

The Influence of Social Networks and Supports on Health: Differential Pathways for Older Korean Immigrants and Non-Hispanic Caucasians

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BOSTON COLLEGE
Graduate School of Social Work

THE INFLUENCE OF SOCIAL NETWORKS AND SUPPORTS ON HEALTH:
DIFFERENTIAL PATHWAYS FOR OLDER KOREAN IMMIGRANTS
AND NON-HISPANIC CAUCASIANS

A dissertation
by

HAESANG JEON

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**THE INFLUENCE OF SOCIAL NETWORKS AND SOCIAL SUPPORTS ON
HEALTH: DIFFERENTIAL PATHWAYS FOR OLDER KOREAN
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Abstract

It has been shown that the effect of social networks and social support systems on health may be greater among immigrants who live away from their homeland and their natural social support systems. Despite the significance of social support systems, relevant research on minorities in the U.S. is limited. For this reason, the current cross-cultural study examined the pathways underlying different formations of social networks (kin vs. non-kin) and social support systems (emotional vs. instrumental), which affect depression symptoms and perceived general health among older Korean immigrants and non-Hispanic Caucasians in the United States. This analysis is based on the secondary data from the “Korean-American Elderly: Social Supports and Long-Term Care” study conducted in 1994. The data (n=424) were collected from non-Hispanic White Americans (n=201) and Korean immigrant elders (n=223) aged 65 and older residing in Southern California. Structural equation modeling (SEM) was used to test the proposed conceptual model designed to explain the direct and indirect relationships between social networks

and social support on health outcomes. Empirical evidence from this study indicated different effect of one's social networks and social support on health by race/ethnicity. The result indicated that both kin and non-kin networks provided social support for Korean immigrants. Moreover, among social network measures, non-kin networks had a greater effect on social support for older Korean immigrants compared to kin networks. For non-Hispanic Caucasians, on the other hand, only kin network had a significant effect on social support systems. In addition, receiving instrumental support lowered the perceived general health among older non-Hispanic Caucasians. The work discussed in this paper pointed to the need to recognize the role of culture in assessing the effect of one's social networks and social support systems on health. This paper highlighted the characteristics of those older Korean-American and older non-Hispanic Caucasians who are most, as well as, least likely to benefit from social networks and social support systems. By utilizing the existing social networks and social support of diverse populations, we can improve overall health outcomes and serve the elderly community better.

I dedicate this dissertation to my wonderful husband Nathan.

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Chapter I. Problem Statement and Specific Aims

Purpose

Evidence shows that the importance of social networks and social supports on health may be greater among immigrants who live away from their homeland and their natural social support systems (Lee et al., 2004). Social networks and social supports provide a powerful coping resource for people experiencing stressful life changes, including the stress associated with adjusting to an unfamiliar culture (Mallinckrodt & Leong, 1992). Likewise, social networks are especially significant for immigrants, as they are important sources of information and services (McMichael & Manderson, 2004). Despite the significance of these support systems, relevant research on minorities in the U.S. is limited. Most studies on minority ethnic groups have focused on African-Americans and Latinos, neglecting other minority populations (Moon, Lubben, & Villa, 1998). Since the distinct cultural values and experiences of each ethnic group are unique (Fisher & Shavit, 1995; Hong, Lee Casado, & Harrington, 2011), it is important to understand the effects of culture on one's social relationships as well as mental and functional health outcomes.

Over the past few decades, the researchers have recognized the importance of social networks and social supports in maintaining health. Many studies have shown that availability of social networks is associated with reduced mortality (Berkman, 1984), higher quality of life (Golden et al., 2009), and improved health status (Haines, Beggs, & Hurlbert, 2008). Concomitantly, availability of social supports has been associated with health status (Lubben et al., 2006; Melchior, Niedhammer, Berkman, & Goldberg, 2003; Sherbourne & Steward, 1991). In addition, previous studies indicated that social networks

are especially important to older adults, as they are more exposed to social loss compared to younger generations and consequently are more likely to suffer from depression (Lubben et al., 2006; Pachana, Smith, Watson, McLaughlin, & Dobson, 2008; Shin et al., 2008). While evidence suggests that social networks and social supports are related to positive health outcomes, the specific mechanisms underlying these relationships are unclear among minority populations.

Given the increased number of older Asian minorities, age 65 and older, in the United States (Wong, Yoo, & Stewart, 2005) and the influence of social networks and social supports on their well-being, the current study will examine the pathways for different formations of social networks (kin vs. non-kin) and social supports (emotional vs. instrumental), which affect mental and functional health outcomes among older Korean immigrants. More specifically, this study will follow Dilworth-Anderson and Marshall's (1996) suggestions for future research on social support. The authors suggested using more culturally sensitive conceptual and theoretical views, diverse sampling strategies, and culturally sensitive instruments. To accomplish this, we will adopt Berkman's model (Berkman et al., 2000) as a conceptual framework to examine cultural influence on one's social networks and social supports. Understanding the differential pathways between different types of social networks and social supports on health status will help with the development of successful interventions by suggesting the types of networks and supports that should be reinforced to achieve positive health outcomes for an older Korean immigrant population.

Major constructs

In this study two constructs can be understood as constituting the core of this research inquiry: social network and social support. While evidence supports the importance of *social networks* and *social supports* on older adults' health, no general agreement exists regarding their definitions. For this reason, definitions of the factors that correlate with social networks vary across studies (Litwin, 2001). At times, social network and social support have been used loosely and interchangeably to describe the nature of social relationships (Berkman, Glass, Brissette, & Seeman, 2000). Since social networks may or may not be supportive (Litwin, 2001), it is important to consider social networks and social support separately. Furthermore, it is important to distinguish social networks and social support because some aspects of these relationships are more likely to relate to health compared to other aspects (Voils et al., 2007). For this reason, we will separate social networks and social supports, conceptually and empirically, and treat them as distinct phenomena.

Social Network

A social network is a multidimensional construct that reflects a web of interpersonal relationships and their characteristics (Hong et al., 2011). More specifically, it refers to the structural aspect of various social relationships, such as network size, density, frequency, duration of contact, or boundedness (Berkman et al., 2000; Hong et al., 2011; Voils et al., 2007). *Network size* refers to the number of network members while *frequency of contact* refers to the number of face-to-face contacts and/or contacts by phone or mail. *Boundedness* refers to individuals' relationships that are defined based on traditional group structures, such as kin, work, or neighborhood.

Social Support

Social support, broadly speaking, is conveyed through the actions of one person when interacting with another (Goldsmith, 2004). More specifically, it refers to the social resources that individuals perceive to be available or that are physically provided to them by formal support groups and informal relationships (Cohen, 2004). Cohen further explained that social support is also understood as provision of psychological and material resources intended to benefit a person's ability to cope with stress. In the conceptual model, social support includes emotional support and instrumental support. *Emotional support* refers to caring, love, and empathy (Sherborne & Stewart, 1991). *Instrumental support* refers to help, aid, or assistance with tangible needs, such as getting groceries, getting to appointments, phoning, cooking, cleaning, or paying bills. *Appraisal support* relates to receiving help with decision-making and providing appropriate feedback. *Informational support* is defined as the provision of advice or information regarding one's particular needs.

Cultural influence on social networks and social supports

As evidenced in almost all social and behavioral science literatures, culture determines one's identity as it directs and gives meaning to life (Dilworth-Anderson & Marshall, 1996). Yet, there is no one definition to describe culture. One possible way to describe culture is to think of it as "software of the mind" (Hofstede, 2005, p.3). Hofstede explained that people behave based on their social environments, thus culture is always a collective phenomenon. Therefore, we should distinguish culture from human nature by focusing on one's social environment. Using the definition of Szalay and Maday (1983),

culture involves “dispositions, perceptions, and motivation shared by people with similar backgrounds and experiences” (p.110). Thus, culture specifies people’s proper behavior for given roles and the dynamics of interpersonal relationships (Pecchioni, Ota, & Sparks, 2004). Moreover, culture fosters the accumulation of durable ties by prompting social norms of trust and reciprocity (Fioriollo & Sabatini, 2011). In other words, culture provides the “contextual grounding” for the formation of social networks and for providing and obtaining social supports (Dilworth-Anderson & Marshall, 1996). Similarly, Berkman and colleagues (2000) explained, “it is critical to maintain a view of social networks as lodged within larger social and cultural contexts” (p. 846).

Scholars commonly use *Collectivism* and *Individualism* as terms to capture different social expectations of human behaviors in our society. The essence of this cultural variation is determined by extent to which people experience their being as bounded by or separated from others (Adam & Plaut, 2003). Researchers further explain that this difference in self-identity has broader implications for the experience of relationships, as well as constructions of social reality. For instance, *Collectivism*, often found in eastern cultures, is defined as a social pattern consisting of closely linked individuals who see themselves as part of bigger collectives (Triandis, 1995). In a collectivist culture, individuals are likely to view themselves bounded together and tend to seek consensus and compromise to promote group cohesion (Taylor, Welch, Kim, & Sherman, 2007). For this reason, people in a collectivist culture often behave based on the norms and duties imposed by their society. Taylor and his colleagues further explain that in collectivist culture, social relationships, norms, and group solidarity are more fundamental to social behavior than an individual’s needs. In other words, personal

beliefs and needs may be seen as secondary to norms and social relationships (Kim & Markus, 1999).

On the contrary, *Individualism*, seen in western cultures, is a social pattern that consists of loosely linked individuals who see themselves as independent from their society. In an individualist culture, the major philosophical principle is based on developing an autonomous person (Kim & Yamaguchi, 1995). Likewise, Taylor and his colleagues (2007) define individualists culture as, “A person [that] possesses a set of self-defining attributes and takes actions that are oriented toward expressing personal opinions and beliefs and achieving personal goals” (p.831). In this context, social relationships are based on the assumption that they are chosen freely and with relatively few obligations. In other words, individualists’ own preferences, needs, and rights motivate their behaviors; thus, they may emphasize rational analyses of the advantages and disadvantages when building relationships.

As noted above, cultural orientation provides a basis for the formation of social networks and social supports (Hofstede, 1991). Similarly, a person’s willingness to seek social support, and how much benefit they perceive and expect when they ask for support is influenced by culture (Taylor, Welch, Kim, & Sherman, 2007). Because culture involves dynamic interactions in one’s existing social networks, it plays a pivotal role in social support interactions (Kim, Sherman, & Taylor, 2008). More specifically, authors explain that, “whether and how support is sought and used to cope with difficult or stressful events is determined, in part, by the particular nature of the relationship between the support seeker and the support provider as well as by their shared assumptions about relationships” (p.519). In other words, the exact nature of how a person uses his existing

social networks to receive social support depends greatly on how the person expects others to react. For instance, in collectivist culture, a person may avoid bringing his personal problems to others and is less tempted to seek help because such an act can undermine group harmony (Kim, Sherman, Ko, & Taylor, 2006). In contrast, individualists may ask for help with relatively little caution because they share the cultural belief that individuals should proactively pursue their well-being. Thus, social support interactions inherently involve relationships with others, how it is practiced should be viewed within the context of culturally specific patterns of social relationships (Kim, Sherman, & Taylor, 2008).

Cross-cultural evaluation of the relationships among social networks and social support systems have been addressed to a lesser degree in the existing literature, but some studies have demonstrated cultural influence on relationships among these constructs. For example, Kim and her colleagues (2006) observed cultural differences in help seeking behavior in college students. Although the sample is limited to college students, Asian Americans undergraduates from a more collectivist culture sought social support less often than European Americans from more individualistic cultures (Kim, Sherman, Ko, & Taylor, 2006). Most frequently, social support benefits also seem to be perceived differently by people from these particular cultural backgrounds. For instance, another study reported that European American students perceived informal support from their family and friends more helpful than Asian and Asian American students (Taylor, Welch, Kim, & Sherman, 2007). These researchers propose that inherited cultural differences explain these behavior discrepancies, and that Asians and Asian Americans are hesitant to seek help because they are more concerned about burdening others. More specifically,

in collectivist cultures, relationships are based on the assumption that they are less voluntary, conveying a greater sense of mutual obligation than in individualistic cultures. For this reason, people are less inclined to bring their personal problems, because those may undermine the group harmony. In addition, according to Kim, Sherman, and Taylor (2008), the general pattern of cultural difference in social support seeking behavior is shared within Asian cultures. A study with Asian Americans who were of Chinese, Japanese, Korean, Vietnamese, Indian, and Filipino backgrounds showed significantly less use of social support than European Americans, implying this behavior is shared among Asian cultures.

Cultural difference in social networks and social supports is also observed in the formation of friendship. A cross-cultural study with North Americans and West Africans revealed that the definition and commitments of friendships were different according to cultural constructions of self and social reality (Adams & Plaut, 2003). Ghanaian participants who represented collectivist culture defined friendship as providing practical assistance and advice. North Americans, who identified as individualists, on the other hand, mentioned companionship and emotional support as defining features of friendship. Moreover, this study showed that North Americans had larger friendship networks than Ghanaian participants. Researchers argue that the voluntary nature of friendship in individualist culture, with relatively few constraints or obligations, has encouraged North Americans to engage in larger friend networks than the Ghanaian sample.

A cultural difference is also found among intergenerational relationships and within family members. For example, in collectivist culture, power inequality based on status and age is considered legitimate (Ho, 1994). Therefore, collectivist society

considers obedience to older people and respect for them to be highly important. The hallmark of collectivism is the relationship within the family. For instance, the Korean family is largely based upon Confucian philosophy, in which family structure is hierarchical, placing parents above children, older siblings above younger ones, and men above women (Kim, 1998). In addition, filial piety regulates the relationship between parents and children, assuming children have the responsibility for taking care of their older parents. Sung (1990) identified four salient motives for the practice of filial piety: respect, responsibility, harmonizing family, and sacrifice. This respect for the older adults is the key element that helps maintain their status in the society (Sung, 1999). For this reason, elderly members of the traditional extended families can avoid disengagement from active working roles that may influence their physical and psychological well-being (Lubben, 1992). Lubben also stated that older parents receive authority and respect from younger family members for their expertise and role in providing care for their grandchildren. Furthermore, because traditional kinship-oriented values deeply influence most Korean immigrants (Park & Bernstein, 2008), the traditional extended family orientation is a major source of support among older Korean immigrants. This expectation of support from family members is the distinct cultural factor that is unique to Asian immigrants (Mui & Kang, 2006).

By contrast, in individualist culture, the major philosophical principle is based on developing an autonomous individual (Kim & Yamaguchi, 1995). Moreover, it emphasizes each person's responsibility for his or her fate in life, which may lead to negative notions of dependency in old age (Montenco & Greenburg, 1995). For instance, in individualist cultures, the relationships between parents and children are less

interdependent and emphasize self-reliance (Pyke, 1999; Triandis, 1995). Among Anglo-Americans, family members are an important source of support (Liang & Bogat, 1994); however, because of individualism, family members have minimal expectations for children to provide for their aging parents (Pyke, 1999). The significance of independence is also reflected in self-rated health. A study among Jewish-Israeli elderly showed that being able to provide support to their adult children reflected a good state of health, while receiving support from them is interpreted as having poor health (Litwin, 2006). Furthermore, another study showed that individualists are less satisfied with their social support and are less likely to seek help from family and friends for personal problems (Scott, Ciarrochi, & Deane, 2004).

Social support has long been known to be one of the most effective means to mute stress (Kim, Sherman, & Taylor, 2008). Numerous studies have examined factors affecting individuals' help seeking behaviors and the effectiveness of social support. However, as Kim and colleagues stated, most examinations have adopted individualistic perspective, and only few studies have considered cultural differences to interpret social support. Consequently, there has not been a clear understanding of how social network and social support operate among individuals from different cultural backgrounds. Considering the influence of culture on social networks and social supports, it would not be appropriate to use studies conducted with non-Hispanic White individuals as the basis for interpreting other ethnic groups (Dilworth-Anderson & Marshall, 1996). In addition, considering the rapid increase in the minority population in the United States, it is necessary to expand knowledge of ethnic minorities. More specifically, this study will examine older Korean immigrants, one of the fastest growing Asian communities, in an

attempt to increase our knowledge of minorities. Due to lack of cross-cultural work on social relationships (Bekrman et al., 2000), the identification of pathways that affect the health of older Korean immigrants would help inform the design of a much needed and effective social intervention program for this population.

Significance of the proposed study

Korean immigrants were chosen for the current study because they are one of the fastest-growing Asian groups in the United States, representing more than 10.5% of all Asian-Americans (Reeves, Bennett, & Bureau, 2004). Moreover, the number of adults age 65 and older has increased within this population, accounting for 6.2% of the total Korean-American population (Reeves, Bennett, & Bureau, 2004). Korean-Americans are a relatively new immigrant group who came to the United States after the passage of the Immigration and Naturalization Act in 1965 (Hong et al., 2011; Min & Song, 1998; Wong et al., 2006). Because the history of immigration is relatively short, they are more likely to maintain their cultural beliefs and values (Hong et al., 2011). Motivated by a strong bond of filial piety, many of these new Korean immigrants sponsored their parents' immigration to the United States (Lubben, 1992). In fact, compared to other ethnic groups, Korean-Americans were more likely to sponsor their parents in order to allow reunification of the family (U.S. Dept. of Justice, 1990). Studies have demonstrated that more than two thirds of older Korean immigrants came to the United States as parents of American citizens to help with domestic chores, including childcare and housekeeping tasks (Treas, 1995). Compared to non-Hispanic White elders, older Korean immigrants have extremely low levels of awareness and utilization of community-based long term health and social services, suggesting that these people are not aware of what

services are available to them (Moon et al., 1988). Thus, it would be important to understand the informal social networks and social supports that Korean immigrant elderly receive, as they may rely heavily on their existing social networks for supports.

The study also chose older Korean immigrants because of transformations in family ties. The traditional extended family, a major source of support among Korean immigrant elders, has changed due to the shift from an agricultural society to a modernized industrial economy (Lubben, 1992). For instance, a study with Korean Americans showed that they redefined the traditional ideologies surrounding gender and family to accommodate the demands of their ethnic entrepreneurship and labor participation (Park, 1997). As a result, despite older Korean immigrants' expectation of filial piety, their adult children and grandchildren may not perceive the obligation to care for their aging parents (Lubben, 1992). Another study done on the U.S. born Korean Americans showed that many of them are aware of the concept of filial obligation, yet they are unsure about the roles they would be willing and able to take on when caring for their aging parents (Yoo & Kim, 2010). Likewise, research on Korean Americans showed that adult children's notion of filial obligation varies, being influenced by factors such as their financial resources and their parents' need (Ishii-Kuntz, 1997). Thus, the absence or reduction in family support could have a direct effect on older immigrants' well-being (Naito-Chan, 2005). More specifically, older Korean immigrants who came to the U.S. to unite with their children in an attempt to maintain the traditional extended family support system could feel neglected when they do not receive the anticipated kin support.

The changing filial practice may also increase financial risk for older Korean immigrants. Yoo and Kim (2010) stated that the current generation of older Koreans

tends to be unprepared for post-retirement life because they sacrifice personal savings for the betterment of their family. In fact, most Korean immigrants do not have a separate retirement plan and assume that their older children will care for them (Kim & Yoo, 2009). Accordingly, older Korean immigrants are likely to face multiple challenges due to financial deficiencies and modification of traditional values.

Lastly, this study chose older Korean immigrants because they have higher levels of depressive symptoms compared to other racial/ethnic groups (Jang & Chiriboga, 2009; Min, Moon, & Lubben, 2005). This result is of great concerns because depression is recognized as a risk factor often associated with suicide (Kang, Boys, & Salehin, 2012). Among multiple stressors, the most often cited source of stress for immigrants is acculturative stress (Jang & Chiriboga, 2009). According to Jang and Chiriboga, acculturation is generally used to describe the degree to which a person from a different culture has learned the language and behaviors expected of persons who live in the host culture. Researchers posit that those who are less acculturated may be more likely to face difficulties in everyday living in the host country, which can decrease self-confidence and increase mental health risk. Most older Korean-Americans today are foreign born, with limited education, limited English-speaking abilities, and little or no work history in the United States (Wong, Yoo, & Stewart, 2007). Consequently, many older Korean immigrants face multiple adjustment problems, such as language barriers, cultural differences, and unfamiliarity with available social services (Moon et al., 1988). Since social support has been identified as an important coping resource for Asian immigrant communities (Park, 1997), it is critical to examine the influence of social networks and

social supports on the health of older Korean immigrants in the United States, especially given the isolated circumstances of some older Korean immigrants.

Building on the considerable body of knowledge related to the effect of social networks and social supports on one's health, this study will examine the pathways through which social networks and social support exert greater influence on perceived general health and depression symptoms among older Korean immigrants. Subsequently, we will analyze the possible differences between older Korean immigrants and non-Hispanic whites in these pathways. This dissertation will include identical analyses separately for each ethnic group.

Specific aims of the study are:

1. To explore the process through which social networks and social supports affect perceived general health among community dwelling older Korean immigrants.
2. To explore the process through which social networks and social supports affect depression symptoms among community dwelling older Korean immigrants.
3. To explore whether these processes differ between older Korean immigrants and non-Hispanic Caucasian comparison group.

Chapter II. Literature Review

Introduction

The study of the effects of social networks on health emerged in the early 1970s, based on the work of sociologists who empirically demonstrated the effect of social networks on reduced mortality (Smith & Christackis, 2008). Prior to these findings, social withdrawal from society in late life was considered a natural transition, and older adults were somewhat encouraged to be removed from the rest of the world (Blazer, 2005). The disengagement theory, which attempted to explain aging as an inevitable process of a person withdrawing from society, supports this point. According to Cumming and Henry (1961), this withdrawal is considered an adaptive process because it prepares the older person for the inevitable death of their loved ones as well as themselves. Blazer (2005) described the ideal image of older adults of those times by stating, “The elder happily being placed on an iceberg and cut loose from the tribe to float into oblivion” (p.497). George Maddox (1964), who asserted the importance of social activity in successful aging, challenged this proposition. According to activity theory, a physically and socially active lifestyle is the key to achieving life satisfaction in old age (Blazer, 2005). Ever since Bengston’s first attempt to test activity theory in the early 1970s, empirical studies have demonstrated that older adults are healthier and live longer when they are socially engaged and when they receive social support. This study draws upon prior research on the role of social networks and social supports in health. Thus, this section addresses previous research on mental and functional health outcomes.

Direct and indirect effect of social networks and social supports on health

Two major pathways can reflect the underlying mechanism that explains how social networks and social supports influence a person's health (Melchior et al., 2003). First, the 'stress-buffering' model explains the moderating effects of social support during stressful events (Lubben & Gironde, 1996). According to this hypothesis, social supports provide a buffering effect for individuals by reducing the perceived effect of chronic illnesses (Yu et al., 2004). Here, social support is related to health only (or primarily) when a person is under stress (Cohen, 1988). More specifically, Cassel (1976) stated that social integration influences one's mental health and well-being by regulating emotion, cognition, and behavior through communication during stressful events. The findings that revealed the interaction effect of social supports and life events on well-being have consistently supported this theory (Chou & Chi, 2001; Melchior et al., 2003).

Meanwhile, the 'main effect' suggests that social networks and social supports have a direct effect on health (Melchior et al., 2003). This model holds that the availability of social networks and social supports affects health positively independent of the presence or absence of stressors. Melchior and his colleagues explained that poor social networks and a lack of social supports act as stressors, thereby causing poor health, whereas extended social networks and satisfactory social supports promote one's well-being. For instance, support from social networks may help older adults seek timely medical attention, thereby enabling them to maintain physical and mental health (Lubben & Gironde, 1996; Maulik et al., 2009). Similarly, frequent contact with others directly increases one's ability to maintain healthy behaviors. A study with community-dwelling older women in rural area demonstrated that frequent interaction with others increased

the likelihood of a person to maintain adequate protein and energy intake (Brunt & Jane, 1999). Clinical research has also demonstrated that social isolation can harm one's health. For instance, clinical research on the relationship between loneliness and biological mechanisms has found that lonely individuals have impaired cellular immunology, which influences susceptibility to infectious-diseases (Rasulo, Christensen, & Tomassini, 2005).

Cohen (1988) proposed four models to explain the relation of social integration and social support with disease outcomes. The *information-based model* suggests that having a wide range of social networks provides multiple sources of information that influence a person's health related behavior. In turn, a person can avoid stressful or other high-risk situations. The *self-esteem model* asserts that social support increases self-esteem, self-identify, and self-control over one's environment, the feelings that increase motivation to care for oneself, suppress neuroendocrine response, and enhance immune function. The *social influence model* indicates that socially integrated individuals are under self-control and peer pressure to engage in better health behaviors. Lastly, the *tangible-resources model* suggests that a social network may operate to prevent disease by providing tangible aid resulting in improved health status. Either directly or indirectly, the influence of social networks and social supports on health has been recognized in numerous studies. However, with increased body of research supporting these benefits, numerous questions concerning the specific nature of social networks and social supports' facilitating effects on health have emerged. New evidence, which suggests that the functions and nature of social networks and social relationships may differ according to a person's cultural background, further complicates the emerging questions. The

following literature review highlights the importance of social networks and social supports on health and differences in their functions by culture.

Influence of social networks and social support on elderly Korean immigrants

While social networks and social support are relevant to health, their significance may be particularly pronounced among immigrants (Lee et al., 2004; Litwin, 1995; Mallinckrodt & Leong, 1992; McMichael & Manderson, 2004). This is because immigration, as a social transition process, may increase one's socio-emotional vulnerability. More specifically, Litwin (1995) explained that immigrants' existing social networks are disrupted when they emigrate, placing new demands on social support when adjusting to an unfamiliar environment. As many studies have indicated, entering into an unfamiliar environment requires adaptation, which can lead to anxiety, confusion, and depression. Lee, Koeske, & Sales (2004) explained that the loss of a natural social support system and excessive amounts of stress are likely to encourage the development of psychological distress. In this context, social networks and social supports serve as powerful coping resources for those who experience geographic relocation. The relationships among social networks, social supports, and health in elderly immigrants have been addressed to a lesser degree in the literature, but some studies demonstrated beneficial relationships between these constructs. The social networks of elderly Indian immigrants in the United States played an important role in their social and emotional adaptation to the new environment (Nanden, 2005). Among elderly Hispanic immigrants in Miami, social support played a mediating role in the relation between the neighborhood's social environment and their psychological distress (Brown et al., 2009). Lack of assistance from adult children was also a predictor of depression among Asian

immigrants living in the United States (Mui & Kang, 2006). Thus, the potential contribution of social networks and social support is considerable, especially for immigrants.

Previous studies demonstrated that older Asian immigrants received a considerable amount of emotional and instrumental support from their adult children (Wang, Yoo, & Stewart, 2007). Moreover, studies on older Chinese and Korean immigrants revealed that they tend to have smaller numbers of actual sources of support compared to other ethnic groups and that they tend to rely heavily on their adult children for help (Wong et al., 2005). In fact, researchers showed that older Korean immigrants rely on their adult children more often compared to their Chinese counterparts due to fewer and less established Korean communities. Likewise, older Korean immigrants had a low proportion of non-kin relationships in their total network (Kim, 1999). This heavy reliance on immediate family is based on filial obligation, as Asian elders expect their family members to treat them with respect and assist them in their old age (Mui & Kang, 2006). Within their families, adult children of immigrants consider themselves to be their parents' primary caregivers (Han et al., 2007; Yoo & Kim, 2010). These studies suggest a cultural expectation factor in kin support among Asian communities, which may differ from other ethnic groups (Mui & Kang, 2006).

As mentioned earlier, despite the expectation of filial piety, recent demographic, economic, and social changes are likely affecting the availability of traditional family-based support (Cornman et al., 2003). In fact, family care for the elderly is believed to be on the decline (Sung, 1991). For instance, expectations and preferences of adult children fulfilling their filial piety responsibilities have changed, as they adopt more common

individualist values (Wong, Yoo, & Anita, 2007). This change in traditional filial piety has already been noted among older adults in Korea. Sung's (1999) study found that Korean older adults maintained closer relationships with friends than they did with relatives, reflecting the expansion of non-kin support networks. This result also demonstrated older Koreans' efforts to cope with changes in family dynamics within the kin networks.

Sung (1999) identified certain social trends in Korea that accelerated changes in traditional values. These trends could be applied to Korean-American communities. First, the sharp increase of the older population and the extended period of caring for the older population have become financial, physical, and psychological challenges to both older adults and their family caregivers. In 1980, the older population comprised only 3.0% of the total Korean population while by 2000, it had jumped to 7.2%, indicating that Korea is becoming an aging society (Korea National Statistical Office, 2012). In 2030, the older population is expected to be nearly one-quarter of the total population. Linked to the increase of the older population is a dramatic increase in the percentage of the older population's medical expenses (National Health Insurance Corporation, 2004). In 1990, the older population's medical expenses accounted for 8.0% of the total medical expenditures for the country; however, by 2004, that proportion had jumped to 23% and is expected to continue to rise. Second, the percentage of elders living with their children is decreasing, gradually making caring for elders at home more difficult. According to the Korean Institute of Health and Social Affairs' survey (2001), the proportion of the older population living alone or in couples was 16.2% and 22.8%, respectively, in 1994, and increased to 21.6% and 23.9%, respectively, in 2001. Lastly, the expansion of the female labor market changed the traditional care regime. More and more women who had been

the primary caregivers in the traditional society are participating in the labor market, making caring at home more challenging (Sunwoo, 2004).

Despite these changes in the traditional values, the majority of literature on older Korean immigrants has focused on filial piety and extended family living arrangements. This has led some to conclude that older Korean Americans support an extension of the traditional lifestyles (Moon, 1996). Ishii-Kuntz (1997) defined this as an ‘ideal family myth’ of Asian Americans who blindly assume that they have a great respect for older adults. The author warned about this way of thinking by saying, “this perception, in the absence of empirical evidence, ignores the potential and probable impact of immigration and acculturation on aging and life experiences” (p.23). In fact, the change in traditional values may be greater among Korean American elders, as they are inevitably more exposed to the dominant culture of individualism compared to Koreans (Kang, Boyas, & Salehin, 2012). This may have resulted in greater modifications of their values, behaviors, and attitudes toward filial piety. Many studies have identified these cultural changes among Korean Americans. For instance, many Korean Americans are much more likely to be Christian than are Koreans, and many adopt western values more quickly compared to older adults in Korea (Moon, 1996). Moreover, a study with Korean, Korean American, and white American caregivers showed that familism was the highest in Korean followed by Korean American and white American groups (Youn, 1999). Here, familism refers to values, such as strong in-group feelings, emphasis on family goals, common property, mutual support, and the desire to pursue the perpetuation of the family. Similarly, Wong and colleagues’ (2006) study demonstrated that Korean immigrants modified their expectations of social support from their adult children and

expressed a fear of becoming a burden to their family. Moreover, the study also showed that older Korean immigrants are searching for alternative ways to gain needed support outside of their kin network.

While research on older Korean immigrants' reliance on social networks and social support is still in its infancy, some studies demonstrated their effect on health among this population. Korean immigrant elders with greater social networks and more contacts exhibited fewer depressive symptoms compared to those who were socially isolated (Lee & Yu, 1996). Similarly, greater social network diversity, including family, friends, and religious groups, resulted in a greater level of social support (Lim & Zebrack, 2008). Yet, another study showed that family remained the primary source of support for Korean immigrants (Wong et al., 2005). Social support was also a prevalent factor in Korean immigrants' health. Evidence showed that social support played an important role in achieving better mental health outcomes among Korean immigrants (Han et al., 2007; Wong et al., 2007). More specifically, a study of 200 immigrants indicated that social support reduced the risk of depression (Wong et al., 2007). Likewise, older Korean immigrants who had stronger ethnic attachment had more emotional and instrumental support, which in turn lowered their level of loneliness (Kim, 1999). Evidence also showed that spouses and family members provided the highest levels of instrumental support while friends provided the most emotional support among older Korean Americans (Lee & Yu, 1996). Interestingly, this study also identified that emotional rather than instrumental support was a better predictor of depression among Korean-American elderly, which suggests that emotional support is more relevant to mental

health than instrumental support among older Korean-Americans (Lee, Crittenden, & Yu, 1996).

In addition, a previous research showed that family support and good family relations reduce depressive symptoms among Korean immigrants (Park & Bernstein, 2008). The study showed that family rather than friends has a greater effect on mental health of Korean immigrants due to its embedded stigma. Researchers assert that Korean immigrants often try to keep mental illness secret by involving family members rather than seeking formal intervention, as they view mental illness as shameful. Despite the unique cultural impetus of social networks and social supports on health among Korean-Americans, to our knowledge, no cross-cultural studies have examined the direct and indirect effect of different types of social networks (kin vs. non-kin) and social supports (emotional vs. instrumental) on health status among older Korean immigrants. More specifically, the extent to which social networks and social supports exert positive influence on older Korean immigrants' health is unknown. Given the reduction in traditional filial piety, an examination of the influence of differential social networks and social support on Korean immigrants' health status is warranted.

Influence of social networks on social supports

The existing research has demonstrated the significance of social networks on the amount of social supports one receives. Berkman and colleagues (2000) explained that social networks provide an opportunity for someone to receive social supports, thus structural characteristics of individuals' social network influence individual health indirectly by enhancing access to social support. Similarly, Cornwell, Laumann, and Schumm (2008) posited that having numerous direct ties to others provides a person

alternative routes to valuable resources, which increases a person's chances of receiving needed help. Furthermore, Korte (1990) asserted that understanding the dynamics of the link between social supports and one's well-being requires consideration of whether social networks fulfill someone's specific needs. Previous literatures have consistently identified influences of social networks on social support. For instance, a study of 1,669 community dwelling American older adults demonstrated that perceived social supports partially mediated the association between network type and depressive symptoms (Fiori & Cortina, 2006). Research on older adults in Beijing and Hong Kong also revealed that older adults with a large social network tended to be more satisfied with recent life, and this relationship was mediated by perceived social supports (Chan & Lee, 2006). Likewise, the number of close social network members seen regularly had a direct effect on social support one receives, which in turn reduced the number of functional impairments (Oxman & Hull, 1997).

Evidence also showed that older adults rarely utilize all social networks for social support (Chan & Lee, 2006; Phillips, Bernard, Phillipson, & Ogg, 2000). Instead, older adults mobilize only a part of their social networks to receive desired support from others. For instance, previous studies have indicated that a distinction exists between family networks and friend networks with respect to the types of social support they provide. In general, research indicated that family networks rather than are friend networks more likely to provide elderly adults with instrumental support (Adams & Blieszner, 1995). Indeed, close relatives (i.e., spouse and immediate family members) provided more support in times of crisis (Bowling, 1991) and physical illness (Lubben & Gironda, 2000) compared to friends. One possible explanation is that most friends of the elderly may be

equally old, thus they are unable to perform rigorous instrumental tasks that elders' need (Lubben & Gironda, 2000). Although variation exists based on the degree of elders' functional abilities, family members were likely to provide assistance with everyday personal care, housekeeping tasks, transportation, companionship (i.e. leisure activities), and arrangement of formal services (Adams & Blieszner, 1995).

Previous studies highlighted that friend networks are more important to the psychological well-being of older adults than are family members (Fiori & Cortina, 2006; Lubben & Gironda, 2000). Consistent findings showed that friend networks play supportive roles by offering complementary or alternative sources of help (Phillips, Bernard, Phillipson, & Ogg, 2000). For instance, Chinese older adults with family members accounting for less than 50% of their networks had fewer depressive symptoms compared to those who had only family in their networks (Chao, 2011).. Researchers asserted that although family relationships are important, they tend to be obligatory while friendships are optional, providing more emotional intimacy and companionship, which can greatly affect one's well-being. Moreover, Phillips and colleagues argued that single individuals and individuals without children receive considerably more support from friends compared to others.

Although friend networks were generally more important for older adults' mental health, family relationships also influenced mental health in some studies. For example, Chi and Chou (2001) demonstrated that social support from friends had little effect on preventing depression among Chinese older adults. Furthermore, older adults who reported a higher level of depression reported receiving less support from friends than from family members. A possible explanation is that frail older adults might withdraw

from social relationships especially from friends since it is easier for them to maintain family ties than friendship ties (Abbott, Stroller, & Rose, 2007). Moreover, it may be that receiving instrumental support from friends contributes to feelings of helplessness and lack of autonomy resulting in greater stress (Fiori, Smith, & Antonucci, 2007). These examples support the idea that characteristics of social networks influence the type of social support one receives.

Influence of social networks and social support on mental health

Social networks in general have been most frequently examined in relation to mental health. A study with community-dwelling older adults confirmed that social networks affected the elders' mood, well-being (Golden et al., 2009), memory loss (Ertel, Glymour, & Berkman, 2008), perceived general health (Kasser & Ryan, 1999), and depression (Newsom et al., 1996). For instance, elderly women with larger social networks had less chance of having dementia compared to those with fewer or less extensive social networks (Crooks et al., 2008). Likewise, a study among older Chinese demonstrated that those with larger social networks had fewer depressive symptoms compared to those who were socially isolated (Chao, 2011). Older adults' satisfaction with current social networks is also positively related to their cognitive performance (Hughes, Andel, Small, Borenstein, & Mortimer, 2008). Likewise, a longitudinal study showed that elders who were more satisfied with their current social networks were also more satisfied with life, suggesting a close relationship between social networks and quality of life (Berg et al., 2009).

Growing literatures documented positive effect of frequency of contact on cognitive outcomes among the elderly. A study that looked at how memory loss changed

over time among the elderly showed that those who had more frequent contact with their children, parents, and neighbors experienced less memory loss (Ertel, Glymour, & Berkman, 2008) and fewer depressive symptoms (Chao, 2011). Frequency of contact also influenced one's perceived health. A study of nursing-home residents showed that those with greater social network size had more positive perceived health (Kasser & Ryan, 1999). Likewise, frequency of interaction with others reduced the risk of early mortality (Rasulo, Christensen, & Tomassini, 2005; Sampson, Bulpitt, & Fletcher, 2009; Stern, Dhanda, & Hazuda, 2001). Concerning the interaction with others, Rasulo and colleagues (2005) demonstrated that frequency of contact with friends was more strongly associated with mortality risk than was contact with family members. This remained true even when contact with children occurred as frequently as contact with friends. A possible explanation for this inconsistency may stem from gender differences in perceived friendship. Rasulo and colleagues (2005) explained that men's friendships emphasize sociability and task-activity, whereas women's friendships focus on intimacy and self-disclosure; thus, friendship networks may have a greater effect on mortality than family networks.

Recent evidence suggests that perceived social supports play a role in older adults' mental health status. For instance, low social support has been associated with depression (Chao, 2011; Ha & Ingresoll-Dayton, 2011; Newsom and Schulz, 1996) and decreased life satisfaction (Lou, 2010; Silverman & Shienpei, 2008) among older adults. A study among older veterans in the United States showed that perceived social support reduced the effect of post-traumatic stress disorder on mental health (Ren, Skinner, Lee, & Kazis, 1999). In this case, social supports played a mediating role by buffering the

effects of life stress on mental health (Thoits, 1995). Likewise, older adults' satisfaction with current social supports has been shown to positively relate to their cognitive performance (Hughes, Andel, Small, Borenstein, & Mortimer, 2008). Among different types of social supports, receiving emotional support from significant others was related to lower depression (Chao, 2011; Yang, 2006). More specifically, Yang explained that improving the quality of social networks was more effective in reducing risks for depression than providing quantity of social supports among elders with disabilities.

Influence of social networks and social support on functional health

Social networks and social supports are also strongly associated with functional health. A study with Japanese older adults showed that social networks and social supports were negatively associated with a number of functional disabilities (Sugisawa et al., 1994). Likewise, a study of community-dwelling Korean older adults showed that emotional and instrumental support from relatives contributed significantly to the prevention of further physical and functional deterioration (Choi & Wodarski, 1996). Moreover, Beckett and colleagues' (2002) finding highlighted that Taiwanese older adults who had less contact with friends and neighbors were likely to have scored less on health measures assessing functional status and perceived health. This result was consistent across community-dwelling older adults living in Finland, the Netherlands, Spain (Zunzunegui et al., 2005), and the United States (James, Boyle, Buchman, & Bennett, 2011; Mendes De Leon, Glass, & Berkman, 2003). Similarly, a study among older veterans in the United States showed that frequent contact with others and perceived social support had a strong effect on physical functioning (Ren, Skinner, Lee, & Kazis, 1999). Interestingly, greater emotional support, particularly among those with

low instrumental support, had a favorable effect on functional health (Seeman, Berkman, Charpentier, Blazer, Albert, & Tinetti, 2005). The size of the social network was less influential on functional health, while the lack of satisfaction with social support was associated with greater functional difficulties among community-dwelling older adults living in Australia (McLaughlin et al., 2012).

Although the protective effects of social networks and social supports have been well documented, some studies suggested their negative influences on health. Evidence has demonstrated a weak association between the size of social networks and mental health. A study of 838 older adults showed that the size of social networks did not relate to one's cognition (Krueger, Wilson, Kamenetsky, Barnes, Bienias, & Bennett, 2009). Researchers further explained that satisfaction with social relationships within one's networks might play a bigger role in one's health than the number of social contacts. Seeman (2000) found a lack of consistent association between social networks and coronary heart disease, which is relevant to older adults who are at high risk of such health outcomes. A possible explanation for this inconsistency may be that larger social networks may also involve a greater number of negative interactions, which may be detrimental to one's health. For example, the loss of close friends and family by death or conflicts with close social networks could increase risk of mortality and morbidity risk (Cohen & Janiciki-Deverts).

Moreover, Ha and Ingersoll-Dayton (2011) found that more frequent association with one's contact had a positive effect on psychological distress only when other contextual factors were not included in the model. That is, although frequency of contact is important, individual's actual and preferred contacts play a bigger role in their

symptoms of grief. Similar findings were also identified for the relationship between social networks and social support. A study by Kasser and Ryuan (1999) showed that quality of relatedness to family and friends was a more significant predictor of social support compared to the size and frequency of contact with social networks. Moreover, another study of the elderly in rural communities showed that having affectionate and solid relationships with their adult children influenced the frequency of contact with family members, which in turn influenced the amount of emotional support they received (Whitebeck, Hyot, & Tyler, 2001). More specifically, Whitebeck and colleagues stated, “negative interaction patterns that are continually reinforced across time may affect the ability of the family system to recognize the need for and effectively provide emotional support to elderly parents” (p.226).

Receiving social support might also have negative consequences for older adults (Lin & Wu, 2011). For instance, Lin and Wu found that social support accelerated the progression of disability among older adults. A possible explanation is that receiving help may reduce the willingness of older adults with disabilities to perform daily activities independently, which may increase functional disability (Williamson & Shaffer, 2000). These findings, while paradoxical, raise interesting questions regarding the relationships among social networks, social supports, and health outcomes. Given the disparate findings and shortcomings of previous research conducted with older Korean immigrants, this study will enhance our understanding of the methods of adaptation to culturally different environments through use of personal resources. Moreover, in light of the importance of social networks and social supports in Korean culture, relating these concepts to older Korean immigrants and identifying the direct and indirect relationships

among different types of social networks and social supports as well as their effects on mental health and well-being will have implications for social interventions designed to assist immigrant elders with adapting to a new culture.

Influence of socio-demographic factors on social networks and social supports

Researchers have also reviewed the socio-demographic factors that influence social networks and social supports. Age clearly influences the social network types (Fung, Carstensen, & Lang, 2001) and social supports. In general, with increasing age, older adults experience a significant decline in social network size (Han, Kim, Lee, Pistulka, & Kim, 2006; Voils et al., 2007) and frequency of contact (Ajrouch, Antonucci, & Janevic, 2001). While it may be true that the total number of social relationships decreases with age, evidence indicates that the amount of perceived social support is relatively stable across a person's life span (Antonucci, 2001). This supports social-emotional selectivity theory (SST), which asserts that as people age, they purposely drop relationships that are less important to them and focus on fewer but more intimate relationships to maximize their emotional gain (Carstensen, 1992). However, little research has examined whether and how this selection process occurs and whether older Korean-Americans who recently experienced life transitions such as immigration maintain the stability in the core network.

Evidence points to gender differences with respect to the relationship between social networks and social supports. Among older adults, in general, women had larger social networks compared to men (Ajrouch, Antonucci, & Janevic, 2001; Peek & O'Neil, 2001). The studies on the frequency of contact provided contradictory findings. Peek and O'Neil's (2001) study showed that women had more frequent contact with others

compared to men, while Ajrouch and colleagues (2001) showed that men had more frequent contact with others. In addition, although evidence indicates that women tend to receive more social support throughout their lifetimes and experience greater benefits from their social networks compared to men (Peek & O'Neil, 2001; Rook, 1996), some data suggests that men obtain significantly higher social support scores compared to women (Lubben & Gironda, 1996). This discrepancy may be due to gender differences in their interactions with others. According to Naito-Chan (2008), while women tend to maintain relationships with others that are more intimate, they also experience more negative relationships compared to men. Consequently, despite the small social network size, men may report more social support compared to women.

Past research has also demonstrated that married couples have more social support (Han et al., 2006). A study showed that the effectiveness of support in providing protection against loneliness varied according to the availability of a partner (Dykstra, 1993). In addition, the amount of education was positively associated with the size of person's social network (Chou & Chi, 2001) while showing negative association with the amount of contact with others (Ajrouch, Antonucci, & Janevic, 2001) and social supports (Reinhardt & Blieszner, 2000). Poverty has also been shown to be associated with social networks and social supports received. Impoverished elders tend to have significantly lower scores on network and social support scales compared to elders with a higher economic status (Lubben & Gironda, 1996).

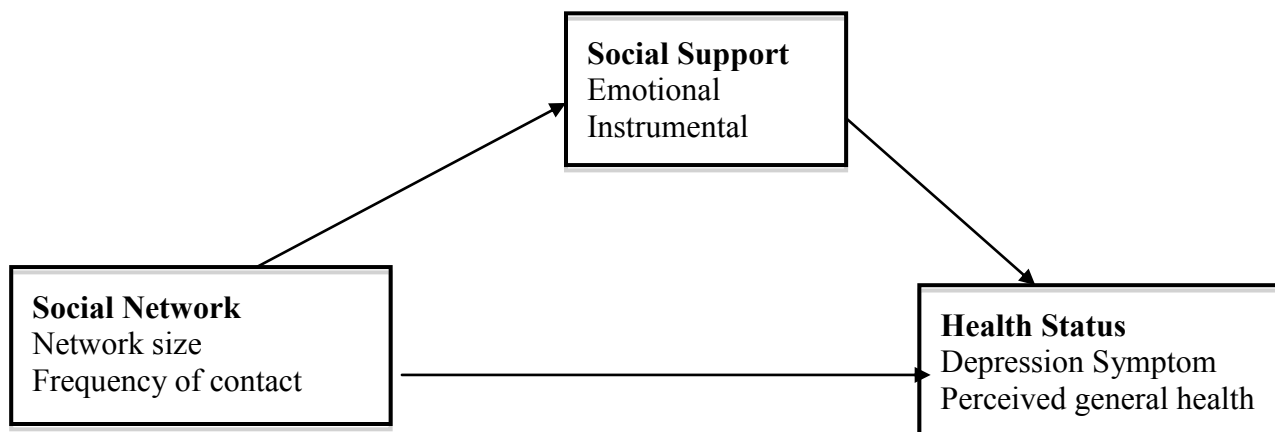
Theoretical framework

Berkman and colleagues (2000) proposed a conceptual model that emphasizes the role of culture as a larger social construct to understand the pathways between social

networks and health (see Appendix A). In order to explain this pathway, authors distinguished upstream factors and downstream factors in their model. Upstream factors refer to social structural conditions that influence the shape of one's social network. Examples include culture (i.e., norms and values), socioeconomic factors (i.e., inequality, discrimination, and poverty), politics (i.e., laws), and social change (i.e., urbanization). Downstream factors refer to psychosocial mechanisms, such as social support (i.e., instrumental & financial, informational, and emotional), social influence (i.e., constraining/enabling influence on health behaviors), social engagement (i.e., physical/cognitive exercise), person-to-person contact (i.e., close personal contact), and access to resources & materials (i.e., jobs/economic opportunity). Authors then explained that these psychosocial mechanisms influence health through differential pathways, such as health behavioral pathways (i.e., smoking), psychological pathways (i.e., self-efficacy), and physiologic pathways (i.e., transmission of infectious disease). According to this conceptual model, culture determines the extent, shape, and nature of one's social network structures. These social network structures provide opportunities for receiving different types of social support, which in turn influence one's health outcome.

Drawing on Berkman's model (Berkman, Glass, Brissette, & Seeman, 2000), this dissertation aims to comparatively examine the effects of different types of social networks and social support on perceived general health and depression symptoms among older Korean immigrants and non-Hispanic White. Both social networks and social supports were included in the model as core factors that contribute to health status between two racial groups. Figure 1 outlines the conceptual components of the model.

Figure 1. Conceptual framework



Social network

Based on the previous findings on the effects of social networks on health outcomes, this study will focus on both network size and frequency of contact as the core components of a social network.

Network size: The model will examine the direct and indirect effect of one's network size to health status. As guided by Berkman's model (2000), it is hypothesized that greater network size will increase the opportunities to receive desired social supports, which will in turn positively influence a person's health.

Frequency of contact: This study will examine both the direct and indirect effect of frequency of contacts on a person's health status. It is hypothesized that more contact with others will increase the opportunities to receive social supports, which will in turn positively influence a person's health.

Social support

Based on the previous studies, this study will examine the direct and indirect effect of social support on health. It is hypothesized that both emotional support and instrumental support positively affect a person's health. Although there is no single, accepted definition of social support, a growing consensus indicates that support is primarily emotional or instrumental (Adam, King, & King, 1996).

Emotional support: Based on the House's (1981) categorization of social support, emotional support involves verbal and nonverbal communication of caring and concern.

Instrumental support: Instrumental support involves the provision of material goods, such as transportation, money, or assistance with house chores.

Health status

In this study, depression symptoms and perceived general health are considered outcome variables, which are influenced by social networks and social supports. More specifically, this study explores the pathways to depression symptoms and perceived general health status as well as the extent to which social network characteristics affect health status of older Korean-Americans.

Hypotheses

This study was guided by three primary research questions and fifteen related hypotheses. To address research questions, the following study hypotheses were identified. Given that health status was measured both as perceived general health status and depression status, the first two hypotheses (H2-H3) accounted for perceived general health status, and the next two hypotheses (H4-H5) accounted for depression status as an outcome variable.

Research question 1. To explore the process through which social networks affect perceived general health among community dwelling older Korean immigrants.

Hypothesis 1. Social networks are associated with social supports.

Hypothesis 1-1. A greater kin network size is associated with a higher level of emotional support (H1-1a) and a higher level of instrumental support (H1-1b).

Hypothesis 1-2. A greater frequency of contact with kin network members is associated with a higher level of emotional support (H1-2a) and a higher level of instrumental support (H1-2b).

Hypothesis 1-3. A greater non-kin network size is associated with a higher level of emotional support (H1-3a) and a higher level of instrumental support (H1-3b).

Hypothesis 1-4. A greater frequency of contact with non-kin network members is associated with a higher level of emotional support (H1-4a) and a higher level of instrumental support (H1-4b).

Hypothesis 2. Social supports are associated with perceived general health status.

Hypothesis 2-1. A higher level of emotional support (H2-1a), and a higher level of instrumental support (H2-1b) are, respectively, associated with individuals' better perceived general health status.

Hypothesis 3. Social networks are associated with perceived general health.

Hypothesis 3-1. A greater kin network size is associated with better perceived general health outcome.

Hypothesis 3-2. A greater frequency of contact with kin network members is associated with better perceived general health outcome.

Hypothesis 3-3. A greater non-kin network size is associated with better perceived general health outcome.

Hypothesis 3-4. A greater frequency of contact with non-kin network members is associated with better perceived general health outcome.

Research Question 2. To explore the process through which social networks affect depression symptoms among community dwelling older Korean immigrants.

Hypothesis 4. Social supports are associated with depression.

Hypothesis 4-1. A higher level of emotional support (H4-1a), and a higher level of instrumental support (H4-1b) are, respectively, associated with reduced depression.

Hypothesis 5. Social networks are associated with depression.

Hypothesis 5-1. A greater kin network size is associated with reduced depression.

Hypothesis 5-2. A greater frequency of contact with kin network member is associated with reduced depression.

Hypothesis 5-3. A greater non-kin network size is associated with reduced depression.

Hypothesis 5-4. A greater frequency of contact with non-kin network members is associated with reduced depression.

Research Question 3. To explore whether these processes differ between older Korean immigrants and non-Hispanic Caucasian comparison group.

Hypothesis 5. The pathways between social networks and health outcomes will be different by race.

Chapter III. Methods

Data source and study sample

This analysis is based on the secondary data from the “Korean-American Elderly: Social Supports and Long-Term Care” study conducted in 1994 (Lubben, 1994). The data (n=424) includes non-Hispanic White Americans (n=201) and Korean immigrant elders (n=223) aged 65 and older and residing in Southern California. Respondents were chosen using a three-stage probability sampling method employed in the selection of census tracts, blocks, and households. For instance, census tracts with a high density of households with older persons were over-sampled to enhance sampling efficiency. Tracts were stratified by race-ethnicity and housing costs and sampled with probabilities proportional to size to yield a representative sample. More specifically, elderly Korean immigrant participants were drawn from households in 130 randomly sampled blocks in the 25 census tracts of Los Angeles County where Korean-Americans constituted 15% or more of the population. The older non-Hispanic White participants were chosen from households in 60 randomly sampled blocks in 30 census tracts, which have been sampled randomly from 861 census tracts in which they were more numerous than any other single racial group. These selection processes were incorporated to yield equal selection probabilities for both races in the sample.

Data was collected at the participant’s residence. Structured face-to-face interview was employed to obtain demographic information and other necessary information. For the purpose of this study, all scales, questions, and other necessary documents were translated in Korean, and the accuracy of translation was verified by having the Korean language version of the scale back translated to English. The total response rate was 74% for the Korean-American participants and 76% for the non-Hispanic White participants.

Translation procedures

The development of the Korean version of the survey involved a multi-step procedure. First, two bilingual individuals translated the survey separately from English into Korean. After identifying the discrepancies between the two Korean versions, the initial Korean version was developed. Second, two other bilingual individuals were recruited to examine the accuracy and cultural appropriateness of the translation. The Korean questionnaire was modified again, incorporating the reviewers' suggestions for change. Third, to clarify the cultural appropriateness of the questionnaire, the researchers met separately with a group of six elderly persons and a group of six service providers who work primarily with elderly Korean Americans. The scale was modified again in order to incorporate findings from the focus group. Fifth, a revised draft of the questionnaire was distributed among other researchers at UCLA, who were knowledgeable about the subject areas and/or the populations. Their suggestions were incorporated into the scale for pretesting. Finally, a pretest was conducted with thirteen non-Hispanic white elderly and ten elderly Korean-Americans and was subsequently adjusted based on respondents' feedback for easier reading and clarity.

Study variables

Dependent variable. *Perceived general health* is measured by asking respondents, "Overall, how would you rate your health?" Participants responded to a five point-scale ranging from 1 (poor), 2 (fair), 3 (good), 4 (very good), to 5 (excellent). Perceived general health measure is one of the most commonly used variables in health research that measures subjective perception of health status by using self-reported measures (Baron-Epel & Kaplan, 2001). Moreover, the simple, direct, and global way of capturing perceptions of health has accelerated its wide use in social science (Ilder & Benyamini, 1997). According to Wen, Hawkey, and

Cacippo (2006), perceived general health has demonstrated its high predictive validity for mortality, physical disability, chronic disease status, disease status, health behaviors, and health care utilization. In fact, perceived general health demonstrated to be a better predictor of health among elderly than their medical conditions (Ilder & Benyamini, 1997).

Depression symptoms is assessed using the original 20-item Center for Epidemiologic Studies Scale of Depression (CES-D) (Randloff, 1977). The CES-D scale was developed to measure depressive symptomatology in the general population with emphasis on the affective component. Of the twenty items, four items were worded positively, thus we reverse coded them to control for response set. The possible range of CES-D scores is 0-60, with higher scores indicative of a greater number of symptoms of depression. Items are rated on a four-point scale ranging from 0 (not at all), 1 (hardly ever), 2 (some of the time), to 3 (most of the time). The CES-D scale exhibits a good internal consistency, and it has been validated with samples of Korean immigrants in Canada (Noh, Avison, & Kaspar, 1992). Moreover, the sensitivity and specificity of the scale has been found to be better with older adults compared to younger adults (Randolff & Teri, 1986). Cronbach's alpha for the current study was 0.91 for older Korean immigrants and 0.87 for non-Hispanic white participants. To adjust for the substantial skewness of depression variable, log transformation was conducted.

Independent variables. The social network includes network size and frequency of contact with relatives and non-relatives. *Kin-network size* refers to the total number of relatives participants talked to at least once a month. Each item is measured on a 5-point Likert scale (0=none, 1=1person, 2= 2persons, 3= 3persons or 4 persons, 4= 5 to 8 persons, and 5= 9 or more persons). *Frequency of contact with kin members* is measured by asking, "Among relatives with whom you have contact the most, how often do you see or hear from that person?" The answer is

measured on a 6-point Likert scale (1= less than once a month, 2= monthly, 3= 2-3 times a month, 4= weekly, 5= 2-3 times a week, and 6= daily). The non-kin network items are constructed in a similar manner.

The measure of social supports comprises ten items derived from the Medical Outcome Study-Social Supports Scale (MOS-SSS) (Sherbourne & Stewart, 1991). The abbreviated version includes two factors: emotional supports and instrumental supports. *Emotional support* subscale includes seven items asking about having someone to give advice about crises, to have a good time with, to confide in, to share private fears with, to turn to for suggestions, to love and feel wanted, and to show affection. *Instrumental support* subscale includes three items asking about having someone who provides transportation to the doctor, to prepare meal as necessary, and to help with chores as necessary. Example questions include “how often is each of the following types of support available to you if you need it?” and the responses are measured on a scale from 0 (never) to 5 (always). Internal reliability for the sample used in this study is good, indicating 0.93 for older Korean immigrants and 0.814 for non-Hispanic white sample.

Demographic characteristics of the sample include age, gender, and education. The variable age and education are continuous variables measured by year. The variable gender was dichotomized as female versus male.

Analysis plan

This section describes the statistical methods used to test the study hypotheses, including univariate, bivariate, and multivariate analysis. Univariate and bivariate analyses were conducted using SPSS version 21 and multivariate analysis was conducted using Stata 12 software package.

Data preparation

With the number of participants and variables incorporated into the study, we expected that the data would be missing one or more variables for one or more persons. The variables with missing values must be considered because the number of subjects affects the magnitude and the direction of the analysis (Schumacker & Lomax, 2010). Overall, the data can be described as having minimal missing data issues. For this reason, this study incorporated listwise deletion to treat the missing values. Graham (2009) supported this decision by stating, “If the loss of cases due to missing data is small (e.g., less than about 5%), biases and loss of power are both likely to be inconsequential” (p. 554). Moreover, Shafer and Graham (2002) posited that listwise deletion could be justified if missing data can be resolved by discarding only a small part of the sample. The variables with missing data included: emotional support = 1 case (0.5%) and instrumental support = 2 cases (0.9%) for older Korean-American sample; emotional support = 3 cases (1.5%), instrumental support = 2 cases (1%), and logcesd = 1 case (0.5%) for older non-Hispanic Caucasians. The total final sample listwise deletion accounted for the deletion of additional 3 cases for the older Korean-American sample and 6 cases for the non-Hispanic white sample. The final sample used in path analysis regression for this study consisted of 221 Korean-American sample and 197 non-Hispanic white sample. This represents about 99% of the original sample (N= 223 Korean-American sample and 197 non-Hispanic white sample).

Prior to testing the goodness of fit of the given model, reliability of the scales was examined by computing the Cronbach’s alpha, with the customary level of .80 chosen to indicate acceptable internal consistency (Yu et al., 2004). Factor loadings for each scale will be examined to evaluate construct validity.

Univariate analysis

To describe the demographic characteristics of older Korean immigrants and non-Hispanic white participants, univariate descriptive statistic was computed. Frequency distributions and mode was used for nominal variables, frequencies and median was assessed for ordinal variables, and measures of dispersion (standard deviation) and central tendency (mean) will be used for ratio variables.

Bivariate analysis

To compare older Korean-American sample and non-Hispanic white sample, chi-square tests for categorical variables and independent samples t-tests for continuous variables were conducted.

Multivariate analysis

Structural equation modeling (SEM), also known as path analysis, was used to test the proposed conceptual model designed to explain the direct and indirect relationships between social networks and social support on health outcomes. The SEM is a statistical technique that allows researchers to test the goodness of fit between the sample data and theoretical model by depicting relationships among observed and latent variables (McDonald, 1996; Schumacker & Lomax, 2010). In addition, maximum likelihood (ML) estimation method was used to estimate the parameters in the model. Tests of significance of the estimated parameters (path coefficient) were set at 0.05 level for two tailed tests.

The overall data model of fitness of the scale was assessed by goodness-of-fit criteria. Because no single fit index is ideal, the goodness of fit of the model was evaluated with six statistics. In structural equation model, a good fit is indicated by a non-significant p value. Five indices were also used to assess model fit: the Root Mean Square Error of Approximation

(RMSEA), Non-Normed Fit Index (NNFI), Comparative Fit Index (CFI), Goodness-of-Fit Index (GFI), and Adjusted Goodness-of-Fit Index (AGFI). RMSEA values less than .05 and no greater than .08 indicate a good fit (Tran, 2009). Moreover, NNFI, GFI, and AGFI with a value close to 0.95 indicate good fit.

The proposed model (Figure 2) shows the analytical paths for estimating the direct and indirect effects of social networks and social support on health status. Preliminary SEMs will be conducted using standard social and demographic variables, including age, gender, education, marital status, and income. Variables that emerge as significant in preliminary analysis will be included in the final set of path models. Please note that social demographic variables are omitted from Figure 2 to reduce the model complexity in the diagram. Two sets of analysis employing SEM will be conducted separately for each dependent variable: perceived general health status and depression symptom. Analysis with non-Hispanic whites will be conducted in the same manner. The paths indicate that social networks are hypothesized to have direct and indirect effects on health through social supports as mediators. Each individual path and its direction are based on the previous studies that discussed the associations of these variables with health status.

As seen in Figure 2, the model contains seven latent variables of which four are exogenous variables and three are endogenous latent variables. In other words, this model contains four exogenous variables, two mediating variables, and one outcome latent variable. The one-way arrow between two variables indicates a postulated direct influence of one variable on another.

The direct and indirect effects are presented as path coefficients. A greater kin network size is associated with higher levels of perceived health (A1) and lower levels of depression

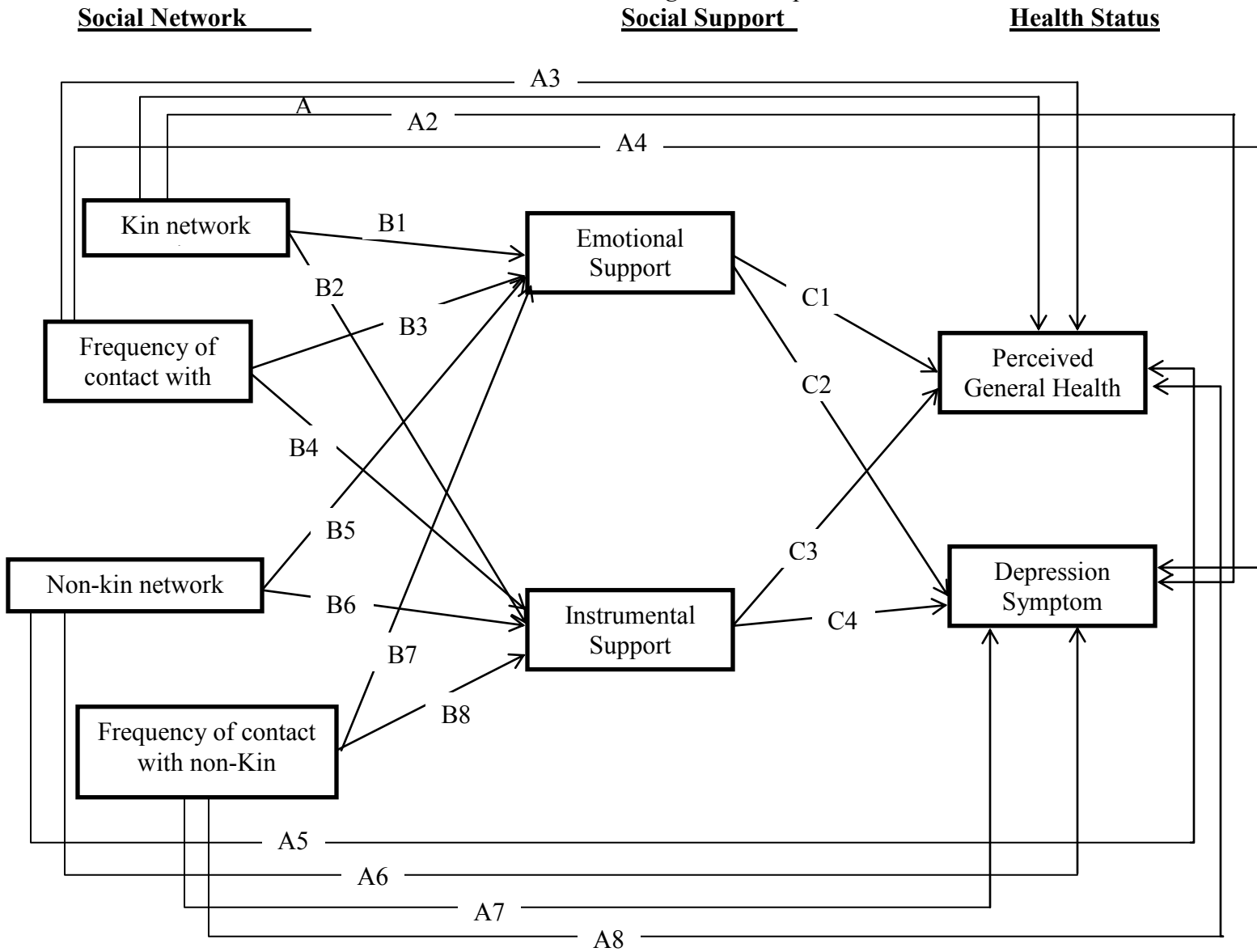
symptoms (A2). Kin network size also has indirect effects through social supports, which include emotional support ($B1*C1$, $B1*C2$) and instrumental support ($B2*C3$, $B3*B4$). The total effect of kin network size is the sum of direct effect (A1, A2) and indirect effect ($B1*C1$, $B1*C2$, $B2*C3$, $B3*B4$).

In the same manner, a greater non-kin network size is associated with higher levels of perceived health (A5) and lower levels of depression symptoms (A6). Non-kin network size also has indirect effects through social supports, which include emotional support ($B5*C1$, $B5*C2$) and instrumental support ($B6*C3$, $B6*C4$). The total effect of non-kin network size is the sum of direct effect (A5, A6) and indirect effect ($B5*C1$, $B5*C2$, $B6*C3$, $B6*C4$).

A greater frequency of contact with kin is associated with higher levels of perceived health (A3) and lower levels of depression symptoms (A4). A greater frequency of contact with kin also has indirect effects through social supports, which include emotional support ($B3*C1$, $B3*C2$) and instrumental support ($B4*C3$, $B4*C4$). The total effect of frequency of contact with kin is the sum of direct effect (A3, A4) and indirect effect ($B3*C1$, $B3*C2$, $B4*C3$, $B4*B4$).

Similarly, a greater frequency of contact with non-kin is associated with higher levels of perceived health (A8) and lower levels of depression symptoms (A7). A greater frequency of contact with non-kin also has indirect effects through social supports, which include emotional support ($B7*C1$, $B7*C2$) and instrumental support ($B8*C3$, $B8*C4$). The total effect of frequency of contact with non-kin is the sum of direct effect (A7, A8) and indirect effect ($B7*C1$, $B7*C2$, $B8*C3$, $B8*C4$).

Figure 2. The path model



Multigroup analysis

Multigroup structural equation modeling was conducted to determine if there are differences in paths between older Korean-Americans and non-Hispanic Caucasian samples. Qureshi and Compeau (2009) posit the importance of multigroup analysis by saying, “the ability to detect the presence or absence of between-group differences and accurately estimate the strength of moderating effects is important in studies that attempt to show contingent effects (p.197).” In other words, multigroup analysis allows researchers to determine whether parameter estimates are statistically different by groups. The analysis involved several steps. First, the models were run unconstrained, that means coefficients were allowed to vary freely across groups. Second, subsequent analysis involved constraining each path one at a time was conducted sequentially while allowing other paths to vary freely across groups. Third, the effects of the constraints were evaluated by comparing the difference in chi-square statistic. If the chi-square statistic difference is significant between the unconstrained and constrained models, it indicates that the path coefficients across groups differ significantly (Schumacker and Lomax, 2010).

Chapter IV: Findings

This chapter describes results of univariate and bivariate statistics as well as the multivariate statistics. The univariate statistics include socio-demographic characteristics, as well as social network and social support characteristics of the sample. The bivariate statistics include results of the chi-square tests and independent samples t-tests. The multivariate statistics include results from the path analyses with two outcome variables perceived general health status and depression symptoms.

Univariate Statistics and Bivariate Statistics

Sample characteristics

Table 1 presents demographic and socioeconomic characteristics of the sample. Except for gender and marital status significant group differences were noted between Korean-American and non-Hispanic Caucasian samples. Korean-American respondents were, on average, younger less educated, and had lower income than non-Hispanic Caucasian respondents. The average age was 73.27 for older Korean-Americans and 75.35 for non-Hispanic Caucasian samples ($\chi^2=15.33$, $p < 0.05$). About two third of the sample was female for both groups. A total of 47% of older Korean-American subgroup were currently married while 40% for other subgroup. Non-Hispanic Caucasian group received on average of four more years of education than Korean-American counterparts ($\chi^2=102.15$, $p < 0.05$). More specifically, more than half (58%) of Korean-American but only 11% of non-Hispanic Caucasian respondents completed nine or fewer years of formal education, and only 15% of the former but nearly half (48%) of the latter had at least 13 years of formal education. The major group difference across two samples was combined income of respondents and spouses variable. The majority of Korean-

American respondents (62%), as opposed to 27% of non-Hispanic Caucasians, had annual incomes under \$10,000. The majority of non-Hispanic Caucasians (59%), compared with only 4% of Korean-Americans, had incomes of \$16,000 or more. This result implies that we need to be careful with the interpretation of further results, in particular the effects of age, education, and income on health status.

Table 1
Demographic Characteristics of older Korean-American and Non-Hispanics Caucasian samples

Variable	Older Korean-Americans N=223	Older Non-Hispanic Caucasians N=201	χ^2
	N (%)	N (%)	
Age			
65-74	140(63)	93(46)	15.33***
75-84	74(33)	84(42)	
85+	9(4)	24(12)	
Mean age	73.27 (SD=5.725)	75.35 (SD=7.43)	
Gender			
Male	90 (41)	71 (35)	1.14
Female	133 (60)	131 (65)	
Marital Status			
Married	104 (47)	80 (40)	2.01
Not Married	119 (53)	121 (60)	
Education			
9 years or less	124(56)	22(11)	102.15***
10-12 years	65(29)	83(41)	
13 years or more	34(15)	96(48)	
Mean of education	8.27 (SD=5)	12.97 (SD=3.10)	
Income			
\$3,999 or less	33(15)	6(3)	160.01***
\$4,000-\$9,999	104(47)	48(24)	
\$10,000-\$15,999	75(33)	31(14)	
\$16,000 or more	9(4)	132(59)	

Note: SD=Standard Deviation; *p≤ 0.05, ** p≤ 0.01, *** p≤ 0.001

Table 2 presents a cross-sectional comparison of the sample means for the scales measuring social network and social support. Higher scores in social network scale indicate larger and more frequent contact with others, respectively; and higher scores in social support scale indicate more perceived support from others. In comparing the sample characteristics between Korean-Americans and non-Hispanic Caucasians, the independent samples t-tests revealed that frequency of contact with kin networks and instrumental support were significantly different between two groups ($p > 0.05$).

Among older Korean-Americans, the mean number of kin network members was 3.8 (SD = 1.2). Older non-Hispanic Caucasians reported an average 3.7 (SD = 1.3) kin network members. The mean number of non-kin network size was 4.1 (SD = 1.2) for older Korean-Americans and 4.2 (SD = 1.1) for non-Hispanic Caucasians respectively. Korean-Americans reported more frequent contact with kin network members than non-Hispanic Caucasians (4.1 vs. 3.6, respectively, $t = -3.21$, $p < 0.05$). Frequency of contact with non-kin networks was similar between two groups reporting on average of 4.0.

In relation to the social support, both Korean-Americans and non-Hispanic Caucasians reported receiving an average of 28.4 emotional supports. Instrumental support, on the other hand, Korean-Americans received significantly more than non-Hispanic Caucasians (13.0 vs. 11.9, respectively, $t = -3.1$, $p < 0.05$).

Table 2
Social Network and Social Support Characteristics of older Korean-American and Non-Hispanics Caucasian samples

Variable	Older Korean-Americans N=223	Older Non-Hispanic Caucasians N=201	<i>t</i>
Social Networks			
Kin network size	3.8 (SD=1.2)	3.7 (SD=1.3)	-.013
Non kin network size	4.1 (SD=1.2)	4.2 (SD=1.1)	0.6
Frequency of contact with kin network	4.1 (SD=1.6)	3.6 (SD =1.7)	-3.21***
Frequency of contact with non-kin network	4.0 (SD=1.2)	4.0 (SD=1.0)	-0.2
Social Support			
Emotional support	28.4 (SD=9.8)	28.4 (SD=8.2)	-0.1
Instrumental support	13.0 (SD=3.7)	11.9 (SD=4.6)	-3.1***

Note: SD=Standard Deviation; * $p \leq 0.05$, ** $p \leq 0.01$, *** $p \leq 0.001$

Table 3 shows the social support characteristics of the sample in detail. Similar to the results provided in table 2, a comparison was conducted between two groups: older Korean-Americans and older non-Hispanic Caucasians. Overall, both older Korean-Americans and non-Hispanic Caucasians received some type of support from their social networks. Only two variables from the instrumental support were statistically different between two groups. Older non-Hispanic Caucasians reported receiving statistically less perceived support than older Korean-Americans on 'having someone to help with chores' and 'having someone to prepare meals.'

Table 3
Characteristics of Social Support among Older Korean-Americans and non-Hispanic Caucasians

Items	Older Korean-Americans N=223	Older Non-Hispanic Caucasians N=201	<i>t</i>
Emotional Support			
1. Someone to give you good advice about a crisis	4.1 (SD=1.3)	4.2 (SD=1.5)	0.46
2. Someone to have a good time with	4.0 (SD = 1.6)	4.0 (SD=1.3)	-0.13
3. Someone who shows you love and affection	4.1 (SD =1.6)	4.2 (SD=1.2)	1.00
4. Someone to confide in or talk about yourself or your problems	4.1 (SD=1.6)	4.1 (SD=1.4)	-0.15
5. Someone to share your most private worries and fears with	4.0 (SD =1.6)	3.9 (SD=1.7)	-0.82
6. Someone to turn for suggestions about how to deal with a personal problems	4.0 (SD=1.6)	4.0 (SD=1.5)	-0.13
7. Someone to love and make you feel wanted	4.1 (SD=1.5)	4.1 (SD=1.5)	-0.54
Instrumental Support			
8. Someone to help you with daily chores if you were sick	4.3 (SD=1.3)	3.8 (SD=1.67)	-3.62 ***
9. Someone to take you to the doctor if you needed it	4.4 (SD=1.3)	4.2 (SD=1.4)	-1.40
10. Someone to prepare your meals if you were unable to do it yourself	4.3 (SD=1.3)	3.9 (SD=1.6)	-3.20***

Note. Respondents were asked to select from six categories: 0 = never; 1=seldom; 2=sometimes; 3=often; 4=very often; 5=always.

SD=Standard Deviation; * $p \leq 0.05$, ** $p \leq 0.01$, *** $p \leq 0.001$

Table 4 presents a cross-sectional comparison of the sample means for the logged CES-D scale and perceived general health. Lower scores on the CES-D scale suggest fewer depressive symptoms are present. Both health measures demonstrated significant statistical difference between Korean-Americans and non-Hispanic Caucasians. Overall, Korean-Americans reported more depressive symptoms than non-Hispanic Caucasians (1.0 vs. 0.8, $t = -5.4$, $p < 0.05$). With regard to perceived general health, significant difference was found between two groups. Significantly more Korean-Americans (51%) rated their health status fair or poor than did non-Hispanic Caucasian group (23%) ($p < 0.05$).

Table 4
Depression Symptoms and Perceived General Health of older Korean-American and Non-Hispanics Caucasian samples

Variable	Older Korean-Americans N=223	Older Non-Hispanic Caucasians N=201	t/χ^2
Depression symptoms (logged)	1.0 (SD=0.4)	0.8 (SD=0.4)	-5.4***
Perceived general health			
Excellent	51(23)	41(20)	
Very good	29(13)	58(29)	
Good	29(13)	56(28)	
Fair	51(23)	31(15)	
Poor	63(28)	15(8)	52.75***

Note: SD=Standard Deviation; * $p \leq 0.05$, ** $p \leq 0.01$, *** $p \leq 0.001$

Multivariate Statistics

Four different sets of path analyses were conducted for the perceived general health and depression symptoms with Korean-Americans and non-Hispanic Caucasians. In terms of the analytical strategies; preliminary analysis was conducted allowing standard social and demographic variables, age, gender, income and education to be related to health outcomes. Given the collinearity between the education and income, we excluded the income from the analysis. Next, the path between demographic variables, age and education, and emotional support were added to increase the goodness-of-fit of the models. Please note that social demographic variables are omitted from Figure 2 -5 to reduce the model complexity in the diagram. In addition, each model allowed for the correlations of the error terms among emotional support and instrumental support variables. The maximum likelihood (ML) estimation method was used, and the standardized path coefficients are presented in the diagrams. The results of each path analysis for the different outcome variables are presented as follows.

Paths to perceived general health

Figure 3 shows the path diagram for a model predicting perceived general health, which was examined using the questions that assess how the participants perceived their general health status. The perceived general health status was measured on a five-point Likert scale. A higher score indicates a better perceived status. Among socio-demographic variables, gender (female) was significantly associated with perceived general health. In other words, men were more likely to have a better perceived health status when compared to female. Age was also negatively associated with emotional support, indicating that as people age they receive less emotional support.

The final model for perceived general health for Korean-Americans showed a good fit based on the following goodness of model fit statistics: chi-square test, Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), Root Mean Square Error of Approximation (RMSEA). The chi-square test of model fit was not significant ($\chi^2 = 4.38$, $df = 4$, $p = 0.36$), indicating that the model fits the data well. The CFI and TL also supported the goodness of model fit. In the model, the CFI and TLI were 0.99 and 0.92, respectively, indicating good model fit (CFI and TLI for good models > 0.95). Finally, the RMSEA also supported the model's goodness of fit (RMSEA = 0.02; RMSEA for good models < 0.06). The correlations among error terms between emotional support and instrumental support were statistically significant ($p < 0.05$). The model accounted for 44% ($R^2 = 0.44$) of the variance in the perceived general health. The R-squares were 0.153 for the level of instrumental support and 0.286 for the level of emotional support.

Direct effects of kin and non-kin network size on perceived general health were found among older Korean-Americans. Both frequency of contact with kin and non-kin network size were positively associated with higher level of emotional support and instrumental support. However, no statistically significant relationships were found between kin network size and frequency of contact with non-kin with both support social support measures. Furthermore, only emotional support was positively associated with perceived general health. In summary, the results of the path analysis for perceived general health for older Korean-Americans partially supported its direct and indirect relationships.

Figure 3. Influence of Social Network on Perceived General Health among Korea-American

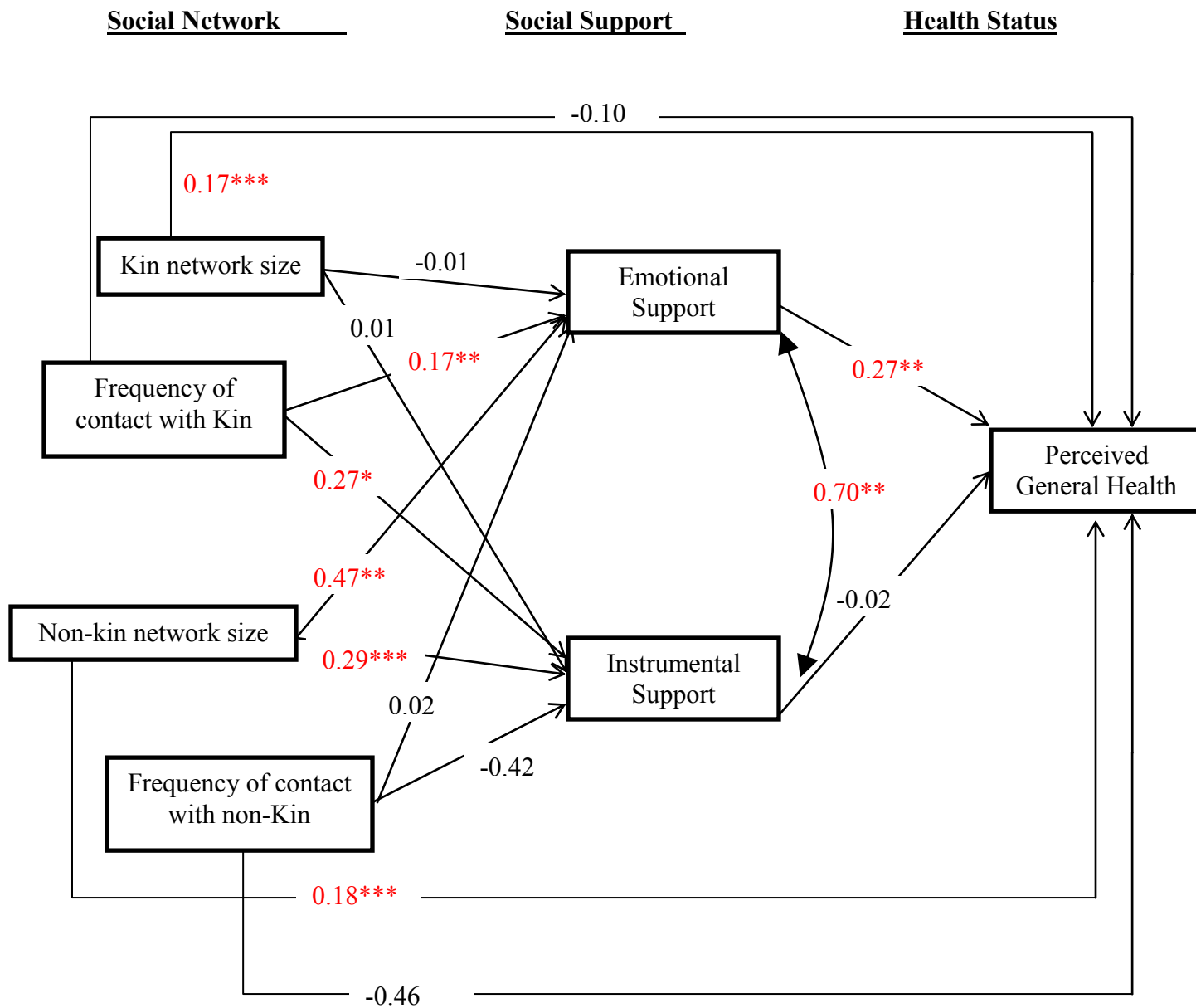


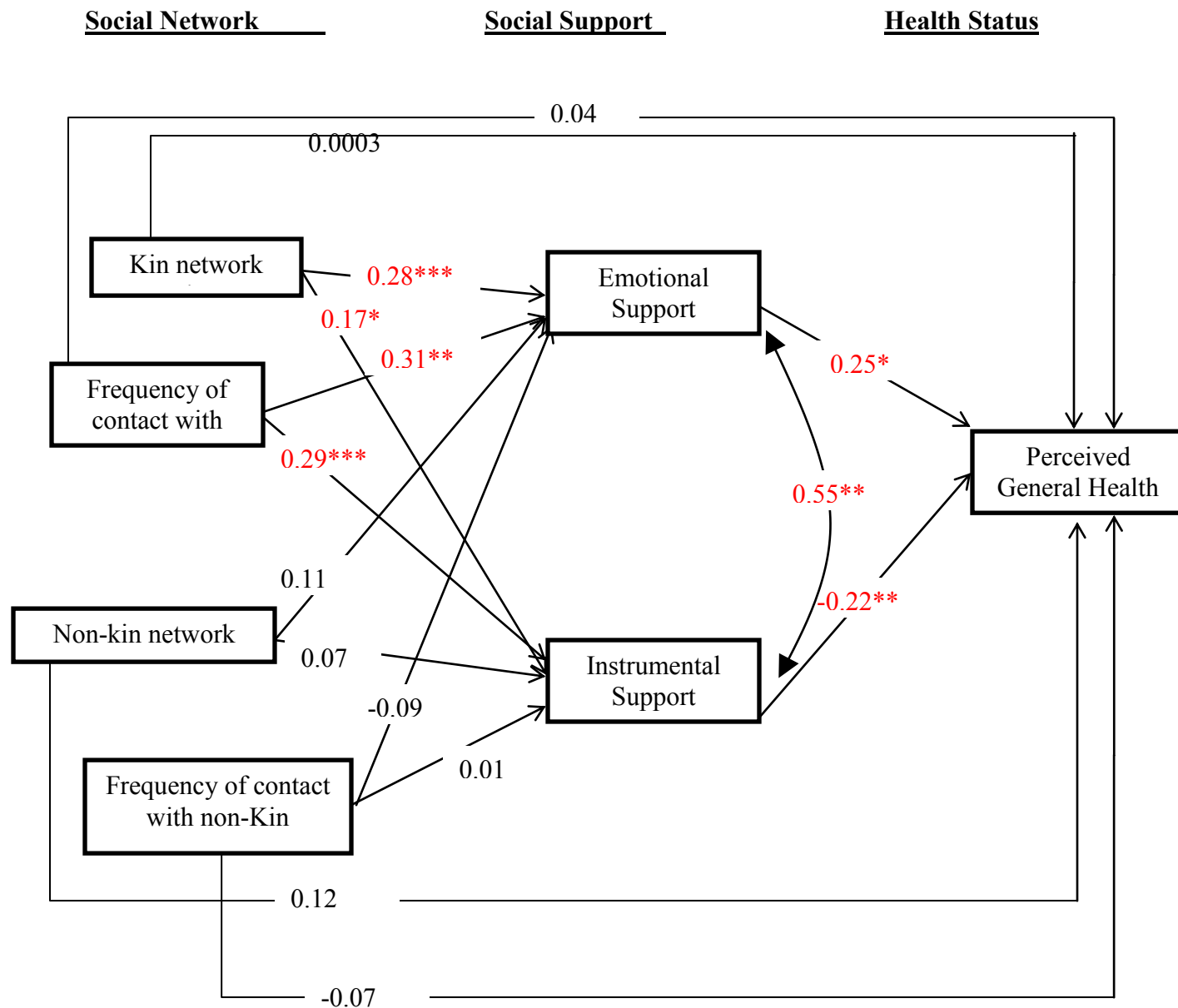
Figure 4 displays the path model for perceived general health status of older non-Hispanic Caucasian sample. The model also allowed correlations between error terms for emotional support and instrumental support and was found statistically significant ($p < 0.05$).

Unlike older Korean-American sample, none of the socio-demographic variables were significantly associated with perceived general health for non-Hispanic Caucasian sample. Socio-demographic variables age and education were significantly related with emotional support. More specifically, age was negatively associated with emotional support, indicating that as people age they receive less emotional support. Education was positively associated with emotional support, indicating that older adults who received more education had higher perceived emotional support than those with less education. The final model for perceived general health among older non-Hispanic Caucasians showed a good fit. The chi-square test of model fit support that the model fit the data well ($\chi^2 = 6.31$, $df = 4$, $p = 0.19$). The CFI and TLI showed a good fit (0.98 and 0.92). Finally, the RMSEA was 0.05 indicating a good fit. The correlations among error terms between emotional support and instrumental support were statistically significant ($p < 0.05$). The model accounted for 40% ($R^2 = 0.40$) of the variance in the perceived general health. The R-squares were 0.164 for the level of instrumental support and 0.347 for the level of emotional support.

No direct effects of social networks on perceived general health were found among older non-Hispanic Caucasian sample. Unlike the older Korean-American sample, only kin networks were significantly related to both emotional and instrumental supports. More specifically, kin network size and frequency of contact with kin were positively

associated with emotional support and instrumental support. Emotional support was positively related with perceived general health. On the other hand, receiving instrumental support was negatively associated with perceived general health.

Figure 4. Influence of Social Network on Perceived General Health among Non-Hispanic



Path to depression symptoms

Figure 5 shows the path diagram for depressive symptoms among older Korean-American sample. The depressive symptom was measured using 20 items in the CES-D. The lower CES-D score indicates less depressive symptoms. The model also allowed correlations between error terms for emotional support and instrumental support and was found statistically significant ($p < 0.05$). Among socio-demographic variables, education was significantly associated with depression symptoms. In other words, education was negatively associated with depressive symptoms, indicating that older adults who received more education have fewer depression symptoms than those less education. Age was also negatively associated with emotional support, indicating that as people age they receive less emotional support. Overall, the goodness of model fit statistics show that the final model had a good fit. The chi-square test of model fit was not significant, indicating that the model fits the data well ($\chi^2 = 4.39$, $df = 4$, $p = 0.36$). The CFI and TLI in the model were both 0.99, indicating a good fit. Finally, the RMSEA (0.02) also supported models good fit. The model accounted for 39% ($R^2 = 0.39$) of the variance in the depression symptoms. The R-squares were 0.153 for the level of instrumental support and 0.286 for the level of emotional support.

Direct effect of non-kin network size on depressive symptoms was found among older Korean-American sample. In other words, more frequent contact with non-kin reduced the depression symptoms. Only frequency of contact with kin and non-kin network size were positively associated with both emotional support and instrumental support. However, no statistically significant relationships were found between kin network size and frequency of contact with non-kin with social support measures. Only

emotional support was negatively associated with depressive symptoms while instrumental support had no statistically significant relationship.

Figure 5. Influence of Social Network on Depression Symptoms among Korea-Americans

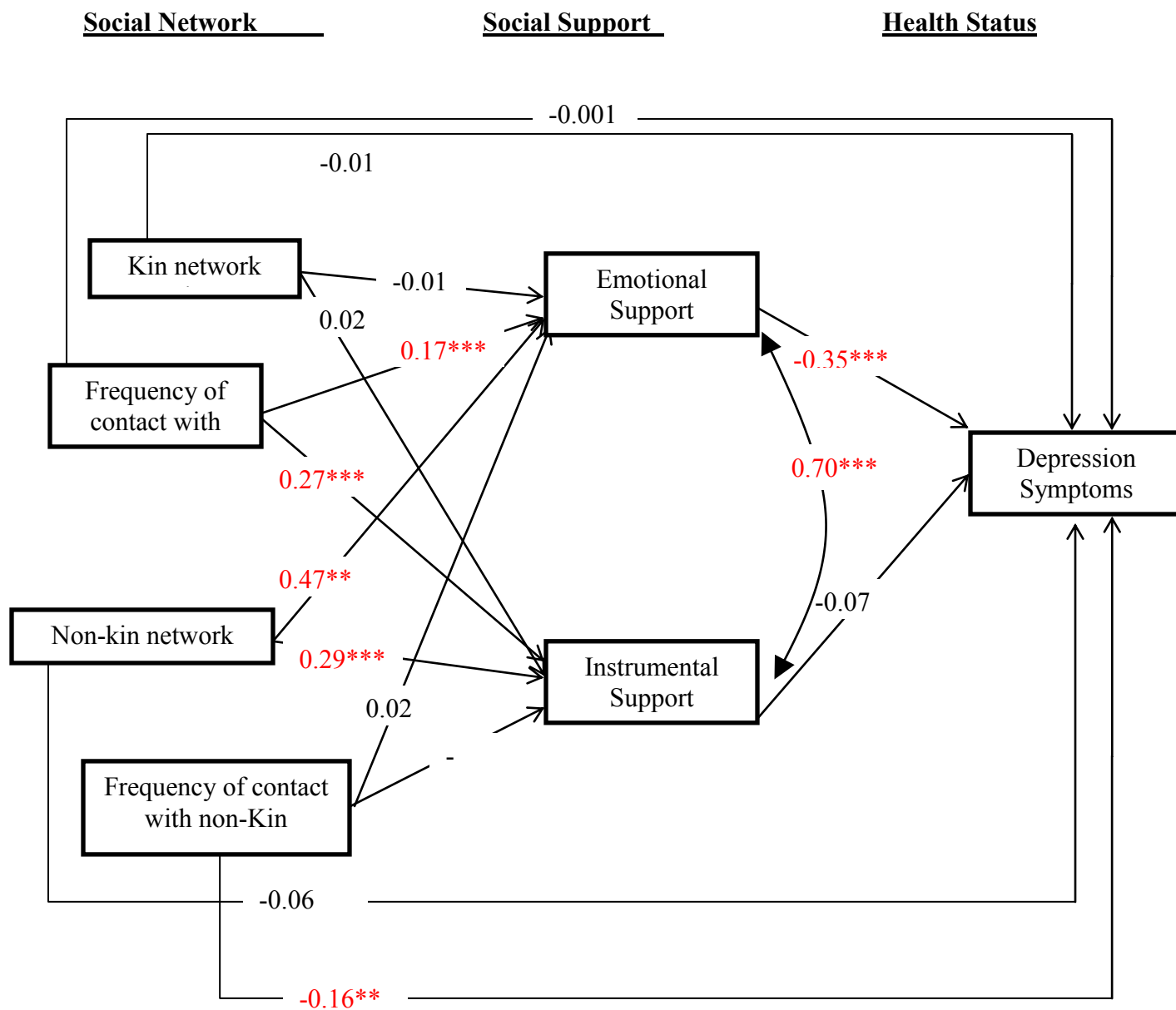
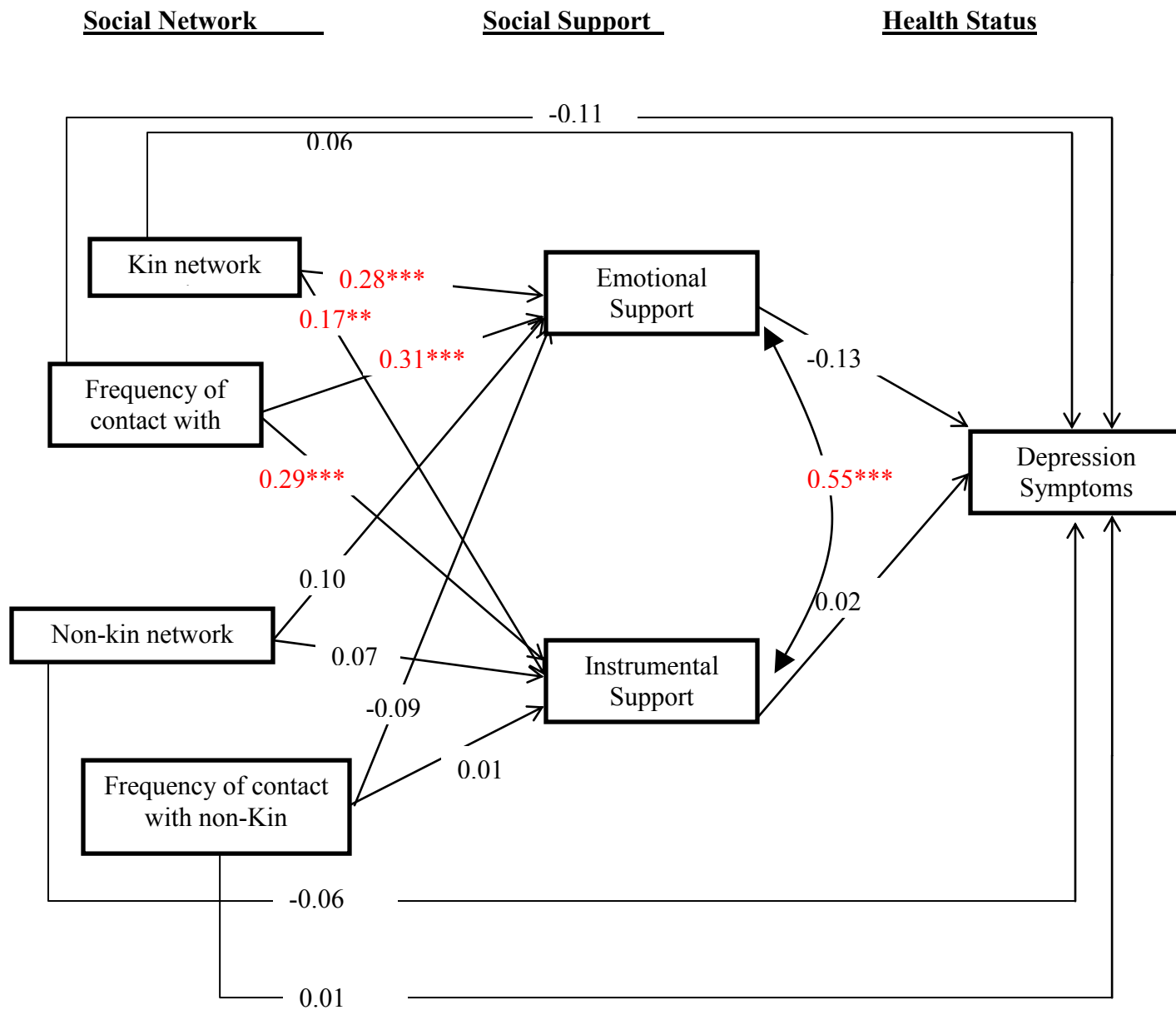


Figure 6 displays the path model for depressive symptoms among older non-Hispanic Caucasian sample. The model also allowed correlations between error terms for emotional support and instrumental support and was found statistically significant ($p < 0.05$). Similar to Korean-American sample, education was significantly associated with depression symptoms for non-Hispanic Caucasian sample. Older adults with more education had fewer depressive symptoms than those with less education. Socio-demographic variable age and education were significantly related with emotional support. More specifically, age was negatively associated with emotional support, indicating that as people age they receive less emotional support. Education was positively associated with emotional support, indicating that older adults who received more education had higher perceived emotional support than those with less education. The final model for depression symptoms for older non-Hispanic Caucasians had a good fit. The chi-square test of model fit support that the model fit the data well ($\chi^2 = 6.47$, $df = 4$, $p = 0.17$). The CFI and TLI showed a good fit (0.98 and 0.92). Finally, the RMSEA was 0.05 indicating a good fit. The model accounted for 39% ($R^2 = 0.39$) of the variance in the perceived general health. The R-squares were 0.159 for the level of instrumental support and 0.325 for the level of emotional support.

No direct effects of social networks on depression symptoms were found. Unlike the older Korean-American sample, only kin network measures (kin network size and frequency of contact with kin) were positively associated with social support measures. None of the non-kin network measures were related to social supports among non-Hispanic Caucasian sample. Furthermore, no indirect effects of the emotional support on depressive symptoms were found.

Figure 6. Influence of Social Network on Depression Symptoms among Non-Hispanic Caucasian



Multigroup Analysis

Multigroup analysis was performed to test if there are differences in paths between older Korean-Americans and non-Hispanic Caucasian samples. Two sets of multigroup analysis were conducted to test if the paths to general perceived health and depression are different by race/ethnicity. Among paths to depression, three paths were found to be statistically different. First, paths from frequency of contact with non-kin members to depression had chi-square of 4.02 with one degree of freedom ($p=0.04$), indicating that this paths were statistically different by race/ethnicity. Second, paths from the size of kin-networks to emotional support had chi-square of 8.21 with one degree of freedom ($p=0.004$), indicating significant difference between two racial groups. Lastly, paths between size of the non-kin networks and emotional support had chi-square of 20.85 with one degree of freedom ($p< 0.0001$), indicating that this paths is statistically different by race/ethnicity. In terms of the paths to perceived general health, three paths were found to be statistically different by race/ethnicity. Similar to the previous findings, paths from the size of kin-networks to perceived general health had chi-square of 4.68 with one degree of freedom ($p=0.03$), indicating that this paths were statistically different by race/ethnicity. Second, paths from the size of kin-networks to emotional support had chi-square of 8.33 with one degree of freedom ($p=0.004$), indicating significant difference between two racial groups. Lastly, paths between size of the non-kin networks and emotional support had chi-square of 19.43 with one degree of freedom ($p< 0.0001$), indicating that this paths is statistically different between two racial/ethnic groups.

Summary of the Findings

Overall, the findings of this study revealed that the path between social networks and health outcomes differed between older Korean-Americans and non-Hispanic Caucasians. For instance, direct relationships between social networks and health status (i.e., perceived general health and depression symptoms) were only found among older Korean-American sample. Moreover, results showed that there are some positive relationships between social network measures (i.e., social network size and frequency of contact) and social supports (i.e., emotional support and instrumental support). Only kin social networks (i.e., kin network size and frequency of contact with kin) were significantly positively associated with social support measures among older non-Hispanic Caucasians. By contrast, both kin and non kin networks were positively related to social support measures for Korean-Americans. In fact, non kin networks measures (non kin network size) was more positively related to emotional support than kin networks among older Korean-Americans.

Chapter V: Discussion

Introduction

Despite the well-documented effect of social networks on health outcomes, little is known about these associations among minority older adults, especially older Korean-Americans. Moreover, previous studies did not consider the multifaceted character of social networks and social support systems. To address this gap in the existing literature, the current cross cultural study attempted (1) to explore the process through which social networks affect perceived general health among community dwelling older Korean immigrants, (2) to explore the process through which social networks affect depression symptoms among community dwelling older Korean immigrants, and (3) to explore whether these processes differ by race/ethnicity.

The empirical evidence discussed in this study suggests that social networks and social support systems influence the perceived general health and depression of older people both directly and indirectly and that race/ethnicity is an important factor in the relationship between ones social networks and health. This chapter (1) summarizes the results of this study in relation to the empirical evidence and Berkman's theoretical model, (2) provides implications for future practice and policy, (3) outlines the limitations of the study, and (4) offers recommendations for future research.

Paths from Social Networks to Perceived General Health

Direct effect of social networks on perceived general health

Cross-cultural analyses indicated that the influence of social networks on perceived general health differs by race/ethnicity. For older Korean-American sample, the results suggested that both kin and non-kin network sizes were directly associated with perceived general health. In other words, older Korean-Americans with more kin or non-kin networks

perceived their general health to be better. This result is consistent with previous studies that showed significant relationship between social networks and older immigrant's health (Lee et al., 2004; Litwin, 1995; Mallinckrodt & Leong, 1992; McMichael & Manderson, 2004), as immigrants rely on their existing social networks to adjust to an unfamiliar environment (Litwin, 1995).

Concerning non-Hispanic Caucasian sample; none of the social network variables were directly associated with perceived general health. In other words, we found no direct effect of social network size on perceived general health for this group. In terms of the association between network size and an individual's perceived general health, previous studies showed mixed results. Some researchers found a positive relationship between network size and individuals' perceived general health, while others found no significant relationship between the two variables. For example, a study with 2,910 older adults showed that social disconnectedness was associated with lowered self-rated physical health (Cornwell & Waite, 2009). By contrast, the network size had a smaller influence on functional health among community-dwelling older adults living in Australia (McLaughlin et al., 2012). Additional research is needed before making conclusions based on this finding.

Concerning the frequency of contact, the results did not reveal significant direct effect between frequency of contact with networks and an individual's perceived general health for both older Korean-Americans and non-Hispanic Caucasian groups. This result is not consistent with findings in any previous studies, which indicated that a higher frequency of contact is associated with better perceptions of general health. For instance, a study with Taiwanese older adults revealed that those with less contact with friends and neighbors were likely to have more difficulties with functional status and perceived general health (Beckett et al., 2002). Similarly, a study among older veterans in the United States showed that

frequent contact with others and perceived social support had a strong effect on physical functioning (Ren, Skinner, Lee, & Kazis, 1999), and this result was replicated with older adults in Finland, the Netherlands, and Spain (Zunzunegui et al., 2005). One possible explanation is that contextual factors, such as contact with preferred social networks, may have played a bigger role than frequency of contacts. For instance, Ha and Ingersoll-Dayton (2011) found that contact with one's preferred social networks played a bigger role in health than did the frequency of contacts. Further study comparing the effect of one's preferred social networks vs. non-preferred networks on health would be needed to determine if these explanations are valid.

Paths from social networks to social support

Although the current study hypothesized that social network measures would influence the amount of social support, this assumption was only partially supported. For older Korean-Americans, frequency of contact with kin had a positive association with the amount of emotional and instrumental support one receives while kin network size had no significant relationship. More specifically, contrary to the previous findings, this study showed that non-kin network had a stronger association with social support systems than did kin-network among older Korean-American samples. For instance, the relationships between non-kin network size and social support systems were significantly stronger compared to the relationships of contact frequency with kin-network members and social support systems. This is not consistent with previous findings, which indicated that family remained the primary source of support for Korean immigrants (Wong et al., 2005). For instance, many researchers reported that older Korean immigrants rely heavily on older adults for social support (Wong et al., 2005; Wong, Yoo, & Stewart, 2007). Filial obligation has been most

cited as the cause of this heavy reliance on immediate family members among Asian immigrant populations.

One possible explanation for the finding in this study is the change in the notion of traditional filial piety among Korean-Americans. Park (1997) asserted that Korean-Americans have redefined the traditional ideologies surrounding gender and family to accommodate the demands of their ethnic entrepreneurship and labor participation. As discussed in the previous chapter, research on Korean-Americans showed that adult children's notion of filial obligation has changed as they adjust to factors such as their financial resources and their parents' need (Ishii-Kuntz, 1997). Moreover, many studies have identified these cultural changes among older Korean-Americans as well. For instance, Wong and colleagues' (2006) study showed that older Korean immigrants are searching for alternative ways to gain needed support outside of their kin network. Thus, higher association with non-kin networks over kin-networks in this study reflects the changes in traditional values among older Korean-Americans. Further study using longitudinal methods would be needed to determine which, if any, of these explanations are valid.

For older non-Hispanic Caucasian sample, only kin network size and frequency of contact with kin networks had significant relationship with social support systems. For this research, both kin and non-kin networks were hypothesized to have an association with both instrumental and emotional supports. However, these hypotheses were partially supported. Previous empirical evidences indicate that family members rather than friends are more likely to provide elderly adults with instrumental support (Adams & Blieszner, 1995). Friends, on the other hand, provide emotional support, such as intimacy and companionship, more often compared to family members (Phillips, Bernard, Phillipson,

& Ogg, 2000). The insignificance of non-kin networks on social support could be related to voluntary nature of non-kin networks. Abbot and colleagues (2007) explained that frail older adults might withdraw from social relationships especially from friends since it is easier for them to maintain family ties than friendship ties which may result in little or no significant relationship between non-kin networks and social support measures. Moreover, it may be that receiving instrumental support from friends contributes to feelings of helplessness and lack of autonomy resulting in greater stress (Fiori, Smith, & Antonucci, 2007). Another possible explanation is that various factors not addressed in this study, such as quality of relationships with kin and non-kin networks could have caused the insignificance of non-kin networks on social support. Thus, caution should be used before drawing conclusions.

Paths from social support to perceived general health

Similar to the relationship between social networks and perceived general health, this study hypothesized that social support has a direct influence on individual's perceived general health. The result revealed that for older Korean-Americans, only emotional support had a positive association with perceived general health. This result is inconsistent with previous findings, which reported social support as a prevalent factor in Korean immigrants' health (Han et al., 2007; Wang et al., 2007). Additional research is needed before making conclusions based on this finding.

For older non-Hispanic Caucasian sample, interestingly, receiving instrumental support had a negative association with perceived general health. Previous findings showed mixed results concerning the relationship between social support systems and perceived general health. For instance, particularly among those with low instrumental

support, receiving emotional support had a favorable effect on functional health (Seeman, Berkman, Charpentier, Blazer, Albert, & Tinetti, 2005). On the other hand, a study by Lin and Wu (2011) found that receiving social support might have negative consequences for older adult's health. The study showed that social support accelerated the progression of disability among older adults. A possible explanation is that receiving help may reduce the willingness of older adults with disabilities to perform daily activities independently, which may increase functional disability (Williamson & Shaffer, 2000).

In addition, cultural differences between the two populations could explain the inconsistent result in this study. Scholars commonly use individualism and collectivism to explain the differences in human behavior when examining eastern and western cultures. *Individualism*, often found in the United States and Northern Europe, emphasizes each person's responsibility for his or her fate in life, which may lead to negative notions of dependency in old age (Montenco & Greenburg, 1995). Thus, non-Hispanic Caucasian Americans receiving instrumental support from others may perceive this as loss of their independence and health. *Collectivism*, often found in East Asia, tends to encourage the acceptance of dependency on families and social networks as part of the interpersonal relationship (Hong, Casado, & Harrington, 2011). Given that receiving support is culturally expected, older Korean-Americans may be more used to asking for help in order to deal with day-to-day tasks, especially if there are linguistic or cultural considerations. This may result in a positive relationship between social support and perceived general health among older Korean-American sample. The results of this study throw some doubt on claims of positive effect of instrumental support on perceived general health among older non-Hispanic Caucasians.

Paths from Social Networks to Depression Symptoms

Direct effect of social networks on depression symptoms

The current study hypothesized that social network measure would have direct effects on depression symptoms. The result of the multivariate statistics supported this hypothesis only partially. Among social network measures, only frequency of contact with non-kin networks had a significant direct effect on depression symptoms in older Korean-American sample. This result is inconsistent with the previous studies, which showed that Korean immigrant elders with greater social networks and more contacts exhibited fewer depressive symptoms compared to those who were socially isolated (Lee & Yu, 1996). Additional research is needed before making conclusions based on this finding.

For non-Hispanic Caucasian group, none of the social network variables directly influenced the depression symptoms. In terms of the association between social networks and individual depression symptoms, previous studies showed mixed outcomes. Some researchers found that greater or more frequent contact with social networks reduced the depression symptoms, while others found no relationship or negative relationship between these variables. For example, older women with larger social networks had less chance of having dementia compared to those with fewer or less extensive social networks (Crooks et al., 2008). Similarly, elders who had more frequent contact with their children, parents, and neighbors experienced less memory loss (Ertel, Glymour, & Berkman, 2008) and fewer depressive symptoms (Chao, 2011). By contrast, in a study of 838 older adults, Kruger and colleagues (2009) found that size of social network was not associated with the mental health. Further study with more sample size would be needed before making conclusions based on this finding.

Paths from social networks to social support

This study hypothesized that social network size and frequency of contact with kin and non-kin members would have an effect on the amount of emotional and instrumental support. However, the findings of the multivariate statistics supported the hypothesis only partially. Similar to the findings concerning perceived social support, for older Korean-American sample, frequency of contact with kin had a positive association with the amount of emotional and instrumental support while kin network size had no significant relationship. For older non-Hispanic Caucasian sample, only kin network size and frequency of contact with kin networks had significant relationship with social support received.

Paths from social support to depression symptoms

Regarding the effect of social support on depression symptoms, only emotional support reduced depression symptoms among older Korean-Americans. This is in line with the previous findings, which indicated that emotional support is more relevant to mental health compared to instrumental support among older Korean-Americans (Lee, Crittenden, & Yu, 1996). For older non-Hispanic Caucasian sample, none of the social support variables influenced individual depression symptoms directly. This finding is not consistent with previous studies that highlighted significant contribution of social support in lowering one's depression symptoms. For instance, receiving emotional support from significant others related to lower depression (Chao, 2011; Yang, 2006). Other studies also reported that low social support is associated with depression (Ha & Ingersoll-Dayton, 2011; Newsom & Schulz, 1996). The insignificance of social support on depression symptoms could be related to the various factors not addressed in this study.

For instance, a study by Hughes and colleagues (2008) demonstrated that older adults' satisfaction with current social supports has been shown to positively relate to their cognitive performance. Thus, additional research is necessary before making conclusions based on this finding.

Limitations

Several limitations may have influenced the findings from the present study. First, this study is based on secondary data collected from a limited number of older Korean-Americans and non-Hispanic Caucasians in California. Thus, the results may not be representative of older adults throughout the country. Demographically, the sample was selected to represent older adult population living in Los Angeles. It is important to recognize that both older Korean-Americans and non-Hispanic Caucasians are a diverse population with many subgroups that differ by age, geographic location, and socio-economic status. Each of these populations is likely to have different perception of social networks and social support systems. Thus, one must use caution when applying this finding to general older population.

Second, the relatively moderate sample size is a limitation of the study. In path analysis, optimal sample size should be approximately 10 times the number of parameters to allow for significant model testing (Kline, 1998). For this reason, the small sample size restricted the number of variables tested in this study. Given this condition, some variables could not be included in the model. Due to the small sample size in this study, replication of these findings with larger sample size is necessary before we can draw firm conclusions about the effects of social networks and social support systems on health among older Korean-Americans and non-Hispanic Caucasians.

Third, current study was unable to test some variables because the secondary data did not include these measures. A critical disadvantage of employing secondary data is the lack of control over the data. For example, previous studies demonstrated that the quality of older adults' relationships with support providers influenced the significant effect of social support (Ha & Ingersoll-Dayton, 2011; Kasser & Ryan, 1999). Similarly, a study by Hughes and colleagues (2008) found that older adults' satisfaction with current social supports is positively related to their cognitive performance. However, the data did not contain information about the quality of social networks nor satisfaction with the current social support, limiting the interpretation of the results.

Finally, the measures used in this data may not have captured the cultural differences between different samples in the data. For instance, a cross-cultural study between Asian and Asian American college students and European American students revealed cultural differences in social support seeking behaviors (Kim, Sherman, & Taylor, 2008). More specifically, Asian students preferred implicit social support, which consists mainly of obtaining emotional comfort without disclosing any personal problems to others. European American students on the other hand, preferred explicit social support to receive instrumental aid or emotional comfort while sharing and disclosing specific stressful events with others. However, our data did not contain information about whether one disclosed personal stressful events when receiving social support, limiting the ability to capture the cultural difference between two sample groups.

Implications

This study investigated the effect of social networks and social support on health among older Korean-Americans and non-Hispanic Caucasian population. This study has

multiple research and practice implications. The results indicated that the effect of one's social networks and social support on health differs by race/ethnicity. Thus, researchers should use caution when interpreting the effect of social networks and social support on health among minority older adults, since such effect may differ by race/ethnicity.

Likewise, the research findings highlight the role of culture in understanding the dynamics of social relationships. The decision to seek social support depends on how individuals expect others to react to his or her behavior (Kim, Sherman, Ko, & Taylor, 2006). Because this exchange of social support is tailored to individuals' cultural background, it is essential to understand the cultural context behind these social support transactions. As Kim, Sherman, and Taylor (2008) stated, cultural differences can lead to misunderstandings by falsely assuming others' behaviors as maladaptive. Thus, researchers and practitioners who work with Korean American older adults should be aware of cultural diversity and cultural compatibility when assessing their social support systems.

Another major finding of this study is the validation of the positive effect of non-kin networks among older Korean-American population. Until now, the majority of literature on older Korean immigrants has focused on filial piety and extended family support systems. This has led some to conclude that older Korean Americans adhere to the traditional lifestyles (Moon, 1996). This 'ideal family myth' blindly assumes that Asian Americans have a great respect for older adults (Ishii-Kuntz, 1997). This study provides evidence that the effect of non-kin networks on social support is greater than the effect of kin-network on health among older Korean-Americans, suggesting the importance of friends and neighbors in their lives. Thus, researchers and practitioners

should be aware of the importance of non-kin networks on older Korean-Americans and develop interventions to strengthen these relationships with an aim to achieve better health for this population.

Conclusion

Asian Americans are the fastest growing population in the United States, and according to 2010 census estimates, Korean-American are the fifth largest Asian-American group (U.S. Census Bureau, 2010). The 2010 Census reported that there are approximately 1.7 million Korean Americans in the United States and over 155 thousand, or over 9.0%, are 65 and older. For Koreans who are 65 and older, over 77% are immigrants (U.S. Census Bureau, 2011). While social networks and social support systems are relevant to health, their significance may be particularly pronounced among immigrants, since they provide a powerful coping resource for people experiencing stressful life changes, including stress associated with adjusting to an unfamiliar culture (Lee, Koeske, & Sales, 2004; Mallincokrodt & Leong, 1992). Moreover, previous studies indicated that social support systems are especially important for older adults, because they can reduce the effect of stress (Shin et al., 2008; Thoits, 1995). For older Koreans who left their country and had to start again fresh, the influence of existing social networks and social support systems on their health may be much greater as they reach an older age and have fewer opportunities to build new relationships. Considering that older Korean-Americans perceive social networks and social support systems as important, it becomes necessary to examine the effects of social network and social supports on their health. Furthermore, most previous studies on social networks and social supports did not

consider the multifaceted character of these measures, which may limit the interpretations.

Guided by Berkman's theoretical model that links cultural influence on one's social networks and social support influence on health, this study examined the association of social network characteristics and social support on health between older Korean-Americans and non-Hispanic Caucasians. To account for the multifaceted character of social networks, the study distinguished between kin and non-kin social network as well as the size and frequency of contact. Moreover, this study distinguished between emotional and instrumental support. This study hypothesized that social network structures provide social support, which in turn improves one's perceived general health and depression symptoms. Study findings supported these hypotheses partially, as the empirical evidence from this study showed different effect of one's social networks and social support on health. The work discussed in this paper points to the need to recognize the role of culture when assessing one's social networks and social support systems on health. This recognition of cultural difference is an important step toward understanding the diversity in human interactions and benefits from social relationships.

More specifically, this study has examined the 'ideal family myth' toward older Korean immigrants. The majority of literatures on older Korean immigrants have focused on filial piety and extended family living arrangements. This has led to an 'ideal family myth' which blindly assumes that Asian Americans have a great respect for older adults and continues to live in the traditional extended family lifestyle (Ishii-Kuntz, 1997; Moon, 1996). Ishii-Kuntz warned about this way of thinking by saying, "this perception, in the absence of empirical evidence, ignores the potential and probable impact of

immigration and acculturation on aging and life experiences” (p.23). Despite this well-known myth, the study has demonstrated that the influence of non-kin networks on health is greater than kin-networks, highlighting the importance of non-kin networks among older Korean immigrants. Moreover, this study has also showed the cultural influence within the exchange of social supports.

It is important for elderly populations to recognize their social network and social support, especially in the context of older Asian Americans who are at high risk for social isolation. Simple acts, such as bringing an older loved one to the doctor or hearing their concerns, can have a tremendous effect on their well-being. This paper highlighted the characteristics of older Korean-American and older non-Hispanic Caucasians who are most, as well as least, likely to benefit from social networks and social supports. Utilizing the existing social networks and social support systems can improve overall health outcomes and the elderly community.

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Appendix A:

