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A Profile of Grandparental Care and Its Health Implications among
Grandparents in Taiwan

A dissertation submitted in partial satisfaction of the
requirements for the degree Doctor of Philosophy
in Public Health

by

Ching-Yi Peng

2013

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ABSTRACT OF THE DISSERTATION

A Profile of Grandparental Care and Its Health Implications among
Grandparents in Taiwan

by

Ching-Yi Peng

Doctor of Philosophy in Public Health

University of California, Los Angeles, 2013

Professor Donald E. Morisky, Chair

A considerable amount of research has been done to investigate the effects of grandparenting on grandparents' health. However, most of these studies were conducted in Western societies and have found mixed results. In addition, previous studies were often hampered by small-scale convenience samples, cross-sectional design, or lack of theoretical frameworks. To fill these gaps, this study draws data from the Department of Health in Taiwan to extend the knowledge of grandparenting to a cultural context that differs from the United States, where the majority of the research in this area has been conducted. The main purposes of this study are to explore the social and cultural context of grandparenting in Taiwan, and to examine the implications of grandparenting on grandparents' health.

To examine the profile of grandparental care and its health implications in Taiwan, this study uses the Study of Health and Living Status of the Elderly (SHLSE) data. It first uses the 1996 wave of data to examine how individual characteristics and attitudes toward grandparenting are related to the practice of grandparenting. Then it conducts longitudinal analysis using data from the 1996, 1999, and 2003 waves to evaluate the impacts of grandparenting on grandparents' physical health. Last, based on a conceptual framework and its assumptions, structural equation modeling is utilized to investigate the relationships among grandparenting, stress, and social support, and their implications for grandparents' mental health. The findings reveal that grandparental care is a common phenomenon in Taiwan, and it exists across genders and social classes. Both grandfathers and grandmothers embrace supportive attitudes toward providing care for grandchildren. One-fourth of grandfathers and more than one-third of grandmothers were providing certain levels of care for their grandchildren in 1996. It also finds that providing care on a regular basis for grandchildren has protective effects on grandparents' health, regardless of grandparents' gender, age, or living arrangement. Moreover, while it remains highly prevalent and normative for Taiwanese families to adopt a multi-generational living arrangement, such arrangement does facilitate interactions and exchanges between generations, and grandparents can benefit from providing childcare through the elevated social support they receive.

This study demonstrates that while older adults are usually profiled as care recipients, actually a significant portion of them are assuming substantial responsibility in childcare for their families as well as for our society. Although most of the literature on grandparenting is from the United States, this study suggests caution in assuming that findings in America may be valid across societies, or that interventions based on these findings can be applicable in other countries.

The dissertation of Ching-Yi Peng is approved.

Leo Estrada

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2013

To my parents,
sisters and brother,
and husband

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Chapter 1 Introduction

Prevalence of Grandparenting

Over the past few decades, Taiwan society has experienced a series of social and demographic changes, including an aging population (Ministry of Interior, 2010) resulting from both declining fertility and lengthening life expectancy (Directorate-General of Budget, 2010), which have had profound implications on the prevalence and practice of grandparenting (Yi et al., 2006). Meanwhile, increasing female labor participation (Directorate-General of Budget, 2011) and changing family structure (Chu, Xie & Yu, 2011; Yi et al., 2006; Ministry of Interior, 2005) have also contributed to altering the prevalence of grandparenting (Sun, 2008).

The demographic changes imply both increasing opportunities and a need for interaction and support across multiple generations. As grandparenting can be one of the forms of intergenerational support, however, compared to Western societies, relatively little research has been conducted in Taiwan to investigate the phenomenon of grandparenting and little is known about its prevalence. Among the very few studies available so far, it has been suggested that the number of grandparents responsible for raising their grandchildren is increasing (Chiu, 2004; The Directorate General of Budget, Accounting and Statistics, 2010; Tsai et al., 2011). Using national representative data, a study found that the percentage of people older than 60 years who are providing grandchild care has increased from 7.7% in 1993 to 13.6% in 1999, and then to 19.4% in 2007 (Tsai et al., 2011). This study, however, only included respondents over 60 years old. This can cause an underestimation of the prevalence of grandparenting since many people become grandparents before 60 and younger grandparents are more likely to provide childcare than their elder counterparts.

In another study conducted on 2,500 seventh-graders, more than half of the children in the sample reported having been raised in households where their grandparents also co-resided (Yi et al., 2006). Grandparents who live with grandchildren in the same household are more likely to provide care for grandchildren. In Taiwan, 13.8% of preschoolers had grandparents as major childcare providers; and for children living in multigenerational families, this figure rose to 34%. Among these multigenerational families, if both parents were working, 54% of the children were primarily cared for by their grandparents (Directorate-General of Budget, Accounting and Statistics, 1993, as cited in Yi et al., 2006). Another study using a small convenience sample also reported that around 80% of caregiver grandparents assumed caregiving duties because their adult children worked full-time (Lo & Liu, 2009).

While there is a shortage of related data in Taiwan, studies in the United States have indicated that many families in which children are being raised by grandparents are among the most vulnerable, usually over-represented by single-mother and low-income families (Minkler & Fuller-Thomson, 2005; Hayslip & Kaminski, 2005; Mutchler & Baker, 2004). In the meantime, studies based on Western societies have suggested that grandparent caregivers suffer higher-than-average rates of poor physical and psychological health than those not providing care (Musil et al., 2010; Minkler & Fuller-Thomson, 2005; Baker & Silverstein, 2008; Cohen et al., 2010). Therefore, it is important to assess the effects of grandparenting on the health of grandparents and further develop adequate policies to provide supporting and optimal environments for both grandparents and the children in their care.

Significance of the Research Project

The increasing availability of older kin has become a resource for both adult children and grandchildren. In addition to their pivotal role in supporting family, these grandparents are also of benefit to societies in which public childcare facilities are lacking, such as Taiwan. Childcare provided by grandparents is recognized by most Taiwanese parents as qualitatively comparable to mothers' care and as a better option than paid care, which is usually costly and not quality-guaranteed. As the population continues to age and female participation in the labor force increases, grandparents are serving as an invaluable resource of sufficient and personal care for children. Moreover, when caregiving is accompanied by enhanced support from other family members, grandparent caregivers may even benefit from this practice, which leads to a win-win situation.

However, it is also imperative to acknowledge that providing childcare does not always bring benefits to grandparents. Studies in the United States have shown that the effect of grandparenting on grandparents' health is largely conditional upon the complexity of the family and social situation in which grandparents find themselves (Goodman, 2003; Bachman & Chase-Lansdale, 2005). Furthermore, grandparents often serve as the safety net for children whose parents are unable to provide care. With the increasing divorce rate in Taiwan, grandparents are likely mobilized to provide support in single-parent households (Kuo, Tang & Chiu, 2009). Providing care in times of family crisis or financial hardship can be detrimental to both the grandparents and children in their care. Social policy which adjusts to the special needs of these households is needed. This is why it is important to explore the tremendous diversity among grandparent caregivers and to understand the contextual effects of family and social environments on grandparents' health.

By building upon these findings, more focused and personal intervention could be developed. Meanwhile, this study also explores how social environment and intergenerational dynamics can influence grandparents' health. The findings could have implications for social policy targeting grandparents at the community, family, and individual level, including possible interventions involving intergenerational interactions within and outside family boundaries.

Chapter 2 Literature Review and Theoretical Framework

Cultural Context of Grandparenting in East Asia

As grandparenthood derives its meaning from the specific social and cultural characteristics of a particular society, it is important to examine the cultural and social backgrounds which nurture the ideal and practice of grandparenthood in each society. For example, research has found that grandparents in Taiwan regard childcare assistance as their moral responsibility (Sun, 2008; Sandel et al., 2006) while Euro-American grandmothers are more likely to consider their role as a companion. Specifically, Taiwanese grandmothers recognize themselves as temporary caregivers who will hand over caregiving responsibility to the mother later when the child starts school (Sandel et al., 2006). According to the ideology hypothesis, ideals of grandparenthood and residence social rules may all serve as determinants of grandparents' perceptions of grandparenting and access to grandchildren. Caregiving grandparents from cultures with a strong extended family norm are more likely to adapt successfully to their caregiving roles than do grandparents from cultures without this norm (Goodman & Silverstein, 2002).

As the normative factor is particularly important in the practice of grandparenting in Taiwan as well as in many East Asian societies which share similar cultural belief with Taiwan, the following section specifically look at the cultural and social factors that surround grandparenthood in these Asian societies, including Hong Kong, China, Japan, Singapore, South Korea, and Taiwan.

Confucianism and Filial Piety

Although grandparents in Asian countries may be diverse, they also have much in common, such as that many Asian countries are deeply influenced by Confucianism, which was originated

in Chinese culture and has been adopted in many societies in East Asia such as China, Hong Kong, Taiwan, Singapore, Korea, and Japan. It has become the center of ethics in these societies and deemed as a moral code for daily life. One of the major parts in Confucianism is the notion of filial piety which defines the children's responsibility for and practice toward their parents. This norm of filial piety has been institutionalized in these Asian societies over a long period (Maehara & Takemura, 2007; Yi & Lin, 2009; Koyano, 1996). It emphasizes respect for and a sense of obligation toward one's parents. When parents age, children are expected to enact their filial piety through providing emotional, financial, and physical support to their parents. For instance, the elderly in Taiwan who have a stronger perception of filial norms are more likely to give support to, and receive support from, their adult children. On the other hand, adult children who receive physical help from elderly parents are more likely to provide financial support in return (Chattopadhyay & Marsh, 1999; Yi & Lin, 2009).

The Norm of Multi-Generational Co-residence

In addition to filial piety, Confucianism also emphasizes gender hierarchy. Elderly males usually possess the final authority of the family, and patrilineal co-residence with elderly parents is the dominant living arrangement. This form of living arrangement is probably most strictly enforced in Korea, but is also prevalent in China, Taiwan, Hong Kong, and Japan (Maehara & Takemura, 2007; Tagaki & Silverstein, 2006). These households often consist of multiple generations and include grandchildren. In this traditional form of households, childcare and household work is usually women's responsibilities and female members of the extended family (e.g. grandmothers), usually share household labor and care work. For Chinese elderly, the intergenerational co-residence is a source of pride because it implies their children are displaying filial piety. In Taiwan, at least one-third of families are co-residence households (Chu, Xie & Yu,

2011; Yi et al., 2006). In 2005, around 60% of respondents in a Taiwan national survey on people aged more than 50 years reported living with grandchildren and other family members (Ministry of Interior, 2005).

Nevertheless, it is important to note that multigenerational co-residence is not entirely the effect of filial piety norm. It is also facilitated by economic factors, such as the lack of retirement pensions which forces elderly parents to depend on their adult children (Goh, 2006). In societies which lack a retirement pension, such as South Korea, the elderly are more likely dependent on support from their adult children (Park et al., 2005). On the other hand, strategic factors are also becoming more common reasons for adult children to form multigenerational households. For example, the need of adult children for their elderly parents to help with household chores and childcare may also be a practical reason for younger generations to adopt co-residence with their parents (Tagaki & Silverstein, 2006; Chu, Xie & Yu, 2011). In these cases, co-residence with kin also indicates the availability of social and economic support for both the elderly and young generations (Park, 2005).

Changing Household Organization and Intergenerational Relationship

In the process of industrialization, most of these Asian societies have experienced substantial social changes in the family structure in the past few decades (Chu, Xie & Yu, 2011; Yi et al., 2006; Mjelde-Mossey, 2007). For example, the proportion of elderly in Japan living with grandchildren was 41.0 in 1981 and 23.2% in 2001; in South Korea, this figure was 58.0% and 29.4%, respectively (Maehara & Takemura, 2007). In addition, as the role of grandparent is not static but subject to social and cultural changes, the social and demographic changes in the past decades also lead to some transformations of grandparenthood in Asian societies. In Hong Kong, where extended family is no longer desirable as before, older women might find a lack of

opportunity to play grandparenting roles (Mjelde-Mossey, 2007). Common changes across these societies influencing grandparenthood include fewer children in families due to low fertility rates, smaller household size, and increasing numbers of elderly living alone (Maehara & Takemura, 2007). These societal changes also bring challenges to the traditional family ideology such as filial piety and the hierarchy status of grandparents. Recent research has also indicated a shift in power between the intergenerational dynamics from old to young (Goh, 2006). On the other hand, grandparents themselves may change their expectation of grandparenthood as well. Although grandparents nowadays still cherish their relationship with children and grandchildren, they may also expect more freedom and seek leisure roles in their later life.

Childcare Arrangement

Another societal change that has resulted in the growing significance of grandparents' role as caregivers is the increasing participation of females in the labor force. In these societies, government assistance for child care is usually minimal and there is not much public support with the rapid economic development and increasing female labor participation. Take Taiwan as an example, where more than 90% of Taiwanese children under age of three were taken care of by parents or grandparents, about 8% cared by nannies, while less than 0.5% went to day care center (Cortes & Pan, 2009). When mothers leave their homes for paid work, it is usually grandmothers who take on childcare responsibility (Sun, 2008; Lo & Liu, 2009), particularly those who live in the same households with their grandchildren (Directorate-General of Budget, Accounting and Statistics, 1993, as cited in Yi et al., 2006).

Similarly, working mothers in China usually mistrust domestic helpers and thus rely on their mothers or mothers-in-law to provide childcare (Goh, 2011). A study using non-random sampling conducted in Xiamen found 39% of students in primary schools live in multi-

generational households and 45% had their grandparents providing care. However, the preference of childcare arrangement also varies by societies. Unlike parents in Taiwan and Xiamen, young generations with children in Hong Kong are more likely to hire domestic helpers to take care of their children (Tam, 2001; Lou, 2011; Cortes & Pan, 2009). A study conducted in Hong Kong indicates working mothers of children under 4 years of age heavily relied on foreign domestic helpers to provide childcare (50%), and only 30.6% had a family member to take care of their children (Cortes & Pan, 2009). Accordingly, grandparents change their role from providing care to supervising domestic helpers taking care of their grandchildren (Tam, 2001). This also implies that grandparents are less involved in providing care directly.

Singapore is another case. In order to strengthen intergenerational ties in families, the Singapore government introduced grandparent caregiver tax relief for working mothers who have children age 12 and below cared of by unemployed grandmothers (Teo et al., 2006). Meanwhile, having a domestic maid living in the family and share the responsibility of childcare is also common (Goh, 2011). The availability of alternative childcare arrangements such as domestic maids and childcare facilities in Singapore also enables grandparents' agency to negotiate whether and how they want to be involved in childcare (Goh, 2011).

Grandparenting Responsibilities

Most research conducted in the Western societies focuses on grandparents who provide custodial care because of problems of their adult children (Goodman & Silverstein, 2006), while in Asian societies, it is common place that grandparents provide childcare full-time even when their adult children's families are intact. There are many responsibilities embedded in the grandparenting role in Asian cultures. For example, in China, grandparents who provide childcare usually are responsible for helping household chores and meals preparation as well,

particularly in the case of living in multigenerational households (Goh, 2009). In Hong Kong, there is a normative expectation that grandparents provide hands on help, daily care and instrumental help for their grandchildren (Lou & Chi, 2008). Research conducted in South Korea and Japan identified that the roles of grandmothers include passing down traditions to their grandchildren, teaching social value norms to grandchildren, listening to, playing with, and doting on grandchildren, and helping with household chores (Maehara & Takemura, 2007). In Hong Kong and South Korea, grandmothers are also deemed as an important socializing agent for their grandchildren (Maehara & Takemura, 2007; Lou, 2011).

Most studies on the grandparenting role in Asian countries focus only on grandmothers, similar to studies based on Western societies. However, it has been found that in China both grandfathers and grandmothers are equally likely to be caregivers for their grandchildren, and sometimes grandparents even split up in different locations to provide childcare (Goh, 2006). Although living with grandchildren increases the possibility of a grandparent to provide childcare, in Singapore it is also likely that grandparents live apart but still provide childcare since it is a small country. There are various patterns of childcare arrangements, including ferrying of children to and from their grandparents on a daily basis, staying over of the children during week-days, and providing full-time care.

Whether grandparents receive tangible support in return for their service for their adult children is rarely mentioned in the literature. Goh (2006) found most grandparents in Xiamen were not receiving tangible rewards for devoting their time and energy in providing childcare for their adult children. To conclude, the increasing availability of older kin has become a resource for both adult children and grandchildren. In addition to their pivotal role in supporting family,

these grandparent caregivers are also of benefit to societies in which public childcare facilities are lacking.

Health Impacts of Grandparenting

How the grandparent role is expected and enacted also implies the intergenerational relationship, self-identity and life meaning (Lou & Chi, 2008). The adaptability of a grandparent to their role is important. Grandparents who successfully adapt their role also obtain positive identity and self-concept from the role enactment, and hence have better psychological well-being. Although a considerable amount of literature has investigated the effects of providing care for grandchildren on grandparents' health, most studies were conducted in Western societies (particularly the United States). Little has been done, and so little is known, regarding this topic in Taiwan. Therefore, in addition to reviewing such studies conducted in Taiwan, this section also refers to studies that were investigated in other Chinese societies that share similar historical and cultural background with Taiwan.

Although many studies in the United States have documented the negative impacts of caregiving on grandparents' health (Musil et al., 2010; Solomon and Marx, 1999; Goodman, 2003; Fuller-Thomson & Minkler, 2000; Minkler & Fuller-Thomson, 2005; Lee et al., 2003; Baker & Silverstein, 2008; Cohen et al., 2010), studies in Asian societies found no such adverse effects. For example, in a Taiwan study comparing care-giving grandparents to their non-caregiving counterparts, the researchers found no significant difference between these groups in terms of their quality of life and their perceived distress (Lo & Liu, 2009); however, this finding may be influenced by the small convenience sample (n=93), as the subjects in this study were recruited from a kindergarten and several parks in the city, making the sample a special case

rather than representative of grandparents in general. It also did not distinguish among different levels of caregiving provided by grandparents, thus ignoring the heterogeneity of care provided as well as the diversity among caregiving grandparents. On the other hand, another study using national representative data implied a positive association between self-rated health and the provision of childcare (Tsai et al., 2011).

The literature in China showed a similar but even more positive relationship between grandparenting and grandparents' health. Guo et al. (2008) found that caregiving was positively related to grandparents' physical and mental health, measured by Activities of Daily Life and a depression scale, respectively. They further found that, among grandparent caregivers, those who resided with grandchildren reported better health than those who were not, suggesting the moderating effect of living arrangement. Applying the reciprocity model with the use of longitudinal data from 3,112 parent-child dyads, Cong and Silverstein (2008) also found that grandparent caregivers benefited most in terms of their psychological health when financial support was accompanied by full-time provision of childcare. However, a qualitative study has found although many Chinese grandparents consider grandparenting as part of their normative responsibility, they also identify the things they sacrifice and give up in order to devote themselves to their caregiving role, such as physical exhaustion, lack of social network and social activities, and not able to materialize their own plans (Goh, 2009).

In Hong Kong, research has found intergenerational interactions with grandchildren can enhance esteem and provide positive experiences embedded in interpersonal relations among grandparents (Lou, 2011). Providing care for grandchildren is also found positively related to the life satisfaction of grandparents (Lou, 2010). A study even found that exiting the caregiving role may have a detrimental effect on grandparents' health (Lou, 2011). It was suggested that a

reduced advisory role for grandmothers had a negative impact on their life satisfaction (Lou, 2011). For Chinese elderly, being a grandparent also means more opportunity to receive companionship and support from families (Lou & Chi, 2008). This perceived support may in turn affect grandparents' life satisfaction (Lou, 2010, 2011). In general, studies conducted in the Chinese society suggested that grandparents who provided childcare or lived with grandchildren had higher levels of satisfaction and better psychological health (Xu & Chi, 2011; Silverstein, Cong & Li, 2006).

Conceptual Framework

Intergenerational Relationship and Grandparenting

Intergenerational relations involve various aspects of exchange. According to social exchange theory, older people must have some negotiable commodity to exchange in order to maintain their value in society. Mutual assistance is commonplace between younger and older family members, but the patterns and types of exchange vary by race/ethnicity (Becker et al., 2003; Gans & Silverstein, 2006; King et al., 2003; Friesman, Hechter & Kreager, 2008). Meanwhile, how commodities are defined is culturally specific. In addition to economic support, living place provision and caregiving can be a form of intergenerational exchange. By retaining responsibilities to the family, social exchange serves as a means by which elderly people maintain their power in a family. Cultural expectations also shape how mutual assistance is enacted between generations. For example, mutual assistance is gendered according to cultural expectations of male and female roles (Lin et al., 2003). For older women, providing assistance within the extended family is an important way to sustain their roles.

Within the framework of exchange theory, the reciprocity model has been applied to examine family functioning in terms of the support exchanged among generations (Cong & Silverstein, 2008). According to this model, individuals seek to maintain symmetry in interpersonal relations and asymmetry exchanges over the long-term may be detrimental to psychological health. The literature in Taiwan suggests that intergenerational exchange actively occurs between two closely linked generations. Parents who provide more help to adult children receive a higher amount of help from their children (Chattopadhyay & Marsh, 1999; Yi & Lin, 2009). The most reported form of intergenerational exchange in Taiwan is emotional support, while provisions of housing and economic support are two major components of elderly support (Lin et al., 2003; Yi & Lin, 2009).

Life Course and Grandparenting

As humans' life expectancy has been extended, grandparenthood has now become a normal and expected part of life, and research has shown the importance of the grandparent–grandchild relationship throughout the life course (Silverstein & Marengo, 2001; Musil et al., 2010; Baker & Silverstein, 2008). Life course theory (Elder, 1985) has been applied, although often not explicitly identified, in studies on the effects of grandparenting (Hayslip & Patrick, 2003). This theory provides explanations of the psychological mechanisms of how grandparents perceive and cope with having to parent again later in life. According to this theory, people anticipate assuming certain roles at certain times based on society's norms and their view of the typical life cycle. When a non-normative transition occurs, those involved may feel that their role is off time (Landry-Meyer & Newman, 2004).

Throughout their life course, individuals continually acquire and exit roles and construct identities in their roles. The transition into grandparenthood is important because identity is

dynamic and may change over time. It is likely that the meanings upon entry into the grandparent role may be more positive than the meanings later in the role career. The life course perspective also proposes that there are normative timetables and expected sequences for role transitions. These timetables build up individuals' expectations about what life will bring as they move through the life course and guide people to determine whether an entrance into or exit from a specific role is appropriate (Hagestad & Burton, 1986).

These timetables and expected sequences for role transitions are generally structured by social and cultural norms. In western societies, grandparents who find themselves still responsible for parenting their grandchildren often feel they are in an off-time role (Landry-Meyer & Newman, 2004). On the other hand, providing childcare for the grandchildren while both parents go to work is very common in Taiwan. For Taiwanese grandparents, assuming the caregiver role for their grandchildren is a part of enacting the traditional grandparent role (Sun, 2008; Chu, Xie & Yu, 2011; Yi & Lin, 2009).

Stress, Social Support, and Grandparenting

Western literature has shown that grandparents who raise their grandchildren usually find themselves under stressful conditions. For example, grandparents, particularly custodial grandparents, usually assume the caregiving roles because their children are in a crisis, such as drug use, divorce, or teen pregnancy. Therefore, in many cases, grandparents are dealing simultaneously with the unexpected burden of grandparenting responsibilities and the problems of their own children. These grandparents are also likely to be exposed to financial problems, poor physical health, and emotional problems (Mullira & Musil, 2010; Sands & Goldberg-Glen, 2000; Lumpkin, 2008), and many experience social isolation and negative changes in social relationships (Musil et al., 2006). The resulting stress is particularly exacerbated among

grandparents who are taking care of grandchildren with behavioral problems (Thomas, 2000). Meanwhile, stress accompanied by the provision of care for grandchildren may exacerbate grandparents' preexisting health problems or lead to mental health problems (Waldrop & Weber, 2001). The interrelationship between grandparents and the parent generation also has implications for grandparents' stress and life satisfaction.

Folkman and Lazarus suggested that the methods through which people cope with stress can affect their physical, psychological, and social well-being (1980). They also indicated that coping is situational and the efforts made to cope may vary depending on context. Along the same lines, Waldrop and Weber (2001) found that coping strategies adopted by grandparents helped to diminish the effects of the overwhelming anxiety and emotions they experienced in the caregiving process. Musil and Ahmad (2002) also found that active coping moderated the effects of stress on health, while avoidant and subjective support mediated between stress and health. Moreover, Lumpkin (2008) suggested that grandmothers who performed a near-parental role used more coping strategies than those whose role was less parental. These grandmothers used both problem-focused and emotions-focused coping strategies and relied on social support to cope with stress.

The stress-process model (Pearlin et al., 1990) is also widely, though often implicitly, applied in studies on the health impacts of grandparenting in the United States (Leder, Grimstead, Torres, 2007; Muliira & Musil, 2010; Landry-Meyer, Gerard, Guzell, 2005; Sands & Goldberg-Glen, 2000). According to this model, the impact of caregiving-associated stressors on the health outcome of caregivers can be moderated by specific context (e.g., culture) and mediated by multiple factors, such as coping skills, social support, self-esteem and social integration.

Stressors that can compromise the health of caregiving grandparents include the intensive caregiving burden and behavioral problems of the grandchildren (primary stressor), as well as social isolation and strains in family relationships (secondary stressor). Mediating factors, such as social support, can serve as protective barriers to the negative health consequences. Thus this model helps to explain why grandparent caregivers do not necessarily suffer the same deleterious health consequences from their caregiving (Caputo, 2001; Musil et al., 2010; Szinovacz, Deviney, Atkinson, 1999; Goodman & Silverstein 2002). Grandparent caregivers who have less social support are more likely to experience declining health (Sands & Goldberg-Glen, 2000; Musil et al., 2009) or less likely to receive preventive care (Muliira & Musil, 2010).

Gaps in Previous Research

Despite the significant role that grandparents play in childcare and child raising in Taiwan, little is known about the demography of these caregiving grandparents as well as the health implications of their grandparenting. As the social characteristics and cultures are different between Western and Eastern societies, existing findings and theories based on Western societies in explaining the phenomenon of grandparenting and its effects need to be tested in Asian societies. Moreover, previous research based on Western countries mainly focuses on the effects of individual characteristics (e.g., age, gender, race/ethnicity of grandparents and/or grandchildren) when examining the impacts of grandparenting. Such investigations have found inconsistent results regarding the effects of grandparenting on grandparents' health; thus, it is needed to expand this line of study by taking a more contextual perspective to identify whether there are factors that mediate or moderate the process and thus lead to the different outcomes. The examination of mediators will help us to identify the process of how grandparenting is related to grandparents' health, while the identification of moderators will provide explanations for why grandparenting does not cause the same detrimental effects across all grandparents. The identification of factors that influence the process will provide us implications for who are in need of social and policy support, and where and how to intervene. To fill these gaps, this study uses data from Taiwan to extend the knowledge of grandparenting to a cultural context that differs from the United States, where the majority of the research in this area has been conducted.

Objective, Aims and Research Approach

The objectives of this study are to document the demographic profile of grandparents providing care for their grandchildren and to contextualize theories formulated from Western findings in the situation of Taiwan and hopefully contribute to theory expansion in the field of grandparenting in Asian societies. I also hope to better understand how social and cultural factors influence the practice of grandparenting and its health consequence among Taiwanese grandparents. The specific aims of this study are:

Aim 1: Using cross-sectional data, to examine how individual characteristics and attitudes toward grandparenting are related to the practice of caregiving for grandchildren.

Aim 2: Using longitudinal data, to evaluate the association between grandparenting and grandparents' health in different family contexts and across life span.

Aim 3: Using longitudinal data, to examine the relationships among grandparenting, stress, and social support and their implications for grandparents' mental health.

Chapter 3 Methods

Data and Sample

The Study of Health and Living Status of the Elderly in Taiwan (SHLSET) is the data used in this study. This survey was initiated in 1989 with a sample of approximately 4,000 individuals who were 60 years old or older. The data were collected through face-to-face interviews. Follow-up interviews were conducted in 1993, 1996, 1999, 2003, and 2007. In 1996, the study added a sample of 2,462 younger individuals (between 50 and 66 years old). More recently, in 2003, it added another cohort of 1,599 individuals. The sampling plan adopted a three-stage probability sampling design based on the household registration. The sample comprised random sampling of township, blocks within township, and respondents within each block. Only one respondent was selected from a given household.

This study uses data from 1996, 1999, and 2003 waves of the SHLSET comprising 5131, 4440, and 5377 (including the newly added cohort) participants, respectively. The response rate was 85, 90, and 87 percent, respectively. The first part of the analysis uses only the 1996 dataset because it covers the widest range of age (≥ 50). Participants who were not a grandparent in 1996, were proxy, or reported ethnicity in ‘other’ category are excluded from the analysis, resulting in the final sample of 3,901 grandparents. Proxy respondents are excluded because the survey did not ask these respondents questions pertaining to attitudes, perceived support, and depressive symptoms which are important variables in this study. I also exclude respondents in “other ethnicity” because the case number is too small. It consists of less than 1.5% of the overall sample. For analysis of part 2 and part 3, in order to identify the change of caregiving and health status over several years, I narrow the analytical sample to grandparents who remained in the 2003 survey, resulting in a total of 2,427 grandparents in the final sample. The sampling flow is

shown in Figure 1. The comparison between the 1996 cross-sectional and the 1996-2003 longitudinal samples is shown in Table 1. Overall, compared to the cross-sectional sample, respondents who remained in the 2003 survey were younger and more likely to be female.

Figure 1: Diagram of survey design and sampling design for analysis

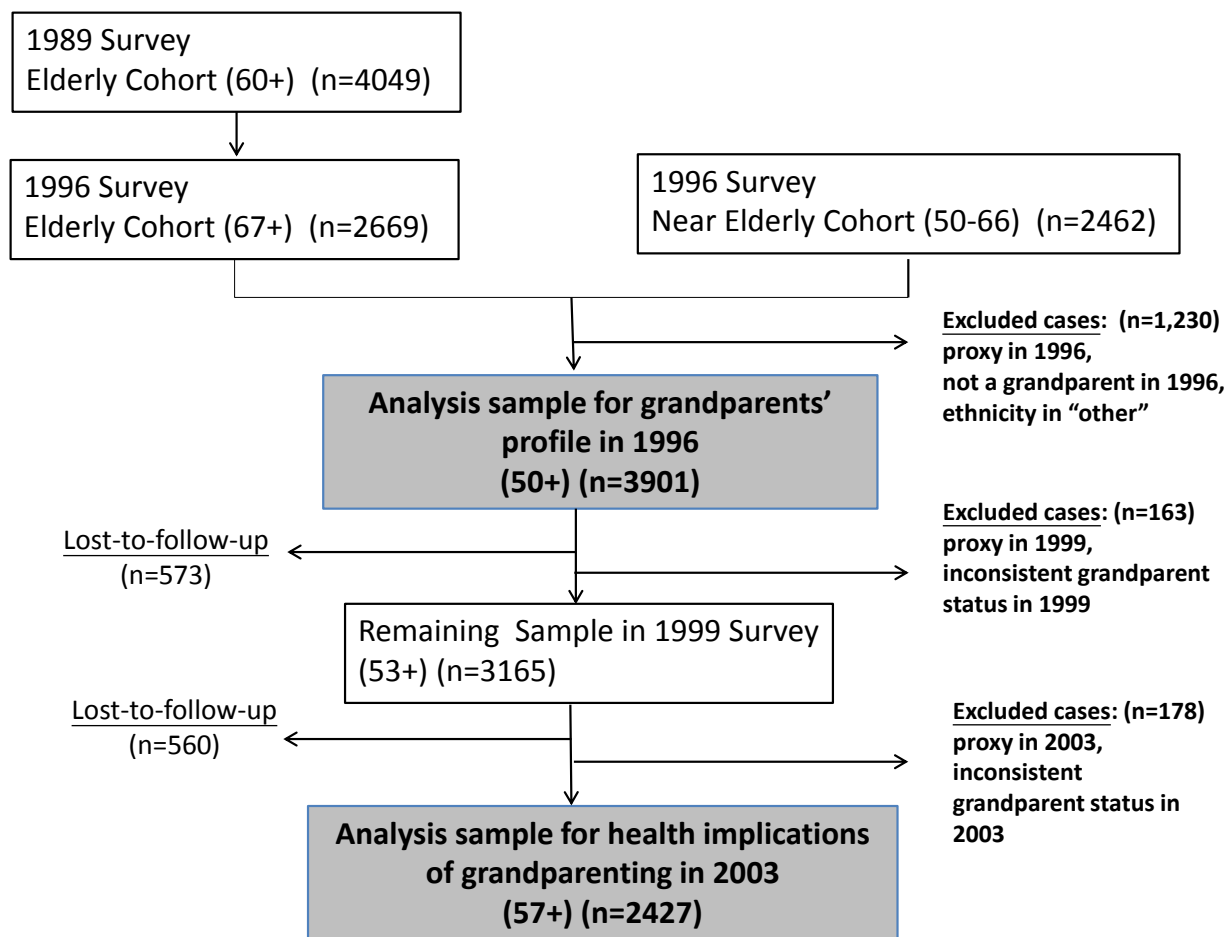


Table 1. Comparison of demographics between sample in 1996 (n=3,901) and longitudinal sample in 1996-2003 (n=2,427)

Variable	1996 (n=3,901)	1996-2003 (n=2,427)
Female (%)	51	53
Age in 1996 (Mean/SD)	67.4 (8.8)	65.4 (7.9)
Education (%)		
Illiterate	36	33
Primary school	46	48
More than primary school	18	19
Ethnicity (%)		
Fuchien	71	70
Hakka	18	19
Mainlander	11	11
Living area (%)		
Rural	32	33
Urban	68	67

Outcome Measures

Self-rated health

In each wave, respondents were asked to rate their health on a five-point scale (excellent, good, fair, poor, and very poor). Self-rated health has been shown as an important predictor of future health outcomes and is also associated with multiple health dimensions, including physical and psychosocial health, functional health, instrumental activities of daily living, mental health, and health behaviors (Idler & Benyamini, 1997). Accordingly, self-rated health can be a valuable and representative indicator of health status. In addition, research has shown this measurement is highly predictive of subsequent mortality in Chinese populations (Leung, Tang, & Lue, 1997; Beckett et al., 2002).

Depressive symptoms

In this study, depressive symptoms are used to capture the status of mental health. A count of depressive symptoms is derived from a 10-item abbreviated form of the Center for Epidemiological Studies Depression Scale (CES-D) instrument. The original version of CES-D scale has twenty items measuring the frequency of depressive symptoms for the past week. Its reliability and validity has been well established in general older individuals (Radloff, 1977). The SHLSET survey adopted a shortened version. The sensitivity and specificity of the 10-item CES-D were found to be comparable to those reported for the 20-item original CES-D (Irwin, Artin, & Oxman, 1999; Chao, 2011). Moreover, studies also showed that the abbreviated version of CES-D yields good internal consistency and accuracy in detecting depressive symptoms among Chinese elderly (Boey, 1999; Gleib & Goldman, 2006). The CES-D scale was administered at intake and at the follow-ups. The CES-D in 1996 serves as a control for psychological distress at baseline, while the CES-D in 2003 is the final outcome. The 10 items are: I did not feel like eating and my appetite was poor; I felt depressed; I felt everything I did was an effort; my sleep was restless; I was happy; I felt lonely; people were unfriendly; I enjoyed life; I felt sad; I could not get “going”. Each item inquired about whether the respondents had experienced a specific symptom in the past week. Frequency with which the participants experienced each symptom in the past week is coded as 0 (none), 1 (rarely, only 1 day), or 2 (sometime, 2 to 3day), and 3 (often, more than 4 days). After reverse coding the two positive affect items, a scale is created by summing the ten items, which results in a depression score ranging from 0 to 30, with a higher score indicating greater depression. Cronbach’s alpha coefficients for this abbreviated scale are 0.83 in 1996 and 0.85 in 2003.

Independent Variables

Attitudes toward grandparenting

In the 1996 survey, respondents were asked if they agreed the following statement “When (adult) children are in need, parents should help them to take care of their children (grandchildren).” The original responses were very much agree (1), agree (2), neutral (3), disagree (4), and very much disagree (5). The responses are reversely recoded so that a higher score indicates a more supportive attitude toward providing childcare.

Intensity of caregiving for a grandchild (provision of childcare)

In the survey, respondents were asked to indicate whether they are providing childcare for their adult children, followed by the question asking “how often do you provide the care, often (every day or several days per week) or sometimes (once or less than once per week)?” Using the information from these two questions, I categorize the intensity of caregiving for a grandchild as three levels: “not providing care”, “sometimes providing care”, and “often providing care”. In most part of the analyses, this variable contains the three above categories. In the last part of multivariate analysis (structural equation modeling), however, this variable is re-characterized into a dichotomous variable. Using the information from the 1996 and 1999 survey, provision of care for grandchildren is determined by whether a grandparent provided any level of childcare between 1996 and 1999. It is a dichotomous variable with 0 indicating never providing childcare between 1996 and 1999 and 1 otherwise.

Living arrangements

As no direct single measure of living arrangement exists in the survey data, composition of household members are used to construct a new variable to indicate the status of living arrangement. In the survey, respondents were asked to list the people living in their household

and their relationship to each person. Using this information, I identify the presence of grandchildren and adult children in residence. According to this information, living arrangement of grandparents can be categorized to three types: grandparents not living with grandchildren, grandparents living with adult children and grandchildren (multigenerational household), and grandparents living with grandchildren only (skipped generation household). However, because there is a very high proportion of grandparents living in skipped generation household providing childcare and this causes extreme estimations for odds ratio in the multivariate analysis, I combine the skipped generation households with the multigenerational households in the multivariate analysis, and estimate the relationship between co-residence with grandchildren and caregiving in the first part of multivariate analysis. In the last part of multivariate analysis, a multigenerational living arrangement is determined by the composition of household members at the 1996 and 1999 interviews. It is dichotomized with 0 indicating never living in multigenerational household between 1996 and 1999 and 1 otherwise.

Stress

The perceived stress is determined using the 1999 follow-up survey. The survey asked participants “Are you feeling stressed or worried because of: your own work, your own financial situation, your own health, relationship with your family, or other things?” If participants answered yes to any of the above categories, then I categorize them as perceiving stressed. Therefore, it is a dichotomous variable with 1 indicating stressed and 0 otherwise.

Social support

There are two types of social support in this study: emotional support and instrumental support. Emotional support is indicated by a scale containing four items. Respondents were asked the following four questions: how willing are others to listen to you (very willing, willing,

neutral, somewhat unwilling, very unwilling), how reliable are your family or your friends to take care of you while you are ill (very reliable, reliable, somewhat reliable, somewhat unreliable, totally unreliable), how much do you feel loved and cared for by family and friends (very cared, cared, neutral, somewhat uncared, very uncared), and how satisfied are you with the level of concern received from your family and friends (very satisfied, satisfied, neutral, somewhat unsatisfied, very unsatisfied). All items are recoded to a 5-point scale, ranging from 1 to 5, with 5 indicating high emotional support. The result of confirmatory factor analysis shows that these four items have factor loadings over 0.5 on the same factor. Cronbach's alpha coefficients for this scale are 0.83 in 1996, 0.88 in 1999, and 0.85 in 2003. Instrumental support is measured by the three following items: receiving personal items like clothes or food; getting help with light household chores; receiving money. Response categories for these questions are yes and no, with yes scores as 1 and no as 0 for each item. The three items are then summed up to create a scale ranging from 0-3.

Socio-demographic Variables

Age is measured in years, and gender is self-reported as male or female. I utilize self-reported ethnicity and include only those who are in Fuchien, Hakka, or Mainlander because the sample in other ethnicity is too small. Education is measured in years and is categorized into three levels: illiterate, less than 7 years (primary school), 7 years or more (more than primary schools). Marital status is categorized as partnered (including married and cohabitated) vs. single (including single, divorce, and widowed). Other characteristic measurements include employment (employed vs. not- employed), living area (rural vs. urban), numbers of children and grandchildren, and financial hardship.

Financial hardship is measured by asking respondents to report if it is difficult for them (and their spouse) to meet living expenses. Response categories include affluent, roughly sufficient, somewhat difficult, and very difficult. Original responses are then dichotomized to sufficient (affluent and roughly sufficient) and difficult (somewhat difficult and very difficult). As to living area, the administrative levels of where the respondent's household is registered consist of four categories: large city, smaller city, urban township, and rural township. According to this information, I categorize those whose households are residing in large city, smaller city, or urban township as living in an urban area, and those whose households in rural township as living in a rural area.

Analysis Plan

The analysis comprises three parts. The first part is to use both bivariate and multivariate analyses to establish a comprehensive profile for caregiving grandparents in Taiwan. The analyses are conducted using SAS 9.2 version. Bivariate analyses are conducted to compare caregiving grandfathers and grandmothers with their non-caregiving counterparts with respect to their age, ethnicity, education, financial status, urban/rural status, family living arrangements, total number of children and grandchildren, and attitudes toward providing childcare. These variables are then included in a nominal logistic regression to predict caregiving status and to clarify which characteristics are related to grandparents' caregiving independently of other variables. All estimates presented have accounted for the complex nature of the sample design.

The second part of the analyses is to use the longitudinal data to first profile the transition of sample characteristics across 1996 to 2003 including caregiving status, health status, living arrangements, and social support. Then growth curve modeling is applied to simultaneously

estimate both intra-individual and inter-individual health trajectories. This method of analysis is suited for data in which individuals are repeatedly observed over time. The data contain two levels, with time-varying measurements at level 1 being nested within the same individuals at level 2. In the multivariate analyses, a sequence of multilevel models is used to explore the relationship between grandparenting and grandparents' health. All multivariate analyses are stratified by gender since previous studies have documented gender differences in grandparents' caregiving responsibility as well as in the personal meaning of grandparenthood (Tsai et al., 2011; Hayslip and Kaminski, 2005; Thomas, Sperry & Yarbrough, 2000). Both age and social support are centered by grand mean so that the interpretation for the intercept is meaningful. As missing values for variables used in the analyses account for less than 5%, none of the variables with missing values is imputed (Tabachnick & Fidell, 2001). The statistical method is growth curve modeling with mixed effects using the SAS 9.2 software. The results presented here are conducted using the Proc mixed procedure. In another set of analyses, I also treat health as an ordinal variable and apply the Glimmix procedure for modeling the ordinal outcome. As the results are qualitatively similar but less intuitive to interpret, these Glimmix results are not reported here.

The last part of the analyses is to use the longitudinal data and apply structural equation modeling to establish the relationships among caregiving, living arrangements, social support, perceived stress, and depressive symptoms two years later, adjusting for depressive symptoms at baseline. This temporal separation of the independent, intervening, and dependent variables helps to reduce the possibility of reverse causation. Using structural equation modeling as an analytic strategy enables the specification and examination of the direct and indirect effects of potential causal factors. I use the EQS structural equation modeling program (Bentler, 2005) to perform

the analysis. Model fit is indicated by the Comparative Fit Index (CFI) and the Root Mean Square Errors of Approximation (RMSEAs). As the data displayed multi-variant kurtoses (Mardia's Coefficient (G^2/P) = 18.98), I also utilize the Robust CFI (RCFI), Bentler-Bonett Non-Normed Fit Index, and the Robust Satorra-Bentler χ^2 (S-B χ^2) indices (Bentler, 2005). Values greater than 0.95 for the CFI/RCFI and an RMSEA less than 0.06 suggest a close-fitting model (Ullman & Bentler, 2003). For example, a value of CFI or RCFI larger than 0.95 indicates that the hypothesized model reproduces 95% or more of the co-variation in the data. A smaller RMSEA value indicates a relatively good fit between the hypothesized model and the observed data, controlling for sample size. The goal is to find a model which fits both the data from a statistical point of view, and also conveys a substantively meaningful interpretation.

Chapter 4 Results

Univariate and Bivariate Analysis: The Profile of Grandparental Care in Taiwan

This part of analysis utilizes the 1996 wave of the SHLSE data to examine the demographic and socio-economic characteristics of grandparents who provide different intensity of care for grandchildren in Taiwan. Table 2 shows demographic characteristics for the grandmother and the grandfather samples, respectively. Compared to grandmothers, grandfathers are older, more likely to be partnered and employed, as well as better educated. On the other hand, grandmothers are more likely to live with grandchildren and to have higher numbers of children and grandchildren. This may result from the longer longevity of females. Moreover, over one third of the grandmothers report to sometimes or often providing care for their grandchildren, which is 12% more than that of the grandfathers. However, there is no significant gender difference in the attitudes toward providing grandchildren care.

I next examine the characteristic differences among grandparents providing different intensity of childcare, for grandmothers and grandfathers respectively. As shown in Table 3, grandparenting grandmothers are much younger, more likely to be married, and live with their grandchildren than their counterparts who are not providing care for a grandchild. In addition, grandparenting grandmothers also embrace more supportive attitudes toward grandparenting, particularly among those who often provide care. The significantly higher numbers of children and grandchildren among grandmothers not providing care may result from their significant older age, suggesting the necessity to include age as a covariate in the multivariate analysis. No difference is found in finance or ethnicity between grandmothers providing care and those not providing care.

Table 2. Survey weighted demographics and characteristics for grandparents age 50+ in Taiwan in 1996, by gender

Variable	Female (n=1,981)	Male (n=1,920)
Age (Mean)***	64.0	65.2
Marital Status (%)***		
Married/Partnered	68	85
Single/Divorced/Widowed	32	15
Education (%)***		
Illiterate	51	14
Primary school	40	58
More than primary school	9	28
Ethnicity (%)***		
Fuchien	77	68
Hakka	19	17
Mainlander	4	15
Employed(%)***	20	45
Financial hardship (%)**		
Affluent	6	8
Sufficient	68	70
A bit difficult	23	19
Very difficult	3	3
Living area (%)		
Urban	67	68
Rural	33	32
Living arrangement (%)***		
Living with a grandchild	54	48
Not living with a grandchild	46	52
Grandparenting (%)***		
Not providing care	64	76
Sometimes providing care	8	8
Often providing care	28	16
Number of children***	4.5	4.3
Number of grandchildren***	8.9	7.5
Supportive attitude towards grandparenting (1-5)	4.1	4.0

* p<0.05 **p<0.01 ***p<0.001

Table 3. Survey weighted demographics and characteristics for grandmothers age 50+ in Taiwan in 1996, by caregiving status

Variable	Not providing care (n=1,360)	Sometimes providing care (n=141)	Often providing care (n=480)
Age (Mean) ^{***}	65.4	61.8	61.2
Marital Status (%) ^{***}			
Married/Partnered	65	73	73
Single/Divorced/Widowed	35	27	26
Education (%) [*]			
Illiterate	53	49	47
Primary school	38	45	44
More than primary school	9	6	9
Ethnicity (%)			
Fuchien	78	78	74
Hakka	18	21	22
Mainlander	4	1	4
Employed (%) [*]	22	23	15
Finance (%)			
Affluent / Sufficient	73	78	75
Difficult / Very difficult	27	22	25
Living area (%)			
Urban	66	58	71
Rural	34	42	29
Living arrangement (%) ^{***}			
Living with a grandchild	40	70	84
Not living with a grandchild	60	30	16
Number of children [*]	4.6	4.5	4.4
Number of grandchildren ^{***}	9.4	8.6	7.9
Supportive attitude towards grandparenting (1-5) ^{***}	4.0	4.2	4.4

* p<0.05 **p<0.01 ***p<0.001

Unlike the grandmother sample, grandfathers who sometimes provide childcare are much younger than those in the other two caregiving groups (Table 4). Grandparenting grandfathers are more likely to be married, with less than 10% of them as single, contrary to that of more than 25% among grandmothers. Although grandfathers who sometimes provide care are more likely to be employed than grandfathers who often provide care, there is no significant difference in employment and financial status among the three caregiving groups. Like grandmothers, grandfathers who live with grandchildren are much more likely to provide childcare, and the scores measuring attitudes towards grandparenting among the three groups are similar to those of grandmothers.

Figure 1a and 1b demonstrate the associations between caregiving status and age of grandmothers and grandfathers, respectively. As shown in Figure 1a, the percentages of being a grandchild caregiver increase with age among grandmothers less than 65 and then decrease with age among grandmothers more than 65. There is no such significant pattern observed in the distribution among grandfathers (1b).

Table 4. Survey weighted demographics and characteristics for grandfathers age 50+ in Taiwan in 1996, by caregiving status

Variable	Not providing care (n=1,487)	Sometimes providing care (n=140)	Often providing care (n=293)
Age (Mean)***	65.8	62.1	64.0
Marital Status (%)***			
Married/Partnered	83	91	93
Single/Divorced/Widowed	17	9	7
Education (%)			
Illiterate	13	16	17
Primary school	59	59	53
More than primary school	28	24	30
Ethnicity (%)*			
Fuchien	68	80	65
Hakka	17	12	18
Mainlander	15	8	17
Employed(%)	45	53	39
Financial hardship (%)			
Affluent / Sufficient	77	81	78
Difficult / Very difficult	23	19	22
Living area (%)			
Urban	67	73	66
Rural	33	27	34
Living arrangement (%)***			
Living with a grandchild	37	74	85
Not living with a grandchild	63	26	15
Number of children	4.3	4.3	4.3
Number of grandchildren	7.7	6.8	7.1
Supportive attitude towards grandparenting (1-5)***	3.9	4.2	4.4

* p<0.05 **p<0.01 ***p<0.001

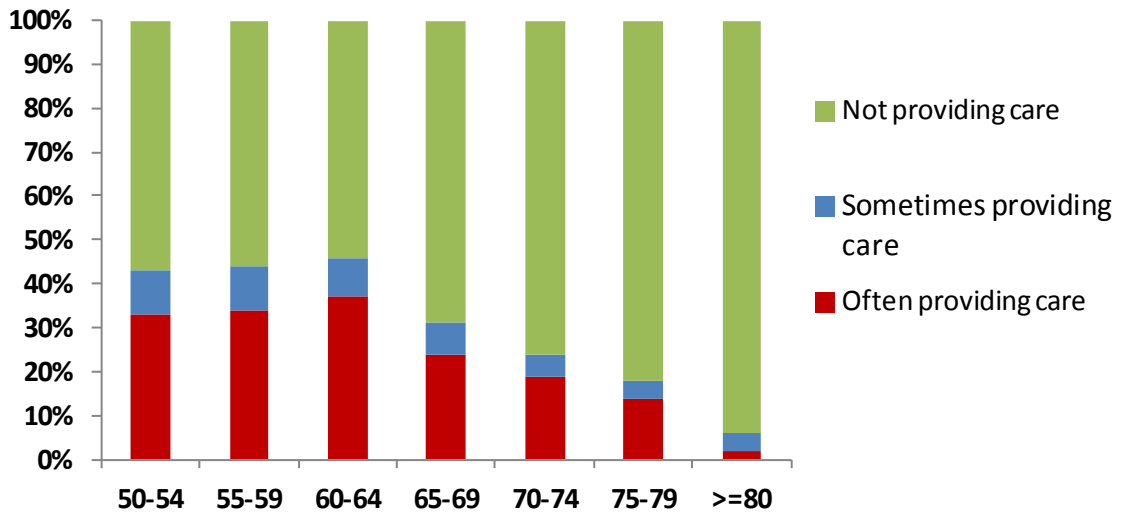


Figure 1a. Distribution of grandmothers providing childcare across age groups

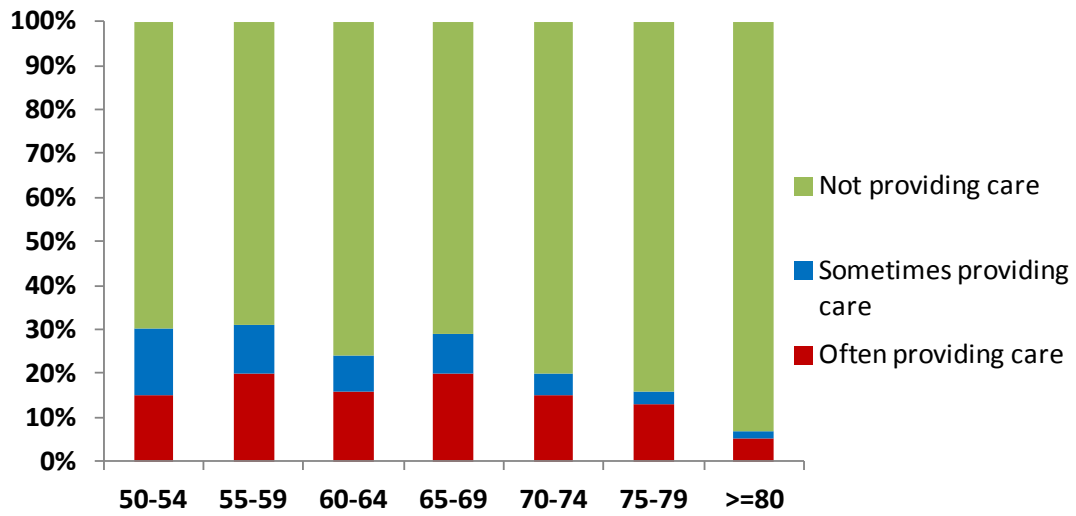


Figure 1b. Distribution of grandfathers providing childcare across age groups

Figure 2 depicts attitudes toward grandparenting over age groups, comparing grandmothers with grandfathers side by side. Both the average scores of attitudes toward grandparenting among females and males are above 3.8 in a 1-5 scale, indicating both grandmothers and grandfathers demonstrate very supportive attitudes toward grandparenting. Overall, grandmothers express more supportive attitudes toward providing childcare than grandfathers do at any age. Particularly, grandfathers under 55 are much less supportive of grandparenting compared to their female counterparts in the same age group. However, for both genders, the supportive attitudes starts to diminish among grandparents older than 64.

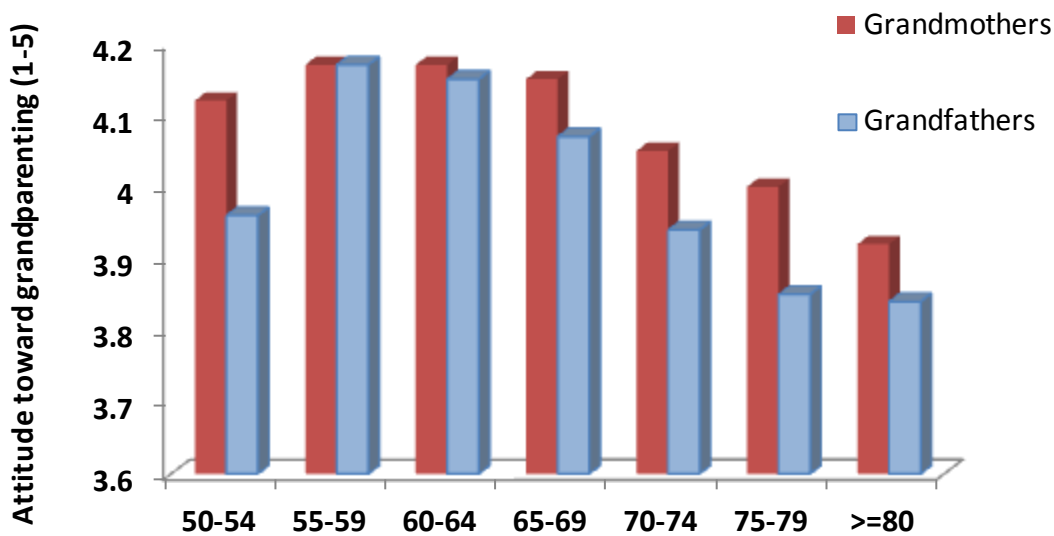


Figure 2. Supportive attitude toward grandparenting among grandparents across age groups

In addition to the variation across age, the attitudes toward grandparenting also vary across different living arrangement types, as shown in Figure 3. Grandparents living in stem households (not living with grandchildren) are less supportive of grandparenting than their counterparts living in skipped-generation or multigenerational households. It is important to note that

grandparents in skipped generation households embrace the most supportive attitudes toward providing childcare when needed. The pattern of the score distributions is similar across genders. On the other hand, Figure 4 indicates that grandmothers who receive education higher than primary school demonstrate the least supportive attitudes toward providing care for grandchildren, with a score even lower than their male counterparts.

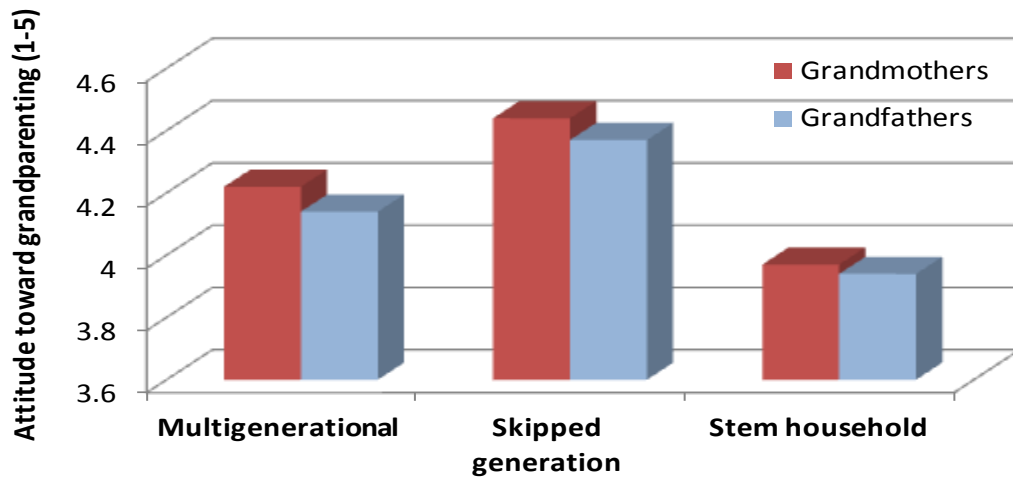


Figure 3. Supportive attitude toward grandparenting among grandparents living in different types of households

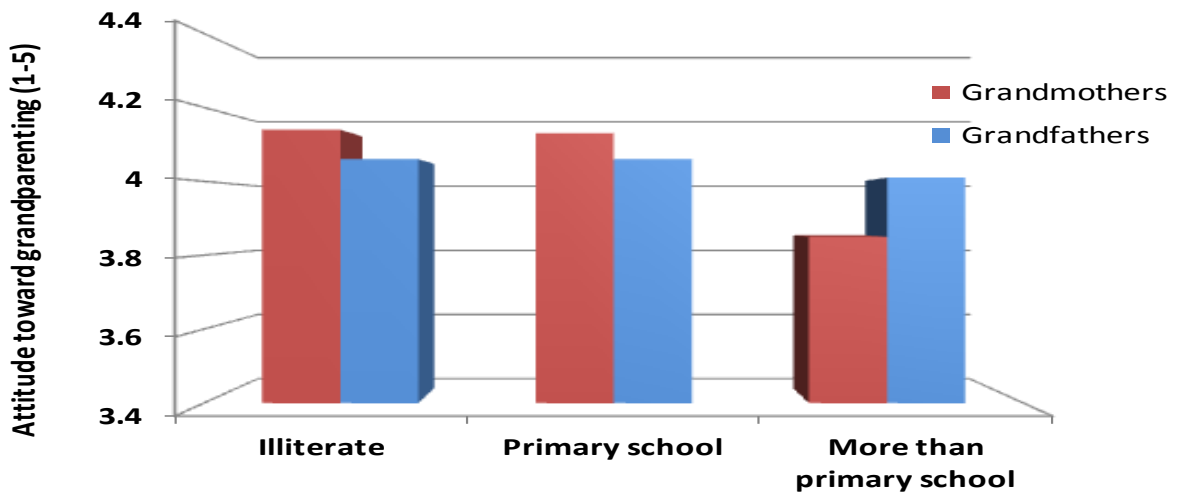


Figure 4. Supportive attitude toward grandparenting among education groups by gender

Multivariate Analysis: Grandparents' Characteristics and Caregiving Status

Grandmothers

Table 5 demonstrates the results of multinomial regressions which examine factors predicting caregiving status among grandmothers and grandfathers, respectively. It indicates that for grandmothers, there is a significant quadratic relationship between age and the odds of often providing childcare. That is, as grandmothers age, their possibility of often providing childcare first increase then decrease gradually, corresponding to the result of Figure 1a. However, age is not statistically related to the odds of sometimes providing childcare. Both living in rural area and being employed are associated with decreasing possibility of often providing care, but not related to sometimes providing care. Contrary to the findings in previous bivariate analyses, the multivariate results show that numbers of children and grandchildren are not significantly associated with the caregiving status among grandmothers. Still, both living arrangements and attitudes toward grandparenting play important roles in predicting the caregiving status. The odds for a grandmother to sometimes or often providing care are much higher for those who live with grandchildren than those not living with grandchildren. Also, for every increment in supportive attitudes toward grandparenting, the odds of sometimes providing care increase 34%, and the odds of often providing care are even more than twice as high.

Grandfathers

Unlike grandmothers, the age of grandfathers is not significantly associated with the odds of providing care for grandchildren. Furthermore, while partnered and single grandmothers have the same odds of sometimes or often providing childcare, partnered grandfathers, are more likely to often provide care. The odds are almost twice as high for partnered grandfathers than for single grandfathers. Also, mainlander grandfathers have 1.67 time higher odds of often providing

care than Fuchien grandfathers. The odds of sometimes providing care decrease 36% for grandfathers living in rural areas compared to those living in urban areas. Likewise, for employed grandfathers, the odds of often providing childcare are 48% lower than those unemployed. Finally, like grandmothers, grandfathers who live with grandchildren or embrace supportive attitudes toward grandparenting, are much more likely to be caregivers.

Table 5. Survey weighted multinomial regression models for grandparenting status in 1996, by gender (N=3,901)

Variables	Adjusted Odds Ratios (95% CIs)			
	Grandmothers		Grandfathers	
	Sometimes providing care vs. Not providing care	Often providing care vs. Not providing care	Sometimes providing care vs. Not providing care	Often providing care vs. Not providing care
Age	1.09 (0.78-1.54)	1.36 (1.10-1.69)**	1.10 (0.75-1.61)	1.10 (0.85-1.40)
Age ²	1.00 (0.99-1.00)	0.99 (0.99-0.99)***	1.00 (1.00-1.00)	1.00 (1.00-1.00)
Partnered (ref: single)	1.07 (0.74-1.56)	1.08 (0.82-1.43)	1.25 (0.68-2.31)	1.83 (1.02-3.27)*
Living in rural areas (ref: urban area)	1.33 (0.89-1.99)	0.72 (0.52-0.99)*	0.64 (0.46-0.90)**	0.88 (0.62-1.23)
Education (ref: more than primary school)				
Illiterate	1.01 (0.39-2.61)	0.68 (0.37-1.26)	1.58 (0.79-3.18)	1.44 (0.81-2.54)
Primary school	1.20 (0.50-2.92)	0.73 (0.38-1.40)	0.87 (0.51-1.49)	0.74 (0.51-1.08)
Ethnicity (ref: Fuchien)				
Hakka	1.06 (0.70-1.62)	1.13 (0.73-1.75)	0.67 (0.37-1.23)	1.10 (0.73-1.67)
Mainlander	0.54 (0.14-2.14)	1.16 (0.72-1.87)	1.00 (0.55-1.85)	2.67 (1.55-4.61)***
Financial hardship	0.85 (0.58-1.24)	1.08 (0.83-1.41)	0.78 (0.50-1.22)	0.98 (0.67-1.43)
Employed (ref: not employed)	0.75 (0.46-1.20)	0.44 (0.32-0.59)***	0.77 (0.47-1.26)	0.52 (0.37-0.73)***
Number of children	0.99 (0.87-1.13)	0.97 (0.86-1.10)	1.14 (0.95-1.36)	1.12 (0.99-1.28)
Number of grandchildren	1.02 (0.96-1.07)	0.99 (0.95-1.04)	0.98 (0.93-1.05)	0.98 (0.93-1.04)
Living with grandchildren (ref: not living with grandchildren)	4.40 (2.78-6.98)***	10.31 (7.07-15.04)***	5.97 (3.77-9.44)***	11.42 (7.63-17.09)***
Grandparents should provide childcare when needed	1.34 (1.07-1.66)**	2.27 (1.71-3.02)***	1.49 (1.19-1.88)***	2.36 (1.84-3.01)***

* p<0.05 **p<0.01 ***p<0.001

Univariate and Bivariate Analysis: Changes of Health and Caregiving Status among Taiwanese Grandparents across 1996-2003

This part of analyses uses data from the 1996, 1999, and 2003 waves of the SHLSET data, and I narrow the analytical sample to grandparents who remain in the 2003 survey. There are a total of 2,427 grandparents in the final sample, 53% (n=1,287) of whom are females. The average age of these grandparents in 1996 was 65.4 years. One-third of these grandparents are illiterate and live in the rural area. Seventy percent reported as Fuchien ethnicity, 19% as Hakka, and 11% as Mainlander. Table 6 demonstrates the change of grandparents' characteristics from 1996 to 2003. The percentages of grandparents in employment decrease significantly over time, from 32% in 1996 to 14% in 2003. Meanwhile, about thirty percent of grandparents reported financial hardship in 1999 and 2003, compared to only 22% in 1996. Contrary to my expectations, when grandparents get older, they are more likely to live in stem households rather than in multigenerational households. At the same time, grandparents are reporting deteriorating health as they age. The percentages of grandparents providing care for grandchildren also continue to decrease significantly across the years. In 1996, more than thirty percent of grandparents were providing some levels of childcare, whereas in 2003, only 18% of them were providing any childcare. However, the emotional support that grandparents perceived went up and then down during the 1996 to 2003 period, in opposition to the pattern of instrumental support which went down and then up. Generally, grandparents reported high emotional support but infrequent instrumental support.

Table 6. Characteristics change across time among grandparents in 1996-2003 sample (n=2,427)

Variable	1996	1999	2003
Marital Status (%) ^a			
Married/Partnered	77	73	73
Single/Divorced/Widowed	23	27	27
Employed(%) ^{a,b}	32	23	14
Financial hardship (%) ^a			
Affluent	8	9	8
Sufficient	70	61	63
A bit difficult	19	23	22
Very difficult	3	7	7
Living arrangement (%) ^b			
Multigenerational family	46	47	45
Stem family	48	46	49
Skipped family	6	7	6
Grandparenting (%) ^{a,b}			
Not providing care	69	75	82
Sometimes providing care	8	5	3
Often providing care	23	20	15
Self-reported health (Mean/SD) ^{a,b}	3.29 (1.07)	3.20 (1.04)	3.03 (1.06)
Emotional support (Mean/SD) ^{a,b}	4.09 (0.72)	4.16 (0.72)	4.09 (0.75)
Instrumental support (Mean/SD) ^{a,b}	1.41 (0.77)	1.36 (0.80)	1.42 (0.81)

a: Paired-T or McNemar's Tests showing significant difference at $p < 0.05$ between 1996 vs. 1999

b: Paired-T or McNemar's Tests showing significant difference at $p < 0.05$ between 1999 vs. 2003

Table 7 demonstrates the distribution of stability and change in caregiving status from 1996 to 2003. More than half of the grandparents provided no care for grandchildren during this period. About 6% of grandparents continued to provide some kind of care. Less than 10% of grandparents began providing care during this period. On the other hand, about 23% of grandparents who were caregiving in 1996 stopped providing care either in 1999 or 2003.

Furthermore, some grandparents only provided childcare sporadically. In terms of length of providing care, Table 8 further shows more than fifteen percent provided care in 2 waves and a quarter provided care in only one wave. As age is a critical factor for providing child care, overall, in this sample whose average age was 65 in 1996, and reached 72 in 2003, more grandparents stopped providing childcare rather than started to provide childcare during this interval.

Table 7. Stability and change in providing childcare during 1996-2003 among grandparents above 50 years old in 1996

Caregiving status	%
Not provide care at any wave	53.2
Continue to provide care since 1996	5.7
Start to provide care since 1999	4.4
Start to provide care since 2003	5.3
Stop providing care since 1999	14.3
Stop providing care since 2003	8.8
Only provide care in 1999	5.8
Provide care in 1996 and 2003, not in 1999	2.4

Table 8. Percentage distribution of caregiving duration between 1996-2003 among grandparents above 50 years old in 1996

Category	%
Provided care in all 3 waves	5.7
Provided care in 2 waves	15.7
Provided care in 1 wave	25.4
Not provide care at any wave	53.2

Multivariate Analysis: Implications of Grandparenting for Grandparents' Self-rated Health

In this part of analyses, I first estimate the relationship between grandparenting and self-reported health, taking all socio-demographics into account as control variables (Model 1). This model aims to ascertain the independent effect of caregiving remains after ruling out the possible spuriousness caused by demographic and socioeconomic characteristics. I then add social support to test if the two types of social support mediate the relationship between caregiving and grandparents' health (Model 2). In the following step of analysis, I model a set of moderating effects. To test the moderating effect of living arrangements, interaction terms between caregiving status and living arrangements are added in Model 3. Model 4 and Model 5 subsequently test the moderating effects of age and social support, respectively. The interaction term between age-squared and grandparenting measurement is not included because it is not significant. Covariates from the previous step are retained at each step regardless of the significance of their effects, because each of them represents an important construct in the conceptual model and their importance has been noted in previous studies.

Grandmothers

Relationship between caregiving and self-reported health

As shown in Model 1 of Table 9, grandmothers who often provide childcare enjoy better health than their counterparts who are not providing any care. However, there is no such significant difference between grandmothers who sometimes provide care and those not providing care. In general, the female sample experience a decline in health as time passes. Specifically, grandmothers who are older, less educated, or financially distressed report more disadvantaged health.

Table 9. Regression of self-rated health (1-5, 1= very poor, 5=Excellent) on individual characteristics and caregiving status among grandmothers in 1996-2003 (N=1,287)

Variable	Model 1	Model 2	Model 3	Model 4	Model 5
Intercept	2.716***	2.741***	2.723***	2.740***	2.739***
Time (year)	-0.014**	-0.014**	-0.014**	-0.014**	-0.013**
Centered age	-0.014***	-0.013***	-0.013***	-0.013***	-0.013***
Centered Age square	0.001**	0.001**	0.001**	0.001**	0.001**
Education (ref: > primary school)					
Illiterate	-0.353***	-0.277***	-0.286***	-0.274***	-0.277***
Primary school	-0.179*	-0.135	-0.143	-0.131	-0.136
Employed	0.256***	0.248***	0.251***	0.250***	0.248***
Financial status (ref: Very difficult)					
Affluent	0.682***	0.585***	0.586***	0.584***	0.587***
Sufficient	0.518***	0.450***	0.450***	0.450***	0.453***
A bit difficult	0.225***	0.190**	0.192**	0.191**	0.193**
Partnered (ref: single)	0.003	-0.022	-0.016	-0.022	-0.024
Ethnicity (ref: Fuchien)					
Hakka	0.150**	0.145**	0.144**	0.146**	0.145**
Mainlander	-0.009	0.027	0.032	0.029	0.025
Living in rural area (ref: Urban area)	0.015	-0.007	-0.006	-0.008	-0.009
Grandparenting (ref: Not providing care)					
Often providing care	0.158***	0.158***	0.057	0.136***	0.156***
Sometimes providing care	-0.0149	-0.008	-0.026	-0.046	-0.006
Mediators					
Centered emotional support (1-5)		0.167***	0.167***	0.166***	0.152***
Centered instrumental support (0-3)		-0.074***	-0.077***	-0.073***	-0.073***
Living arrangement (ref: Stem family)					
Multigenerational family			0.048		
Skipped family			0.076		
Interaction term					
often providing care x multigenerational family			0.094		
often providing care x skipped family			0.060		
sometimes providing care x multigenerational family			-0.050		
sometimes providing care x skipped family			-0.292		
Interaction term					
Centered age x often providing care				-0.005	
Centered x sometimes providing care				0.015	
Interaction term					
Centered emotional support x often providing care					0.078
Centered emotional support x sometimes providing care					0.001
AIC	10540.4	10484.8	10496.2	10497.0	10489.3

* p<0.05 **p<0.01 ***p<0.001

Mediating effect of social support

Model 2 demonstrates the correlation between grandparenting and grandparents' health after incorporating emotional and instrumental support as mediators. It shows that neither the significance nor the magnitude of the focal relationship changes, suggesting there is no mediating effect of social support. However, both emotional support and instrumental support are significantly related to grandparents' health. It should be noted that the relationships between grandparents' health and the two types of social support are opposite, with emotional support positively related to health and instrumental support negatively related to it.

Moderating effects

Model 3 examines the moderating effect of living arrangements. The interaction coefficients between intensity of caregiving and living arrangements are not statistically significant, indicating that when all the effects of other variables are fixed, there is no statistical evidence to support differences in the relationship between caregiving and self-reported health across the three living arrangements. Similarly, Model 4 and Model 5 also indicate there are no moderating effects of age and social support. That is, the effect of grandparenting on grandmothers' health is not conditional on grandparents' age or the social support they receive.

Grandfathers

Like grandmothers, older or financially distressed grandfathers are more likely to experience declined health. Model 1 in Table 10 indicates that providing care is positively related to grandfathers' health. Particularly, grandfathers who often provide care report significantly better health than those not providing care. However, different from that for grandmothers, while emotional support remains a protector for grandfathers' health, instrumental support is not significantly related to it, as shown in Model 2. In addition, the effect of caregiving on grandfathers' health only changes slightly when these two types of social support are introduced into the model. Similar to the findings on grandmothers, Model 3 demonstrates that there is no significant evidence to support the moderating effect of living arrangement on the relationship between grandparenting and grandfathers' health. Neither Model 4 nor Model 5 finds any moderating effect of age or social support.

Table 10. Regression of self-rated health (1-5, 1= very poor, 5=Excellent) on individual characteristics and caregiving status among grandfathers in 1996-2003 (N=1,140)

Variable	Model 1	Model 2	Model 3	Model 4	Model 5
Intercept	2.898***	2.985***	2.963***	2.982***	2.986***
Time (year)	-0.035***	-0.035***	-0.035***	-0.034***	-0.035***
Centered age	-0.006	-0.006	-0.006	-0.008*	-0.006
Centered Age square	0.000	0.000	0.000	0.000	0.000
Education (ref: > primary school)					
Illiterate	-0.260***	-0.233**	-0.238**	-0.233**	-0.233**
Primary school	-0.157**	-0.150**	-0.152**	-0.150**	-0.149**
Employed	0.203***	0.197***	0.200***	0.198***	0.196***
Financial status (ref: Very difficult)					
Affluent	0.817***	0.724***	0.714***	0.723***	0.720***
Sufficient	0.546***	0.487***	0.480***	0.486***	0.483***
A bit difficult	0.290***	0.254**	0.250**	0.253**	0.250**
Partnered (ref: single)	0.076	0.042	0.044	0.041	0.044
Ethnicity (ref: Fuchien)					
Hakka	0.158**	0.146*	0.149**	0.142*	0.143*
Mainlander	0.017	0.029	0.037	0.017	0.029
Living in rural area (ref: Urban area)	-0.077	-0.081	-0.079	-0.081	-0.082
Grandparenting (ref: Not providing care)					
Often providing care	0.162***	0.152**	0.346**	0.169***	0.145**
Sometimes providing care	0.073	0.084	0.241	0.108	0.082
Mediators					
Centered emotional support (1-5)		0.179***	0.178***	0.179***	0.162***
Centered instrumental support (0-3)		-0.029	-0.029	-0.028	-0.027
Living arrangement (ref: Stem family)					
Multigenerational family			0.064		
Skipped family			-0.019		
Interaction term					
often providing care x multigenerational family			-0.247		
often providing care x skipped family			-0.224		
sometimes providing care x multigenerational family			-0.239		
sometimes providing care x skipped family			-0.111		
Interaction term					
Centered age x often providing care				0.012	
Centered age x sometimes providing care				0.013	
Interaction term					
Centered emotional support x often providing care					0.085
Centered emotional support x sometimes providing care					0.100
AIC	9545.6	9500.7	9508.3	9511.6	9504.6

* p<0.05 **p<0.01 ***p<0.001

Univariate and Bivariate Analysis: Sample Characteristics and Correlations

This part of analyses also utilizes the longitudinal data as previous section. Meanwhile, structure equation modeling is applied for multivariate analysis. Table 11 shows the descriptive statistics and factor loadings of all measures included in the structural equation model. The final sample contains 1,287 females and 1,140 males. The average age of these grandparents in 1996 was 65.4 years. Two-thirds of them receive at least primary school education, and one-third reported financial hardship. Half of these grandparents reported perceived stress, but their perceived social support was also high. Forty-two percent of the grandparents provided childcare at some point during 1996-1999, and 57% lived in multigenerational households at some point during this period. Overall, these grandparents were more depressed in 2003 than in 1996. The zero-correlation matrix among all variables is provided in Table 12.

Table 11. Summary statistics and factor loadings for the sample of Taiwanese grandparents

Variable	Range	Mean (SD)	Factor Loading
Age	(50-96)	65.38 (7.92)	-
Gender	(1-2)	1.53 (0.50)	-
Primary school and more	(0-1)	0.67 (0.47)	-
Married	(0-1)	0.77 (0.42)	-
Financial strain	(0-1)	0.22 (0.42)	-
Perceived stress	(0-1)	0.51 (0.50)	-
Providing childcare between 1996-1999	(0-1)	0.42 (0.49)	-
Multigenerational living	(0-1)	0.57 (0.50)	-
CESD in 1996	(0-30)	5.13 (5.53)	-
CESD in 2003	(0-30)	5.34 (5.81)	-
Social support*			
Support 1	(1-5)	3.92 (1.00)	0.67
Support 2	(1-5)	4.26 (0.80)	0.83
Support 3	(1-5)	4.16 (0.80)	0.81
Support 4	(1-5)	4.26 (0.84)	0.74

* All factor loadings significant ($P < 0.05$)

Table 12. Correlations among constructs and demographics

	1	2	3	4	5	6	7	8	9	10	11
1. AGE	-										
2. Gender	-0.0831	-									
3. CESD in 1996	0.0618	0.1699	-								
4. Marital status	0.2611	-0.2242	-0.1342	-							
5. Perceived stress	-0.0924	0.1161	0.2451	0.0019	-						
6. Social support	-0.0536	-0.0426	-0.2509	0.1196	-0.2242	-					
7. CESD in 2003	0.0735	0.1820	0.3447	-0.0836	0.2770	-0.2295	-				
8. Providing childcare	-0.2541	0.0748	-0.0444	0.1197	0.0151	0.0690	0.0337	-			
9. Multigenerational living	0.0288	0.0646	-0.0128	-0.0891	-0.0201	0.0276	0.0392	0.3286	-		
10. Financial strain	0.0206	0.0780	0.3240	-0.0576	0.2332	-0.2120	0.2078	-0.0047	0.0281	-	
11. Education	-0.1001	-0.3930	-0.1954	0.1345	-0.1318	0.1473	-0.2148	0.0055	-0.0668	-0.1590	-

Multivariate Analysis: Relationships among Stress, Grandparenting, Social Support, and Depressive Symptoms

Based on the conceptual framework, I build and test two contrasting hypotheses regarding the role of grandparenting. The first one is “resource depletion model,” which hypothesizes that grandparenting is a stressful life event and it causes chronic strain that deteriorates one’s resources (Model 1, as shown in Figure 5). The second one is “resource mobilization model.” It hypothesizes that grandparenting does not function as a stressor and furthermore, it has a positive effect on arousing the resources (Model 2, as shown in Figure 6).

Figure 5. Resource Depletion Model

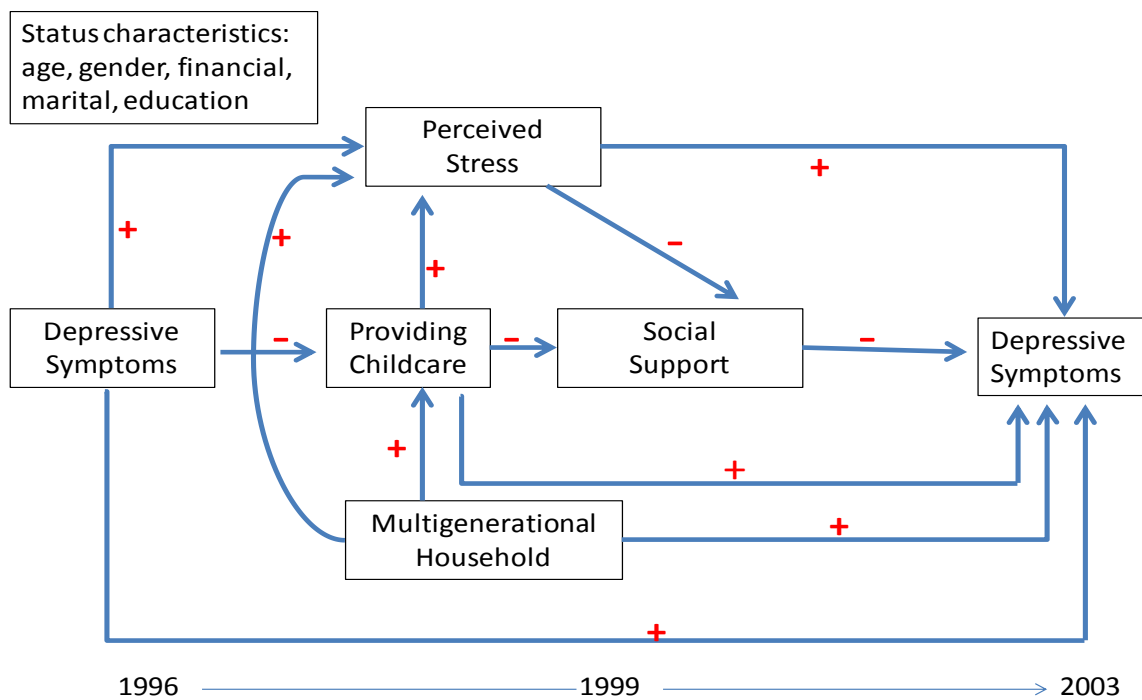
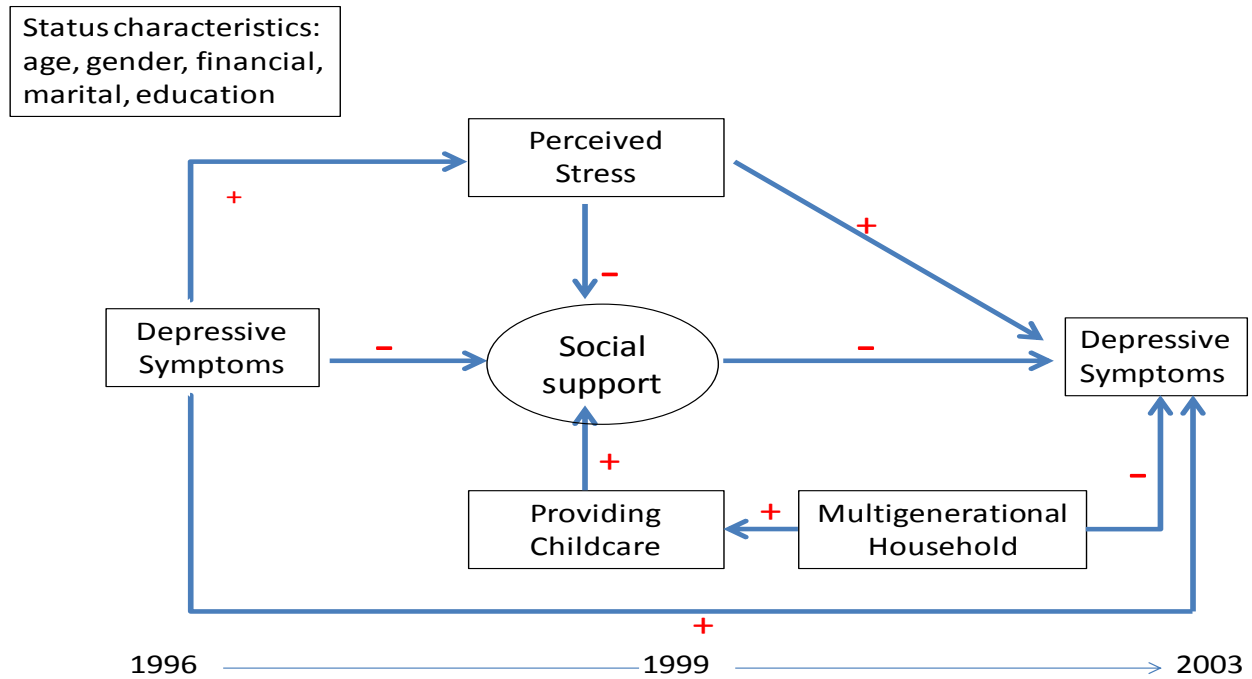


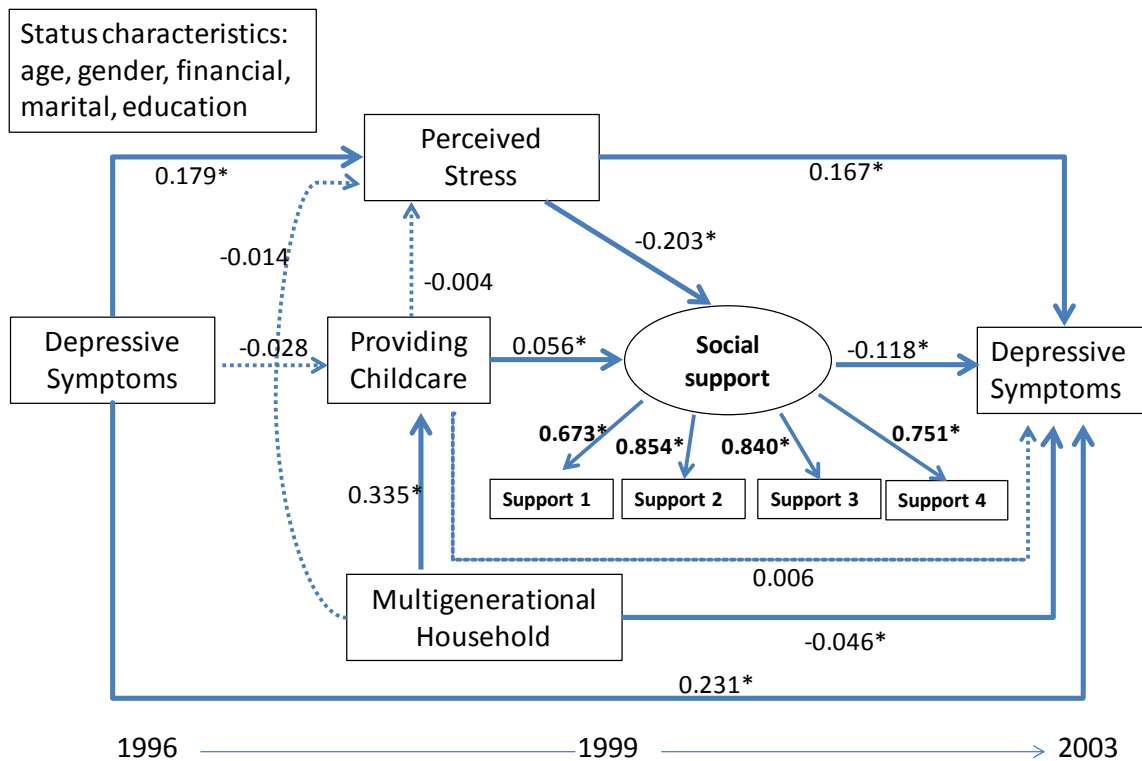
Figure 6: Resource Mobilization Model



The predictive structural equation model for Model 1 is presented in Figure 7. This model hypothesizes that caregiving is a primary stressor which causes secondary stressors that deplete resources and subsequently exacerbate mental health. To improve the clearness of the graph, the lines among demographic characteristics and other main constructs are not shown here. It should be noted that for every regression model in the structural diagrams, these demographic characteristics are included as controlled variables. The fit indices for this resource depletion model are acceptable: RCFI=0.986, non-normed fit index=0.96, RMSEA=0.03, 90% confidence interval (CI) for RMSEA=0.027 to 0.039 and the Robust Satorra-Bentler χ^2 (S-B χ^2) =123.5, 35 df. The path coefficients reported here are standardized regression coefficients. As indicated in the Figure 7, the follow-up depressive symptoms are predicted directly by a combination of demographics, perceived stress, social support, and multigenerational living arrangement, but not

predicted by provision of childcare. Both social support and multigenerational living arrangements provide direct, protective effects for mental health, while perceived stress increase depressive symptoms. Contrary to my model specifications, providing childcare does not increase perceived stress or exacerbate depressive symptoms. Overall, the relationships between caregiving and other constructs are very different from those among perceived stress and other constructs.

Figure 7: SEM Results of Resource Depletion Model

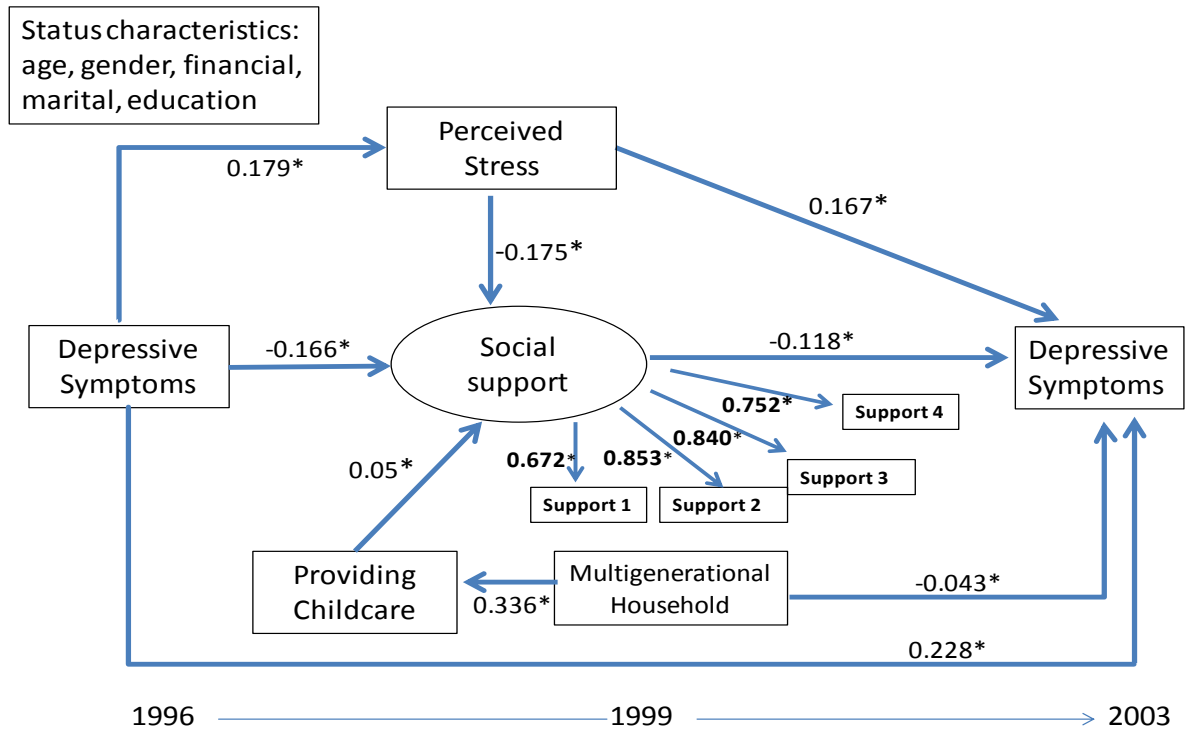


*p<0.05

-- Dash lines are used to refer insignificant correlations between constructs

The test of the resource mobilization model is shown in Figure 8. This model states that intergenerational interaction can mobilize psychological resources. Inherent in this model is the assumption that multigenerational living arrangement and provision of childcare mobilize psychosocial resource, which in the present study is defined as social support, and this resource can subsequently offset the psychological distress. The fit indices indicate this model explains the data well: RCFI=0.994, non-normed fit index=0.99, RMSEA=0.02, 90% confidence interval (CI) for RMSEA=0.015 to 0.028 and the Robust Satorra-Bentler χ^2 (S-B χ^2) =79.3, 38 df. As specified in the model, perceived stress predicts more depressive symptoms. Social support functions as an important mediator for the relationship between stress and mental health. It also offsets depressive symptoms directly. While perceived stress predict less social support and hence has a negative indirect effect on mental health, providing childcare predicts more social support and subsequently leads to less depressive symptoms. In addition to the direct effect of living arrangement on mental health, it also provides an indirect protective effect through caregiving and social support. In all, both caregiving and multigenerational living increase the social support that grandparents perceive and hence decrease their depressive symptoms. In sum, these findings are coherent with the model specifications.

Figure 8: SEM Results of Resource Mobilization Model



*p<0.05

-- Dash lines are used to refer insignificant correlations between constructs

Buffering Effects of Social Support

In addition to testing the direct, protective effect of social support, I also test whether social support can buffer the negative effect of stressful living situation, such as financial hardship. The sample used here comprises 1,349 grandmothers aged 58 years and older in 2003. The Figure 9 demonstrates that social support does provide a stronger protective effect for mental health, for grandmothers who are in financial hardship than for those who are not in financial hardship. I also test if social support buffers the effect of living arrangements on grandmothers' mental health. As shown in Figure 10, while grandmothers in skipped-generation households generally report higher depressive symptoms, social support provides a stronger protective effect for grandmothers living in skipped-generation households than for those living in stem or multigenerational families.

Figure 9. Interaction effect of social support and financial status

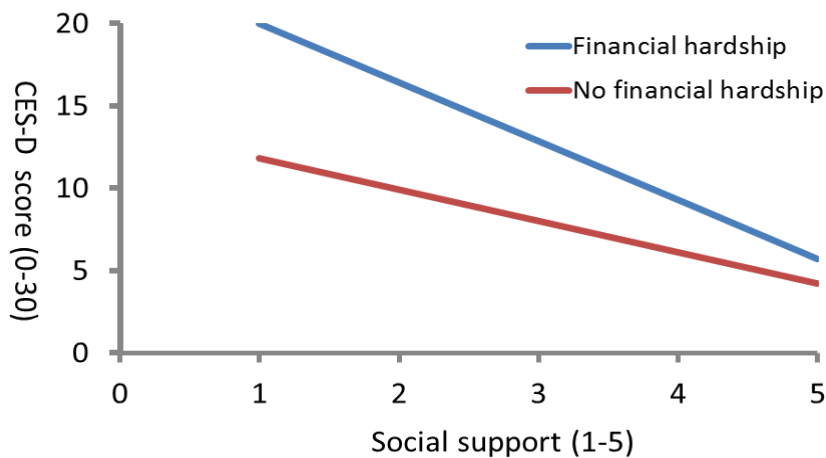
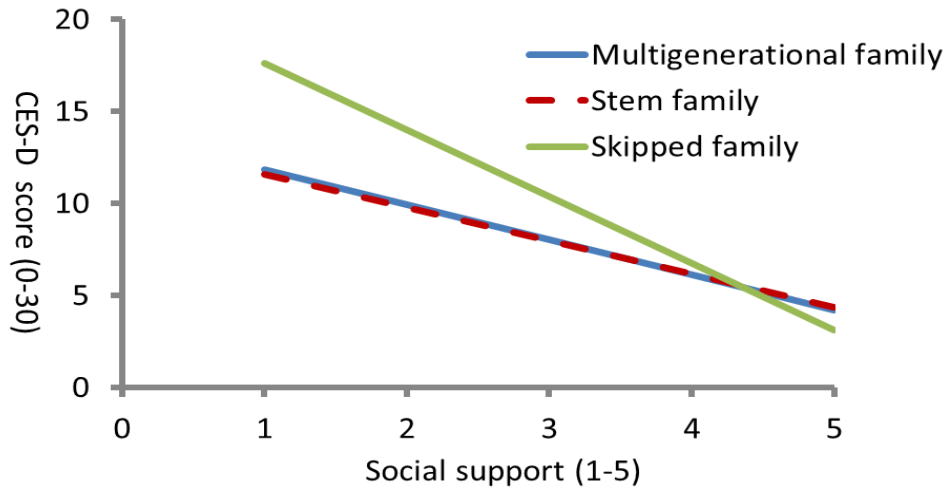


Figure 10. Interaction effect of social support and living arrangement



Chapter 5 Discussions and Conclusions

Main Findings

The first part of the analyses creates and examines the profile of grandparental care in Taiwan, using the cross-sectional data from 1996 Study of Health and Living Status of the Elderly (SHLSE). It reveals that grandparental care is a common phenomenon in Taiwan, and it exists across genders and social classes. Both grandfathers and grandmothers embrace supportive attitudes toward providing care for grandchildren. At the same time, gender and age differences in caregiving are also observed. It found that more than one-third of grandmothers age 50 and over was providing some level of care for their grandchildren in 1996. In contrast, only one-fourth of grandfathers age 50 and over reported to provide childcare. The analyses also show that grandparents who co-reside with grandchildren are more likely to provide care, which is congruent with findings of previous studies.

Furthermore, the analyses also found that the supportive attitude toward grandparenting is a strong predictor of grandparenting status in Taiwan. That is, those who embrace the attitude that grandparents should provide care for grandchildren when needed are more likely to provide care. Although this finding may not be surprising, to my knowledge, it is the first quantitative study on grandparenting that integrates a direct measurement of grandparents' attitude toward grandparenting. This finding also provides us a general idea about the social expectation of grandparenthood in Taiwan.

The second part of the analyses extends the scope of research to evaluate the relationship between grandparenting and grandparents' physical health in Taiwan. Using the SHLSE longitudinal data, the study examines the short-term (7 years) longitudinal association between caregiving and general health, and then explores whether this association is contingent on

gender, age, or living arrangements. It finds that providing care for grandchildren is positively related to grandparents' health. Nevertheless, this positive association only exists among grandparents who provide childcare on a regular basis, but not among those who provide care sporadically. Those who often provide childcare reported better health than those who did not provide childcare. The study also tested the mediating effect of social support. The result demonstrates that emotional support has very little mediating effect on the relationship between grandparenting and grandparents' physical health. In addition, the positive association between caregiving and health is not conditional on age, gender, or living arrangement.

The third part of the analyses aims to further the understanding of how the psychosocial process and family context shape the relation of caregiving to mental health among Taiwanese grandparents. Here I applied longitudinal design and structural equation modeling (SEM) to investigate the relationships among grandparenting, stress, and social support, and their implications for grandparents' depressive symptoms. Based on a stress process framework, two models were developed to explicitly test the causal pathways of grandparenting on grandparents' mental health. The first one, a resource depletion model, hypothesized that caregiving for grandchildren increases grandparents' perceived stress and diminishes grandparents' social resources, and subsequently leads to a deterioration of grandparents' mental health. The second one, a resource mobilization model, specified that instead of causing secondary stress, caregiving actually enhances grandparents' social resources and thus improves their mental health.

The findings of SEM analyses support the resource mobilization model. First, I found that caregiving for grandchildren is not related to perceived stress. Second, the analyses demonstrate that while there is a significant relationship between caregiving and social support, the sign of this association is positive as indicated by the resource mobilization model, rather than negative

as specified in the resource depletion model. Furthermore, while it remains highly prevalent and normative for Taiwanese families to adopt multi-generational living arrangements (as found in the first part of the analyses), the SEM analyses found that such arrangement can facilitate interactions and exchanges between generations, and grandparents can benefit from providing childcare through the elevated social support they receive.

Discussions

Grandparenting as a Normative Practice in Taiwan

The findings of this study demonstrate that grandparental care is a common phenomenon in Taiwan and it exists across genders and social class. Almost one fourth of grandfathers and more than one third of grandmothers in our national sample reported to provide some level of care for their grandchildren. However, there is also substantial heterogeneity in the practice of grandparenting among subgroups of grandparents.

There are differences in the context of and attitudes toward grandparenting between Western and Asian grandparents (Sun, 2008; Sandel et al., 2006). Compared to Western grandparents who usually anticipate having more time for their own interests and are not anxious to assume the grandparenting role, it is more like an on-time role for Taiwanese grandparents to provide childcare in their later life. Previous studies have also documented different reasons for grandparents to assume the caregiving role (Cuddeback, 2004; Goodman & Silverstein, 2001, 2002). Particularly, literature has suggested that grandparents in Western societies usually do not choose to be responsible full-time for their grandchildren, but rather step in to assist when the grandchildren's home circumstances are in crisis (Hayslip et al., 1998; Jendrek, 1994). Hence, many western grandparents who provided care for their grandchildren also found themselves in a

stressful and disadvantaged situation, such as grandparents who assumed caregiving because their own child was incarcerated, physically or mentally ill, or even deceased (Cuddeback, 2004; Goodman & Silverstein, 2002). On the other hand, Taiwanese grandparents usually provide care for their grandchildren because both the parents of the child are at work (Lo & Liu, 2009). By providing childcare, grandparents also assist their adult children financially because the grandchild then does not have to go to the costly day care center. Several U.S. studies suggested that grandparental caregivers were more likely in distress (Hayslip & Kaminski, 2005; Mutchler & Baker, 2004), however, this study found no difference in the financial status between caregiving and non-caregiving grandparents in Taiwan. Furthermore, some grandparents may even receive monetary compensation in return for their childcare (Lo & Liu, 2009).

Another finding of this study is that co-residence with grandchildren facilitates the practice of grandparenting. This is consistent with the findings from the United States (Goodman & Silverstein, 2002; Mutchler & Baker, 2004) as well as from another Chinese society (Chen & Liu, 2011). For example, in the United States, co-residing grandparents are found to be more likely involved in a variety of childcare arrangements, including supplementary or primary care, and even custodial care (Cuddeback, 2004; Goodman & Silverstein, 2002; Minkler & Fuller-Thomson, 2005; Mutchler & Baker, 2004). However, there are still unique customs and environmental factors in Taiwan that should be further considered when addressing the practice of grandparenting here. As Taiwan is a small and population-dense island, and many adult children now choose to live in the same neighborhood but not in the same household with their parents, it is needed for future research to further examine what are the implications of this kind of near-by living practice for the grandparenting practice. Does it increase or decrease the possibility of caregiving? Does it promote different forms of caregiving, such as weekday care,

babysitting, or preparing meal? As co-residence is a manifestation of the structural dimension of intergenerational solidarity (Silverstein, Giarruso & Bengtson, 1998), how may the change of living arrangement preference influence intergenerational relationship and the exchange practice? Furthermore, as women in Taiwan are having higher education, more likely to be employed, and having fewer children than they used to, for the next generation of elderly, not only the number of grandchildren per grandparent has may decrease, grandmothers' attitude toward providing childcare may also change since prior analysis has shown that grandmothers with better education are less supportive toward grandparenting.

Grandparents' Characteristics and Grandparenting

As found in Western literature, age is a critical factor influencing the relationship between grandparents and grandchildren. Data in Taiwan has shown that the prevalence of grandparenting is lower among grandparents who are older (Tsai et al., 2011). Studies in the United States have also found that grandparents who provide care for their grandchildren are more likely to be younger, particularly for those who are involved in intensive childcare (Fuller-Thomson & Minkler, 2001; Silverstein & Marengo, 2001). Younger grandparents tend to have more contact with their grandchildren, live closer, look after the grandchildren, and share recreational activities; whereas older grandparents tend to provide more financial support (Silverstein & Marengo, 2001).

This study also reveals the normative timetables for transitions for the grandparenting role among Taiwanese grandparents. As people move through their life course, they have expectations about when an entrance to or exit from a specific role is appropriate, and this expectation is usually structured by the society and cultural norms (Hagestad & Burton, 1986).

Because of increased longevity in Taiwan (Ministry of Interior, 2010), grandparenthood is now a normal and expected part of life, and research has shown the importance of the grandparent-grandchild relationship throughout the life course (Silverstein & Marenco, 2001; Bengtson and Silverstein, 1993). For Taiwanese grandmothers, the age bracket of being most likely to often provide childcare is 50-64 years, and it is 55-69 years for grandfathers. Furthermore, the age span of Taiwanese grandmothers assuming the caregiving roles is also longer than their male counterparts. That is, grandmothers are more likely to start grandparenting earlier and stop later compared to grandfathers.

Gender difference in grandparent's caregiving responsibility is also common across societies. Both in the Western and Eastern societies, the majority of grandparents providing support or care for grandchildren are grandmothers (Tsai et al., 2011; Hayslip and Kaminski, 2005). Gender differences are also found in the reported intensity of childcare provision, the personal meaning of grandparenthood, and the patterns of grandparent-grandchildren interaction (Thomas, Sperry & Yarbrough, 2000). While most published studies on grandparenting have focused on grandmothers, only a few studies addressed the gender difference when examining the impacts and experiences of grandparenting among grandparents.

As this study explores the caregiving role of grandmothers and grandfathers across life course, it found both a gender and an age difference in grandparenting that is consistent with the findings from Western societies (Silverstein & Marenco, 2001; Hank & Buber, 2009; Hughes et al., 2007). In addition to the difference in the division of labor- that grandmothers are more likely to be caregivers- it is noted that grandfathers generally start to provide care later in their life. This is also reflected in their attitudes toward grandparenting -- that grandfathers under 55 are much less supportive of providing childcare compared to grandmothers at the same age. Besides,

grandfathers generally provide childcare under more resourceful circumstances than grandmothers, in terms of their partnership, finance, and education attainment. On the other hand, grandmothers are more likely to provide childcare without a partner living in the same household and under financial distress. Additional analysis using the data from the 1999 wave (because the information is not available in the 1996 wave) also found that among grandmothers often providing care, 47% reported to have another person's assistance; among grandfathers, it was 90%, suggesting that grandmothers are more likely to be primary caregivers in contrast to grandfathers as secondary caregivers. While it is widely assumed that a partner in the same household helps to share the caregiving burden (Blustein et al., 2004; Hank & Buber, 2009; Hughes et al., 2007), these findings suggest the assistance is more likely to happen in one way, which is that grandfathers are more likely to have someone share the caregiving responsibility, while grandmothers are more likely to be self-responsible.

Socio-economic status has implications for the amount of resources available to help grandparents cope with their caregiving role. The literature in the United States has shown that grandparents who are primary caregivers are more likely to be financially disadvantaged and less educated (Mullira & Musil, 2010; Sands & Goldberg-Glen, 2000; Lumpkin, 2008). Supervising and providing daily care for grandchildren may impose financial burdens on grandparents. Caring for grandchildren may not only limit the amount of time that grandparents can devote to the labor market, but may also cause grandparents to spend their own savings on raising their grandchildren (Fuller-thomson & Minkler, 2007). Although this study found that grandparents who often provide care in Taiwan are more likely to be unemployed and less educated than their counterparts who do not provide much childcare, it did not find a significant difference in their financial statuses. Several Western studies have suggested that African American or Hispanic

grandmothers generally embrace stronger extended family norm than European American grandparents, and they also are more likely to provide caregiving for their grandchildren. This study also found that mainlander males in Taiwan have the highest odds of often providing care. My additional analysis suggests that this pattern is likely driven by the older average age (Fuchien: Hakka: Mainlander = 64: 65: 70) and lower employment rate (Fuchien: Hakka: Mainlander = 53%: 48%: 76%) of this group, compared to men in the other two ethnicities.

The role of grandfathers in caregiving has long been neglected (Fuller-Thomson, Minkler & Driver, 1997). While most empirical studies only look at grandmother caregivers, this study reveals that a substantial proportion of grandfathers are also providing certain levels of care for their grandchildren. Like grandmothers, grandfathers in Taiwan also embrace very supportive attitudes toward providing care for their grandchildren. Therefore, despite that grandfathers may not be primary caregivers or may provide less care than their female counterparts, being a caregiver for a grandchild may still have strong implications in building up the positive identification of their grandparenthood, since it fits the social norm and expectation of their roles at this life stage. Thus I suggest future research on grandparenting should also address the roles and circumstances of grandfathers as well.

Grandparenting and Self-reported Health

Although empirical evidence has shown that grandparental involvement in childcare can bring numerous benefits to adult children and grandchildren, the influence of caregiving among grandparents in Eastern societies remains under studied. Using longitudinal data from Taiwan, this study suggests that providing care for grandchildren is positively related to grandparents' health, for both females and males. However, this positive effect of caregiving is only observed

among grandparents who *often* provide childcare but not among those who *sometimes* provide care. Furthermore, little evidence was found that social support mediates this effect, or that living arrangement or grandparents' age moderates the relationship between caregiving and health.

Unlike studies based on Western societies, this study demonstrates a positive relationship between grandparenting and grandparents' health, confirming the result that has been found in other Chinese societies (Guo et al., 2008). This inconsistency of findings may result from the differences in cultural and social norms of grandparenthood between Eastern and Western societies. For example, Western grandparents may consider parenting again at a later age as an off-time role and are less likely to be prepared for assuming the caregiving responsibility, compared to their Eastern counterparts, who generally embrace the norm that caregiving for grandchildren is a part of enacting their grandparent role. Meanwhile, it is also possible that Western caregiving grandparents are more likely to be those who are in disadvantaged socioeconomic status to begin with.

The positive association between grandparenting and grandparents' health among Taiwanese elderly may exist because providing care for grandchildren is considered natural and normative in Chinese culture. In this context, according to the life course theory, grandparents who are providing child care may feel that they are in an on-time role. Furthermore, as such an experience is anticipated by and shared with their peers, grandparents are more likely to cope with their grandparenting role and even benefit from caregiving activities due to the increased emotional connections and sense of purpose in life that accompany the role.

Given the hypothesis that the timing of providing childcare can have strong influences on grandparents' health since grandparents who provide childcare in older age may be disadvantaged in health because of the physically demanding child care tasks, this study tested

the moderating effect of age on the relationship between grandparenting and grandparent's self-rated health. Counter to my expectation, the analysis shows that grandparents benefit from the caregiving regardless of their age. This study also examines female and male grandparents separately because gender differences are commonly documented in the reported intensity of childcare provision, the personal meaning of grandparenthood, and the patterns of grandparent–grandchildren interaction across societies (Thomas, Sperry & Yarbrough, 2000; Hayslip and Kaminski, 2005). Even though childcare is often gendered and it is usually assumed that grandfathers who provide child care are more likely to experience increased role strain, this study did not find a negative effect of caregiving on self-related health among grandfathers. Overall, I found that the protective effect of grandparenting on grandparent's health functions similarly across genders. However, how grandfathers define “providing care” and whether the contents of caregiving are the same among grandfathers and grandmothers needs more exploration.

It should also be noted that the causal relationship here can be reciprocal or even bidirectional. Although the longitudinal design of the second part of analyses helps to take the baseline difference in dependent variable (health) into account, the findings here should be considered as associations rather than causal relationships because the information on grandparents' health and status of grandparenting, as well as other characteristics, are measured at the same time. Therefore, this study is observing the correlation between change of grandparents' health and change of grandparenting status. The analysis cannot rule out the possibility that the worse health of non-caregiving grandparents than caregiving grandparents may be caused by the phenomenon that grandparents whose health starts to decline may stop providing care for grandchildren. That is, declining health precedes the non-caregiving status,

rather than vice versa. Similarly, the positive coefficient between caregiving and health may indicate that providing care improves grandparents' health, but it can also indicate that healthier grandparents are more likely to provide childcare than those in worse health.

Grandparenting and Grandparents' Mental Health

Previous Western studies on the impact of grandparenting on grandparents' mental health have shown mixed results. Several studies have reported higher rates of depression or more depressive symptoms among grandparent caregivers (Caputo, 2001; Musil et al., 2010; Szinovacz, Deviney, Atkinson, 1999). In particular, custodial grandmothers often reported greater psychological distress than other grandmothers with fewer caregiving responsibilities (Caputo, 2001; Musil et al., 2010). The explanations that the literature has offered for the compromised mental health of caregiving grandparents include intensive caregiving burden, social isolation, behavioral problems of the grandchildren, strains in family, and financial stress (Fergusson, Maughan & Golding 2008; Hughes, Waite, LaPierre, & Luo, 2007).

However, some studies have suggested few or no differences in mental health across different caregiving groups when contextual factors were also considered in the analysis models (Goodman & Silverstein 2002; Baydar & Brooks-Gunn 1998). A few longitudinal studies have suggested that, in many cases, deteriorating health predated the caregiving for their grandchildren, suggesting that the poorer health experienced among caregiving grandparents may be attributable to a preexisting disadvantage in sociodemographic characteristics and prior health status (Hughes, Waite, Lappierre & Luo, 2007). Some research has identified factors that may moderate the relationship between grandparenting and mental health. For example, Reitzes and Mutran (2004) found that grandparent identity is positively related to self-esteem and

negatively related to depressive symptoms. Other research also suggested that the role and responsibility of providing care or support for family members, especially for grandchildren, may enhance grandparents' sense of purpose in life (Giarrusso et al. 2001). For instance, in Jendrek's (1993) study, some grandparents reported that, although they felt emotionally drained by childcare demands, they also experienced an increased sense of purpose in living. Likewise, Hughes et al. (2007) also found that grandparents who provided supplemental care reported better intergenerational relationships.

Based on the stress process theory and previous literature, I developed two models to examine the role and the influence of grandparenting on grandparents' mental health. The resource depletion model hypothesized that grandparenting functions as a stressor that diminishes mental health. On the other hand, the resource mobilization model specified that grandparenting mobilizes psychosocial resources that improve mental health. Using longitudinal data, the findings of the third part of analyses support the resource mobilization model, which suggests a positive relationship between grandparenting and grandparents' mental health. Both the correlations and fit indices of structure equation modeling indicate that the specifications of resource mobilization model not only explain the data better but also convey meaningful interpretations. The findings of the structural equation modeling reveal that grandparenting provides a protective effect on grandparents' mental health through increased social support. The multigenerational living arrangement also has positive effects on grandparents' mental health.

Although the findings of this study are contrary to many previous findings of studies conducted on Western grandparents, they are generally congruent with what have been found in other Chinese societies. For example, while Western grandmothers providing childcare reported more stress and depressive symptoms than non-caregiving grandmothers (Musil et al., 2010),

positive relationships were found between grandparenting and mental health among Asian caregiving grandparents (Guo et al., 2008; Cong & Silverstein, 2008). Nevertheless, it should be noted that caregiving grandmothers in the United States usually perceived more problems in family functioning and intra-family strain than Asian caregiving grandparents. This indicates that the psychosocial process from caregiving to mental health may take place in different cultural and family contexts in Western and Eastern families, hence leading to different health outcomes.

Previous studies have been criticized as hampered by selection effects when examining the health effect of grandparenting (Chen & Liu, 2012). For example, studies in the United States on the health effects of grandparenting are often limited by negative selection. That is, socioeconomically disadvantaged grandparents are more likely to be a primary caregiver for their grandchild (Minkler & Fuller-Thomson, 2005; Hayslip & Kaminski, 2005; Mutchler & Baker, 2004). On the other hand, in Taiwan, where grandparenting is normative and common, it is possible that there is a process of positive selection. That is, healthier grandparents to begin with are more likely to be grandparent caregivers. Using a longitudinal design, this study takes the baseline depressive symptoms into account and found no evidence for such a selection effect, given that there is no significant relationship between prior status of mental health and childcare provision.

Living Arrangements, Grandparenting, and Health Implications

There is a recent expansion of the stress process model to include the social contexts within which the individual-level stress process takes place (Aneshensel, 2009; Pearlin, 1999). Although numerous contexts may influence grandparents' health, in this study I focus on the family living arrangement because it is the most proximal social environment for every

individual that carries and materializes social norms and culture expectations. Multigenerational and patrilineal households have long been a tradition and cultural ideal for living arrangements in Taiwan (Chu, Xie & Yu, 2011; Yi et al., 2006). As shown in the results of this study, an extended family is the normative form of households and the majority of older adults live with their children (Chu, Xie & Yu, 2011).

Many previous studies on grandparenting only compared grandparents who live with grandchildren to those who do not, assuming that only grandparents who live in the same households with their grandchildren are likely to provide care. Actually, grandparents who do not live with their grandchildren may still provide care for their grandchildren on a regular or sporadic basis. Some of previous studies utilized co-residence with a grandchild as a proxy for providing co-residence childcare or custodial care. However, the obvious discrepancy in the percentages of grandparents living with grandchildren and grandparents caregiving for grandchildren observed in the first part of the results, indicates that these are two different though possibly highly correlated practices. In other words, living in the same household with a grandchild does not automatically imply that the grandparent is providing childcare; similarly, providing childcare, even on a regular basis, does not guarantee that the grandparent is living with the grandchild. Therefore, it is not appropriate to use one of these variables as a proxy for the other or to treat them as interchangeable measurements.

The design of this study not only enables me to examine the effects of living arrangements and caregiving separately, but also to examine their possible interaction simultaneously. Surprisingly, multigenerational co-residence alone does not predict better health among Taiwanese grandparents, counter to other studies on Chinese grandparents (Silverstein, Cong & Li, 2006). Previous Western studies have suggested caregiving grandparents living in

skipped-generation households are likely to face more demands and challenges than grandparents living in three-generation households (Goodman, 2003; Soloman & Marx, 1999). In this study, grandparents in skipped generation households are not worse off than grandparents in other kinds of living arrangements in terms of their self-assessed health. Moreover, the protective effect of caregiving on grandparents' health functions similarly across all kinds of living arrangements.

In all, although previous studies conducted in other Chinese societies have suggested that grandparent caregivers who reside with grandchildren report better health than those who do not reside with grandchildren (Guo et al, 2008; Xu & Chi, 2011; Silverstein, Cong & Li, 2006), this study does not find direct or moderating effects of living arrangements. This finding may result from the social and structural differences among various Chinese societies despite the common influence by Confucianism. For example, there are substantial geographic (rural vs. urban) differences in living arrangements in China (Chen & Liu, 2012) but not in Taiwan. Since Taiwan is a small island, old parents and married children are more likely to live in the same neighborhood than in the same households. In this context, family members can still have close relationships and frequent support from each other even though they are not living together. On the other hand, there is a conspicuous urban versus rural divide in China. In addition, households in rural areas usually are more disadvantaged and vulnerable in terms of socioeconomic resources. Older adults in rural China are more likely to be financially dependent on their children, and many rural parents have to leave the children under their grandparents' care in order to seek better jobs in the big cities (Cong & Silverstein, 2008).

Grandparenting, Social Support, and Grandparents' Health

Understanding the roles of mediating and moderating factors can inform us about social intervention and health service delivery. The role of social support and its linkage with older adult's health has been well documented both in the Western and Eastern literature (Cobb, 1976; Aneshensel & Stone, 1982;; Zimmer & Chen, 2011; Chao, 2011; Silverstein, Cong & Li, 2006). According to role enhancement perspective, accumulation of multiple roles can bring benefits to one's well-being because the individual also gains social interactions and gratification through the enactment of multiple roles (Reid & Hardy, 1999). Thus this study hypothesized that grandparents who provide childcare are more likely to receive social support which in turn improve grandparents' health. Counter to my expectations, the findings in the second part of analyses do not support this mediating effect of social support on self-rated health despite its significant direct effect on self-reported health, which is congruent with previous findings in Western literature (Hughes et al, 2007). However, I do find social support plays a critical role in mediating the effects of grandparenting on grandparents' mental health.

In addition to testing the mediating effect of social support, this study extends beyond previous research and examines the moderating effect of social support. Based on the stress process theory, I hypothesized that the effect of caregiving involvement could be conditioned by the levels of social support. That is, social support can moderate the relationship between caregiving and health since grandparents who have better social support may cope much better than grandparents who do not have such support when assuming the caregiving role. Similar to the findings of tests for mediating effects, the analysis for moderating effect of social support does not confirm such a buffering effect (Aneshensel & Stone, 1982) of social support on grandparents' self-rated health, but the analysis for mental health does find such a buffering

effect. These inconsistent findings of the effects of social support on physical health and mental health is likely because social support is a more immediate predictor for mental health than for physical health.

This study also found that receiving instrumental supports is negatively related to changes in health for grandmothers, but not for grandfathers. It is likely due to the gender difference in family role, that women are often the care or support givers rather than receivers. Therefore, receiving instrumental supports may have greater implications on their role in the family for females than males. For women who used to provide care for their family, receiving assistance from others instead of providing assistance may indicate the loss of mastery or sense of self-value. Another possible explanation is that women often provide care for family members until they are not able to, thus the negative relationship that we observe here may be caused by a predated decrease of health or declining functional status. That is, their physical functioning or health goes down first and then they receive more instrumental support. This also reveals that although this study applies longitudinal data, it does not necessarily assure causal relationships.

Differences in Grandparenting and Its Health Implications between Taiwan and the United States

While much of the literature on grandparenting is based on Western societies, particularly in the United States, this study suggests caution in the assumption that American findings may be valid across societies, or that interventions based on these findings can be applicable in other countries. Particularly, the ideology of living arrangements and childcare may be very different across societies. That is, the reasons why a grandparent may assume the caregiver role may vary by context and lead to different interpretations and implications of grandparenting. For example,

grandparents in Taiwan are more likely to assume the caregiving responsibility voluntarily because they consider it a part of fulfilling their role as grandparents, while Western grandparents may do so in response to a family crisis of their adult children. It is likely for these Western grandparents to feel overwhelmed and incompetent if they are thrown into the caregiving role unexpectedly.

Likewise, I also advise caution in interpreting the results of this study and comparing them with previous findings, because many of these studies investigated custodial grandparenting only, but this study explores general grandparental involvement instead of focusing on high levels of caregiving. In all, while many studies imply negative effects of grandparenting on grandparents' health, we should cautiously interpret these results in the contexts and circumstances of the care, since many studies that reported negative health impacts of caregiving focused on custodial grandparents who provide intensive care in highly stressful circumstances with fewer resources.

Implications for Theory

The current study has overcome several limitations that previous research encountered. First, it utilizes population representative sample instead of small scale, convenience sampling. Therefore, the findings have more potential for generalizability. Also, using data from Taiwan extends the knowledge of grandparenting to a cultural context that differs from the United States. Meanwhile, the longitudinal design and structural equation modeling help to build temporal relationships rather than cross-sectional correlations. Furthermore, this study adopts a theoretical framework and explicitly examines the mechanism of the stress process.

In addition to showing the relevance of stress process theory in examining the impact of grandparenting, the results also reveal there is social exchange between the elderly and their adult children. This intergenerational exchange can manifest across the life span. Western research has shown that earlier intergenerational interactions and relationships are associated with later exchanges of support and help between generations (Parrot & Bengtson, 1999). Young adult children who received more emotional and financial support from their parents provide more social support to their parents decades later (Silverstein, Conroy, Wang, Giarrusso & Bengtson, 2002). Furthermore, research also suggests that the parents of grandchildren being cared for by grandparents are most likely to reciprocate in the way of providing care (Friedman, Hechter & Kreager, 2008). Although grandparents may provide caregiving altruistically, they may also do so in the expectation of ensuring old age support. In Taiwan, there are few public welfare programs for the elderly, and the family is traditionally the most important institution responsible for older adults' well-being. Many older adults count on their families for the physical, material, and emotional needs in their later life. In this study, grandparents who had provided childcare are also found to receive higher social support. This finding is congruent with previous studies conducted in other Chinese societies (Silverstein, Cong & Li, 2006).

This study also demonstrates that multigenerational co-residence facilitates the exchanges of intergenerational support, particularly if this living arrangement is recognized as part of the cultural norm, such as filial piety or familialism (King et al., 2003). Social support as a resource is found to be a protective factor for the individuals against the consequences of chronic life strains on mental health. The findings suggest that grandparents who provide childcare assistance can benefit from the emotional reward, and in turn it leads to better mental health. Interestingly,

besides mediating through social support, the multigenerational living arrangement also has a direct, protective effect on mental health.

Implications for Policy and Practice

In addition to providing documentation for the prevalence of grandparenting in Taiwan and developing a national profile of grandparent caregivers, the findings of this research have policy implications. First, around 5-6% of grandparents in the study sample are living in skipped generation households, while these grandparents embrace their caregiving responsibilities, their circumstances and needs should be carefully evaluated to develop appropriate social interventions for these households. Meanwhile, although grandparents having financial hardship do not have higher odds of providing care, it should be noted that more than 20-25% of grandparents are providing care under financial distress. Furthermore, despite the finding that employed grandparents are less likely to be caregivers, still a significant portion of grandparents who often provide childcare are also working at the same time. That is, these grandparents are fulfilling multiple duties. Grandparents in financial vulnerability or multiple roles may experience stress multiplication and need social support or social services for them to have some respite. In summary, as most existing research and social interventions have focused on grandchildren under grandparental care, this study underlines the importance of conducting needs evaluation and developing a variety of interventions for these grandparents and their households.

Previous research on grandparenting mainly focuses on factors at the individual level, targeting individuals with certain characteristics, such as single or distressed grandparents. In this study, through linking individual to their family contexts, I adopted a contextual approach to

address the factors that affect individuals. This study found that intergenerational interaction and multigenerational environment have positive implications for the mental health of Taiwanese elderly. To improve the health of the elderly in communities, further explorations of policy and social interventions are needed to support friendly environment for intergenerational interactions. For instance, the Singapore government provides incentives for families to live together or live close to each other. Married children and their parents who plan to live in the same household or in the same neighborhood have priority if they want to apply for an apartment through the Housing and Development Board (Chan, 1999). To increase the research relevance for policy and intervention implications, I also advocate future studies to include more as well as broader contextual levels into the conceptual framework, such as neighborhood context, childcare provision environment, and childcare compensation policy. In addition to cultural expectations, these environmental and structural factors also influence the need of grandparents to provide care as well as how many resources and options are available for these grandparents and their adult children.

Limitations

There are limitations to this study because of the nature of the data and the research design. Because I used secondary survey data, some important information is not available and thus not accounted, such as details on the content and intensity of caregiving or characteristics of the grandchildren and their parents. It is possible that the significant effects observed in this study are actually caused by unobserved confounding variables. A major limitation of this study is the lack of detailed information on the children under care as well as the content of care provided. As this study is not well informed about the characteristics of the grandchild, such as age,

gender, health status, and their behavioral or developmental problems, it cannot conjecture how intensive the caregiving labor is that grandparents are experiencing. Previous studies in the United States have indicated the health and behavioral problems of grandchildren is a major concern for caregiving grandparents. Taking care of a young child with health or behavioral problems usually causes grandparents a greater burden (Hayslip et al., 1998). Mitchell (2007) also pointed out that grandparents who provide care in families with disabled children are exposed to increased risk of social isolation. The resulting stress is particularly exacerbated among grandparents who are taking care of grandchildren with behavioral problems (Thomas et al., 2000). Since the caregiving burden may increase with the number of children that a grandparent is responsible for, it is also important to know how many children the grandparent is taking care of and for how long the grandparent has been providing care.

Similarly, the measurement for caregiving intensity of this study was subjective and not specific enough, which is also a common methodological issue for many studies on grandparenting, and it further causes the comparison of findings across studies more difficult. For example, my measurement of caregiving did not provide information of the extent and content of care. The burden of caregiving can differ a lot for grandparents who provide custodial care compared to those who provide babysit only. Parental involvement is another piece missing in the picture addressing grandparenting and intergenerational relationships. Western literature has indicated that co-parenting grandparents usually reported better health than custodial grandparents (Goodman, 2003). In addition, a study conducted on Chinese grandparents has indicated whether the middle generation provides monetary support to the caregiving grandparents also has mental health implications (Silverstein, Cong & Li, 2006).

Another limitation is the study sample included only grandparents who were older than 50 years. Thus it provides no information on persons younger than 50 years, despite the fact that some grandparents may start grandparenthood and caregiving before they reach age 50. Younger grandparents may have to face extra role strains when they assume the primary caregiving roles, such as having their own children to take care of, having a full time job, and being a bread winner.

Future Directions

The literature from Western societies has shown the scenario that puts grandparents in the caregiving role has great implications on grandparents' coping and perception of stress (Goodman & Silverstein, 2002; Muliira & Musil, 2010). Grandparents who take the caregiving responsibility under family crisis are most likely to be affected negatively. Unfortunately, information in this respect is not available in the data analyzed here. I advise future national surveys to ask reasons why grandparents undertake caregiving responsibilities for their children, since it will provide important information for policy making and help to identify subgroups of grandparents who are possibly in need of social assistance. In addition, Western studies have documented the health implications of grandparenting on grandparents and found inconsistent results (Hughes, Waite, Lappierre & Luo, 2007; Musil et al., 2010; Baker & Silverstein, 2008; Cohen et al., 2010). Since the cultural and social context of grandparenting differs substantially among Western and Eastern societies, empirical studies on Eastern grandparents are needed to examine the health implications of grandparenting among this population.

This dissertation demonstrates that the social dynamics of caregiving and grandparents' health are strongly influenced by the social and family context within which the grandparenting

takes place. It underlines the importance of understanding cultural and familial contexts to provide a supportive environment for grandparents. As many parents and grandparents in Taiwan consider those grandparents who provide daily care for their grandchildren as more successful in their role (Strom, Strom, Wand et al., 1999), whether grandparents, particularly grandmothers, who choose not to provide childcare feel social pressure or obligated is a question for further exploration. Another question that needs further investigation is how grandparents cope with this role transition, not only entrance to but also exit from the caregiving role. Some studies on Western grandparents have examined how transition within the caregiver role affects grandparents' social well-being. Szinovacz et al. (1999) found that grandparents' depressive symptoms increased and life satisfaction decreased when their grandchildren moved into the households. On the other hand, a study on Hong Kong grandmothers found that the exiting the caregiver role can have a negative impact on grandparents' well-being (Lou, 2011). As studies have suggested that the impact of grandparenting may not end with the caregiving responsibility and it can vary as the role transitions, varied and appropriate interventions should be explored for each unique stage.

Conclusions

Older adults are usually profiled as care recipients. However, this study reveals that, in fact, a significant portion of them are assuming substantial childcare responsibilities for our society. As female participation in the labor force increases, in addition to the lack of alternative childcare facilities or community-based childcare programs in Taiwan, grandparents have been an invaluable resource for childcare. These older kin are a resource for both adult children and grandchildren. Besides, grandparents often serve as the safety net for children whose parents are

unable to provide care. Nevertheless, despite the pivotal role which Taiwanese grandparents play, their contribution as major supporters or caregivers is often neglected by legislation and social policy.

There have been very few programs or resources available for caregiving grandparents. More often, social programs are implemented to support children under care or their young parents instead of supporting caregiving grandparents. For example, in July 2012, the Taiwanese government began to provide supplemental payments for working parents who have their children cared for by licensed nannies or “licensed grandparents”. To be licensed, grandparents must take a professional training course for 126 hours, and then receive eight hours of continuous training every following year, so that their adult children can receive the supplementary payments. Ironically, this program benefits the young adults rather than the caregiving grandparents, because it is the young adults who receive the benefits, not their parents (i.e., the children’s grandparents). Not to mention the requirement may be a burden to these grandparents. Moreover, for those grandparents who live in skipped generation households and are primary caregivers for their grandchildren, they are not eligible to receive this monetary supplement.

While grandparents are usually taken for granted, often times expected to devote themselves to ameliorating family problems or serve as the safety net for grandchildren during a family crisis, it should be noted that more than twenty percent of grandparents who often provide childcare are in distress themselves (shown in results section). The lack of entitlement may increase the risk of poverty for households where grandparents are primary caregivers. Therefore, in addition to entitling parents to benefits like parental leave, allowances, or supplementary childcare payments, the government should consider expanding the benefits to a

wider circle than the nuclear family, such as caregiving grandparents, and provide them with more aging- and culture-sensitive support.

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