dion, 2000). Many Chinese see the use of psychiatric services as a loss of face (Chang, 2007; Park, 2011), and stigma is a major barrier to accepting information about mental health among Chinese immigrant communities (Blignault, Ponzio, Rong, & Eisenbruch, 2008).

Lack of knowledge about mental health resources may be an additional barrier. In the current study, only 30% of Chinese older adults were able to cite a specific source for professional mental health services. In Calgary, there are a number of organizations, such as the Calgary Chinese Elderly Citizens' Association, that can provide counselling in Chinese. Although mental health services are available to Chinese-speaking individuals,

there may be limited awareness of these services among Chinese older adults. Limited knowledge of mental health issues and lack of awareness of available mental health services have been noted as barriers to accessing mental health services for Chinese-born immigrants in Australia and the U.K., and Chinese and Tamil older adults (Blignault et al., 2008; Li et al., 1999; Sadavoy, Meier, & Ong, 2004).

The presence of practical barriers may be especially relevant for Chinese immigrants. In Australia and the U.K., Chinese immigrants reported a number of practical barriers, such as a lack of proficiency in English and insufficient access to bilingual mental health professionals (Blignault et al., 2008; Li et al., 1999). Older Chinese immigrant family caregivers in Canada and Asian health care professionals in Australia also cited language barriers as significant impediments to accessing help (Lai & Surood, 2009; Wynaden et al., 2005). Alternatively, although Chinese-speaking counsellors are available in Calgary, they may not be easily accessed due to systemic issues, such as long waiting lists. Together, the numerous cultural, knowledge, and practical barriers to accessing mental health services may account for the lower rate of utilization reported by Chinese older adults in this study.

4.7 Strengths and Limitations of the Current Study

This study provides in-depth information about mental health help-seeking among Chinese older adults, a sample of participants that is understudied in the literature. The dearth of literature in this area may be due, in part, to the sensitive nature of the topic among older Chinese, making access and recruitment difficult. This study adds to existing literature by investigating the influence of acculturation and enculturation on attitudes toward seeking mental health services and evaluating an adapted model (Kim et al., 2001) of help-seeking attitudes among Chinese older adults. In addition, the study

extends research on cultural adaptation by providing evidence for the utility of the bidimensional model of cultural adaptation beyond an undergraduate sample, to Chinese older adults. Lastly, this study provides information concerning the reliability, validity, and factor structure of the MSPSS, VIA, and IASMHS, measures that have never been used with Chinese older adults.

Despite these strengths, a number of limitations are present in this study. Specifically, sampling and participant recruitment techniques may limit the generalizability of findings from this study. For example, it is possible that individuals who highly identified with their Chinese cultural heritage were more attracted to this study because it advertised for participants of Chinese ethnicity (Cohen, 2007). Similarly, many participants who were recruited from cultural associations and social support groups in Chinatown also lived in Chinatown, and therefore, may be more enculturated than Chinese older adults elsewhere in the city. It is likely that older adults in Chinatown do not need to speak English in their day-to-day lives, which may explain the difference in English language ability reported between participants of this study and other Chinese Canadians interviewed by Statistics Canada (2001).

The tenuous structural validity and linguistic equivalence of translated measures is another limitation. The translation of measures does not ensure equivalence of concepts across cultures, and any difficulties in the interpretation of words used in translated scales leads to error (Cohen, 2007; Lam, 1995; Stewart, 2008; Teresi & Holmes, 2001). Although the translation of scales used in the current study was undertaken with care, it is difficult to ascertain the linguistic equivalence of the scales.

4.8 Directions for Future Research

Stemming from the current study, there are five suggestions for future research. First, there is a need for additional theory development in the area of cultural adaptation and attitudes toward seeking mental health services. Specifically, the model by Kim et al. (2001) requires additional specification regarding the directionality of predictors, such as age and perceived social support. In addition, the theory should expand upon how to assess and measure components of the model, such as cultural behaviours and cultural values. As it stands, the model would benefit from additional theoretical development to better guide empirical research, especially SEM, which requires a theoretical basis for model evaluations (Byrne, 2010).

Second, a larger study to evaluate the proposed model of mental health help-seeking attitudes would assist in theory development. A larger sample size has the potential to improve the structural validity and reliability of measures and model fit, potentially providing further evidence for Kim and colleagues' (2001) model.

Third, future research should consider the addition of stigma in a model of mental health help-seeking attitudes because previous research has found that the perception of stigma associated with using psychological services and stigma toward individuals with mental illness were negatively related to mental health help-seeking attitudes (Loo et al., 1989; Vogel et al., 2007). Such relationships are likely to be found among Chinese older adults because mental illness is highly stigmatized in Chinese culture (Chang, 2007). Although the IASMHS assesses indifference to stigma, additional measures related to stigma are available, such as the Self-Stigma of Seeking Help Scale used by Vogel et al. (2007) and the Devaluation-discrimination scale used by Loya et al. (2010), and should be included in future research.

Fourth, further research should assess beliefs about mental illness among Chinese older adults using the Explanatory Model Interview Catologue (EMIC), which is designed to assess the influence of culture on illness conceptualizations (Weiss, 1997). Although it has not been used with Chinese older adults, in previous research with Chinese immigrants, important information about the cultural issues related to stigma, perceived causes of illness, help-seeking, and barriers to accessing help has been reported (Lee, Rodin, Devins, & Weiss, 2001). Such an approach with Chinese older adults may provide additional insight into the conceptualization of mental illness and the relationships between cultural adaptation and mental health help-seeking attitudes.

Lastly, based on the low rates of mental health utilization reported by Chinese older adults in this study, and the numerous barriers facing ethnic minority seniors in accessing services (see Blignault et al., 2008; Li et al., 1999; Sadavoy et al., 2004), future research should examine service barriers more closely. Specifically, it would be informative to ask individuals who have utilized mental health services about barriers they encountered when seeking help.

4.9 Practice Implications

Findings from the current study suggest a number of implications for practice. First, Chinese older adults may benefit from education to increase knowledge about mental illness, reduce stigma associated with mental illness, and increase awareness of available mental health services. Outreach efforts may better meet the needs of enculturated Chinese older adults if mental health service providers can collaborate with existing community supports, such as cultural organizations or churches (Kim & Omizo, 2003). Also, based on Chinese older adults' lower English language abilities and preference to seek mental health services from a family physician, mental health services

should be provided by bilingual professionals integrated with primary care, ideally by bicultural geriatric mental health clinicians (Choi & Gonzalez, 2005). In addition, family physicians may benefit from additional education regarding the relationship between Chinese cultural beliefs and mental illness, and how to approach the topic of mental health in a culturally sensitive manner with Chinese older adults.

Clinically, mental health professionals may find that framing issues of mental health and mental illness as "emotional health" or "mood" issues with Chinese older adults reduces stigma (Lai, 2003). Also, it may be helpful to assess Chinese older adults' cultural beliefs related to mental illness to better understand possible reluctance to engage with mental health professionals or adhere to treatment. That being said, Chinese older adults are a diverse population and many within-culture differences exist (Chow, 2010; Chau & Lau, 2011) that should be taken in consideration when providing mental health services. For example, previous research has indicated that service use at senior centres differs among immigrants from China and those who immigrate from Hong Kong or Taiwan (Lai, 2001). It has been recommended that programs designed for Chinese older adults consider the cultural variations that exist among this population (Lai, 2001).

In terms of prevention efforts, it may be helpful to increase access to physical activities for Chinese older adults as overall physical health was associated with more positive mental health help-seeking attitudes in this study. Moreover, physical activity for the benefit of emotional health is consistent with Chinese health beliefs (see Leung, 1998; Liu, 1981; Park, 2011) and may be one way to promote mental health in a culturally acceptable manner.

4.10 Conclusions

In this study, an adapted model (Kim et al., 2001) of attitudes toward seeking mental health services among 149 Chinese older adults (age range: 55 to 95 years) did not demonstrate good fit. More specifically, acculturation and enculturation did not mediate the relationship among the factors of age, gender, education, and perceived social support and mental health help-seeking attitudes. More positive attitudes were evident among younger participants and those with better perceived social support.

As this is the first study to apply the adapted model (Kim et al., 2001), the lack of model fit may be due to a number of methodological and theoretical limitations inherent to cross-cultural research, such as sampling biases, challenges establishing linguistic equivalence, and discrepancies regarding the conceptualization of cultural adaptation. Despite these limitations, the current study significantly extends the literature on attitudes toward seeking mental health services by assessing the influence of age, gender, education level, acculturation and enculturation on attitudes among Chinese older adults. Similarly, this study extends the application of the bidimensional model of cultural adaptation beyond undergraduate university samples by demonstrating the relevance of acculturation and enculturation with Chinese older adults. This line of research is promising as the need for mental health services will grow amid the increasing proportion of Chinese older adults in Canada.

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APPENDIX A: TRADITIONAL CHINESE RECRUITMENT HANDOUT

UNIVERSITY OF CALGARY

為幫助華人社區

卡爾加里大學的研究人員們想要了解您的身體與情緒的健康狀況，以及您對於健康機構的看法。如果您的年齡是 55 歲以上的話，我們想要邀請您參加一個關於此項研究的調查面試。您所提供的資料將會幫助我們更好地認識與了解住在卡爾加里中國人對於心理健康和綜合健康狀態的看法與態度。我們希望這項研究的成果可以幫助到那些正在幫助維持中國人社區的人們。

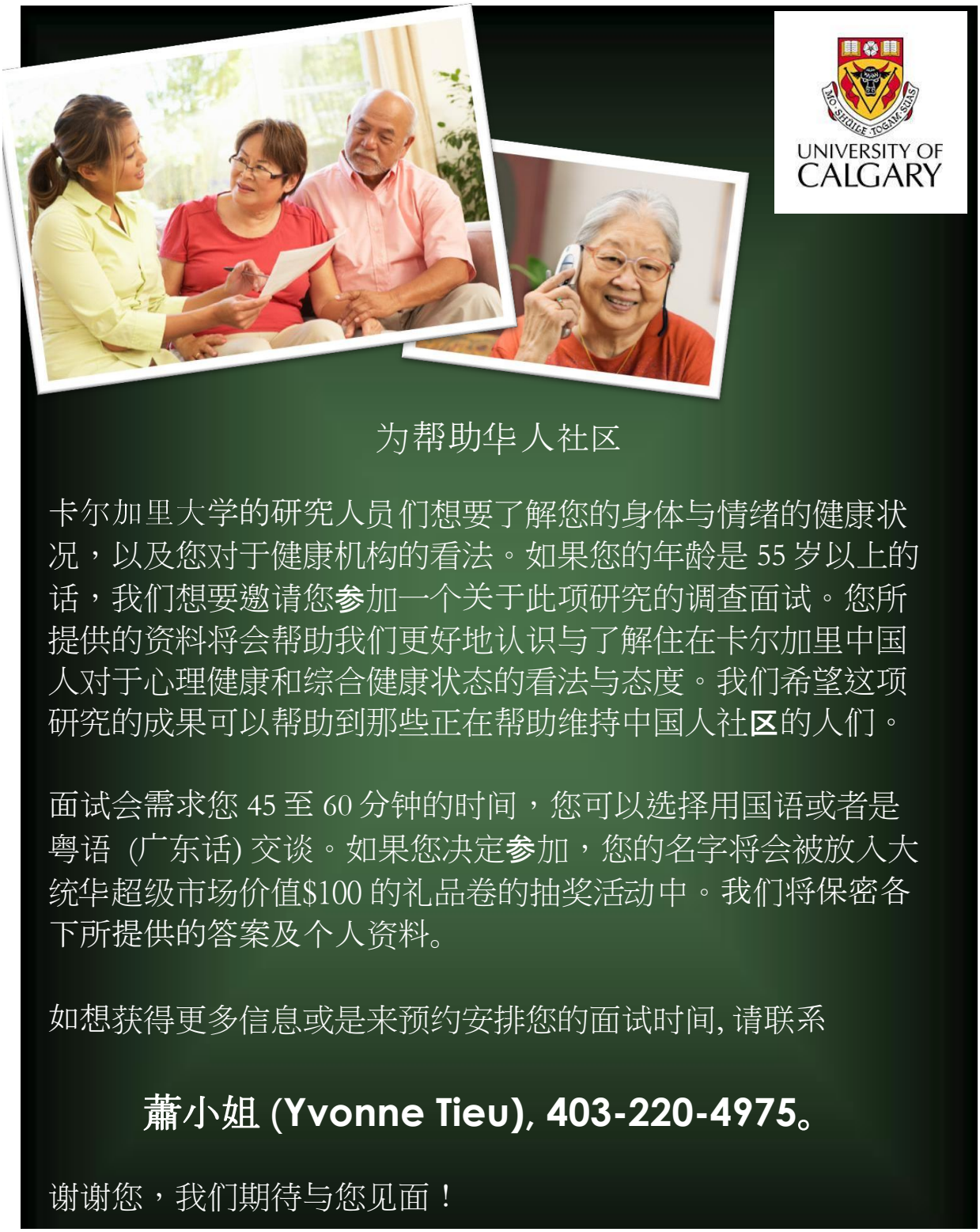
面試會需求您 45 至 60 分鐘的時間，您可以選擇用國語或者是粵語(廣東話) 交談。如果您決定參加，您的名字將會被放入大統華超級市場價值$100 的禮品卷的抽獎活動中。我們將保密各下所提供的答案及個人資料。

如想獲得更多信息或是來預約安排您的面試時間, 請聯繫

蕭小姐 (Yvonne Tieu), 403-220-4975。

謝謝您，我們期待與您見面！

SIMPLIFIED CHINESE RECRUITMENT HANDOUT



APPENDIX B: RECRUITMENT SITES

Table B.1.

Numbers of Participants Recruited at Various Sites in the Current Study

	n
Cultural organizations	106
Seniors' apartments	12
Wing Kei Care Centre	12
Chinese Emotional Health Carnival	8
Churches	7
Personal contacts	11

Note. Cultural organizations: Calgary Chinese Elderly Citizens' Association, Calgary Chinese Christian Mission of Canada, Tsung Tsin Benevolent Association. Seniors' apartments: Carter Place. Churches: Southgate Alliance Church.

APPENDIX C: WORLD HEALTH ORGANIZATION (WHO) GUIDELINES FOR THE PROCESS OF TRANSLATION AND ADAPTATION OF INSTRUMENTS

The aim of this process is to achieve different language versions of the English instrument that are conceptually equivalent in each of the target countries/cultures. That is, the instrument should be equally natural and acceptable and should practically perform in the same way. The focus is on cross-cultural and conceptual, rather than on linguistic/literal equivalence. A well-established method to achieve this goal is to use forward-translations and back-translations. This method has been refined in the course of several WHO studies to result in the following guidelines.

Implementation of this method includes the following steps:

- Forward translation
- Expert panel Back-translation
- Pre-testing and cognitive interviewing
- Final version

1. Forward translation

One translator, preferably a health professional, familiar with terminology of the area covered by the instrument and with interview skills should be given this task. The translator should be knowledgeable of the English-speaking culture but his/her mother tongue should be the primary language of the target culture.
Instructions should be given in the approach to translating, emphasizing conceptual rather than literal translations, as well as the need to use natural and acceptable language for the broadest audience. The following general guidelines should be considered in this process:

- Translators should always aim at the conceptual equivalent of a word or phrase, not a word-for-word translation, i.e. not a literal translation. They should consider the definition of the original term and attempt to translate it in the most relevant way.
- Translators should strive to be simple, clear and concise in formulating a question. Fewer words are better. Long sentences with many clauses should be avoided.
- The target language should aim for the most common audience. Translators should avoid addressing professional audiences such as those in medicine or any other professional group. They should consider the typical respondent for the instrument being translated and what the respondent will understand when s/he hears the question.
- Translators should avoid the use of any jargon. For example, they should not use:
    - technical terms that cannot be understood clearly; and
    - colloquialism, idioms or vernacular terms that cannot be understood by common people in everyday life.
- Translators should consider issues of gender and age applicability and avoid any terms that might be considered offensive to the target population.

2. Expert panel

A bilingual (in English and the target language for translation) expert panel should be convened by a designated editor-in-chief. The goal in this step is to identify and resolve the inadequate expressions/concepts of the translation, as well as any discrepancies between the forward translation and the existing or comparable previous versions of the questions if any. The expert panel may question some words or expressions and suggest alternatives. Experts should be given any materials that can help them to be consistent with previous translations. Principal investigators and/or project collaborators will be responsible for providing such materials. The number of experts in the panel may vary. In general, the panel should include the original translator, experts in health, as well as experts with experience in instrument development and translation.
The result of this process will produce a complete translated version of the questionnaire.

3. Back-translation

Using the same approach as that outlined in the first step, the instrument will then be translated back to English by an independent translator, whose mother tongue is English and who has no knowledge of the questionnaire. Back-translation will be limited to selected items that will be identified in two ways. The first will be items selected by the WHO based on those terms / concepts that are key to the instrument or those that are suspected to be particularly sensitive to translation problems across cultures. These items will be distributed when the English version of the instrument is distributed. The second will consist of other items that are added on as participating countries identify words or phrases that are problematic.
As in the initial translation, emphasis in the back-translation should be on conceptual and cultural equivalence and not linguistic equivalence. Discrepancies should be discussed with the editor-in-chief and further work (forward translations, discussion by the bilingual expert panel, etc.) should be iterated as many times as needed until a satisfactory version is reached. Particularly problematic words or phrases that do not completely capture the concept addressed by the original item should be brought to the attention of WHO.

4. Pre-testing and cognitive interviewing

It is necessary to pre-test the instrument on the target population. Each module or section will be fully tested using the methodologies outlined below.

- Pre-test respondents should include individuals representative of those who will be administered the questionnaire. For this study, middle-aged and elderly Chinese should be used to test the translated instruments, although such users could be drawn from sources other than those used to recruit study participants – preferably persons who would not otherwise be eligible for the main study.
- Pre-test respondents should number 10 minimum for each section. They should represent males and females from all age groups (18 years of age and older) and different socioeconomic groups. For this study, the intended population will guide the selection of pre-test respondents. That is, middle-aged and elderly Chinese (55 years of age and older) will be administered the instrument.

- Pre-test respondents should be administered the instrument and be systematically debriefed. This debriefing should ask respondents what they thought the question was asking, whether they could repeat the question in their own words, what came to their mind when they heard a particular phrase or term. It should also ask them to explain how they choose their answer. These questions should be repeated for each item.
- The answers to these questions should be compared to the respondent's actual responses to the instrument for consistency.
- Respondents should also be asked about any word they did not understand as well as any word or expression that they found unacceptable or offensive.
- Finally, when alternative words or expressions exist for one item or expression, the pre-test respondent should be asked to choose which of the alternatives conforms better to their usual language.
- This information is best accomplished by in-depth personal interviews although the organization of a focus group may be an alternative.
- It is very important that these interviews be conducted by an experienced interviewer.

A written report of the pre-testing exercise, together with selected information regarding the participating individuals should also be provided.

5. Final version

The final version of the instrument in the target language should be the result of all the iterations described above. It is important that a serial number (e.g. 1.0) be given to each version.

6. Documentation

All the cultural adaptation procedures should be traceable through the appropriate documents. These include, at the least:

- initial forward version;
- a summary of recommendations by the expert panel;
- the back-translation;
- a summary of problems found during the pre-testing of the instrument and the modifications proposed; and
- the final version.

It is also necessary to describe the samples used in this process (i.e. the composition of the expert panel and the pre-test respondent samples). For the latter, the number of individuals as well as their basic characteristics should be described, as appropriate.

APPENDIX D: INFORMED CONSENT/INFORMATION SHEET

Information Sheet (Community Survey) Cantonese Back-translation

Research topic: Physical and mental health of middle-aged and old Chinese, and their opinions toward health organizations

Researchers: Yvonne Tieu, M.Sc., University of Calgary
Candace A. Konnert, Ph.D., University of Calgary

This letter, you may have a copy, is only one part of the recognition and consent process. If you would like to understand and know the detail of the material mentioned, or the information not included within, you can ask anytime. The University of Calgary Institute of the Joint Ethics Committee is in support of this scientific research.

University of Calgary students are interviewing Chinese people; 55 years old or older, to better understand their physical and emotional health for health services and opinions. We would like to invite you for an interview. If you agree, the interview will ask you several questions about your physical and emotional health, your beliefs in Chinese culture, your views on health services as well as some background information about yourself. This interview will take 45-60 minutes.

The information you supply will help us better understand the physical and emotional health of the Chinese in Calgary and their opinions about health services. We hope the data from this study will help the Chinese in Calgary.

We will keep confidential the data you have provided and your private information. Your data can only be used for our study. Your participation is completely voluntary, so you can refuse to answer any questions. You can also withdraw from the meeting at anytime, there will be no consequences. Whether you decide to participate or not, this will not affect your health and community services you currently use or will use. If you decide to participate, your name will be put into a draw for a $100 coupon to T&T supermarket. If you decide to withdraw from your participation, your name will still be in the draw and any information you supplied will be used in our study. If you don't wish for your information to be used, please contact Yvonne Tieu before July 31, 2011.

If you have interests about our study's results, we can give you a report of the research results, however, nobody can recognize your personal information in the report. The information you supply will be stored at Candace Konnert's research room in one of the locked cabinets. The information you provide will be kept for 5 years. Only Candace Konnert and Yvonne Tieu can use the data. After 5 years, the data will be destroyed. Today, the information you provide will be used for Ph.D. dissertation.

If you have any inquiries about the study, please contact the University of Calgary's Yvonne Tieu or Candace Konnert (telephone: 403-220-4975; address: 2500 University Drive NW, Calgary, Alberta T2N1N4; e-mail: ytieu@ucalgary.ca or konnert@ucalgary.ca). If you have any

concerns about the treatment of this visit, please contact Russell Burrows, Conjoint Faculties Research Ethics Board, Research services, University of Calgary (Telephone: 403-220-3782; e-mail: rburrows@ucalgary.ca).

Information/Consent Form (Community survey): English original

Research Project Title: Middle-aged and elderly Chinese' physical and emotional health and opinions about health services

Investigators: Yvonne Tieu, M.Sc. University of Calgary
Candace A. Konnert, Ph.D. University of Calgary

This information sheet, a copy of which can be given to you, is only part of the process of informed consent. If you want more details about something mentioned, or information not included, you should feel free to ask. The University of Calgary Conjoint Faculties Research Ethics Board has approved this research study.

Students from The University of Calgary are interviewing Chinese people over the age of 55 to better understand their physical and emotional health, and opinions about health services. We would like to invite you to participate in an interview for this project. If you agree, the interview will ask you some questions about your physical and emotional health, your Chinese cultural beliefs, your attitudes about health services, as well as some background information about you (e.g., age, gender, years of education, etc.). The interview will take between 45 to 60 minutes. The information you provide will be useful for us to better understand the emotional and physical health and well-being of Chinese in Calgary, as well as their opinions about health services. We expect the information from this study will be useful to those who help the Chinese community.

All the answers you provide will be kept anonymous and will only be used for group analysis. None of your personal information will be revealed to anyone. Your participation in this study is completely voluntary. You can refuse to answer any questions you do not feel comfortable with. You can also choose to withdraw from the interview at any point with no consequences. Whether or not you decide to participate will have no influence on the health and community services you currently use or will use. If you decide to participate, your name will be entered into a draw to win a $100 gift certificate for T & T Supermarket. If you decide to withdraw from the study, your name will still be entered to win the gift certificate, and any information you provide will be used for group analysis. If you do not want your information to be analyzed, please inform Yvonne Tieu before July 31, 2011.

A final report of the research results will be made available to anyone interested (please provide a mailing address or Email). However, no one will be able to identify your personal information in this report. Any information you provide will be kept in a locked cabinet in the Research Room of Candace Konnert at the University of Calgary, accessible by Yvonne Tieu and Candace Konnert for a period of 5 years, after which, it will be disposed of in a secure manner. The information you provide today will be used for a Ph.D. thesis and may be used again in future research projects conducted by myself and/or my research supervisor.

For any enquiry about this research, please contact: Yvonne Tieu or Candace Konnert of the Department of Psychology, University of Calgary (Tel: 403-220-4975; Address: 2500 University Drive NW, Calgary, Alberta T2N1N4; Email: ytieu@ucalgary.ca or konnert@ucalgary.ca). If you have any concerns about the way you have been treated as a participant, please contact Russell Burrows, Seniors Ethics Resource Officer, Research Services, University of Calgary at (403) 220-3782; Email: rburrows@ucalgary.ca.

APPENDIX E: INTERVIEW OBSERVATIONS

Participant Number: _____
Interviewer: _____
Date: _____
First impressions:
_____
_____

Behavioural Observation	Comment
Appearance	
Cooperation / Comfort level	
Engagement / Interest level	
Attention	
Energy level / Reaction time	
Affect / General disposition	
Comprehension / Language issues	
Memory	
Additional comments??	

APPENDIX F: SOCIO-DEMOGRAPHIC QUESTIONNAIRE

1. Record Gender: M/F
2. What is your year of birth? _____
3. Where were you born? _____
4. My ethnicity is:_____
5. What is your current marital status?
    a. Never married/Single
    b. Married or living common-law
    c. Separated
    d. Divorced
    e. Widowed
6. Are you a…?
    a. Canadian Citizen by birth
    b. Naturalized Canadian citizen
    c. Landed immigrant
    d. Other (specify):_____
7. In what year did you first immigrate to Canada? _____
8. How long have you been living in Canada? _____ years
9. How long have you been living in Calgary? _____ years
10. Which country/city did you live in before migrating to Canada?
    a. Mainland China
    b. Hong Kong
    c. Taiwan
    d. Vietnam
    e. Other (specify):_____
11. Would you like to return to your home country to live permanently?
    a. Yes, why? _____
    b. No, why? _____
    c. Not sure
12. Do you speak Chinese (any Chinese dialects)?
    a. Yes, I speak well
    b. Yes, I speak a little
    c. No, not at all
13. Do you comprehend English?
    a. Yes, I understand well
    b. Yes, I understand a little
    c. No, not at all
14. Do you speak English?
    a. Yes, I speak well
    b. Yes, I speak a little
    c. No, not at all
15. What language(s) or Chinese dialect(s) do you speak at home?

_____

16. How often do you speak Chinese/Chinese dialect?
    a. I do not speak Chinese at all
    b. All the time
    c. Most of the time
    d. Half of the time
    e. Little of the time
    f. Almost never
17. How many children do you have? _____
18. How old are your children? _____
19. Do your children live close enough to come and help you if needed? _____
20. Who are you living with now? (Check all items that apply)

	Yes	Number
a. Spouse/Partner		
b. Sibling		
c. Son		
d. Daughter		
e. Son-in-law		
f. Daughter-in-law		
g. Grandchildren		
h. Other relative		
i. Friend		
j. Alone		Not applicable
k. Other (specify)		

21. What language do you usually use when speaking to…..?

	English only	Mostly English and little Chinese	Half and half	Mostly Chinese and little English	Chinese only	Other (specify)
a. your spouse/partner						
b. your siblings						
c. your children						
d. your son-in-laws						
e. your daughter-in-laws						
f. your grandchildren						
g. your other relatives						
h. your friends						

22. If you could have it the way you want, which of the following living arrangements would you like?
    a. Live with your children in the same household (including in-law suites)
    b. Live nearby to your children but in separate household
    c. Live as far away as possible from your children
    d. Other (specify): _____
23. What is your highest education level?
    a. No formal education
    b. Elementary
    c. Junior high
    d. Senior high
    e. Technical/professional college
    f. Community college
    g. University
    h. Graduate school
    i. Other (specify):_____
24. How many years have you been educated in Canada or in English/French speaking countries? _____ years
25. What is your religion (Check all that apply)
    a. None
    b. Catholic
    c. Protestant
    d. Taoist
    e. Buddhist
    f. Ancestor worship
    g. Muslim
    h. Other (specify): _____
26. How important is your religion to you?
    a. Very unimportant
    b. Somewhat unimportant
    c. Moderate
    d. Somewhat important
    e. Very important
    f. Not applicable
27. Do you usually think of yourself more as a….
    a. Chinese
    b. Chinese-Canadian
    c. Canadian
    d. Other (specify): _____
28. Is Chinese culture important to you?
    a. Very unimportant
    b. Somewhat unimportant
    c. Somewhat important
    d. Very important
    e. Don’t know

29. In general, how well does your income and investments currently satisfy your need?
    a. Very well
    b. Adequately
    c. Not very well
    d. Very inadequate
    e. Don't know
30. What is your personal average monthly income, including old age security payment?
    a. Less than $500
    b. $500-$999
    c. $1000-$1499
    d. $1500-$1999
    e. $2000-$2499
    f. $2500-$2999
    g. $3000-$3499
    h. $3500-$3999
    i. $4000 and over
    j. Don't know
    k. No answer

APPENDIX G: MULTIDIMENSIONAL SCALE OF PERCEIVED SOCIAL SUPPORT (MSPSS)

Multidimensional Scale of Perceived Social Support (MSPSS): Cantonese back-translation

Very Strongly Disagree	Strongly Disagree	Disagree	Do not disagree nor agree	Agree	Strongly Agree	Very Strongly Agree
1	2	3	4	5	6	7

1. When I need help, I have a special person that can help me.

1	2	3	4	5	6	7

2. There is a special person who I can share my joy and troubles with.

1	2	3	4	5	6	7

3. My family truly helps me.

1	2	3	4	5	6	7

4. I receive emotional support and help from my family

1	2	3	4	5	6	7

5. I have someone special who can comfort me.

1	2	3	4	5	6	7

6. My friends truly help me.

1	2	3	4	5	6	7

7. When I have troubles, I can rely on my friends.

1	2	3	4	5	6	7

8. I can talk to my family about my troubles.

1	2	3	4	5	6	7

9. I have friends who I can share my joy and troubles with.

1	2	3	4	5	6	7

10. There is a special person that cares about my feelings.

1	2	3	4	5	6	7

11. My family helps me with decisions.

1	2	3	4	5	6	7

12. I can talk to my friends about my troubles.

1	2	3	4	5	6	7

Multidimensional Scale of Perceived Social Support (MSPSS): English original

Very Strongly Disagree	Strongly Disagree	Disagree	Neither Disagree or Agree	Agree	Strongly Agree	Very Strongly Agree
1	2	3	4	5	6	7

1. There is a special person who is around when I am in need.

1	2	3	4	5	6	7

2. There is a special person with whom I can share my joys and sorrows.

1	2	3	4	5	6	7

3. My family really tries to help me.

1	2	3	4	5	6	7

4. I get the emotional help and support I need from my family.

1	2	3	4	5	6	7

5. I have a special person who is a real source of comfort to me.

1	2	3	4	5	6	7

6. My friends really try to help me.

1	2	3	4	5	6	7

7. I can count on my friends when things go wrong.

1	2	3	4	5	6	7

8. I can talk about my problems with my family.

1	2	3	4	5	6	7

9. I have friends with whom I can share my joys and sorrows.

1	2	3	4	5	6	7

10. There is a special person in my life who cares about my feelings.

1	2	3	4	5	6	7

11. My family is willing to help me make decisions.

1	2	3	4	5	6	7

12. I can talk about my problems with my friends.

1	2	3	4	5	6	7

APPENDIX H: CHRONIC MEDICAL CONDITIONS

Do you have any of the following medical conditions that have been diagnosed by a health professional and have lasted or are expected to last at least 6 months?

□ Food allergies

□ Other allergies

□ Asthma

□ Fibromyalgia

□ Arthritis or Rheumatism

□ Back problems (excluding those caused by fibromyalgia or arthritis)

□ High blood pressure

□ Migraine headaches

□ Chronic bronchitis

□ Emphysema or Chronic obstructive pulmonary disease

□ Diabetes

□ Epilepsy

□ Heart disease

□ Cancer

□ Stomach or intestinal ulcers

□ Effects of a stroke

□ Urinary incontinence

□ Bowel disorder (e.g., Crohn's disease or colitis)

□ Cataracts

□ Glaucoma

□ Thyroid condition

□ Chronic fatigue syndrome

□ Multiple chemical sensitivities

□ Other conditions (Please specify: _____)

APPENDIX I: KNOWLEDGE AND PERCEIVED ACCESSIBILITY TO AVAILABLE MENTAL HEALTH RESOURCES

1). Do you know where to go or who to see if you wanted professional help for a mental or emotional health problem?

□ Yes □ No

1a) If Yes, where could you go or who could you see? _____

_____

2). To what extent do you agree that you have access to mental health workers who can meet your needs in terms of:

	Totally Disagree	Disagree	Agree	Totally Agree
2a) Cultural sensitivity	1	2	3	4
2b) Language preference	1	2	3	4

APPENDIX J: INVENTORY OF ATTITUDES TOWARD SEEKING MENTAL HEALTH SERVICES (IASMHS)

Cantonese back-translation

The following term *professiona*l, stands for an individual who has undergone professional training for helping with psychological problems, such as psychologists, psychiatrists, social workers, and family doctors).

The following term, *psychological problems*, stands reasons one may seek professional help. Similar terms include mental health problems, emotional problems, mental troubles, and personal problems.

Please select the following items: Disagree (0), Somewhat Disagree (1), No Opinion (2), Somewhat Agree (3), Agree (4):

1). Some problems cannot be discussed with outsiders/strangers.

Disagree (0)	Somewhat Disagree (1)	No Opinion (2)	Somewhat Agree (3)	Agree (4)

2). I am clear how to handle related problems and seek professional help for psychological problems.

Disagree (0)	Somewhat Disagree (1)	No Opinion (2)	Somewhat Agree (3)	Agree (4)

3). I do not want my spouse to find out I have psychological problems.

Disagree (0)	Somewhat Disagree (1)	No Opinion (2)	Somewhat Agree (3)	Agree (4)

4). Putting all your focus on work can help you avoid your personal troubles and stress.

Disagree (0)	Somewhat Disagree (1)	No Opinion (2)	Somewhat Agree (3)	Agree (4)

5). If a good friend inquires about psychological problems, I would advise him/her to seek professional help.

Disagree (0)	Somewhat Disagree (1)	No Opinion (2)	Somewhat Agree (3)	Agree (4)

6). Suffering from a mental illness is shameful.

Disagree (0)	Somewhat Disagree (1)	No Opinion (2)	Somewhat Agree (3)	Agree (4)

7). Not completely understanding oneself is a good thing.

Disagree (0)	Somewhat Disagree (1)	No Opinion (2)	Somewhat Agree (3)	Agree (4)

8). If I suffered from psychological problems today, I believe psychotherapy would be helpful.

Disagree (0)	Somewhat Disagree (1)	No Opinion (2)	Somewhat Agree (3)	Agree (4)

9). People with problems should seek solutions themselves before finally seeking professional help.

Disagree (0)	Somewhat Disagree (1)	No Opinion (2)	Somewhat Agree (3)	Agree (4)

10). If I suffered from psychological problems, I could seek professional help if I wanted to.

Disagree (0)	Somewhat Disagree (1)	No Opinion (2)	Somewhat Agree (3)	Agree (4)

11). If the important people around me found out I suffered from psychological problems, they would gradually think less of me.

Disagree (0)	Somewhat Disagree (1)	No Opinion (2)	Somewhat Agree (3)	Agree (4)

12). Psychological problems, along with other problems, will be solved by themselves.

Disagree (0)	Somewhat Disagree (1)	No Opinion (2)	Somewhat Agree (3)	Agree (4)

13). I could find the time to receive professional help for psychological problems.

Disagree (0)	Somewhat Disagree (1)	No Opinion (2)	Somewhat Agree (3)	Agree (4)

14). There are some things in my life that cannot be discussed with other people.

Disagree (0)	Somewhat Disagree (1)	No Opinion (2)	Somewhat Agree (3)	Agree (4)

15). When I feel sad or worried for a long period of time, I will seek out professional help.

Disagree (0)	Somewhat Disagree (1)	No Opinion (2)	Somewhat Agree (3)	Agree (4)

16). I would feel uncomfortable searching for professional help for psychological problems because people may find out about it.

Disagree (0)	Somewhat Disagree (1)	No Opinion (2)	Somewhat Agree (3)	Agree (4)

17). Being confirmed to have a mental illness would ruin my life.

Disagree (0)	Somewhat Disagree (1)	No Opinion (2)	Somewhat Agree (3)	Agree (4)

18). I really admire those people who overcome stress and fear and do not seek professional help.

Disagree (0)	Somewhat Disagree (1)	No Opinion (2)	Somewhat Agree (3)	Agree (4)

19). If I feel like I have a nervous breakdown, I will seek professional help the first chance I get.

Disagree (0)	Somewhat Disagree (1)	No Opinion (2)	Somewhat Agree (3)	Agree (4)

20). Seeking professional help makes me uncomfortable because I am afraid of the way other people would look at me

Disagree (0)	Somewhat Disagree (1)	No Opinion (2)	Somewhat Agree (3)	Agree (4)

21). People with a strong will can overcome psychological problems and do not need professional help.

Disagree (0)	Somewhat Disagree (1)	No Opinion (2)	Somewhat Agree (3)	Agree (4)

22). If I feel that this person can help me and my family, I am willing to share my personal problems with him/her.

Disagree (0)	Somewhat Disagree (1)	No Opinion (2)	Somewhat Agree (3)	Agree (4)

23). If I received professional help for psychological problems, I think that I would not hide that fact

Disagree (0)	Somewhat Disagree (1)	No Opinion (2)	Somewhat Agree (3)	Agree (4)

24). I would feel really embarrassed if a neighbor found me going into a clinic for psychological problems

Disagree (0)	Somewhat Disagree (1)	No Opinion (2)	Somewhat Agree (3)	Agree (4)

Inventory of Attitudes toward Seeking Mental Health Services

English original

The term *professional* refers to individuals who have been trained to deal with mental health problems (e.g. psychologists, psychiatrists, social workers and family physicians).
The term *psychological problems* refers to reasons one might visit a professional. Similar terms include mental health concerns, emotional problems, mental troubles, and personal difficulties.
****

For each item indicate whether you disagree (0), somewhat disagree (1), are undecided (2), somewhat agree (3), or agree (4):

1 There are certain problems which should not be discussed outside of one's immediate family..... [0 1 2 3 4]
2 I would have a very good idea of what to do and who to talk to if I decided to seek professional help for psychological problems ..... [0 1 2 3 4]
3 I would not want my significant other (spouse, partner, etc.) to know if I were suffering from psychological problems..... [0 1 2 3 4]
4 Keeping one's mind on a job is a good solution for avoiding personal worries and concerns..... [0 1 2 3 4]
5 If good friends asked my advice about a psychological problem, I might recommend that they see a professional ..... [0 1 2 3 4]
6 Having been mentally ill carries with it a burden of shame ..... [0 1 2 3 4]
7 It is probably best not to know *everything* about oneself ..... [0 1 2 3 4]
8 If I were experiencing a serious psychological problem at this point in my life, I would be confident that I could find relief in psychotherapy ..... [0 1 2 3 4]
9 People should work out their own problems; getting professional help should be a last resort..... [0 1 2 3 4]
10 If I were to experience psychological problems I could get professional help if I wanted to..... [0 1 2 3 4]
11 Important people in my life would think less of me if they were to find out that I was experiencing psychological problems..... [0 1 2 3 4]
12 Psychological problems, like many things, tend to work out by themselves..... [0 1 2 3 4]
13 It would be relatively easy for me to find the time to see a professional for psychological problems ..... [0 1 2 3 4]
14 There are experiences in my life I would not discuss with anyone ..... [0 1 2 3 4]
15 I would want to get professional help if I were worried or upset for a long period of time..... [0 1 2 3 4]
16 I would be uncomfortable seeking professional help for psychological problems because people in my social or business circles might find out about it ..... [0 1 2 3 4]
17 Having been diagnosed with a mental disorder is a blot on a person's life ..... [0 1 2 3 4]

18 There is something admirable in the attitude of people who are willing to cope with their conflicts and fears *without* resorting to professional help..... [0 1 2 3 4]

19 If I believed I were having a mental breakdown, my first inclination would be to get professional attention ..... [0 1 2 3 4]

20 I would feel uneasy going to a professional because of what some people would think..... [0 1 2 3 4]

21 People with strong characters can get over psychological problems by themselves and would have little need for professional help ..... [0 1 2 3 4]

22 I would willingly confide intimate matters to an appropriate person if I thought it might help me or a member of my family..... [0 1 2 3 4]

23 Had I received treatment for psychological problems, I would not feel that it ought to be "covered up" ..... [0 1 2 3 4]

24 I would be embarrassed if my neighbor saw me going into the office of a professional who deals with psychological problems..... [0 1 2 3 4]

APPENDIX K: MENTAL HEALTH UTILIZATION

1. In the past 12 months, that is, from date one year ago to yesterday, have you seen or talked to a health professional about your emotional or mental health?
    a. Yes
    b. No
2. How many times (in the past 12 months)?
    a. ____ times
3. Whom did you see or talk to? (Mark all that apply).
    a. Family doctor or general practitioner
    b. Psychiatrist
    c. Psychologist
    d. Nurse
    e. Social worker or counsellor
    f. Other (specify): _____
4. Do you know anyone who has sought help for an emotional or mental health problem?
    a. Yes
    b. No
5. If yes, was this person a:
    a. Spouse
    b. Child
    c. Other family member
    d. Friend
    e. Health professional (e.g., physician, nurse, pharmacist, etc.)
    f. Other (please specify): _____
6. Have you ever been prompted to seek help by someone you knew?
    a. Yes, and I sought help
    b. Yes, but I did not seek help
    c. No
7. If yes, this person was a:
    a. Spouse
    b. Child
    c. Other family member
    d. Friend
    e. Health professional (e.g., physician, nurse, pharmacist, etc.)
    f. Other (please specify): _____

8. In the past 12 months, that is, from date one year ago to yesterday, have you seen or talked to anyone about your emotional or mental health?
    a. Yes
    b. No
9. How many times (in the past 12 months)?
    a. ____ times
10. Whom did you see or talk to? (Mark all that apply).
    a. Spouse
    b. Child
    c. Other family member
    d. Friend
    e. Clergy, minister, or priest
    f. Traditional Chinese Medicine Practitioner
    g. Other (please specify): _____

APPENDIX L: INTENTIONS TO UTILIZE MENTAL HEALTH SERVICES

If you were to experience an emotional or mental health problem in the future, please rate the likelihood that you would ask these people for help:

Person	Very Unlikely	Unlikely	Somewhat Unlikely	Neither Likely nor Unlikely	Somewhat Likely	Likely	Very Likely
General Practitioner							
Pharmacist							
Counsellor							
Social Worker							
Telephone Counselling Service							
Psychiatrist							
Psychologist							
Close Family Members							
Close Friends							
Clergy, Minister, or Priest							
Traditional Chinese Medicine Practitioner							
Myself							

APPENDIX M: VANCOUVER INDEX OF ACCULTURATION (VIA)

Please seriously and carefully answer the following questions. Please circle number that most likely represents your opinion on the right side of the question, to show the degree in which you agree or disagree with the question. Please use the following criteria to answer:

Extremely Disagree		Disagree		Neither disagree or agree		Agree		Extremely agree
1	2	3	4	5	6	7	8	9

1. I often participate in Chinese traditional cultural activities	1	2	3	4	5	6	7	8	9
2. I often participate in mainstream cultural activities in North America	1	2	3	4	5	6	7	8	9
3. I am happy to marry a Chinese person	1	2	3	4	5	6	7	8	9
4. I am happy to marry a North American	1	2	3	4	5	6	7	8	9
5. I enjoy social activities with typical Chinese people	1	2	3	4	5	6	7	8	9
6. I enjoy social activities with typical North Americans	1	2	3	4	5	6	7	8	9
7. I am comfortable working with typical Chinese people	1	2	3	4	5	6	7	8	9
8. I am comfortable working with typical North Americans	1	2	3	4	5	6	7	8	9
9. I enjoy Chinese entertainment (such as films, music)	1	2	3	4	5	6	7	8	9
10. I enjoy North American entertainment (such as films, music)	1	2	3	4	5	6	7	8	9
11. I have the demeanor of a typical Chinese person	1	2	3	4	5	6	7	8	9
12. I have the demeanor of a typical North American	1	2	3	4	5	6	7	8	9
13. To me, to maintain or develop Chinese cultural traditions is important	1	2	3	4	5	6	7	8	9
14. To me, to maintain or develop North American cultural traditions is important	1	2	3	4	5	6	7	8	9
15. I believe in Chinese traditional values	1	2	3	4	5	6	7	8	9
16. I believe in North American traditional values	1	2	3	4	5	6	7	8	9
17. I enjoy the typical Chinese jokes and humor	1	2	3	4	5	6	7	8	9
18. I enjoy the typical North American jokes and humor	1	2	3	4	5	6	7	8	9
19. I like to make friends with Chinese people	1	2	3	4	5	6	7	8	9
20. I like to make friends with North Americans	1	2	3	4	5	6	7	8	9

APPENDIX N: CHINESE HEALTH BELIEFS

Do you agree or disagree with the following statements:	***Disagree*** ***1***	***Neither disagree or agree*** ***2***	***Agree*** ***3***	***Don't Know*** ***9***
1/ Soup is good for health	□	□	□	□
2/ When you are not feeling well, it is better for you to have plain congee.	□	□	□	□
3/ Eating too much deep-fried food will cause Re Qi.	□	□	□	□
4/ Having too much cool food/drink will cause dizziness.	□	□	□	□
5/ One should avoid eating seafood after surgical operation.	□	□	□	□
6/ Pregnant women should avoid food with "poisonous" quality such as watermelon, and seafood)	□	□	□	□
7/ One will get headache at an older age if going to bed without probably drying his/her hair after washing.	□	□	□	□
8/ It is not advisable for women to take a bath shortly after giving birth to a baby	□	□	□	□
9/ One will get arthritis if sleeping on the floor too often.	□	□	□	□
10/ Traditional Chinese herbal medicine could balance *yin* and *yang* in the body.	□	□	□	□
11/ Traditional Chinese herbal medicine could cure the root of the disease; whereas Western medications only cure the symptoms.	□	□	□	□
12/ Traditional Chinese herbal medicine has fewer side effects than Western medication.	□	□	□	□

APPENDIX O: BELIEF IN CHINESE CULTURE AND VALUES

1. Strongly disagree
2. Disagree
3. Neither disagree nor agree
4. Agree
5. Strongly agree
9. No answer

How much do you agree or disagree with the following ideas?	***1***	***2***	***3***	***4***	***5***	***9***
1/ It should be better for my offspring to be married with Chinese people.	□	□	□	□	□	□
2/ Chinese children should maintain their Chinese language(s) (either speak, write or read).	□	□	□	□	□	□
3/ It should be the responsibility of adult children to take care of aging parents.	□	□	□	□	□	□
4/ Even for adult children, parents' decisions should still be followed.	□	□	□	□	□	□
5/ Taking care of children's daily routines should be the women's major responsibility at home.	□	□	□	□	□	□
6/ Men are better than women to be the head of the family.	□	□	□	□	□	□
7/ A Chinese person should show more appreciation to Chinese food than to Western food.	□	□	□	□	□	□
8/ I am a very ‘Chinese’ person.	□	□	□	□	□	□
9/ As a Chinese person, one should vote for Chinese political candidates.	□	□	□	□	□	□
10/ As a Chinese person, one should care about issues happening in the Chinese community.	□	□	□	□	□	□
11/ As a Chinese person, one should donate to Chinese charities.	□	□	□	□	□	□

APPENDIX P: PARAMETER ESTIMATES FOR MSPSS

Table P.1

Confirmatory Factor Analysis Unstandardized Parameter Estimates of the Multidimensional Scale of Perceived Social Support (MSPSS)

Three-factor model of MSPSS				
Subscale	Item/ Subscale	Estimate	*SE*	*t*-value
Significant Other	1	0.67	0.09	7.24
	2	0.75	0.09	8.70
	5	0.92	0.08	11.73
	10	1.00		
	Friends	0.83	0.13	6.35
Friends	6	1.18	0.10	12.93
	7	1.15	0.10	11.53
	9	1.17	0.11	10.80
	12	1.00		
	Family	0.55	0.10	5.32
Family	3	1.05	0.09	12.13
	4	1.00	0.08	12.09
	8	1.08	0.10	11.21
	11	1.00		
	Significant Other	0.80	0.13	6.33
Two-factor model of the MSPSS				
Subscale	Item/ Subscale	Estimate	*SE*	*t*-value
Significant Other	1	0.84	0.11	7.56
	2	0.83	0.11	7.80
	5	0.96	0.10	9.18
	6	1.14	0.10	11.98
	7	1.10	0.10	11.29
	9	1.19	0.11	11.37
	10	1.00		
	12	1.00	0.10	9.78
	Family	0.63	0.11	5.61
Family	3	1.06	0.09	12.06
	4	1.01	0.08	12.13
	8	1.07	0.10	10.90
	11	1.00		

Note. *SE* = Standard error.

APPENDIX Q: PARAMETER ESTIMATES FOR VIA

Table Q.1

Confirmatory Factor Analysis Unstandardized Parameter Estimates of the Vancouver Index of Acculturation (VIA)

Subscale	Item/ Subscale	Estimate	*SE*	*t*-value
Enculturation	1	0.80	0.24	3.28
	3	1.02	0.25	4.13
	5	1.41	0.23	6.20
	7	1.44	0.24	6.00
	9	1.25	0.20	6.39
	11	1.44	0.24	6.13
	13	1.30	0.19	7.19
	15	1.17	0.19	6.95
	17	1.49	0.20	7.56
	19	1.00		
	Acculturation	-0.13	0.08	-1.39
Acculturation	2	1.03	0.20	5.20
	4	1.00	0.21	4.81
	6	1.36	0.21	6.52
	8	1.33	0.20	6.50
	10	1.17	0.20	5.71
	12	1.00	0.18	5.41
	14	0.94	0.20	4.83
	16	0.77	0.17	4.57
	18	1.16	0.21	5.58
	20	1.00		

Note. SE = Standard error.

APPENDIX R: PARAMETER ESTIMATES FOR IASMHS

Table R.1

Confirmatory Factor Analysis Unstandardized Parameter Estimates of the Inventory of Attitudes toward Seeking Mental Health Services (IASMHS)

Subscale	Item/ Subscale	Estimate	*SE*	*t*-value
Psychological	1	1.28	0.43	1.52
Openness	4	0.37	0.37	1.00
	7	1.00		
	9	0.33	0.29	1.15
	12	0.65	0.43	1.52
	14	1.61	0.75	2.14
	18	1.20	0.56	2.08
	21	1.10	0.57	1.93
	Help-seeking Propensity	0.04	0.02	1.82
	Indifference to Stigma	0.08	0.04	2.06
Help-seeking	2	2.51	0.73	3.45
Propensity	5	1.84	0.54	3.39
	8	1.59	0.46	3.42
	10	2.35	0.63	3.76
	13	2.56	0.73	3.52
	15	3.33	0.87	3.83
	19	3.08	0.80	3.83
	22	1.00		
	Indifference to Stigma	0.04	0.02	2.14
Indifference to	3	1.20	0.55	2.16
Stigma	6	1.62	0.55	2.96
	11	2.04	0.66	3.08
	16	2.56	0.80	3.21
	17	2.58	0.77	3.33
	20	3.19	0.93	3.42
	23	1.00		
	24	3.05	0.55	2.96

Note. SE = Standard error.