

Sheung-Tak Cheng · Iris Chi
Helene H. Fung · Lydia W. Li
Jean Woo *Editors*

Successful Aging

Asian Perspectives

 Springer

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Chapter 1

Successful Aging: Concepts, Reflections and Its Relevance to Asia

Sheung-Tak Cheng, Helene H. Fung, Lydia W. Li, Tianyuan Li, Jean Woo, and Iris Chi

Definitions of Successful Aging

Old age has been associated with disease and impairment, frailty and dependency; an undesirable if not dreadful portrayal. Thus, initially the field of gerontology was dominated by the view of older persons as feeble and dependent. However, researchers and practitioners have challenged this conceptualization by noting

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another possible late life experience—a successful one. Since then, numerous studies have sought to discover paths to successful aging by identifying the factors and mechanisms that contribute to sound physical and mental health in later life. The “new gerontology” is one in which older persons are seen as active agents in shaping their environments and life course.

Butler coined the term *productive aging* when he was chairing the Salzburg Seminar on dependency in old age. Instead of focusing on dependency, he challenged the participants to consider the more positive sides of aging. By “productive aging,” Butler referred to the performance of paid and unpaid work (e.g., volunteer activities) as well as self-care activities (Butler & Gleason, 1985). Taking care of oneself is also productive because it enhances autonomy and reduces dependency on others. In fact, Butler was the influential scholar who coined the term *ageism* (Butler, 1975). He saw productive aging as a way to combat ageism, to recognize the contributions of older people, and to reduce the perception that they are a burden to society.

Another concept called *healthy aging* is primarily concerned with the modification of diet and life habits to enhance physical and mental health (Kalache & Kickbusch, 1997). The concepts of productive and healthy aging were incorporated into World Health Organization’s (WHO) *active aging* policy framework. WHO (World Health Organization, 2002) argued that countries could “afford to get old” (p. 6) if they optimize “opportunities for health, participation and security in order to enhance quality of life as people age” (p. 12). By “health,” WHO adopted a holistic definition of physical, mental and social well-being and the maintenance of autonomy and independence, and by “active,” it referred to “continuing participation in social, economic, cultural, spiritual and civic affairs” (p. 12).

The Rowe and Kahn Model

Perhaps the most dominating model in the field of gerontology is the one put forward by Rowe and Kahn (1997, 1998). In this model, *successful aging* is jointly defined by low probability of disease and disease-related disability, high cognitive and physical functioning, and engagement with life. They highlighted two aspects of engagement, namely social connectedness and productive activities. These three aspects were presumed to be hierarchical, with avoiding diseases and disability providing the basis for high physical and cognitive functioning, which in turn facilitates engagement with life. This model was expanded from their 1987 paper in *Science* (Rowe & Kahn, 1987), using findings from early field studies of the MacArthur Study of Successful Aging. In their 1987 paper, they argued that the field had been primarily concerned with describing the differences between usual aging and pathological aging, but neglected the heterogeneous trajectories of aging at the upper end of the spectrum. They believed that a large part of age-related declines in usual aging was age-related, but not age-dependent. Indeed, with age, the genetic heritability of various diseases decreases (Willett, 2002) whereas the role of lifestyle increases. By proposing the concept of successful aging, Rowe and Kahn

(1997, 1998) hoped to stimulate more research into identifying modifiable factors such as diet, exercise, personal habits (e.g., smoking), and psychosocial factors (e.g., optimism, social support), and use the findings to promote lifestyle modifications so as to enhance the likelihood of aging well in the population.

Though appealing, Rowe and Kahn's concept of successful aging has probably generated more debates and controversies than any other topics in the past 15 years in gerontology. These discourses that have taken place in the Western literature happen to be rather relevant for examining successful aging in the social and cultural contexts of many Asian countries. One source of discontent stems from the primacy that the model places on achieving disease- and disability-free states. Together with the term "successful," critics argued that the model fostered the unrealistic image of "agelessness" and favored those with genetic advantages, while implying that the majority would be "losers" (Moody & Sasser, 2012; Strawbridge, Wallhagen, & Cohen, 2002).

In their widely cited review, Depp and Jeste (2006) found that 90 % of the operational definitions of successful aging included measures of disability and/or physical functioning, most typically in terms of self-reported activities or instrumental activities of daily living as well as objective performance measures such as grip strength, lifting a 10-lb weight, and gait and balance. Compared with disability/physical functioning, only 21 % of the studies included absence of chronic diseases which was the most unattainable criterion (Jeste, Depp, & Vahia, 2010). Given the increasing prevalence of chronic diseases and medical advances to contain the effects of various diseases on daily life, it is doubtful whether a simple presence/absence of disease will continue to be very useful in characterizing the extent to which one has aged successfully. Cognitive functioning, typically assessed by global measures of cognition and occasionally neuropsychological tests, was included in roughly half of the studies in Depp and Jeste's review. The variety of the measures and the lack of clear cutoffs for many of them make the operationalization of this criterion particularly problematic. Note also that staying above the cutoff for cognitive impairment does not necessarily mean *high* cognitive functioning. The MacArthur Studies of Successful Aging even adopted a criterion that could have placed those with borderline cognitive impairment in the successful aging category (Berkman et al., 1993). In addition to disability/physical functioning and cognitive functioning, 29 % of the studies in Depp and Jeste's review included measures of social/productive engagement.

In Western studies, typically around 20 % of the older population meet the criteria of physical (or absence of or minimal disability) and cognitive functioning simultaneously (Depp & Jeste, 2006), while much fewer may be deemed successful if engagement with life is also included and more restrictive (e.g., absence of major chronic diseases) criteria are used (McLaughlin, Connell, Heeringa, Li, & Roberts, 2010). In Asia, similar studies are few. In a Hong Kong sample, Chou and Chi (2002) found that only 0.8 % were successful agers, who had no functional impairment, regular exercise, no depressive symptoms, high global cognitive performance, assistance provided to family and friends, and employment status. Ng and colleagues (2009), on the basis of absence of instrumental activities

of daily living (IADL) impairment, self-rated health, global cognitive functioning, depressive symptoms, life satisfaction, and at least one social and productive activity per week, classified 29 % of Singaporean Chinese as successful agers. In a study of Malaysians, no major disease, no ADL or IADL impairment, good self-rated health, and no diagnosis of depression and dementia were used to define successful aging; only 14 % met the criteria simultaneously (Hamid, Momtaz, & Ibrahim, 2012). On the basis of absence of physical disabilities, minimal impairments in activities of daily living (ADL), good global cognitive performance, and self-rated good mood, as many as 46 % of a large sample of Shanghai older adults were classified as successful agers (Li et al., 2006). Such diverse estimates may reflect cross-national differences in health and participation status, but more so differences in sampling and measures and their cutoffs. There are simply no well-established ways to define successful aging operationally.

Recently, Cheng (2014) argues that the field needs to distinguish pathways (e.g., adherence to a healthy lifestyle) from outcomes (e.g., daily functioning), and to make reference to age-appropriate norms in measuring successful aging. Because of Rowe and Kahn's "ageless" model, successful aging has been found consistently to be less likely in the older age categories (Depp & Jeste, 2006), as older adults (those aged 60+ or 65+ years) are treated all the same. As more and more people are living into very old ages, a different discourse in successful aging may be necessary. Instead of being obsessed with disease- and disability-free states, it is important to recognize that many diseases would not affect daily functioning if properly managed, and disabilities may be compensated using modern technologies. Cheng proposes that successful aging may be defined in terms of age-appropriate norms in physical, cognitive, social, and psychological functioning, while pathways to achieve high functioning in relative terms should be emphasized as being possible even for those with diagnosable disease conditions. If people feel that successful aging is not achievable and ignore it, then the concept fails in terms of guiding positive development in later life. Successful aging should be a concept that is relevant to most people, rather than just an "elite group."

Another source of discontent with the Rowe and Kahn model concerns the emphasis on individual agency to achieve successful aging, ignoring larger social structural constraints on developmental trajectories (Riley, 1998), such as health disparity due to socioeconomic differences (Ferraro & Shippee, 2009). Whether these criticisms were entirely fair to Rowe and Kahn or not (see Kahn, 2002 for a rebuttal), they are particularly relevant when we consider successful aging in Asia. Given the state of development in many Asian countries where access to health care is limited, especially in rural areas, it is a big question whether we should perpetuate a disease- or disability-free model of successful aging. Moreover, disregarding decline in certain aspects of family functioning, the family remains the primary vehicle for the fulfillment of individual needs (e.g., Cheng, Li, Leung, & Chan, 2011). In terms of successful aging, the Asian family may play a more influential role in various aspects such as diet, adherence to lifestyle modifications, social participation, and life satisfaction, than is conceived in Western individualistic models of successful aging (Chung & Park, 2008; Lam & Cheng, 2013).

As alluded to above, still another concern with the Rowe and Kahn model is the lack of reference to psychological well-being (Cheng, 2014), despite the fact that Havighurst (1961) had argued long ago, in the founding volume of *The Gerontologist*, that feeling satisfied with life, in terms of both its present state and how things have turned out in the past, is an important indicator of successful aging. The well-being paradox, a term describing the remarkable phenomenon of older adults maintaining well-being despite physical declines and social losses (Cheng, 2004; Cheng, Fung, & Chan, 2009; Kunzmann, Little, & Smith, 2000) until the last few years of life (Gerstorf et al., 2008), has long been recognized. The WHO emphasizes on holistic health that incorporates psychological dimensions. Unfortunately, other than cognitive functioning, emotional well-being was not included in the influential Rowe and Kahn model. Jeste and colleagues (2010) recently called for more research focus on “successful emotion aging” but fell short of proposing an overall model of successful aging that integrated emotional well-being with other elements.

Psychological well-being may be an especially relevant dimension of successful aging for Asia, in particularly East Asia. East Asian cultures are heavily influenced by the Taoist philosophy of *yin* and *yang*. While it is beyond the scope of this chapter to discuss Taoist philosophy in details, one central tenet of Taoist thinking is that *yin* and *yang* are essential for the maintenance and augmentation of each other. They are part and parcel of a holistic system of life energies, rather than two separate entities. This philosophy emphasizes on complementarity, balance, and harmony. The Taoist philosophy is the backbone of the thinking in Chinese medicine which treats people by restoring balance among different bodily organs. Other than this, there is one further important distinction with Western medicine—each bodily organ and their balance are thought to play crucial roles in physical and mental health (Han, 2008). From this perspective, it is inappropriate to emphasize physical over emotional health in Asian cultures. Researchers, practitioners, and policymakers working in this region need to bear in mind that messages to promote successful aging that do not emphasize the simultaneous developments of physical and mental health may not be effective or sustainable. In fact, given so many studies showing the beneficial effects of exercise on emotion in the West (Blake, Mo, Malik, & Thomas, 2009; Conn, 2010; Jeste et al., 2010), we wonder whether Western models of successful aging can continue to sideline psychological aspects of health.

The incorporation of psychological well-being has another important implication for the focus of models of successful aging. Extant models, whether it is the WHO or the Rowe and Kahn model, can be referred to as outcome-based models. In other words, successful aging is determined by whether the individual achieves, for example, certain health and cognitive outcomes as determined by experts. Psychological theories of successful aging are, however, process-oriented approaches. Whether it is selective optimization and compensation (Baltes & Baltes, 1990), the dual-process model (Brandtstädter & Rothermund, 2002), or the lifespan theory of control (Schulz & Heckhausen, 1996), the emphasis has been on the strategic disengagement from unattainable goals while concentrating resources on pursuing

attainable goals in an optimized fashion. Doing so requires regular adjustments in goal definitions and prioritization in light of declines and losses, and dynamic allocation of proactive as well as compensatory strategies to maximize performance in selected domains. When we shift from outcome- to process-oriented models (i.e., from outcomes to pathways; Cheng, 2014), we turn away from restricted definitions of successful aging and encourage resilience in aging despite objective challenges (e.g., lack of access to health care, natural disasters) and childhood adversities (e.g., World War II, Cultural Revolution during 1960s–1970s in China) and disadvantages (e.g., lack of educational opportunities, lack of vaccinations, etc.) that are common in the current cohort of older people in Asia (see also Richards & Hatch, 2011; Schafer & Ferraro, 2012).

Organization of the Book

In light of the above comments and observations, we believe that it is constructive to organize the book into four parts, each addressing a certain dimension relevant to successful aging. As mentioned above, we do not necessarily view successful aging in terms of narrow outcome indicators, but rather, we think that it is important to be inclusive of approaches that examine the resilience of older people, or what Morley (2009) called “aging successfully” as opposed to successful aging. Although resilience is not limited to emotional aspects, research has focused on emotional well-being and therefore we will devote a part to emotional resilience. In the following, we briefly introduce the themes in each part.

The Social Contexts of Successful Aging

To date, most of the research on successful aging has focused on person-level factors, partly reflecting the belief that successful aging is an individual achievement. But while Kahn (2003) maintained that “the health-promotive behaviors that improve one’s chances for aging successfully must be enacted by individuals,” he acknowledged that “the factors that encourage or discourage and enable or prevent such behavior are social” (p. 61). Successful aging is, in other words, as much a collective as individual responsibility. Ignoring the social context in which individuals act not only impedes our understanding of successful aging, but could lead to victim blaming by dismissing those who do not age successfully as responsible for their “failure.”

Estes and Mahakian (2001) underscored the research gap in their comment that the “social and environmental factors . . . remain underexplicated, undertheorized, and underresearched in the work on successful aging” (p. 202). For while it is indeed the case that individual decisions affect the chance of successful ageing, it is also true that an individual acts within the constraints and opportunities posed by his or her environment. In particular, when basic needs such as financial security, medical

care, housing and food become a struggle, there is less time and resources for other, aesthetically valued activities that make aging joyful. The purpose of the chapters in part I is to elucidate the role of social structural and policy contexts in influencing the experience of aging.

The parts has four chapters, each focusing on one Asian nation—China, Korea, Singapore and Japan, respectively. Though different in timing, all four nations have experienced industrialization and the accompanied socioeconomic and demographic changes. Their populations are aging rapidly; but their success in economic and social development, unfortunately, has weakened the social ties and structure on which older adults in these nations rely to age well (Crampton, 2009). This legitimizes calls for government interventions. The four nations respond differently to such calls and offer a range of institutional arrangements that have implications to individual's opportunity to realize successful aging.

Japan has an advanced system of layered state-sponsored institutions that reduce the burden on the individual and family for critical health and social needs (Yong, Minagawa, & Saito, Chap. 6). By collectivizing the provision of basic services, such as health and long-term care, Japan lays the foundation for older persons to elevate life-quality along meaningful and personal dimensions. Moreover, the state imposes both constraints and incentives on firms to employ elders, and institutionalizes programs to promote social participation and aging in place, making it possible for most Japanese to have a productive and active old age.

Clearly, with an advanced and stable economy bestows the necessary financial resources, Japan is comparatively better positioned than other Asian nations to establish a comprehensive package of benefits. China, in stark contrast, is a transitional quasi-market economy that is in a rapid stage of institutional development. While economic growth has raised the standard of living for a vast majority of Chinese, income gaps across different sectors of the population have widened, resulting in health disparities in old age across rural-urban areas, regions, socioeconomic strata and gender (Li & Zhang, Chap. 3). The State is making progress to reduce social inequalities, yet awareness to contend for an aging society is still at a nascent stage. In addition, rapid urbanization that has accompanied the economic growth has intensified risk factors for chronic illness and disability, threatening the prospect of successful aging for the current and coming cohorts of older Chinese.

Korea is similar to China in terms of neglecting to prepare for the demographic shift. In spite of being a high income developed nation, Korea has a high rate of poverty among its older population (Kang and Kim, Chap. 4). The reasons for the high poverty rate are complex. One such reason is the gap between the statutory retirement age and the age eligible for public pension. Developing policies to close the gap seems to be a simple solution; yet cultural, structural and political obstacles exist. Older women are particularly vulnerable to poverty, and they may not benefit from changes in retirement age. Financial strain is a stressor that could take a toll on physical and mental health. Coincidentally, Korea has one of the highest rates of suicide in older persons among OECD (Organization for Economic Co-Operation and Development) member countries (Park & Lester, 2008).

Unlike China and Korea, Singapore began formulating policies for its older population very early on in the State's development (Chan & Matchar, Chap. 5). Guided by the State ethos of individual responsibility, its aging policies are carefully designed not to take over but to reinforce the responsibility of individuals, families and communities to ensure quality of later life. The State enforces individual saving plans for retirement and medical care, uses tax and other incentives to encourage families to care for their elders, and subsidizes Voluntary Welfare Organizations to deliver long-term care services to the poor. But changes in family structure are putting pressure on the State to take on more responsibility of old age care, and the coming cohort of older Singaporeans is challenging the State to redefine its role in supporting successful aging.

Each of the chapters in this part has a different focus, reflecting the unique social context of the country. As a whole, they illustrate the diversity among Asian nations in how they balance the role of the State and the family in old age support, redefine the meaning of old age, and meet the challenge of a graying society. As well, they offer insights about policy approaches to support individuals to age successfully in this region.

Family and Social Relationships

Other than the macro-level policies described in part I, another important source of support for older adults is micro-level family and social relationships. Social relationships form a critical safety net that secures older adults' well-being when they face both physical and emotional losses in later adulthood. Asian countries are known for their collectivistic culture and the emphasis on harmonious relationship and filial piety (Cheng & Chan, 2006; Kwan, Bond, & Singelis, 1997; Markus & Kitayama, 1991). Thus, social relationships, especially family relationships, play a particularly important role in helping Asian older adults achieve successful aging. In the meantime, Asian countries are undergoing rapid economic, social, and cultural changes in the recent decades. Such development inevitably brings pressure on the traditional structure and functioning of older adults' social network and lead to changes in their relationship dynamics (see also Cheng, Chap. 2). Part II introduces older adults' social relationships, especially the relationship between older adults and their adult children, and how these relationships evolve over time and influence older adults' well-being in the changing era in Singapore, Japan, Mainland China, Taiwan, and Hong Kong respectively. While an emphasis was given to family relationships, the role of non-family relationships (e.g., friendships, relationship with neighbors) was also discussed.

Many common trends regarding older adults' social network and how it affects well-being can be observed among different countries in Asia. To begin with, family remains to be older adults' major support source in this region. The deeply rooted Confucian tradition strongly emphasizes family cohesion and filial piety. Most older adults in this region prefer family support over formal support including community-based or institutional programs. Whether one's children demonstrate

filial piety is significantly related to older adults' well-being. More specifically, sons and daughter-in-laws are still the most common support providers in Japan, Mainland China, and Taiwan (Katagiri & Wakui, Chap. 8; Lin, Chap. 11; Zhang & Du, Chap. 10).

Despite the continued respect for traditional values, Asian countries are undergoing similar social changes in recent years. Young adults today tend to marry at a later age and have fewer children compared with previous generations, leading to decreasing fertility rate in the region. At the same time, longevity has been increasing in Asia in recent decades. The unprecedented aging population brings great challenge for families to provide adequate support to older adults, as there are relatively fewer caregivers but more care recipients within a family. Community and institutional support programs, and social security system are becoming necessary supplements of the traditional family support system (Katagiri & Wakui, Chap. 8; Lou & Tong, Chap. 12; Zhang & Du, Chap. 10).

Probably because of these social changes, as well as the influence of Western culture, the traditional norm about filial piety is changing. While the reciprocal aspect of filial piety is still highly endorsed in younger generations, the authoritarian aspect of filial piety is less accepted. The younger generation still believes it is their responsibility to provide emotional and instrumental support to parents, but they are less willing to follow the parents' wishes blindly, especially when it comes to the children's personal issues (Kim, Cheng, Zarit, & Fingerhant, Chap. 7).

Three-generational households are decreasing. More and more older adults now prefer to live independently but have frequent contact with children (Katagiri & Wakui, Chap. 8). Coresidence mostly happens when older adults' help is needed (e.g., taking care of grandchildren), or when older parents become sick or widowed. The traditional father-son relationship becomes less salient in the family system, while the husband-wife relationship is playing an increasingly important role. Marital satisfaction was found to have a stronger effect than intergenerational relationship quality in influencing older adults' life satisfaction in Taiwan (Lin, Chap. 11). The increasing acceptance of the gender equity notion also enhanced the interactions between married daughters and their parents (Katagiri & Wakui, Chap. 8).

In terms of the social exchanges between adult children and older parents, partly due to the extended education period and delayed marrying age of the younger generation, the current cohort of older adults tend to be supporting their adult children for a longer time than do previous cohorts (Katagiri & Wakui, Chap. 8). The amount of financial support provided to adult children is increasing, while that received from adult children is decreasing (Zhang & Du, Chap. 10). The development of more established social security system is an important contributor to older adults' rising financial independence in the region. In addition to financial support, older adults also provide help to their adult children by taking care of the grandchildren (Lou & Tong, Chap. 12), given that more and more women in the younger generation are working and cannot stay at home with the young children. Being independent and being able to provide support to other family members significantly contribute to older adults' subjective well-being. Nevertheless, this aspect of functioning may be suppressed by younger people's lack of respect for

their work, who think that the older generation's knowledge and methods have become obsolete, leading to disengagement from so-called generative goals (Cheng, 2009; Cheng, Chan, & Chan, 2008).

Although family members are the most preferred social partners for older adults in Asia, neighbors and friends are important substitutes to provide instrumental and emotional support to older adults when family members are not available (Tang, Chap. 9). As more older adults are living by themselves now, their children may not always be available to offer help due to geographical distance. Moreover, as belief in authoritarian filial piety is gradually fading, more conflicts may occur between older adults and their children. In these cases, neighbors and friends can be particularly important for older adults to maintain well-being.

Besides these common trends, each chapter also highlighted specific characteristics of older adults' social network in each country. For example, the economic inequality between urban and rural areas in Mainland China leads to different aging phenomena in the two areas (Zhang & Du, Chap. 10): People in big cities are more influenced by Western cultures and endorse traditional family values less compared with their counterparts in the countryside; better welfares in urban areas lead older adults to be less dependent on children's financial support; and migration of younger generations to big cities for better personal development leaves many skipped-generation households in the rural area (Kim et al., Chap. 7).

Together, the chapters in this part provide a comprehensive and up-to-date picture about older adults' social network dynamics in the rapidly developing Asia. Despite social changes leading to the weakening of traditional family roles, these authors suggest that the family is still the primary support resource for older persons in Asia, although they also note the relevance of friend and neighbor support when family members are not available. In the Asian context, coresidence with children, though becoming less common, is still considered by many to be the best vehicle to provide old age support. This stands in sharp contrast to North American and other Western countries. The chapters in this part also discuss how such dynamics in social relationships affect older adults' well-being. While displaying many common trends, different countries also demonstrate specific characteristics.

Optimizing Physical and Mental Health

While part I focuses on the impacts of social policies and part II focuses on the influence of the social environment, parts III and IV emphasize the role of the individual in successful aging. In particular, part III reviews the lifestyle risk factors that may contribute to some physical and mental disorders that are more prevalent in old age in Asia. It also reviews intervention efforts that aim at promoting healthy aging in Asia.

Needless to say, physical and mental disorders are significant challenges to successful aging. Chapter 13 by Yu, Chau and Woo reviews chronic disease burdens in different societies. Many chronic diseases, such as diabetes and stroke, are becoming more prevalent in Asia, leading to physical dependency on the part of

the older patients and heavy burden on the part of the caregivers. The increasing prevalence of chronic diseases and the heavy costs associated with them give rise to research to identify lifestyle risk factors which may be modified to enhance health and functioning.

Successful healthy aging requires the recognition that different systems of functioning are interrelated. For instance, age-related changes in body composition have impacts on physical and cognitive functions, even in the absence of diseases. These changes are associated with mortality and physical functioning levels, such that weight loss, rather than weight gain becomes more important, and promotion of lifestyle interventions targeted at weight maintenance would be important (Woo, Ho, Sham, 2001). The ratio of fat to muscle mass is an important factor affecting physical function (Woo, Leung, Kwok, 2007; Woo, Leung, Sham, Kwok, 2009), while cognitive decline frequently accompanies physical decline (Auyeung et al., 2008).

Probably because of this interconnectedness of different bodily systems, different lines of research have converged to a healthy diet (Lok, Chan, & Woo, Chap. 14) and regular physical activities (Woo, Yau, & Yu, Chap. 15) as major pathways to tackle a number of risk factors, including dyslipidemia, hypertension, hyperglycemia, and bone and muscle loss that are common to physical and cognitive declines.

The importance of lifestyle including nutrition for the health of the elderly has long been emphasized (Roubenoff, Scrimshaw, Shetty, Woo, 2000; Woo, 2000). The benefits of exercise for the health of older people have also been extensively documented (Bassey, 2000). Regular physical activity is associated with higher levels of cardiorespiratory fitness, leading to reduced risk of chronic diseases, disability and mortality. Recent studies have attempted to document the type, frequency and intensity of exercises (Blair & LaMonte, 2005), but data are lacking among the elderly population, as well as among Chinese people. Chapter 15 by Woo and colleagues reviews this scant but important literature in Asia. Other than physical activity, the roles of cognitive activities (Lam & Chan, Chap. 16) and diets (Yu et al., Chap. 13) for physical and cognitive health are also reviewed.

With respect to Alzheimer's Disease, there is increasing evidence that certain lifestyle factors predispose individuals to the development of this disease, which are amenable to modification, suggesting that there may be room for prevention through lifestyle modification (Flicker, 2010). Chapter 16 by Lam and Chan reviews successful interventions that prevent or delay cognitive decline by increasing physical exercises and/or intellectual activities. The impact of dietary patterns on cognition is also discussed. The emerging research focus on preventive lifestyle intervention for dementia is especially important as Asia, more so than any other part in the world, will experience a dramatic rise in dementia prevalence; the number of persons with dementia in Asia is expected to double in 15 years, with over 32 million cases by 2030 (Cheng & Zarit, 2013). Effective preventive lifestyle interventions may result in compression of morbidity and enable a longer active life expectancy (Cheng, *in press*).

In summary, this part examines the interconnection between physical and cognitive functioning, the trends in chronic illness and the implications for health and

social services, and the relationship between lifestyle (diet, physical and intellectual activities) and chronic diseases including Alzheimer's disease. Although some of these chapters are based heavily on a large volume of research conducted in Hong Kong Chinese older adults, the findings and messages are, for the most part, universal and applicable to other Asian societies. Special efforts to highlight the unique aspects in Asian societies, such as the preference for and the beneficial effects of tea (Yu et al., Chap. 13), are made. Of particular import are reviews of intervention programs to promote healthy aging in this area, some of which have just begun to emerge in the literature.

Emotional Resilience

While part 3 describes how an individual can maintain health and prevent diseases, part 4 reviews strategies that healthy older adults can employ to achieve successful aging. In this sense, this part aims at addressing the heterogeneity of successful aging. This part contains three chapters that examine successful aging in Asia from the perspective of the individual. Each chapter takes a cross-cultural approach, comparing the strategies that older adults in different countries (usually Asian countries relative to Western countries) use to maintain well-being despite physical declines and social losses (the so-called well-being paradox). Unlike the losses and declines associated with other aspects of aging, the socio-emotional aspect of aging is characterized by age-related stability or even improvement. Chapter 17, authored by Zhang and Ho, provides an overview on the many ways through which older adults enjoy a level of emotional functioning that is as high as, if not higher than, younger adults. The few studies on Asians (e.g., Chinese and Korean) suggest that older Asians also maintain their emotional functioning as well as their Western counterparts, but they may do so through different strategies. For example, while both Chinese and Germans increase the emotional closeness of their social networks with age, Chinese do so by increasing the number of family members and decreasing the number of acquaintances from their social networks but Germans do the opposite (Fung, Stoeber, Yeung, & Lang, 2008).

Chapter 18, authored by Yeung and Ho, focuses on the aging workforce. Despite cognitive and physical declines, both Western and Asian older workers manage to generally maintain their job performance through resource reallocation and regulatory behaviors (selection, optimization and compensation). They are also better at emotion regulation and conflict management than are their younger counterparts. However, cross-cultural differences occur in the specific strategies of emotion regulation and conflict management. For example, although emotional suppression, as an emotion regulatory strategy, is widely recognized to have negative outcomes in the Western literature (Gross & John, 2003), it has positive consequences for Chinese older workers (Yeung & Fung, 2012). While older Americans are generally more likely to use accommodating conflict management strategies and less likely to use competing conflict management strategies than are younger Americans

(Schieman & Reid, 2008), such age differences are not found among Chinese, as Chinese, regardless of age, prefer accommodating strategies to competing strategies (Zhang, Harwood, & Hummert, 2005).

The above two chapters have also suggested potential causes for the cross-cultural differences in emotional aging. These potential causes usually focus on the distinction in values between the East and the West. For example, East Asians are more interdependent in their self construal (Markus & Kitayama, 1991) than are North Americans. They may value relationship harmony more (Kwan et al. 1997) and thus prefer accommodating conflict management strategies to competing strategies (Zhang et al., 2005). Moreover, Asians are more family-oriented than are Europeans (Bond, 1991). This may explain why Chinese increase the number of family members and decrease the number of acquaintances from their social networks with age but Germans do the opposite (Fung, Stoeber et al., 2008). In addition, the findings that Asians are more likely to engage in dialectical thinking whereas North Americans and Europeans are more likely to engage in analytical thinking (Peng & Nisbett, 1999) have been used to explain why Americans show preferential cognitive processing of positive information with age but Chinese, regardless of age, show equal processing of positive and negative information (Fung, Isaacowitz et al., 2008). Similarly, the findings that Americans value high arousal positive affect but Chinese value low arousal positive affect (Tsai, Knutson, & Fung, 2006) may be a possible explanation for why emotional suppression (i.e. decreasing the arousal level of an emotion) has negative consequences for older Americans but positive consequences for older Chinese (Yeung & Fung, 2012). In short, it may well be the case that people in all culture prioritize emotionally meaningful goals and seek to optimize their emotional functioning with age (Carstensen, 2006). However, to the extent that people from different cultures define different goals as emotionally meaningful, they may use different strategies to optimize their emotional functioning with age (Fung, 2013).

Chapter 19, authored by Löckenhoff and colleagues, argues that we should go beyond an East-west distinction to examine cross-cultural differences in emotional aging. Löckenhoff and colleagues have demonstrated that many well known beliefs about East-west differences in attitudes toward aging and older adults (usually in terms of Asians having more positive attitudes than do people from the West) are not supported by empirical research. Rather, macro-level factors, such as modernization and intergroup (e.g., the young vs. the old) conflict predict attitudes toward aging and older adults more than values (such as filial piety) do (e.g., Binstock, 2010). Across 26 countries, Löckenhoff and colleagues (2009) also found that East-west differences in aging perceptions were fully explained by differences in population structure (e.g., the proportion of older adults in the population) but not differences in collectivism-individualism.

Taken together, the three chapters in this part suggest that people maintain their emotional functioning with age, and Asians do so as well as people from other cultures. However, in terms of the specific strategies used to maintain emotional functioning, older Asians may employ different strategies from those of their

Western counterparts. Moreover, there are instances in which the same strategy has different outcomes for older Asians relative to their Western counterparts. Many potential explanations for these cross-cultural differences in emotional aging have been proposed. Although most of the existing evidence attributes these cross-cultural differences in emotional aging to East-west distinction in values, more recent research suggests that macro-level factors may play a more important role. Future studies should continue to explore theoretically meaningful explanations for cross-cultural similarities and differences in emotional aging.

Conclusion

On the whole, this book takes advantage of the burgeoning field of gerontology in Asia and pulls together some of the most active researchers to identify major issues related to successful aging, at a time when East Asia is undergoing rapid demographic transformations. As our life span is extended, what is equally, if not more, important is the maintenance of quality of life for as long as possible. There is perhaps no policy question that is more important, yet elusive at the same time, than this one in the field of aging. Unlike the West which has undergone a long history of aging, however, Asia has had a relatively short history to tackle such issues (Cheng, Chap. 2) and, for one reason or another, research into successful aging has been rather lacking. For this reason, this book brings together scholars working in diverse fields and intends to summarize the major research findings on a wide range of issues and challenges related to successful aging in this part of the world, in the hope that more (intensive) research will be developed in the near future.

As a recent review (Cheng, Chan, & Phillips, 2008) has noted, it may not be appropriate for many developing countries in Asia to simply follow the paths of the West which has historically adopted high-end and high-cost models of social and medical services for older people. In fact, it is increasingly questioned whether many European countries can sustain such high-cost models given the economic downturn as well as continuous aging of the populations (European Commission, 2012). The recognition that the mainstream literature on successful aging may not be entirely relevant for this region, as well as the rapid population transitions being seen in many Asian societies, beg the question of successful aging in the Asian context. Asia is a rather heterogeneous continent in terms of socioeconomic development and population aging, and in this book, we shall focus on a few countries where population aging is happening more rapidly than the other regions. Most of these countries lie in East Asia. This focus on East Asia also reflects to some extent the extant literature on aging in general and successful aging in particular in the international literature. As scientists in the field of gerontology, we do recognize that the international literature remains largely the yardstick for acceptable scientific rigor. Nevertheless, where appropriate, we do endeavor to bring to the attention of

international readers literatures published in Asian languages that have not been accessible to the international research community before. Our aim is to highlight both similarities as well as differences in relevant issues between East and West.

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Part I
Social Contexts of Successful Aging

Chapter 2

Demographic and Family Trends in Asia

Sheung-Tak Cheng

The phenomenon of global aging has been called both a “triumph” and a “challenge.” As much as it is a triumph of medical advances and public health over diseases, injuries, and malnutrition in many parts of the world, it also presents enormous economic, social, and health-care challenges to societies to sustain support to older persons. Accelerated aging of the population is often seen during periods of high rates of socioeconomic development which gives rise to improvements in health care, hygiene, nutrition, living and working environment, and so on. As Asia has enjoyed rapid progress in socioeconomic development in recent decades, it is no surprise that Asia is a rapidly aging continent. As we will see, many countries in Asia have only a small window of opportunity to formulate their plans and policies on aging that are suitable to the situations of their societies.

In the following, I will provide an overview of the demographic situation in Asia as well as family changes that coincide with these demographic transitions. In the context of aging, socioeconomic development may be considered a “double jeopardy” in this region. Socioeconomic development accelerates population aging as well as erosion to traditional family structure and values, while the family has long been the first line of support for older people in these societies. Thus, it is important to have a grasp of these two simultaneous forces that impact on the social landscape of older persons in these societies. But because there is already a section devoted to families and social relationships as well as some introductory remarks in Chap. 1, the coverage here is meant to illustrate key trends and highlight relevant policy issues in ensuring family care to older persons.

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Demographic Trends

In 2010, 53.2 % of the world's population aged 65 or over was in Asia. An index of the pace of population aging is the time required to double the percentage of older people from 7 to 14. While this has taken many developed European and North American countries 60 to over 100 years (National Institute on Aging, 2007), the whole continent of Asia will accomplish this in less than 30 years from now (see Table 2.1) and we are witnessing the beginning of this transition! This pace of aging is similar to Latin America and the Caribbean (which includes South America), which is also experiencing fast population aging as a result of socioeconomic development. However, the size of the population makes Asia the main driver of global aging in the decades to come (Cheng, Chan, & Phillips, 2008; Cheng & Heller, 2009). Between 2010 and 2040, 66.5 % of the world's older population *increase* would be accounted for by Asia, and within Asia, 42.0 % of the increase would be accounted for by China alone.

Asia as a whole is not an “old” continent, relatively speaking. The overall life expectancy at birth remains a few years below those of Europe and North America. Even by 2040, life expectancy for men would be 4–6 years lower than those for Europe and North America, and that for women was 6–7 years lower (Table 2.1). However, Asia is a vast continent and the pace of population aging varies a lot across countries due to differences in socioeconomic development. I follow United Nations mapping and present demographic figures for the four Asian regions in Table 2.2. Eastern Asia, which includes Japan, is noticeably “older” than the other regions. This region, including also China, the most populous country in the world that is undergoing rapid population aging (Population Reference Bureau, 2010), has more older persons than the rest of Asia combined. By 2040, Eastern Asia will have 385 million older persons, equaling the total of Europe, North America, and Latin America and the Caribbean combined. In terms of proportion, Eastern Asia will have 24.2 % of its population aged 65 or over by 2040 and be one of the oldest regions in the world (the other one being Europe where population aging has started much earlier).

Compared to Eastern Asia, South-Eastern Asia is a much smaller region. Yet, it shares with Eastern Asia as having more accelerated aging than other areas. In 2040, the proportion of population aged 65 or over will be roughly 2.5 times the figure in 2010 for these two regions, compared with more modest increases in South-Central (India included) and Western Asia. Within Eastern and South-Eastern Asia, China is expected to double the proportion of people aged 65 years or over, from 7 to 14 %, within a 26-year time span (2000–2026); Thailand, 22 years (2003–2025); Singapore, 19 years (2000–2019); and South Korea, 18 years (2000–2018; see National Institute on Aging, 2007; U.S. Bureau Census, *n.d.*). Japan, being one of the oldest countries, had accomplished this aging phenomenon between 1970 and 1996. Taiwan, for which data are not available in the United Nations database (hence not listed in Table 2.3), is also experiencing rapid aging; people aged 65 or over accounted for 10.9 % of the population in 2011, increasing to 20.1 % in

Table 2.1 Aging in a global context: Demographic characteristics by continents

	Africa			Asia			Europe			Latin America and Caribbean			North America			Oceania		
	2010	2025	2040	2010	2025	2040	2010	2025	2040	2010	2025	2040	2010	2025	2040	2010	2025	2040
Median age	19.7	21.8	24.5	29.2	33.9	38.6	40.1	43.8	46.4	27.6	32.8	37.9	37.2	38.9	40.1	32.8	34.8	37.0
Total fertility rate ^a	4.37	3.59	3.03	2.18	1.99	1.90	1.59	1.76	1.89	2.16	1.89	1.79	2.04	2.06	2.07	2.45	2.36	2.24
Life expectancy at birth ^a																		
Male	56.1	60.8	64.8	68.5	71.6	73.9	72.8	75.9	78.1	71.6	74.3	76.4	76.4	78.4	80.2	75.5	78.0	79.8
Female	58.7	64.1	69.0	72.4	75.8	78.2	80.2	82.3	84.1	77.8	80.3	82.2	81.5	83.5	85.2	79.9	82.3	84.1
Number ages 65+ ('000,000 s)	36.0	59.9	98.2	279.1	478.5	772.9	119.4	153.3	182.8	40.7	70.5	114.1	45.3	71.7	90.5	3.9	6.3	8.9
M:F ratio	1:1.2	1:1.2	1:1.2	1:1.2	1:1.2	1:1.2	1:1.5	1:1.4	1:1.4	1:1.3	1:1.3	1:1.3	1:1.3	1:1.2	1:1.2	1:1.2	1:1.2	1:1.2
% of total population	3.5	4.2	5.3	6.7	10.1	15.3	16.2	20.6	25.0	6.9	10.4	15.5	13.2	18.4	21.3	10.7	14.1	17.2
Number ages 80+ ('000,000 s)	4.4	7.9	15.3	47.2	80.9	158.9	30.9	39.1	57.1	8.5	14.9	28.8	13.2	16.9	34.8	1.0	1.5	2.7
M:F ratio	1:1.4	1:1.5	1:1.5	1:1.5	1:1.5	1:1.5	1:2.1	1:1.8	1:1.7	1:1.6	1:1.5	1:1.5	1:1.8	1:1.6	1:1.5	1:1.6	1:1.4	1:1.4
% of total population	0.4	0.6	0.8	1.1	1.7	3.1	4.2	5.3	7.8	1.4	2.2	3.9	3.8	4.4	8.0	2.8	3.4	5.3
Old age dependency ratios	6	7	9	10	15	23	24	32	42	11	15	24	20	30	35	16	22	28

Note. All figures were extracted from United Nations Population Division (n.d.)

^aData reported here were displayed on the United Nations database as corresponding to the intervals 2010–2015, 2025–2030, and 2040–2045 respectively. Data for individual years were not available

Table 2.2 Demographic characteristics by regions in Asia

	Eastern Asia			South-Eastern Asia			South-Central Asia			Western Asia		
	2010	2025	2040	2010	2025	2040	2010	2025	2040	2010	2025	2040
Median age	35.5	41.0	46.9	27.5	32.9	37.9	24.7	29.4	34.2	24.9	29.1	32.9
Total fertility rate ^a	1.6	1.6	1.7	2.1	1.9	1.8	2.6	2.2	1.9	2.9	2.5	2.3
Life expectancy at birth ^a												
Male	73.0	75.3	77.2	68.8	72.4	74.8	64.7	68.2	71.0	71.0	73.7	76.1
Female	77.3	79.9	81.7	73.3	77.2	79.7	67.8	71.8	74.9	75.3	78.1	80.3
Number ages 65+ ('000,000 s)	149.8	250.7	384.5	33.2	61.3	107.4	85.1	146.4	244.2	11.0	20.1	36.7
M:F ratio	1:1.2	1:1.2	1:1.2	1:1.3	1:1.2	1:1.2	1:1.1	1:1.1	1:1.2	1:1.3	1:1.2	1:1.1
% of total population	9.5	15.4	24.2	5.6	9.0	14.5	4.8	6.9	10.3	4.7	6.7	10.2
Number ages 80+ ('000,000 s)	28.3	47.5	88.4	5.1	9.5	21.4	12.0	21.1	42.4	1.8	2.9	6.6
M:F ratio	1:1.6	1:1.7	1:1.5	1:1.5	1:1.6	1:1.5	1:1.2	1:1.3	1:1.4	1:2.1	1:1.7	1:1.6
% of total population	1.8	2.9	5.6	0.9	1.4	2.9	0.7	1.0	1.8	0.8	1.0	1.8
Old age dependency ratios	13	22	39	8	13	22	8	10	15	7	10	15

Note. All figures were extracted from United Nations Population Division (n.d.)

^aData reported here were displayed on the United Nations database as corresponding to the intervals 2010–2015, 2025–2030, and 2040–2045 respectively. Data for individual years were not available

2025 (Department of Household Registration, Ministry of Interior, [n.d.](#)). Such a compressed time scale means that some of these developing countries, including China, will have to confront the challenges of population aging before they become socioeconomically and technologically advanced and have trained personnel ready to deliver various needed services (Cheng et al., [2008](#)).

Population aging is driven by increased longevity and fertility decline. Whereas the former is determined to some extent by improvements in health care, fertility is largely a matter of life choice. In many Asian countries, the decline in marriage rate, the delay in marriage age, as well as increases in divorce, are evident, while many couples choose to remain childless or favor one child voluntarily. Women who want children often delay it for the sake of occupational advancement, effectively compressing fertility to a much shorter time span. In China, the one-child policy has been in place for more than 30 years. The accelerated population aging in some Asian countries has been driven by sustained low fertility rates and rising longevity (Table [2.3](#)). All countries except Mongolia in Eastern Asia, as well as Singapore and Thailand in South-Eastern Asia, have total fertility rates well below the natural replacement rate of 2.1. Other than these low-fertility countries, other countries are expected to experience a gradual drop in fertility rates over time. Hong Kong had had fertility rates below 1 for almost 8 years in a row (1999–2006, except 2000) before rising above 1 again in 2007 (Census and Statistics Department, [2010](#)). Macau had a similar situation though of a duration shorter than Hong Kong (United Nations Population Division, [n.d.](#)). Taiwan reported a total fertility rate below 1 for the first time in 2010, at 0.90, while it was between 1.05 and 1.07 in 2011 (Chan, [2012](#)). These figures stood in sharp contrast to the world's overall figure of 2.45 (United Nations Population Division). The effect of low fertility on the population structure can be discerned by comparing Eastern with Western Asia. Western Asia is expected to have a faster longevity increase than Eastern Asia, but its proportion of the population that is 65 years or over is projected to be 10.2 % only in 2040, whereas it would be 24.2 % in Eastern Asia, owing in part to differences in fertility rates between the two regions. Islamic teachings on procreation and the adherence to religious teachings in countries in Western Asia may play a significant role in the higher fertility rates in this region.

Some scholars questioned whether total fertility rates below 1.5 would trigger a downward spiral in European countries (i.e., the low fertility trap), owing to declines in perceived ideal family size, job insecurity and declining income of younger couples, and a negative demographic momentum (Lutz & Skirbekk, [2005](#); McDonald [2006](#)). The first two of these factors, if not the third, have been evident for some years in low-fertility Asian countries. To combat possible population decline in the future, several governments like Singapore, South Korea, and Taiwan have instituted measures to encourage births, though whether the measures are effective remain to be seen. China is considering to relax the one-child policy on a gradual basis and predictions about its increasing fertility (Table [2.3](#)) may have reflected that assumption. The policy concerns of these countries are quite unlike other “youthful” countries in the region such as Cambodia, Laos, or the Philippines, for which family planning is currently the main focus (WHO Regional Office for South-East Asia, [2009](#)).

Table 2.3 Demographic characteristics of countries in Eastern and South-Eastern Asia

Country	% ages 65+						% ages 80+						Life expectancy at birth ^a						Total fertility rate ^a									
	2010		2025		2040		2010		2025		2040		Male		Female		2010		2025		2040		2010		2025		2040	
	2010	2025	2010	2025	2010	2025	2010	2025	2010	2025	2010	2025	2010	2025	2010	2025	2010	2025	2010	2025	2010	2025	2010	2025	2010	2025	2010	2025
<i>Eastern Asia</i>																												
China	8.2	14.0	23.3	23.3	1.4	2.2	4.8	4.8	72.1	74.6	76.6	75.6	78.4	80.6	1.6	1.6	1.7	1.7										
Hong Kong	12.7	21.8	29.4	29.4	3.6	4.7	10.1	10.1	80.2	81.9	83.4	86.4	88.0	89.5	1.1	1.1	1.5	1.5										
Macao	7.0	15.4	25.1	25.1	1.9	2.0	6.6	6.6	79.1	80.8	82.4	83.3	85.5	87.1	1.2	1.2	1.5	1.5										
Japan	22.7	29.3	33.8	33.8	6.3	10.6	13.5	13.5	80.1	81.9	83.4	87.1	88.9	90.4	1.4	1.4	1.7	1.8										
Mongolia	4.1	5.9	11.1	11.1	0.7	0.9	1.7	1.7	65.0	68.8	72.1	72.8	76.5	79.1	2.5	2.5	2.3	2.2										
South Korea	11.1	19.6	29.6	29.6	2.0	4.4	8.8	8.8	77.3	79.1	80.8	84.0	85.7	87.3	1.4	1.4	1.6	1.8										
<i>South-Eastern Asia</i>																												
Cambodia	3.8	6.0	9.2	9.2	0.4	0.7	1.3	1.3	62.2	67.5	71.1	65.1	71.4	75.5	2.4	2.4	1.9	1.6										
Indonesia	5.6	8.6	14.9	14.9	0.7	1.4	2.8	2.8	68.3	72.2	74.7	71.8	76.3	79.0	2.1	2.1	1.8	1.7										
Laos	3.9	5.4	8.9	8.9	0.5	0.7	1.3	1.3	66.4	70.5	73.4	69.4	74.3	77.5	2.5	2.5	1.9	1.6										
Malaysia	4.8	8.6	12.7	12.7	0.6	1.0	2.4	2.4	72.5	75.0	76.9	76.9	79.4	81.3	2.6	2.6	2.2	2.0										
Myanmar	5.1	8.4	13.9	13.9	0.8	0.9	2.1	2.1	64.1	68.9	72.2	67.9	73.3	76.8	1.9	1.9	1.7	1.6										
Philippines	3.6	5.8	8.5	8.5	0.4	0.7	1.5	1.5	66.0	69.5	72.7	72.6	75.6	78.4	3.1	3.1	2.6	2.2										
Singapore	9.0	19.5	29.2	29.2	1.8	3.6	9.2	9.2	78.9	80.6	82.3	83.7	85.5	87.1	1.4	1.4	1.6	1.8										
Thailand	8.9	15.0	22.2	22.2	1.7	2.7	5.5	5.5	71.1	73.8	75.9	77.8	80.0	81.9	1.5	1.5	1.5	1.7										
Vietnam	6.0	10.2	17.9	17.9	1.2	1.7	4.0	4.0	73.4	75.9	77.7	77.4	80.1	82.0	1.8	1.8	1.6	1.7										

Note. All figures were extracted from United Nations Population Division (n.d.)

^aData reported here were displayed on the United Nations database as corresponding to the intervals 2010–2015, 2025–2030, and 2040–2045 respectively. Data for individual years were not available

Modern medical advances have turned a number of formerly terminal illnesses, including certain cancers, into chronic diseases. Together with the success with public health in eradicating many communicable diseases, we are seeing an unprecedented reduction of death rates at advanced ages, and hence an extension of the average life expectancy. This region has the “oldest” country in the world—Japan. However, as much as population data need revision after new data are available, Hong Kong’s life expectancy at birth for men and women as shown in the 2011 population census have risen to 80.5 and 86.7 respectively, and was predicted to further rise to 82.9 and 89.2 respectively in 2026 (Census and Statistics Department, 2012; Cheng, Lum, Lam, & Fung, 2013). The pace with which life expectancy has increased in Hong Kong was startling and has led to revisions in many projections about future populations. If the same holds true for other parts of the world, then the trend of global aging would have been under-estimated in the past. Of course, projections are nonetheless reliable only if the underlying assumptions turn out to be reasonably accurate, and the further away the projection is, the less accurate are the predictions. Nevertheless, without further revisions to the data, Hong Kong may have surpassed Japan as the place with the longest life expectancy at birth for men and women (Census and Statistics Department). Together with one of the lowest fertility rates in the world, Hong Kong is expected to “catch up” with Japan around 2040 in terms of its population structure.

With life expectancy extended, the number of people living into very old ages (aged 80+ or 85+) increases. While many developing countries will take more time for this segment to catch up with the “older” countries in Europe and North America, Japan (13.5 %) and Hong Kong (10.1 %), along with Italy (9.9 %) are expected to lead the world in 2040 in terms of the proportion of population aged 80 or above. The significance of these figures can be discerned by comparing to the world overall (3.3), Asia overall (3.1), Europe (7.8), and North America (7.3). The very old is the group most susceptible to major diseases, disabilities, cognitive impairments, and long-term care placement. Not surprisingly, research has shown that successful aging indicators in the domains of physical health and cognitive functioning are less likely to be achieved with age (Chodosh, Kado, Seeman, & Karlamagla, 2007; McLaughlin, Connell, Heeringa, Li, & Roberts, 2010; Pruchno, Wilson-Genderson, & Cartwright, 2010; Yaffe et al., 2010). On the contrary, social participation and psychological well-being do not necessarily decline with age, at least up to a certain point. Research on ways to maximize participation and well-being in the very olds is currently lacking and will be an increasingly important topic in future research.

Another notable feature of population aging is the rising old age dependency ratio, defined as the number of older people to be supported by those aged 15–64 years. As can be seen from Table 2.2, old age dependency ratios will triple or almost triple between 2010 and 2040 in Eastern and South-Eastern Asia. By 2040, the old age dependency ratio will reach 39 in Eastern Asia, almost in par with Europe. Within this region, Japan was 35 in 2010 but rising to 63 in 2040! The projected old age dependency ratios in 2040 in other societies are: South Korea—52, Hong Kong and Singapore—51, Macau—40, and China—37. As a comparison,

the corresponding figures for the some of the older European countries are: Italy—57, France—43, Sweden—41, and U.K.—39 (United Nations Population Division, [n.d.](#)). In fact, the simple formula of the old age dependency ratio may mask the actual challenges societies will face, as the need to take care of an older family member with dependencies at home might take many more people out of the workforce, adding further to productivity decline.

The fears that the costs of supporting the increasingly larger numbers of older persons with a smaller work force has been called a “moral panic.” In this region, there is basically no comprehensive social security benefits for older people as a group. When there is, the benefits are often too meager to provide adequate support, although there are generally government measures to provide minimal support for the poor and the disabled. Moreover, not everyone is covered by pension or social security programs. In most countries, pensions are limited to government employees only, and retirement benefits are limited to formal workers, sometimes only those working in large corporations. Older people in rural areas are largely unprotected (see Cheng et al., [2008](#); Phillips, Chan, & Cheng, [2010](#); United Nations Economic and Social Commission for Asia and the Pacific, [2011](#) for reviews).

Concomitant Changes in the Family and Policy Considerations

Unlike characteristics such as longevity and fertility rate, family transitions amidst population aging are seldom discussed in conjunction with demographic changes. However, as Lowenstein ([2005](#)) has remarked, “Parallel to population ageing, marked changes occurred in families” (p. 403). Changes to the family are particularly significant for this region due to the traditional reliance on the family to provide care for older persons.

The same forces driving population aging—industrialization, urbanization, and socioeconomic development—are also the same ones that led to the decline of the traditional extended family system as well as values of familism and filial piety in the region. Cheng and Heller ([2009](#)) summarized several socioeconomic factors that have weakened these values in modern societies. First, without undermining the value of extended kinship ties to many older adults (Cheng, Lee, Chan, Leung, & Lee, [2009](#); Cheng, Li, Leung, & Chan, [2011](#)), it remains a fact that the extended family is increasingly replaced by the nuclear family, and the decline in household size and intergenerational co-residence is evident across societies (United Nations Population Division, [2005](#)). Second, the loss of financial status by older parents in industrial and post-industrial societies has weakened their ability to provide incentives, especially to sons and their wives as in a patrilineal society, for filial behaviors. Third, the changing role of women has enhanced their social status and financial independence, allowing them, particularly daughters-in-law, to negotiate domestic and caregiving roles. In some societies, subcontracting caregiving to paid helpers is common. Fourth, adult children tend to invest resources into their own nuclear family rather than provide support to their parents. Fifth, the increasing

trend of individualism reduces the value and solidarity of the family. Lastly, parents and adult children are often geographically separated, as in the migration of young people from rural to urban areas for employment in many Asian societies. It is also noteworthy that children living in the same area as their parents may feel less obligated to assist if it conflicts with their job demands.

As noted in Chap. 1, in most, if not all, Asian countries, children are still the preferred source of support. However, filial piety has become less of a contract in modern times than a virtuous devotion to parents and reciprocity for what parents had done for oneself when one was younger. As filial obligations are no longer adhered to in absolute terms, but are rather negotiated between generations, there are potential mismatches between what children are willing to provide (or think they should provide) and what older parents want.

The lack of political support for investments in welfare and health and social services has often been attributed to strong family values and the emphasis on family self-reliance in the region, although there may be additional factors in specific societies (Cheng et al., 2013; Oh & Warnes, 2001). It is often said that too much government intervention would undermine fundamental family values and functions. To ensure that adult children are supporting their older parents, China, Taiwan, Singapore, South Korea, and Japan have laws that mandate children to honor their financial obligations to parents. On top of the legal mandate, in some parts in rural China, parents and children enter into written contracts, termed “family support agreement,” to further regulate children’s support, mostly material, to parents (Chou, 2011). Hong Kong does not resort to legislative measures but requires children to declare they cannot or would not support their parents before the parents are eligible for public assistance, stigmatizing those children as undutiful (Cheng et al.). However, using legislative or administrative measures to ensure children’s financial support to parents may do more harm than good. On the one hand, it tends to legitimize that once children have provided financial security, their duties are fulfilled. On the other hand, parents and children may disagree on the amount of monthly payments, or children may offer payments but do so in a reluctant and even disrespectful manner, leading to more intergenerational tension.

A study in Hong Kong suggests that older adults value mostly the open display of respect and sick care from children, and emphasize material and practical assistance least. Unfortunately, personal care during times of illness was least available from children (Cheng & Chan, 2006). Another study suggests that lack of respect from children can be quite common, which discourages older people from enacting meaningful roles in the family and beyond (Cheng, 2009; Cheng, Chan, & Chan, 2008). It appears that older people nowadays treasure intangible more than tangible support. This may be increasingly the case as the next cohort of older people enjoy better financial security than the current one.

Unfortunately, adult children may misinterpret the needs of elders, believing financial contributions (including hiring paid helpers) to be their key roles, a concept that may be inadvertently reinforced by legal mandates and political discourses in certain societies. This often leads to the adult children being unavailable when their parent seeks a companion to share their concerns or simply someone to talk to, and

so on. There is a danger that certain government policies may unintentionally alter the most valued aspects of intergenerational relationship in Asian societies in the long run, though ensuring (material) support to older persons.

Concluding Remarks

While there is much to celebrate in terms of healthcare, technological, and socio-economic advances in Asia, the pace of population aging means that most Asian countries will have only a small window of opportunity to find effective policies and practices to address the many challenges for economic activities, healthcare, housing, and social organization including family structure. Many developing countries will thus have to tackle the many challenges of population aging before they become socioeconomically, technologically, and educationally advanced across the board. This is especially true for the countries in Eastern (especially China) and South-Eastern Asia. The increase of people in the very old age bracket implies more frailties and dependencies. Under such circumstances, there is a risk for moral panic, and to focus on older people's vulnerabilities, rather than opportunities for successful aging.

As has been pointed out in the introductory chapter of this book, successful aging is a multidimensional concept. Challenges in one dimension should not obscure opportunities in another. It is possible that Asian countries may, because of their unique cultural and social backgrounds, fare better in certain domains, such as social engagement, than others. There is no reason to underestimate their abilities to promote successful aging despite realistic limitations. However, to promote successful aging, governments need to invest resources in a decisive manner and to use the concept to guide policy development. More importantly, they need to foster a positive mindset in service providers and, most of all, in the people themselves. In this connection, it is important to note that a driving force of change may be older people themselves. The next cohort of older people will be more educated, more financially secured, more health literate, and more inclined to participate in social and community affairs. They will likely have different aspirations and expectations, compared with the current cohort, and will likely demand more from the government and service providers, rather than from their own families, to provide support for fulfilling various aspirations.

Nevertheless, politics and policies typically change only incrementally. The pace with which policies change lag far behind demographic and concomitant social and family changes. Outdated policies, such as mandatory retirement age in many Asian societies (see next section), pose significant risks to successful aging. Other policies reflect long-standing cultural values such as familism or family self-reliance but they, too, may be outdated in the sense that a mismatch may exist between the aims of these policies and the changing preferences of older people. To tackle the challenges of demographic aging happening at such a pace requires ideological shift in many Asian societies, and ideas of successful aging may very well provide the conceptual input into such developments.

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Chapter 3

Challenges to Successful Aging in Transitional China

Lydia W. Li and Jiaan Zhang

Introduction

The People's Republic of China (hereafter China) has the largest older population on earth as well as one of the fastest rates of population aging in human history, which makes successful aging a very relevant topic (Kinsella & He, 2009). While the definition of successful aging varies, cross-culturally there seems to be a consensus among older persons that good health and functioning is an important ingredient for successful aging (Fry et al., 1997). To policymakers, morbidity and disability in older people are a major concern because they have implications for health care costs and long-term support and services. Hence, in this chapter, we define successful aging as being healthy in old age. Health is a multidimensional construct. Our focus here is physical health indicated by chronic disease and physical functioning, and mental health indicated by cognitive function and depression.

China is the second largest economy in the world. But China's prominence in the global economy in modern times was relatively recent. It was until Deng Xioping took office in 1978 that China began economic reforms that included promoting market mechanisms and adopting policies to foster foreign trade and economic investment. In the past three decades, China's economic performance has stunned the world (WHO, 2008). But problems related to its economic growth, including income inequality and rapid urbanization, have also become more serious. In this

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chapter, we aim to contribute to a discussion about challenges to successful aging in the context of an emerging economy. The following sections are organized around three areas.

First, we evaluate whether there have been gains in older people's health in China since initiating economic reforms in the late 1970s. China has experienced unprecedented economic growth at an average annual rate of 9.4 % since the reform (WHO, 2008). Per capita gross domestic product (GDP) grew four times higher, in constant dollar terms, between 1990 and 2009 (Chen, Liu & Wang, 2011). The increased revenues should make it easier for China to allocate resources to improve the health of its citizens. Thus, our first question is whether recent cohorts of older Chinese are healthier and more likely to experience successful aging than their precedents.

Second, we focus on health disparities among older Chinese adults. Economic growth has not been uniform across China, creating substantial variation in income and wealth between regions, urban and rural areas, households, and across gender. And the gap has been widening. For instance, the urban-rural income ratio was estimated at 3.28 to 1 in 2006, up from 2.36 to 1 in 1978 (WHO, 2008). The Gini coefficient, a measure of income inequality with higher coefficients indicating more unequal income distribution, had increased from 0.31 in 1978 to 0.45 in 2004 for China (Tang et al., 2008). An important question, which we address in this chapter, is whether and how the odds of successful aging vary between social groups with varying socioeconomic advantages.

Finally, we discuss potential threats to successful aging in China in the coming decades. China is urbanizing at a rapid rate, resulting in major changes in lifestyle and the environment. These changes have encouraged the spread of health risk factors, including overweight, obesity and hypertension. As well, a large portion of the Chinese population is exposed to urban hazards such as pollution, traffic accidents and occupational injuries. Thus, our third question addresses the issue of how rapid urbanization and industrialization may influence the trend in successful aging in China.

Health Gains of Older People in China

Life expectancy in China has increased over the past few decades; from 67 in 1980 to 74 in 2010 at birth (WHO, 2011). Living long, however, is not equivalent to living healthy. In order to assess changes in health among China's elderly population, time trend data that allow for comparisons of cohorts of older people are needed. While such longitudinal data are rare in China, findings from the limited research in this area are encouraging. Overall, studies of this type suggest that recent cohorts of older Chinese are healthier than their preceding cohorts, and are more likely to live without morbidity and disability.

Saito and colleagues (Saito, Qiao, & Jitapunkul, 2003), citing Qiao's (1997) study that analyzed national data from several sources between 1987 and 1992,

report improvement in active life expectancy (defined as expected years to live without limitations in activities of daily living such as eating, dressing, and bathing) among older Chinese. For instance, active life expectancy among men and women at age 65 in 1992 had increased about 2 years compared to that in 1987. A positive trend was also reported for the period between 1992 and 2002 by Gu, Dupre, Warner, and Zeng (2009), based on an analysis of two national data sets. They found a significant improvement in physical functioning for persons aged 65 and older between 1992 and 2002. They concluded that there was an overall improvement in disease-free life expectancy and disability-free life expectancy, and oldest-old adults (80+) and women seemed to have gained relatively more healthy years than their respective counterparts.

Two national surveys of disability conducted almost two decades apart (1987 and 2006) have enabled researchers to examine changes in the prevalence of disability in China. In both surveys, disability was assessed by clinicians based on performance. Using these data, Liu, Chen, Song, Chi, and Zheng (2009) found an increase of disability-free life expectancy (DFLE) and a delayed onset of disability among persons age 60 or older. For example, the age of onset of physical disability was almost 5 years later in 2006 as compared with that in 1987. They also found health improvement to be more pronounced for the older-old (75+) and less obvious among the young old (aged 60–75 years). These findings were replicated in another study that used the same data source but included all age groups (from ages 0–4 to over 85) in the analysis (Peng, Song, Sullivan, Qin, & Wang, 2010). The researchers found that while the oldest-old age group (aged 80 or older) showed a significant decline in the rates of disability, the prevalence of disability had significantly increased for middle-age groups (those aged 45–59 years). They suggest that factors related to industrialization, such as work injuries, may have elevated the level of disability among those aged 45–59 in 2006. We discuss occupational safety and its implications to successful aging in China in a later section.

Health Disparities in the Chinese Elderly Population

Health disparities are differences in health in which disadvantaged social groups “systematically experience worse health outcomes or greater health risks than more advantaged groups” (Braveman, 2006, p. 167). It is a major concern in most societies because, as articulated by Whitehead (1992), such differences “are not only unnecessary and avoidable, but in addition, are considered unfair and unjust (p. 433).”

Even though there seems to be an overall improvement in older people’s health in China in the past few decades, health disparities have been observed by urban-rural, regions, socioeconomic status and gender. Of the four categories, the urban-rural divide in China has drawn the most scholarly attention. In the next section, we review known health differences between urban and rural elders. It is followed by a brief review of regional, socioeconomic status (SES) and gender disparities in older people’s health.

Urban-Rural Divide

China formally adopted and implemented nationally a household registration system (*hukou*) in the 1950s. It requires every Chinese citizen to register at birth their residential location and type, including belonging to agricultural (rural) or non-agricultural (urban) groups, based on their parent's *hukou* (Wang, 2005). The *hukou* system assigns individuals their geographic locations and the associated sociopolitical status and identity practically for life, as change of *hukou*, particularly from the rural to urban type, can only be attained through proper authorization of the government (Wang, 2005). Individuals belonging to rural or urban type of *hukou* are subjected to separate economic, population, social and health policies (Zimmer, Wen & Kaneda, 2010). Residential mobility was once very restricted but restrictions have lessened greatly since the early 1980s so as to fill the demand for cheap, low-skilled workers in cities and industrial zones. Despite the loosening of control, the system remains a source of disparate treatment for Chinese citizens.

One source of health disparity between rural and urban Chinese elders is that rural and urban residents have very different health care systems. To understand the difference, a description of each is presented below. We then summarize the literature related to health disparity between older persons residing in urban and rural areas.

Health Care Systems in Urban and Rural Areas

Before the market reform that began in 1979, the rural population in China was covered by the Cooperative Medical Scheme (CMS) which provided basic health and preventive care to almost all rural residents. The financing and structure of the CMS was tied to the collectivization of agriculture and the commune system of agricultural cooperatives. The CMS collapsed following the market reform, as the economic policy promoted a shift from collectivism to household responsibility systems. In the latter, family units were given the task of production and were entitled to sell their surplus in the market after fulfilling the procurement quota obligation. Without the CMS, health insurance coverage in rural China plummeted, from 85 % in 1975 to 9.5 % in 2003 (Ma, Lu & Quan, 2008). In response, the central government launched the New Cooperative Medical Scheme (NCMS) in 2003 to specifically target rural residents, with funding from the central and local governments as well as enrollee contributions. This new scheme is a voluntary program focusing largely on reducing out-of-pocket expenses for inpatient care. The benefit package varies geographically as local governments have discretion to design the program (You & Kobayashi, 2009).

Health care services are delivered through a 3-tier system in rural China. Village clinics, staffed by village doctors, provide basic health care to rural residents. Township health centers and county hospitals provide secondary and tertiary care (Wagstaff, Yip, Lindelow, & Hsiao, 2009). During the era of collectivized farming

(1950s–1970s), village doctors, called ‘barefoot doctors,’ were local residents supported by their agricultural communes. They received basic medical training from county or township hospitals. When the rural economy was decollectivized, the number of barefoot doctors greatly declined and some became private practitioners, making primary and preventive care less available and affordable to rural residents (Liu et al., 2006).

Urban residents have always had better access to health care than rural residents in China. Before 1998, urban areas had a Government Insurance Scheme (GIS) and a Labor Insurance Scheme (LIS) that covered government officials and workers, respectively (Wagstaff et al., 2009). Restructuring of state enterprises and rising costs of health care following the market reform rendered these insurance schemes inadequate. In 1998, the Chinese government developed the Urban Employee Basic Medical Scheme to replace the LIS and GIS. It was mandatory for all public and private sector employees to join the plan, with contributions from both employers and employees. Dependents were not covered under this plan. The gap was partially filled by the Urban Residents Health Scheme that was launched in 2007 and covered urban residents who did not have gainful employment or were not employed in formal sectors.

Before the market reform, work units (*danwei*) played an important role in the delivery of health services to workers and their dependents in urban areas. With the change to the Urban Employee Basic Medical Scheme, the government promoted the use of community health centers for primary care. Higher-level care is provided by district and city hospitals. All are public facilities staffed by medical professionals.

The dual health system in China yielded stark differences in urban and rural health care resources. In 2008, urban China had 22.8 hospitals per million people, and 70.6 doctors and 4.1 hospital beds per 1,000 people. The corresponding figures were 8.1 hospitals, 21.4 doctors & 1.8 beds in rural China (National Bureau of Statistics of China [NBS], 2009). The lower ratio of health care resources in rural areas, combined with the more sparse distribution of the rural population, means that rural residents have to travel a longer distance to access health services compared to their urban counterparts. Moreover, because government spending on health care is primarily in the form of subsidy to health facilities and most of the large hospitals are located in urban areas, urban residents receive much more government support for health care than rural residents (Wagstaff et al., 2009).

Health Disparities Between Urban and Rural Elders

Most studies comparing the physical function of urban and rural elders found a rural disadvantage. For example, several studies based on different waves of the Beijing Longitudinal Survey (BLS) show that rural elders were more frail (Yu et al., 2012) and had fewer years of healthy life expectancy (Tang, Xiang, Zimmer, Fang, & Kaneda, 2005) than urban elders. Using 2-wave panel data (1992 and 1997) from the BLS, Zimmer et al. (Zimmer, Kaneda et al., 2010) found that urban residents

remained active, defined as being independent in activities of daily living (ADLs), for a longer period of time than rural residents before becoming inactive or deceased, adjusting for age and sex. Even at age 85, urban men and women can expect to live two more active years than their rural counterparts. Findings from nationally representative samples of the overall population as well as older adults support those based on the Beijing samples (Peng et al., 2010; Zimmer, Wen & Kaneda, 2010). Peng et al. found that rural residents had higher rates of disability across all age groups in both 1987 and 2006, and the gap widened over time. But a few studies that analyzed data from the Chinese Longitudinal Healthy Longevity Survey (CLHLS), which included a large number of oldest-old Chinese adults in the sample, report that rural elders had better ADL function than their urban counterparts (Yin & Lu, 2007; Zeng, Vaupel, Xiao, Zhang, & Liu, 2002). Selective mortality may be a reason for such findings, as the oldest-old in rural China achieved longevity in spite of the adverse living conditions in the countryside.

Interestingly, studies often found rural elders to have fewer chronic conditions than urban elders (Yu et al., 2012; Zimmer, Kaneda et al., 2010). But Liu and colleagues (Liu, Albanese et al., 2009) responded with evidence that such findings may be an artifact of under-diagnosis, under-reporting, and selective mortality. They found that for diseases based on clinical assessment by the research team (hypertension and dementia), prevalence rates in urban and rural areas were similar. But rural elders were more likely to report chronic pain. Further, they found that rural elders were less likely to have adequate control of disease (e.g., 2.6 % of all cases of hypertension were controlled vs. 35.1 % in urban elders) and less likely to use health care services even after adjusting for age, sex and physical function.

It is unclear how urban and rural residents differ in the prevalence of cognitive impairment. A cross-national survey that included Chinese elders in urban and rural areas found a higher prevalence of dementia in urban than in rural areas, both before and after adjusting for age, sex and education (Rodriguez et al., 2008). But a large study in Shanghai reports that the prevalence of Alzheimer's disease was higher in rural than in urban areas, whereas for vascular dementia it was the opposite (Zhao, Zhou, Ding, Guo, & Hong, 2010). Nonetheless, research findings regarding rural-urban differences in late-life depression are quite consistent. Using both self-report and professional assessment of depression, a higher prevalence of depression was found among rural elders (Guo & Ying, 2012; Li et al., 2011; Ma, Xiang et al., 2008; Wu, Yue, & Mao, 2011). For example, Ma, Xiang et al. report that rural elders living with family members in Beijing were three times more likely to have depression than their urban counterparts, based on psychiatrist-administered assessment. Guo and Ying found prevalence rates of depression, assessed by the 15-item Geriatric Depression Scale (GDS), to be 1.76 times higher for rural elders compared to urban elders in Jiangsu province.

Health care access has been suggested as a major reason for the generally worse health outcomes of rural elders relative to urban elders (Liu, Chen et al., 2009; Ma, Xiang et al., 2008; Wu et al., 2011; Zimmer, Kaneda et al., 2010). Some have argued that the Chinese government's underinvestment in health care and delayed action in increasing health insurance coverage for rural residents have imposed a

major financial burden on the rural population, severely impeding their health care use (Ma, Lu, & Quan, 2008; Yip, 2010). Studies that analyzed data collected from the early 1990s to mid 2000s have consistently shown that rural residents were less likely to visit a doctor, be admitted to a hospital or seek any type of health care when sick (Gao, Qian, Tang, Eriksson, & Blas, 2002; Liu, Albanese et al., 2009; Yip, 2010).

Rural elders also have lower socioeconomic status than urban elders, which put the former at a health disadvantage. Studies have shown that the health service environment (health insurance coverage and health care access in the area) and individuals' socioeconomic status were independent predictors of health transitions (e.g., from ADL independent to ADL dependent) among older Chinese, although these factors did not completely explain the urban-rural disparity (Zimmer, Kaneda et al., 2010; Zimmer, Wen & Kaneda, 2010). Inadequate basic service provision that leads to unhealthy environmental conditions in rural communities, such as the lack of access to potable tap water, may also contribute to differences in health between urban and rural elders (Wu et al., 2011; Zimmer, Kaneda, & Spess, 2007).

Regional Variations

Western and central regions of China have a larger proportion of rural residents than the eastern region. Moreover, they have historically fallen behind the eastern region in social and economic development (Liu & Griffiths, 2011). The evidence indicates that the regional income gap has grown since beginning the economic reform. The income ratio between eastern and inland (western and central) regions, for example, increased from 1.7 to 1 in the late 1980s to 2.4 to 1 in 2004 (Liu & Griffiths, 2011; Luo & Zhu, 2008). In 2009, the average GDP per capita in Shanghai (in eastern region) was more than seven times of that in Guizhou, an impoverished province in the western region. Under China's decentralized fiscal system, the local government is responsible for financing a large portion of health spending. Regional inequality in wealth has created geographic disparities in spending power and health care access—residents in poor regions have access to fewer health services and lower quality of care than those in wealthy areas (Wagstaff et al., 2009). In 2003, government health spending was 340 Chinese Yuan (49 US dollars) per person in Beijing (in eastern region) and just 27 Chinese Yuan (4 US dollars) in Anhui (in central region) (Wagstaff et al. 2009).

There were wide variations in life expectancy across regions. For example, life expectancy at birth in Shanghai was 78 in the year of 2000 but in the poorest provinces it was 66—a gap of 12 years (NBS, 2010). Research has also shown differences across regions in older people's physical and cognitive function. For example, Liu et al. (2010) report great provincial variations in disability-free life expectancy at age 60, from 11.2 years in Ningxia (an autonomous region located in the northwest part of China) to 20.8 years in Shanghai, an almost 10-year difference. Generally speaking, the eastern region had the longest years of disability-free life

expectancy at age 60 (14.8 years on average), followed by the central (13.6 years) and western regions (12.8 years). Yin and Lu (2007) also found great provincial variation in ADL independence among the oldest-old (80–100 years old), with those living in southern provinces being more likely to be free of ADL limitations than those living in northern provinces. Others found regional differences in the prevalence of cognitive impairment. In a meta-analysis, Nie et al. (2011) report that on average Western China had a higher prevalence rate (14.7 %) of mild cognitive impairment than Eastern China (9.6 %).

Once again, the distribution of wealth and health care resources may be one reason for regional variation in older people's health. Liu et al. (2010) found that community-level socioeconomic indicators (GDP per capita, proportion of urban residents) and health care resources (hospital beds per 10,000) explained 40 % and 28 % of provincial variation in disability-free life expectancy among older women and men, respectively. Fang et al. (2010) associated regional differences in overall population health with provincial wealth and health resources, especially primary health care services. Others suggest that differences in the natural environment such as climate, humidity, and diet structure also contributed to regional variation in physical functioning among elderly Chinese (Yin & Lu, 2007).

Socioeconomic Differentials

In addition to the regional and urban-rural income disparities described above, the economic reforms since 1979 have also led to high levels of socioeconomic stratification within regions and areas. For example, inequalities in urban China have increased rapidly in recent years, primarily due to increases in unemployment (Luo & Zhu, 2008). But income inequalities in rural areas are slightly higher than that in urban areas. Rural households relying on farming as the only source of income are likely to be in the lower socioeconomic strata compared to those with some engagement in non-farm economic activities (Luo & Zhu).

A socioeconomic gradient in health has been reported throughout the world (Adler et al., 1994). There are three competing hypotheses regarding the relationship between socioeconomic status and health as one ages. The first is the divergent hypothesis, which suggests that disadvantages associated with low SES accrue over the life course to produce large disparities in health in later life (O'Rand, 2006). The second is the convergent hypothesis, which proposes that income and educational gaps in health diminish with age (House et al., 1994). The third hypothesis is that socioeconomic differences in health increase from early to middle age and then decrease in old age (House, Lantz, & Herd, 2005). All three hypotheses have received some empirical support with samples from Western nations.

In China, recent research has consistently shown that low SES, mostly commonly indicated by household income and education, is associated with poor physical health among older people (Kaneda, Zimmer, & Tang, 2005; Liang, Liu, & Gu, 2001; Liu, Chi et al., 2009). The association between SES and older people's

health persists even after controlling for urban and rural residence. For example, older people with low incomes and education were found to be more likely to have functional disability (Liu, Chi et al., 2009) and experience declines in physical function (Beydoun & Popkin, 2005), controlling for urban/rural residence, age and gender. In another study, low incomes were found to increase the odds of having hypertension among rural elders (Pang et al., 2010). On the contrary, education was not a predictor of ADL in oldest-old Chinese adults, a finding that may be related to the lack of variation in education among the oldest-old in China (Yin & Lu, 2007; Zeng et al., 2002).

Regarding mental health, the prevalence of depression was found to be higher for older persons with low household incomes and education in both urban and rural areas. This finding holds regardless of whether depression was assessed by psychiatrists (Ma, Xiang et al., 2008) or self-report using standardized scales (Chen, Hu, Qin, Xu, & Copeland, 2004; Chen et al., 2005; Gong, Wen et al., 2012; Guo & Ying, 2012; Li et al., 2011). For example, Li et al. found that poor economic status was associated with depression in rural and urban elders in Beijing, respectively. Older persons with low education, especially the illiterate, are vulnerable to mild and severe forms of cognitive impairment (Nie et al., 2011) and Alzheimer's disease (Dong et al., 2007; Zhou et al., 2006). For example, in Nie et al.'s meta analysis, the prevalence rate for MCI was 7.1 % in those with a middle school education, 7.7 % among those with a primary education, and 10.4 % among older adults who were unable to read.

In addition to SES in adulthood, there is evidence that socioeconomic status in childhood affects health in later life. Wen and Gu (2012) report that both childhood and adult SES predicted physical and cognitive function among older Chinese adults, and that adult SES did not mediate the effect of childhood SES. Low childhood SES may increase vulnerability for poor health in old age through multiple mechanisms, including receiving inadequate medical care and nutrition as children. Zeng, Gu, and Land (2007) found that inadequate medical services in childhood years increased the risk of ADL disability and cognitive impairment in advanced old age. Zhang, Gu, and Hayward (2010) report that nutrition deprivation during childhood increased the odds of having cognitive impairment in later years. Overall, this body of research supports the divergent hypothesis that the adverse health effects of socioeconomic disadvantages in early life accrue over the life course.

Gender Differences

As in most parts of the world, women live longer than men in China, with a gap of about 4 years in 2010 (Peng, 2011). Similar to what is observed in the United States (Newman & Brach, 2001), research suggests that older Chinese women have worse physical functioning than older Chinese men. A study based on a nationally representative sample of oldest-old Chinese adults found women to be more likely

than men to have limitations in activities of daily living (Zeng et al., 2002). Other studies have reported that relative to Chinese men, Chinese women had higher levels of frailty (Yu et al., 2012), lower levels of physical and psychological functioning (Wu et al., 2011), and were more likely to transition from a functionally independent state to a dependent state (Kaneda et al., 2005).

Moreover, women in China have a clear disadvantage in cognitive function in old age (Zeng, Liu, & George, 2003; Zhang, 2006). Research shows that women have a greater likelihood of Alzheimer disease (Zhou et al., 2006) and mild cognitive impairment (Nie et al., 2011) than their male counterparts. There is evidence that the prevalence of depression was higher in women than men among older adults (Chen et al., 2005; Ma, Xiang et al., 2008) although some researchers did not find gender differences in depressive symptoms (Guo & Ying, 2012).

The lower socioeconomic status of women in China may partially explain the female disadvantage in older people's health (Zeng et al., 2002). Zhang (2006) found that gender differences in cognitive function among oldest-old Chinese adults were reduced by 42 % after controlling for education (illiterate versus modest literacy) and occupation (agriculture versus non-agriculture). It has been reported that gender differences in ADL dependence were more pronounced in poor provinces (Yin & Lu, 2007), which may be related to a larger education and income gap between men and women in poor areas (Hannum & Park, 2002).

Policies Addressing Health Disparity

Health disparities in the elderly population discussed above suggest that opportunities for successful aging are not equally distributed among different sectors of the Chinese population. Tackling the causes of the disparity should certainly be on a successful aging agenda, and it would improve population health overall. Indeed, the Chinese government has taken actions to address the issue of income inequalities. Programs have been implemented to reduce rural burdens, such as the elimination of educational surcharges (*jiaoyu fujiào fèi*) in 2003 and the phasing out of the agricultural tax and most other related fees (2003–2006) (Park, 2008). Furthermore, China's "Go West" policy (or China Western Development) has encouraged economic development in the western region of China (Liu & Griffiths, 2011; WHO, n.d.).

Most noteworthy, however, is the progress in health care reforms. As mentioned earlier, the Chinese government launched a health insurance plan, the New Cooperative Medical Scheme (NCMS), for rural residents in 2003. Since then the central government has gradually and substantially increased its investment, from 8.4 million US dollars in 2003 to 1.7 billion in 2007 (Jian, Chan, Reidpath, & Xu, 2010). In 2010, the NCMS covered 836 million rural residents, or about 96 % of the rural population (NBS, 2011b). An analysis of national household survey data collected in 2003 and 2008 suggests that the urban-rural gap in the use of in-patient hospital service has diminished, especially in central China (Jian et al.). While

encouraging, the same study also found that rural residents were more likely to drop out of treatment due to cost concerns, suggesting that underinsurance is more a problem for rural than urban residents.

In 2009, the Chinese government announced a national health reform plan with the main objective to provide basic health care to all Chinese citizens in 2020. Funding of 850 billion Yuan (124 billion US dollars) was committed to an initial 3-year (2009–2011) implementation plan targeting the following areas: subsidizing insurance premiums, strengthening healthcare infrastructure at the community level, reducing disparities in public health provision, and carrying out pharmaceutical and hospital reforms. Two years after launching the plan, a series of achievements has been reported, including more than 90 % of the Chinese population having health insurance; the building of 648,400 village clinics, 32,700 township health centers, and 37,800 community health centers; and the adoption of an essential medicine list and zero-markup for drugs by 86 % of public primary care facilities (Liu & Griffiths, 2011; WHO, 2011). It is still unclear how much improvement in health care use that the plan has achieved, however. One barrier for health care use is out-of-pocket expenses. In 2009, out-of-pocket costs accounted for 41.4 % of total health expenditure (WHO). The high cost has prevented those in poverty from seeking early care and continuing needed treatment (Jian et al., 2010).

Rapid Urbanization and Health Risk Factors in China

Without the economic growth in recent decades, China's health care reforms would not have progressed in such a grand scale and velocity. But its economic growth also poses serious challenges to public health, and has implications for successful aging.

China is urbanizing at the fastest rate ever recorded, with its urban population increasing from 191 million in 1980 to 622 million in 2009 (Gong, Liang et al., 2012; Gong, Wen et al., 2012; Van de Poel, O'Donnell, & Van Doorslaer, 2012). A major source of this growth is rural to urban migration—nearly 40 % of people living in urban areas are migrants (Gong, Liang et al.; Gong, Wen et al.). Another factor is the expansion of urban areas caused by the conversion of farmland to urban use. While urban living offers many health advantages (e.g., better access to health care, health information and education) and better economic opportunities and community amenities, there are offsetting factors that increase the risk of injury, disease and disability.

Changes in Lifestyle

One offsetting factor is lifestyle. China is undergoing a nutrition transition to Western-style diets dominated by processed food with high fat contents (Popkin, 2008; Van de Poel et al., 2012). In addition, physical activity levels have decreased

due to changes in work activity patterns (from high-energy active work such as farming to more sedentary jobs such as those in the service sector), expanded use of motorized transportation, and increased preference toward television viewing for leisure.

Changes in diet and physical activity have led to rapid increases in overweight and obesity (Popkin, 2008). It was estimated that a quarter of China's adult population was overweight in 2004, with the rate of change in overweight status one of the most rapid in the world (Popkin). Analyzing longitudinal data from the Chinese Health and Nutrition Survey, Jones-Smith and colleagues (2012) found that among adults 18–50 at baseline (1989), obesity rates were more than doubled in women and more than tripled in men from 1989 to 2006. Moreover, they observed the emergence of a disparity in overweight by SES among women. More specifically, the odds of being overweight did not differ by education in 1989 for either men or women. By 2006, however, it was clear that women with lower educational levels had a higher prevalence of obesity. Among men, however, the opposite was found—more educated men had higher levels of obesity in 2006. In a meta analysis, Wang and colleagues (2007) report that there was an overall increase in overweight and obesity across all gender, age groups and geographic areas from 1992 to 2002, but young age men (18–44) and middle age women (45–59) had the fastest rate of increase. Xi et al. (2012) report that the prevalence of general and abdominal obesity increased between 1993 and 2009, with the most rapid rate of increase among those aged 40–59 years. They noted that the prevalence of abdominal obesity in 2009, in particular, was alarmingly high in Chinese adults, especially in women (45.9 % versus 27.8 % in men). Rising rates of overweight and obesity in young and middle-age adults are likely to increase the rates of such non-communicable diseases as diabetes, cardiovascular disease and osteoarthritis in the coming cohorts of older adults. Women with low SES may be particularly at risk of obesity-related diseases, due to limitations in knowledge and resources to make health-preserving adjustment in the rapidly changing food and physical activity environment (Jones-Smith et al.).

Environmental Threats

China's rapid industrialization and urbanization have also seriously impacted its natural environment. Air pollution is a prime example. Coal is China's main energy source. The rise of industrialization and expansion of urban populations have increased the demand for energy, resulting in high levels of airborne pollutants from coal burning (Van de Poel et al., 2012). Rapid increase in the use of motor vehicles, moreover, has elevated the level of vehicle emissions in both major cities and nearby rural areas. Two recent analyses illustrate the effects of air quality on older people's health. In one study, the researchers found that air pollution reduced healthy life expectancy (defined as the average lifetime that a person can expect to live without

a health condition; Wen & Gu, 2012). The effects were more pronounced for women than men. Women living in areas with good air quality can expect to live 5.23 more years without ADL limitations than women living in moderately to heavily polluted areas, controlling for age, health behaviors, and individual and community-level SES. For men, the longevity gain was 2.5 years. Another study found that air pollution was significantly associated with physical and cognitive function among older Chinese living in urban areas (Sun & Gu, 2008). Interestingly, those living in more economically developed areas were more susceptible to the adverse effects of air pollution than those living in less developed areas, which might be due to differences in the length of exposure to air toxins. Besides air pollution, water supply and quality in China are increasingly serious issues. The China Ministry of Environmental Protection estimated that more than half of the country's rivers were severely polluted, which may mean reduced access to potable water and a high risk of water-borne disease, especially for rural residents whose access to improved sanitation and safe drinking water have always been considerably lower than urban residents (WHO, 2008).

Industrialization and urbanization have also elevated occupational, traffic and psychological hazards. Industrial accidents and occupational diseases have risen in the past decade (Peng et al., 2010). Workplace safety enforcement is handicapped by low levels of work safety awareness, poor and old infrastructure, and lax management, especially in smaller cities and townships (WHO, 2008). Congested roadways in metropolitan areas in China are conducive to accidents, with pedestrians and cyclists particularly at risk of injury and death (Gong, Liang et al., 2012). The urban environment presents psychological stressors such as noise, overcrowding, tension, and social isolation, which may negatively affect physical and mental health (Liu & Griffiths, 2011; Van de Poel, O'Donnell, & Van Doorslaer, 2009).

Migrant workers living in the cities are more likely to be exposed to urban hazards. Given their lower status compared with urban natives, migrant workers tend to have fewer employment options, and thus are more likely to work in dangerous industries and unsafe environments. Migrants are more likely to commute by bicycle or as pedestrians, and reside in the unhygienic conditions of urban slums. Migrants are also vulnerable to discrimination, stigmatization and stress associated with finding jobs and housing (Gong, Liang et al., 2012). A primary cause of these disparities is the lack of protection and benefits afforded by the *hukou* registration. A large survey conducted in 2005 in Shenzhen, a top destination for migrant workers, found that 55 % of migrant workers were uninsured, 62 % did not visit a doctor when ill, and 49 % did not attend in-patient care upon referral (Mou et al., 2009). Young and less educated migrant women were more likely to be uninsured. Even though recent health reforms have enabled more migrant populations to have health insurance, lack of portability of insurance plans across regions is a concern for them. The number of migrant workers in China is very large—an official estimate was 145 million in 2009 which was about 11 % of China's total population (NBS, 2011a, March 11). The health trajectory of migrants is likely to influence the trend of successful aging in China.

Conclusion

Our prognosis for successful aging in China is mixed. The evidence indicates that recent cohorts of older Chinese are healthier than previous cohorts. China's economic reform beginning in 1979 has led to an overall improvement in the standard of living, which may have contributed to the health improvement observed among current cohorts of older persons. Nonetheless, extant research provides strong evidence that opportunities for realizing successful aging are not equally distributed. Reflecting social and economic advantages, people living in urban areas (versus rural), the eastern region (versus western and central), having high incomes and education (versus low) and who are male (versus female) are more likely to experience successful aging. How to reduce health disparities among older Chinese adults is a great challenge to successful aging in China. During the past two decades, the Chinese government has developed policies and increased investment in social programs to reduce social inequality, especially health care disparities. These actions by the central government should improve the odds of successful aging for socially disadvantaged groups, although the impact has yet to be evaluated and early evidence suggests that gaps in health care use remain. Furthermore, the prospect of successful aging in China is threatened by rapid industrialization and urbanization. Changes in diet, physical activity, work-related hazards, and the natural and social environment have intensified risk factors for chronic illness and disability. Cohorts of working-age adults who are presently dealing with these rapid changes in the economy and society might eventually demonstrate a reversal in the positive trend for health among Chinese elders.

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Chapter 4

Successful Aging and Economic Security Among Older Koreans

Suk-Young Kang and JeungKun Kim

Introduction

Over the past few decades, Korea has had remarkable economic growth (Koh, 2009). The Gross National Income per capita increased by 2,000 % in a 30-year period, from \$1,000 (in US dollars) in 1977 to \$20,000 in 2007 (Statistics Korea, 2008). Korea is one of a handful of countries that has successfully transitioned from receiving aid to donating aid to the United Nations (Choi, 2011; Chun, Munyi, & Lee, 2010).

Throughout this chapter, the older Korean population is defined as those aged 65 years and older. As of 2010, this age group made up 12 % of the total population (Korean Statistical Information Service [KOSIS], 2012a). Over 45 % of older Koreans live below the poverty threshold set by the Organization for Economic Co-Operation and Development [OECD]. The threshold used by the OECD is equal to 50 % of the median equivalized household disposable income; in comparison, the United States defines the absolute poverty line as being closer to 40 % (Forster & D'Ercole, 2009). The poverty rate among older Koreans is increasing (Seok, 2010). Economic insecurity is a serious threat to successful aging in Korea, particularly for women (Won, 2008). Even more startling, there is evidence to suggest that financial problems may be an important factor, after physical and mental health problems, contributing to suicide in older Koreans (Chang & Jin, 2012; Shin, 2011).

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Ironically, this aging cohort has lived through years of extreme oppression; they are “survivors,” as noted in various narrative life reviews of older Koreans (Kang & Han, 2002; Yang, 2011). They have endured the Japanese occupation before and during World War II (1910–1945), the US-Soviet Union military governments control before the Korean War (1945–1948), and the Korean War itself (1950–1953). Such political turmoil required the older Korean population to adapt to changing environments and sometimes abandon traditional pathways, lose educational opportunities and experience discrimination by the controlling foreign governments (Kang & Han, 2002; Yang, 2009), adding to their being vulnerable to financial insecurity. Korea needed to be completely rebuilt after the Korean War, basically starting from scratch.

Then, too, prior to the administration of Kim, Young Sam in 1993 (the Seventh President of South Korea), the country had been under military-rule dictatorships – the transition of power was authoritarian rather than democratic. Since 1993, the transition of power among the four subsequent Presidential elections has been peaceful. Before 1993, older adults did not have a chance to exercise their legal rights; not only did the dictatorship control the economic system (e.g., banking, stock markets), but the regime failed to prepare for any long-term economic investment. Thus, instead of investing in the welfare of its people, it invested heavily in energy and resources for a large military and a manufacturing company of heavy equipment. The lack of resources devoted to social programs continued even after Korea became a developed country. Consequently, the current Korean government is now struggling to create and implement adequate programs for its older population.

Rapid Aging in Korea

Korea has experienced exponential population growth, and its older population is the fastest growing among all OECD countries (Choi, Paik, & Seo, 2005; OECD, 2007). This rapid growth may be best illustrated by examining the growth of this population among other developed nations. As Fig. 4.1 reflects, it took 115 years for France’s older population to increase from 7 to 14 % of its total population, 73 years for the US, and 25 years for Japan. In Korea, that change is expected to occur in merely 18 years. Then, too, it will take 39 years for France’s older population to increase from 14 to 20 %, 21 years for the US, 12 years for Japan, and only 8 years for Korea (United Nations, 2011).

Numerous studies emphasize the close relationship between Korea’s dramatic increase in its older population and its rapid economic growth. High fertility rates in the late 1960s and 1970s led to an increased working-age population, which, in turn, positively resulted in short-term income-per-capita growth that, in turn, led to long-term population aging (Bloom, Canning, & Malaney, 2000; Bloom, Canning, & Sevilla, 2001; Bloom, Canning, & Sevilla, 2003; Bloom, Craig, & Malaney, 2001; Bloom & Williamson, 1998; Kelley & Schmidt, 1995). However, fertility rates have decreased since the late 1990s, which has resulted in an increased

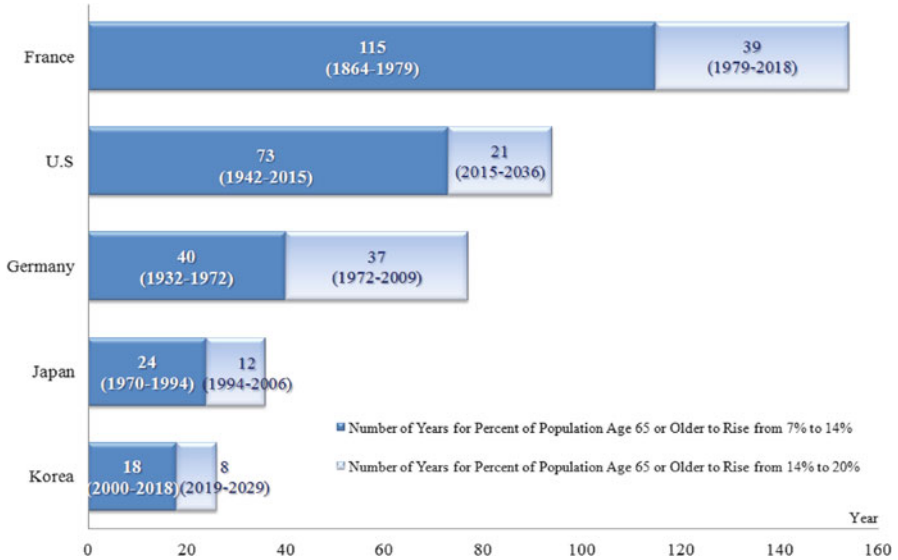


Fig. 4.1 Speed of population aging (Source: United Nations 2011)

dependency ratio. In other words, the demographic “bonus” of the 1970s has turned into a demographic “onus” with the aging of the adult working population (Chia, 2012).

Unfortunately, significant social policies and programs are lacking to cope with this challenge, especially in terms of establishing a social safety net (including financial security) because government-led strategies have focused on building an infra-structure for economic growth, known as “growth first, distribution later” (Lee & Kim, 2003). Unlike the US, Korea has only recently focused on social insurance systems, and private pensions are insufficient to ensure post-retirement economic security. We will discuss problems in the public and private pension systems in Korea in a later section.

Poverty Rate Among Older Koreans

Considering Korea’s economic growth, the poverty rate among older Koreans is exceedingly high. In fact, it is the highest among the 34 OECD member countries – 45.1 % of the older population in Korea were classified as poor in 2009 (Table 4.1). Table 4.1 also shows that women and those living in single households had the highest poverty rates among older Koreans.

Many factors contribute to Korea’s high poverty rate among its older population, including early retirement from “regular” jobs (defined in next section), a weak private pension system, high medical expenses, and changing family values.

Table 4.1 Income poverty rates (%) of older adults in selected OECD countries

	Poverty rates (%)	Gender		Household		Entire population (all ages)
		Male	Female	One older person	Older couple	
Belgium	12.8	12.7	12.9	16.7	10.0	8.8
Canada	5.9	3.1	8.1	16.2	3.9	12.0
France	8.8	6.6	10.4	16.2	4.1	7.1
Germany	8.4	5.1	10.8	15.0	4.7	11.0
Italy	12.8	8.1	16.1	25.0	9.4	11.4
Japan	22.0	18.4	24.8	47.7	16.6	14.9
Korea	45.1	41.8	47.2	76.6	40.8	14.6
Mexico	28.0	27.6	28.5	44.9	20.9	18.4
Spain	22.8	20.1	24.7	38.6	24.2	14.1
Sweden	6.2	4.2	7.7	13.0	1.1	5.3
England	10.3	7.4	12.6	17.5	6.7	8.3
US	22.4	18.5	26.8	41.3	17.3	17.1
OECD average	17.1	14.5	19.2	30.7	13.3	11.9

Source: OECD (2011)

Retirement Age and Pensions

A brief overview of the Korean labor market may help to better understand how the retirement age and pension system may affect the high poverty rate of older Koreans. In Korea, employment can be divided into a “regular job” and an “irregular job.” The former is one that provides retirement benefits and retirement can be clearly defined (Choi, 2005). “Regular jobs” are similar to the concept of full-time employment that offers a retirement benefit package in the United States. Most “regular jobs” in Korea have a mandatory retirement age, typically forcing workers out at age 55 or even younger.

Also, it should be noted that this “mandatory retirement age” is just a guideline and not legally enforced. Thus, it is not illegal for employers to force their workers to retire before age 55. In addition, the mandatory “retirement allowance” system provides companies with incentives to retire their employees early for they are required to pay their departing employees a lump-sum of at least 1 month of wages per year of work (OECD, 2012a). However, because of changes in the now limited public pension system, retirees are not able to collect retirement benefits until age 60 (Beginning in 2013 this increased to age 61). During this period, they must transition from a “regular” to a “non-regular job” or “contingent work” to make ends meet (Jang, 2012).

A significant portion of retirees, however, do not receive any public pension benefits at all. According to Korea National Pension System, only 13.5 % of older adults aged 75–79 receive public pension benefits, and among those aged 80 and over the percentage decreases to 1.6 % (Table 4.2). A reason for such low rate is that the Korean National Pension system has only been in operation since January 1988 (Korean National Pension Service, 2009). Even though it was introduced in

Table 4.2 Ratio of Korean public pensions and average monthly benefits by age group

	65–69	70–74	75–79	80 and over
Ratio of public pension recipients (%)	43.4	27.5	13.5	1.6
Average monthly benefits (US, Dollars)	218.8	177.5	137.1	116.8

Source: Korean National Pension Service [KNPS] (2012)

1973, two oil crises in the 1970s made implementation of social welfare programs impossible. To receive a public pension, an employee must have contributed into the system for at least 15 years prior to retirement (changed from 10 years in 1999). A retirement age of 60, for example, meant that those who had been working at age 46 or older in 1988 had little incentives to contribute to the public pension system. Additionally, even though it is a mandatory program, some groups including housewives, students, self-employed, temporary, or daily workers with low incomes are not required to participate. In 2011, 20.4 % of the total people who were heads of households were excluded from this national pension program (Ministry of Health and Welfare, 2012a).

Most Koreans in their 50s today are faced with the risk of having no regular income because of mandatory retirement from their regular jobs. Some begin to work in “non-regular” jobs or start their own small business to maintain their income. Having a “regular job” provides employees with an opportunity to enroll in one of four major social insurance programs in Korea: the national pension system, the national health insurance system, employment insurance, or worker’s compensation insurance. But those working in “irregular jobs” (e.g., temporary and/or “daily” jobs or becoming self-employed) are ineligible to participate in any of these social insurance programs. Non-regular jobs offer low wages (Goglio & Swaim, 2013). According to OECD, in general, non-regular workers earned only 57 % as much per hour as regular workers in 2010 (OECD, 2012a).

The rate of older people remaining in the irregular job market post-retirement is quite high compared to that of other countries. In 2011, 41 % of people between the ages of 65 and 69 were still working for substantially less pay and no benefits, twice as high as the OECD average. In fact, due to an inadequate income support system, the “actual” retirement age for Koreans is almost 70 years old (Lee, 2013).

Private pension coverage is limited in Korea. It only covers 26.6 % of workers aged 45 and over; for those aged 60 and over, the percentage drops to 0.7 % (Ministry of Labor, 2009). The limited scale of pension provisions, including public and private, explains why the poverty rate of old adults in Korea ranks the highest among OECD countries.

In addition, today’s older population does not have ample savings to sustain financial independence. Most of today’s older Koreans have no retirement investments and, due to the 1997 and 2007 economic crises, typically have no stored savings.

Economic insecurity in old age is expected to continue in Korea for the “Baby Boomers” born between 1955 and 1963. When the national pension program was introduced in 1988, retirees with a full 40 years of contributions were expected to

receive benefits at a 70 % replacement rate. However, that rate has gradually been decreasing and is expected to reach 40 % in 2028, far below the OECD average of 58 %.

It should also be noted that many “Baby Boomers” do not contribute to the public pension system, even though participation is mandatory. According to OECD (2012a), 30 % of the working-age population in Korea did not participate in 2010, while some of those who did participate, did not invest for the minimal 10-year time period. If these trends continue, only 35.9 % (who were born in 1955) to 50.3 % (who were born in 1963) of Baby Boomers are expected to receive public pension benefits from 2016 to 2026 (Yoon et al., 2011).

Changing Family Values

Family is the primary care unit for older Asians. Recent rapid modernization, however, has lessened the influence of traditional values, such as filial piety, that bind generations together (Kang, 2012). The younger generation no longer strictly follows long-held Confucius beliefs and values, such as the obligation to support their aging parents – typically referred to as “capital transfer.” However, with the rising cost of living, the younger population is now faced with challenges to care not only for their living parents, but also their own children (e.g., education, marriage ceremonies, and even housing) and themselves (KOSIS, 2012a).

Consequently, retirees may not be able to depend on their children financially, even though they may have sacrificed their own retirement funds to support their children’s education. In the Korean culture, a child’s education is valued more than a retirement plan.

One study found over two-fifths (42.7 %) of 1,000 Korean parents between the ages of 50 and 59, were concerned about becoming a burden on their children (You, 2012). Yet, middle-aged Koreans feel uncomfortable placing their parents in long-term care facilities (Lee, Kim, & Kim, 2010). Yet, unless their parents meet the stringent disability levels determined by the Korean government, they are ineligible for government support (Kim, Jung, & Choi, 2011). Not surprisingly, middle-generation Koreans (the “sandwich generation”) who are financially responsible for their younger and older generations often fall short of saving enough for their own old age.

Revision of the Civil Code

Previously, only males could be the head of a Korean household. Between 1961 and 1990, the first-born son had the right to inherit most of his parents’ property, as well as the right to be head of the household and heir apparent at the family memorial service ceremony. Following the teachings of Confucius, the first-born son must lead the annual family memorial service ceremony, which, in turn, gives him the

right to inherit the majority of family resources. This reflected the extent to which the Korean legal system systematically supported the teachings of Confucius. In 1990, a major change in Korea was the revision of this civil code related to family succession. In recognition of this injustice to females and younger siblings, Korean society enacted a legal basis for inheritance. However, this had a trickling effect on the caregiving responsibilities for aging parents. People believed that the care of, and responsibility for, older parents should be divided equally among the siblings (Statistics Korea, 2010). In 2005, the family headship system (*Hojuje*) was found unconstitutional and abolished 3 years later.

Unfortunately, these changes had the unexpected consequences of weakening the family's obligation to care for older parents, and the new inheritance law compounded the higher poverty rates among older females. Given this new civic code, children may want to divide up the inheritance with their mothers after the death of their father, thereby worsening the plight of widows. Unlike that in the United States, where the spouse typically receives the full inheritance (unless otherwise indicated in the will), Korean children receive the majority of the inheritance.

With such changes in retirement and inheritance laws, older retired Koreans have little opportunity to obtain financial security. They depend on a fixed income from the public pension system, which is quite meager when compared to Korea's cost of living (see Table 4.2). As the system stands, it is inevitable that retired adults must depend upon family members, especially their children. Subsequently, those who are at the greatest risk are older people living alone and disconnected from family members. Single households of those over the age of 65 have grown from 31.4 % in 2000 to 34.2 % in 2010 (KOSIS, 2012b).

Medical Expenses

With the country's national health care system, some Koreans believe that medical expenses are not an issue. In general, the national health care system is available to all Korean citizens, including "Korean Medicaid" (Hong, 2009) for the poor – similar to Medicaid in the United States. However, because of family support obligation rules, this "Korean Medicaid" does not relieve the financial burden for ill and poor older adults because it excludes older adults who have a child whose income is 185 % above the poverty line. In fact, in 2009, 58.4 % of all Koreans living below the poverty line were not eligible for "Korean Medicaid" for this reason (Korean Institute for Health and Social Affairs [KIHASA], 2010).

Another issue is the coverage limitation of the Korean national health care system, failing to adequately cover all the medical care needs of all Koreans and places even a great burden on older Koreans. Various healthcare needs, such as tests for cancer patients, require a co-payment or are entirely out-of-pocket expenses. Choi's (2005) study about Korean retirement and income found that approximately 12 % of older Koreans can be categorized as burdened by medical expenses.

Moreover, an in-depth analysis by the South Korea Welfare Panel Study in 2006 and 2008 revealed that the catastrophic health expenditures influence the high rate of related out-of-pocket medical expenses. This can be particularly problematic for older adults with one or more chronic conditions, including cancer, which may require several extra tests not covered by national health insurance. This ultimately may lead a continuous cycle that keeps those already below the poverty line from rising above it; in other words, the poor remain poor (Song & Shin, 2010).

Gender Gap and Poverty

The poverty rate for older Korean women is higher than that for older Korean males – 47.2 % and 41.8 %, respectively (Won, 2008). In fact, the income gap between women and men in Korea is the widest among the OECD member countries (OECD, 2012b). This gender gap may be influenced by cultural and systematic issues. Like many other societies, Korea has had a patriarchal social system, defining a man’s social status to be higher than a woman’s. Traditionally, the husband worked outside of the home to provide for his family; the woman’s place was to be a wise and good wife. Traditionally, women were discouraged from obtaining a formal education (see Table 4.3). Not surprisingly, over 94 % of Korean females over the age of 85 who lived alone either had no schooling at all or, at most, had attended only 1–2 years of elementary school (Kim, 2011a). Consequently, most women have been unable to contribute to their retirement through public or private pension systems.

Not surprisingly, a striking difference is seen in the percentage of male-female beneficiary by age range (see Table 4.4). For example, although Koreans aged 65–69 accounts for 43.4 % of the total public pension beneficiary population, only 25.1 % are females.

Based on an analysis of national data, Kim (2003) found a relationship between economic disparity and gender, marital status, and dependency on children. Specifi-

Table 4.3 Education level of older adults in Korea, by Gender

Gender	Age	No school (%)	Elementary school (%)	Middle school (%)	High school (%)	College and over (%)	Total (%)
Male	65–69	4.6	27.4	21.9	27.7	18.4	100.0
	70–74	8.3	32.9	18.1	23.5	17.2	100.0
	75–79	13.7	36.0	15.1	19.0	16.3	100.0
	80–84	22.5	37.9	14.0	12.6	12.9	100.0
	85+	35.5	35.0	11.0	8.8	9.7	100.0
Female	65–69	16.6	46.6	17.2	14.3	5.3	100.0
	70–74	29.4	46.8	11.5	9.1	3.2	100.0
	75–79	42.5	41.5	7.6	6.5	2.0	100.0
	80–84	56.2	33.2	4.8	4.4	1.4	100.0
	85+	69.5	24.0	2.8	2.7	1.0	100.0

Source: KOSIS (2013)

Table 4.4 Proportion of beneficiaries of public pension compared to the total population by age range and gender

	65–69		70–74		75–79		80 and over	
	Male	Female	Male	Female	Male	Female	Male	Female
Ratio of recipients	64.5	25.1	42.0	16.2	22.0	8.0	3.0	1.0
Average monthly benefits	248.6	152.48	202.7	127.4	153.8	107.8	128.3	101.6

Sources: KNPS (2012) and KOSIS (2012a)

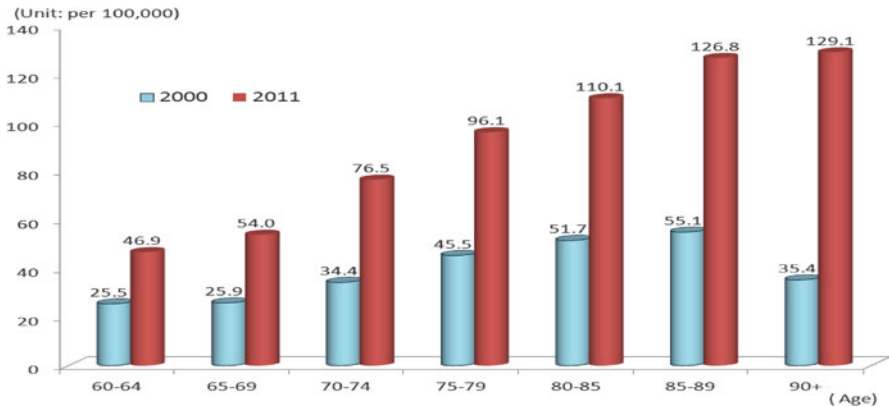


Fig. 4.2 Changes in Suicide rates among old adults in Korea (unit: per 100,000) (Source: Korean Association for Suicide Prevention 2012)

cally, older females depend on their husbands and children for economic resources. Being married has the greatest positive effect on older women’s economic resources, as compared to older males. Older women are more likely to live alone, given their longer life expectancy as compared to men (Kim & Lee, 2009). The average disposable income of an elderly woman declines from nine million *won* (US \$8,000) a year to 7.8 million *won* (US \$6,900) a year after her spouse dies (Kim, 2011b). Older women who reside with adult children, however, tend to have economic resources.

Suicide Among Older Koreans

The suicide rate among older people in Korea is the highest of all OECD member countries and that rate continues to rise. Between 2000 and 2010, late-life suicide in Korea increased from 34.2 to 80.3 persons per 100,000, whereas the average rate across the other OECD countries decreased from 22.5 to 20.9 (Jin & Ko, 2013). In 2011, of the 100,000 Koreans over the age of 65, 371 people had committed suicide (see Fig. 4.2). More worrisome is that the number of completed suicides among older Koreans increased 2.3 fold between 1990 and 2011.

Reasons for this rising suicide trend among older Koreans remain unclear. Physical health and mental health problems, combined with a correlation with poverty and financial strain, are often cited (Chang & Jin, 2012). According to a survey by the Ministry of Health and Welfare (2012b), 32.6 % of older Koreans believe that health problems were the primary reason behind contemplating suicide, compared to 20.3 % blaming economic hardship and 10.2 % loneliness. Other research (Park, Lee, & Kim, 2003) points to suicide rates among all Koreans are negatively correlated with economic growth (Korea's Gross Domestic Product [GDP]) and positively correlated with unemployment rates. Kim (2004) suggests that suicide rates among older Koreans were higher with decreasing economic growth rates (e.g., 1985, 1993, 1997, 1998, and 2001) and higher divorce rates. In Korean tradition, older persons have difficulty accepting the change in status associated with divorce.

Conclusion

This chapter presented the extent to which numerous changes Korea has faced over the past decades that have affected its older population. Although Korea has gone from a dependent to an independent nation, its older citizens are in need of assistance. Inherently, successful aging in Korea and many Asian countries is associated with financial security in old age. Unfortunately, many older Koreans lack such security and live below the poverty line.

To provide a safety net in old age, some Korean scholars have suggested raising the retirement age. In October 2012, the Korean government recommended employers to raise the retirement age from 55 to 60 because the full-retirement age of receiving public pension benefit will be raised from 61 in 2013 to 65 in 2033 and the early retirement age will be raised from 55 in 2013 to 60 in 2033 (Kim, 2011a; Shin & Kim, 2012). Currently, Korean employers are reluctant to change the existing system of mandatory retirements or raise the retirement age. For many private companies, Korea's seniority-based pay structure (as opposed to a performance-based pay structure) makes it an economic burden to retain older workers.

Furthermore, younger workers being promoted on performance-based pay structures may feel discomfort about supervising older workers. Korean culture-based virtues (i.e., respect for elders) need to be addressed. In Korean culture, young people must respect their elders, consequently younger managers often feel uncomfortable ordering older rank-and-file level employees. Hence, private sectors frequently prefer workers who are younger.

For social and economic change to occur, an inter-generational discourse is needed. Presently, the newly elected Presidential Transition Task Force has proposed using the national pension fund to provide living expenses for impoverished older adults. However, this is encountering opposition from members of the younger generation, who want to decrease the existing minimal benefits for the older

generation. Some believe that this is fallout from the 2012 Presidential election because an older adult defeated the candidate supported by the younger generation (Kim, 2012).

The most vital problem related to economic security among older Koreans is that the existing systems are not adequate for providing a safety net for those who have lacked opportunity to prepare for themselves and now must depend on the younger generation whose value system is different from that of the older generation.

This chapter has aimed to clarify the dilemma facing the Korean older population. During the past century, Korea has undergone myriad social, governmental, and economic changes that have had far reaching implications. As with any country experiencing a new form of government, Korea has faced numerous challenges and few resources. Unfortunately, the older population is being left out. On the one hand, they are forced into retirement at age 55; on the other hand, there is no social programs/safety nets to provide some type of income that will sustain them for the remainder of their lives. This conundrum is further complicated by the fact that their adult children, who often have children of their own, lack the finances to support their parents. The government's lack of planning is leading to a disenfranchised population unable to age successfully. Unfortunately, without any interventions, this problem will not disappear, if not get worse.

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Chapter 5

Demographic and Structural Determinants of Successful Aging in Singapore

Angelique Chan and David B. Matchar

Introduction

In the next century, much of the world's older population (60 %) will reside in Asia (Mirkin & Weinberger, 2001). Singapore is one of the most rapidly aging populations in Asia; in 2011, 11 % of the population was aged 65 years and above and by 2030 this proportion will have increased to 19 % (Chan, Malhotra, Malhotra, & Østbye, 2010). These demographic changes have generated an increased focus on enhancing quality of life at older ages. Various conceptual frameworks attempt to describe “successful aging”, “healthy aging”, and “active aging” (Rowe & Khan, 1998; KPMG Consulting, 2002; WHO, 2002). The emerging consensus is that aging successfully is related inextricably both to health and social phenomena and that successful aging is a product of a coordinated effort between the individual, community, and the State.

Singapore's population provides a unique test case for exploring the social, health and economic consequences of aging for individuals in Asia. Singapore is well known in the region for its responsiveness to complex issues such as aging and the willingness of policy makers to consider a range of innovative approaches. Singapore was one of the first countries in the region that began formulating policies for its older population in the early 1980s. Since then various policies aimed at addressing the impact of aging on living arrangements, intergenerational transfers, intergenerational relationships, the health care system, health service delivery, and the legal and medical ethics surrounding care of older adults have been put in place (Chan, Malhotra & Ostbye, 2011; Chan, Malhotra, Woo, & Goh, 2011; Teo, Mehta, Thang, & Chan, 2006). These policies continue to generate vigorous debate

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regarding crucial questions such as the role of the state versus the family with regard to caring for older adults.

Policy makers are also aware that constant policy reformulation is needed given that future elderly will have longer life expectancy, higher education levels, higher lifetime incomes, and different attitudes towards the aging process (Chan & Yap, 2009). Singapore's current strategies will need to be aligned with the new demands of tomorrow's elderly. As such, solutions meant to answer the aging "problem" today such as building new nursing homes or complete reliance on family to support the elderly may not fulfill the needs and expectations of future elderly or "the silver tsunami" that they are often referred to (Oon, 2008; Matchar, Chan, & Thompson, 2012).

In this chapter we discuss the demographic determinants of population aging in Singapore and the economic, social and cultural issues that have arisen as a result of rapid population aging. We then provide a history of State responses since 1982 focusing more specifically on policies surrounding social support of the elderly and health care. In doing so we use existing research to underscore the heterogeneity of the older population in Singapore and make a case for more specific policies for older women. Finally we discuss the incoming baby boomer generation of older Singaporeans who, we expect, will re-define successful aging in Singapore and influence future policy making for the people 60 years and older.

Singapore's Changing Demographics

Singapore became an independent country in 1965. At that time, the total fertility rate was 6 births per woman and average life expectancy was 50 years. By 1975, the total fertility rate had reached replacement level or 2.1 births per woman as a result of a particularly aggressive family planning program. Life expectancy has continued to rise and at present an average Singaporean can expect to live 81 years. As a result of these demographic changes, 38 % of the total Singapore population of 5.2 million will be aged 60 years and above by 2030 (United Nations, 2001) (Fig. 5.1). The fastest growing segment of the older population are aged 80 years and above (Fig. 5.2). Thus the burden of chronic diseases is expected to increase and this will have several financial and social implications for individuals, families and the State. One of the most pressing needs is the development of community-based care in Singapore. Historically the Singapore health care system has focused on the provision of acute care, however, this focus is no longer sustainable given the populations' changing health needs. This is a crucial issue in a discussion of quality of life as successful aging means successfully negotiating the realities of health conditions.

Rapid population aging in Singapore is also changing the social and economic contexts for older adults. Concurrent demographic changes such as later age at marriage, lower rates of marriage, increasing divorce rates, increased female labor

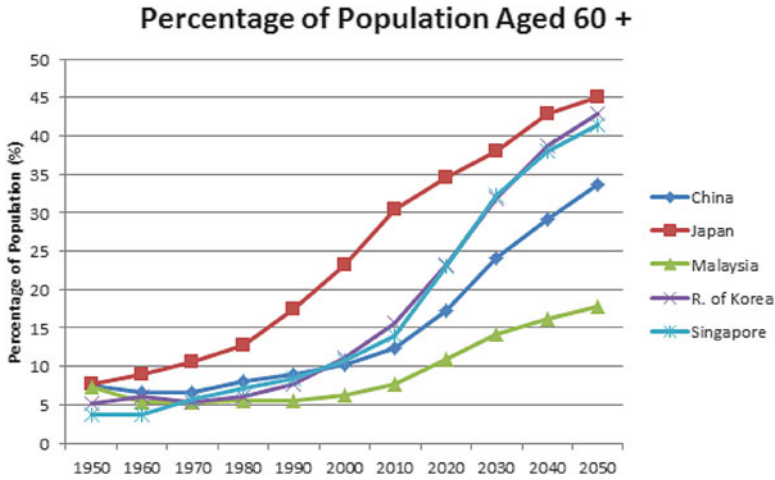


Fig. 5.1 Percentage of population aged 60 and over for five countries from 1950–2050 (Source: Population Division of the Department of Economic and Social Affairs of the United Nation Secretariat, *World Population Prospects: The 2010 Revision*, <http://esa.un.org/unpd/wpp/index.htm>)

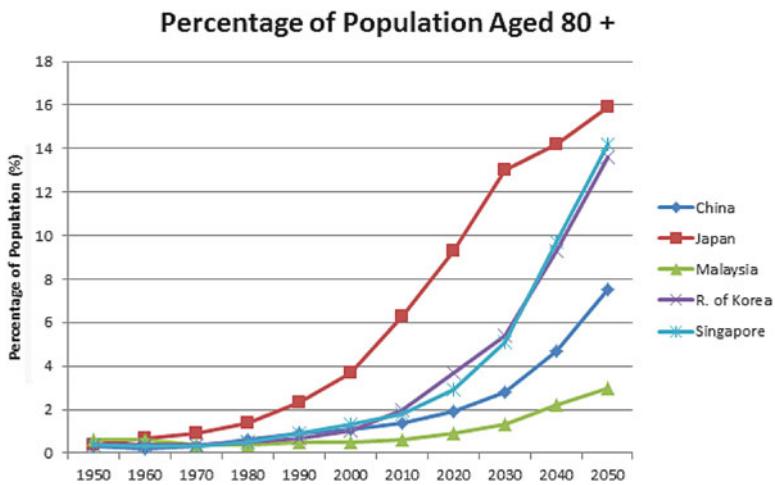


Fig. 5.2 Percentage of population aged 80 and over for five countries from 1950–2050 (Source: Population Division of the Department of Economic and Social Affairs of the United Nation Secretariat, *World Population Prospects: The 2010 Revision*, <http://esa.un.org/unpd/wpp/index.htm>)

force participation and higher rates of emigration translate into fewer family members available to provide support to older members. Persistently low fertility levels (the TFR reached replacement level in 1975 and has steadily decreased to TFR 1.2 in 2011) will mean that fewer individuals of working age will be available

in Singapore to support a substantially larger population of older persons. In 1990, 11.6 working persons aged 15–64 years supported one older person. By 2030, this ratio is expected to decrease to 3.5 working persons per older person (Teo et al., 2006). Without the implementation of sustainable policies to allow individuals to work longer, promote self care, and increase the ability of smaller families to support elders, the State will increasingly be called on to bear the responsibility of caring for older persons in Singapore.

Singapore's Policies to Promote Successful Aging

Singapore began introducing policies for older adults very early on in the State's development. Although the initial population planning focus was on lowering fertility levels, in 1982 the State formed a Committee on the Problems of the Aged which produced a report which highlighted the need to work at integrating older persons into Singaporean society and maintain the productivity of this older segment of the population (Teo et al., 2006); another report made in 1989 made similar recommendations. This was followed by the setting up of the InterMinisterial Committee on Ageing in 1999 comprised of members across relevant government ministries in Singapore (Inter-Ministerial Committee on Ageing (IMC) Report on the Ageing Population, 1999). In 2004, the committee was reformulated as the Committee on Ageing that produced a report in 2006 outlining a strategic 5 year Masterplan. The four thrusts of the recommendation are (1) to make Singapore an elder-friendly place "the best home for all ages", (2) making Singapore an inclusive society such that older adults are integrated with other age groups and that the environment is accessible, (3) to provide a continuum of health care and elder care that is of good quality, efficient and cost-effective and (4) providing opportunities for older Singaporeans to lead healthy and active lifestyles and promoting positive attitudes towards aging (Ministry for Community Development, Youth and Sports [MCYS], 2006).

In practice, Singapore policy makers have focused on several concrete issues to promote successful aging. At the individual level, policies aim to enhance and maintain individual self-sufficiency, primarily through financing old age and increasing formal labor force participation of older adults. At the familial level, social policies are geared towards encouraging and enforcing family relations, especially through intergenerational transfers. Through the provision of tax incentives for housing and legislation to enforce parental maintenance by adult children, the State upholds the philosophy that individuals and families should be the primary pillars of old age care. In recognition of changing social and demographic conditions, the State has recently begun developing an institutional care sector with an emphasis on long term care options and integrated care for chronic conditions. Moving forward, successful aging is being redefined by the Baby Boom generation – a reality that is being increasingly appreciated by policy makers.

Financing Old Age

Financial security in old age is a key element of successful aging. In Singapore, this has been approached in an integrated fashion through the Central Provident Fund (CPF), which serves as an umbrella for the major retirement, family savings, and health expenses.

The CPF is a mandatory savings plan for employees and the self-employed in Singapore. The scheme existed under British colonial rule and was adopted by the Singapore government upon Independence. The CPF originally consisted of an ordinary account and a retirement account. Funds from the ordinary account could be used to fund housing mortgages and children's education. In the first three decades following Singapore's independence this allowed many Singaporeans to buy their own property. Today, 90 % of Singaporeans own their own home, an indication of the State's success in encouraging Singaporeans to invest in Singapore.

Contribution rates are tiered by employee's age such that older workers (aged 40 years and above) contribute less as they mature. Employees contribute up to a maximum of 20 % of their monthly income depending on age. Employers contribute up to a maximum of 16 % depending on the age of the employee (Table 5.1). The amount contributed by employers has been adjusted historically as a result of economic recessions in the mid-1980s, 1997 and 2007. Some CPF funds can be withdrawn at age 55 years. The CPF special account, an account specifically earmarked for older age, can be withdrawn at age 62 years, however, account holders are mandated to maintain a minimum sum for their CPF accounts. In 2003, the minimum sum was USD66,000. In 2012, the minimum sum is USD115,833 (CPF Board, 2012). A minimum sum to be maintained in the Medisave account was set at USD4,116 in 1984 and is currently USD32,083 (CPF Board, 2012). Monies in the Medisave account can be used for inpatient services up to a maximum of USD375 per day. Approved outpatient treatments include chronic disease management

Table 5.1 CPF contribution and allocation rates (on Monthly Wages of \geq USD1,250 for Non-Pensionable Workers)

Age	Contribution by employer (% of wage)	Contribution by employee (% of wage)	Total contribution (% of wage)	Allocated to ordinary account (% of wage)	Allocated to Special account (% of wage)	Allocated to medisave account (% of wage)
≤ 35	16	20	36	23	6	7
36–45	16	20	36	21	7	8
46–50	16	20	36	19	8	9
51–55	14	18.5	32.5	13.5	9.5	9.5
56–60	10.5	13	23.5	12	2	9.5
61–65	7	7.5	14.5	3.5	1.5	9.5
>65	6.5	5	11.5	1	1	9.5

www.cpf.gov.sg

of diabetes, hypertension, lipids disorders or stroke, asthma, chronic obstructive pulmonary disease, schizophrenia, major depression, bipolar disorder, or dementia up to a limit of USD333 annually per Medisave account. Medisave can also be used for other outpatient diagnostics related to cancer and fertility treatments up to an annual cap of between USD333-500. There is an intergenerational element built into the Medisave policy such that an individual may use Medisave monies for him or herself and immediate family members.

There are significant gender differences in coverage of the program. The CPF scheme is only available to employees and the self-employed; hence many women are not covered by the program. Although Singapore has a high labor force participation rate for women, many cite significant barriers to reintegration into the work force, including lack of employment near home, lack of part-time employment or a lack of awareness of where to find employment (Chia & Lin, 2008). In 2007 official figures showed that the rate of employment of single women was similar to that of single men, but of married women, the rate is 56 %, versus 85 % for married men.

This leaves women in a particularly vulnerable position in old age. Among those currently aged 55 years and above, 41 % have CPF savings (MCYS, 2005), and the average balance for an individual over 55 years is USD43,981 (CPF Annual Report, 2011).

To address concerns by older people and their families that health conditions may induce financial catastrophe, various new components of the CPF have been introduced. A catastrophic health insurance scheme, MediShield, was introduced in 1990. In 2002, ElderShield, a disability insurance scheme for old age, was introduced as part of health insurance scheme under the CPF. It is an opt-out system and individuals qualify if they are aged 40 years and above. The scheme provides payouts for insured individuals once they become disabled. As of 2007, individuals who have three or more Activity of Daily Living Limitations can receive monthly payouts of USD331 for a period of 60–72 months (Ministry of Health, 2011).

Beyond the CPF, the state provides for elders with limited means through its Public Assistance Scheme (MCYS, 2012). Public Assistance stipends often fail to meet the expenses of older persons; the elderly often turn to Voluntary Welfare Organizations (VWO's) and other outside organizations for food and domestic items (Wong & Verbrugge, 2009).

Individual responsibility has been the recurring theme guiding State policy. One area in which this philosophy is manifest is in retirement policy. The State has gradually increased the retirement age from 55 to 60 years in 1988 and from 60 to 62 years in 1998. In 2011, the State established a re-employment act, making it necessary for employers to offer re-employment to workers who reach retirement (age 62 years); to be eligible for this initiative, such an employee must have maintained “satisfactory performance” and be deemed “medically fit to continue working” in the eyes of their employer (Tripartite Guidelines, 2011). If a position for an employee who meets these criteria is not available, the employer is obliged to pay an Employee Assistance Payment (EAP). An EAP is a one-time payment, which is advised to amount to 3 months salary but is set by the employer. It is neither taxed nor does it require CPF contributions from employee or employer.

When the individual and the family are unable to provide adequate care, the responsibility shifts towards community care administered by VWOs. To support community care, in 2000 an elder care fund was established under the Medical and Elderly Care Endowment Act to aid VWOs in financing operational costs (MOH, 2012a). Applicants to community long term care services have to undergo significant means-testing procedures in order to qualify for a government subsidy ranging from 25 to 75 % of the cost of services (unless the individual is destitute in which case 100 % of their costs are covered). As a consequence, a substantial amount of VWO services are supported by government funds, with corresponding oversight by the Ministry of Community Development, Youth and Sports (MOH, 2012b).

Formal Labor Force Participation

A minority of elders participate in the paid workforce. About 25 % of those aged over 60 years are employed; 18 % of those over 65 years are working formally. In comparison, these figures for Japan are 55 % and 29 % respectively (Reisman, 2005). Currently, 70 % of individuals aged 65–69 years in Singapore describe themselves as economically inactive (MCYS, 2010).

Low labor force participation may be partially explained by structural barriers that have pushed elders into labor inactivity. As noted by Teo et al. (2006), in 1980s, the State spurred a shift from a highly labor-intensive manufacturing economy towards one that emphasized “higher-end” manufacturing and business. This shift was promoted by low wages, labor stability, solid infrastructure, favorable geographical position, political stability, and various financial incentives (Teo et al.). In this process, younger workers displaced many older workers who were perceived as lacking up-to-date technological knowledge and whose expertise was outdated.

Though responses in the period consisted largely of rhetoric, more contemporary efforts like the Re-Employment Legislation Act have taken a more vigorous approach towards increasing the level of employment of older workers. This Act created incentives for companies to hire older persons, including lowering CPF contributions made by employers to an older employee’s account, retraining programs, one time bonuses (instead of pay rises), fewer fringe benefits, and a shorter salary scale. Retirement remains mandatory, however as noted, Singapore has gradually raised the retirement age from 55 years to the current 62 years to promote the continued employment.

Family and Intergenerational Relations

East Asian societies are generalized as having strong reciprocal tendencies within families (Verbrugge & Chan, 2008). Family, in this context, has been understood historically to include household members, as well as non-coresident children,

their spouses, and their children. This social unit has been the principal provider of support and care for older persons.

The relationship between elders and their children is not one-dimensional; elders provide services for their children, whether through administering to the needs of smaller children, aiding with housework, offering advice, or occasionally providing financial assistance (Reisman, 2005). Illness and disability greatly affect the amount of help an older person can lend to their family, as does one's socioeconomic position (Teo et al., 2006).

The position of the Singaporean family as the primary provider of elder care has continued today, however, external pressures such as increased longevity, increased female labor force participation, smaller family sizes, delayed child bearing, increasing rates of non marriage and divorce, increasing prevalence of chronic disease, and migration has made it harder for Singaporean families to care for their older adults (Thompson, Riley, Eberlein, Matchar, 2012). There is also evidence of a cultural shift; a larger percentage of older adults prefer living on their own and a larger percentage of young adults prefer their independence as well (Singapore National Family Council, 2011).

In Singapore, the solution is often found in the hiring of Foreign Domestic Workers (FDWs) from the Philippines, Indonesia, Myanmar and South Asia. These women are live-ins and provide round the clock care for older persons. As many as 80 % of families with an older person hire a FDW to provide care for the older adult regardless of whether the older adult lives with or separately from the family (MCYS, forthcoming). Unfortunately many of these FDWs are not trained in elder care and do not speak the Chinese or Malay dialects. As Singapore continues to age, the sustainability of relying on FDWs and issues surrounding the FDWs training in elder care will be a significant policy issue.

Despite the changes mentioned above, most older Singaporeans (72 %) live with at least one adult child (Chan, Malhotra, Malhotra, & Østbye, 2010) This is partly due to the fact that the average number of children in the current cohort of older adults (age 60 years and above) is 4. The average number of children among the incoming baby boomer cohort is 2.2 (MCYS, 2009). There remains a prominent expectation for children to help elderly parents financially. This expectation appears to be more frequent among older cohorts of the elderly and those with less formal education. Moral imperatives are not the only impetus for multi-generational coresidence in Singapore. The island's conspicuously high cost of living enters consideration for elderly Singaporeans and their children. Bearing this in mind, the government has offered material measures to reward families for looking after their elders. Tax breaks, for instance, are available for families that provide care for elders.

Singapore has allowed individuals to use their CPF or Medisave accounts to support their elderly relatives; account balances can also be pooled to finance the expenses of old adults. The government provides assistance to self-help groups that support family caregiving. An example of such a self-help group is the Singapore Action Group for Elders (SAGE), a VWO that runs a counseling center specifically

targeted at aging families. The support offered is small in comparison to the task of family caregiving (Mehta, 2006).

Singaporeans that chose to live with or near their parents can receive preferential terms for housing loans and housing placement. Distinctive housing was created for multiple generations living in close proximity to each other. Examples of these include multi-tier housing, in which multiple generations live within the same housing block, and “Granny” flats, a portioned apartment designed to enhance the independence of cohabiting seniors. Other provisions include the Joint Balloting Scheme, allowing parents and children to purchase flats near one another.

Even with assistance, a tremendous amount of stress is placed upon families that provide care to their elders. These families face an increased financial, not to mention psychosocial, burden as their relatives age. A 1995 survey of caregivers found that one third of family members that cared for their relatives experienced negative effects of caregiving (Lee, 1999). A quarter of respondents stated that caring for their relative led to the deterioration of their financial circumstances. Structural constraints, such as the inability to take Family Leave for sick elders, contribute to the stress and anxiety of even the most willing families (Mehta, 2006). “Sandwiching,” a phenomenon in which families must care simultaneously for their children and their elders, has increased in prominence. The success of post-independence family planning policies has resulted in fewer adult children available to care for elder parents. It is not uncommon for a couple with children to also bear the responsibility of supporting at least one elder parent.

With higher rates of singlehood in younger Singaporean generations, fewer family members will be present to care for elders (Reisman, 2005). About 17 % of those aged 35–44 were unmarried in 2000, compared with 10 % of those of the same age in 1990. As this frequency of singlehood continues to rise, Singapore will witness more individuals struggling to support one or both parents.

In the Singaporean family, women have been the main administrators of elder care. The role is usually fulfilled by a daughter. State policy, then, by putting the onus of responsibility on the family and community implicitly reinforces this cultural expectation of women as primary caregivers for the elderly. This role is made increasingly untenable by phenomena, like higher labor force participation by women and the additional responsibility of child care (Yeoh & Huang, 2010). Taken together, these roles place women in difficult situations in which they must juggle their careers, children, and parents.

The lack of available caregivers has caused many Singaporean families to turn to hiring FDWs for eldercare, particularly in middle and upper class households (Yeoh & Huang, 2010). A major enticement for this option of elder care is that domestic workers can also provide childcare and tend to household responsibilities. Programs exist that train foreign domestic workers in elder care. A “helper” might cost a family a few hundred dollars per month, not including board and lodging; Singapore charges a foreign “maid levy,” but this is reduced if the person hired assists with elder or childcare (Reisman, 2005). As most “helpers,” are female, however, eldercare remains a gendered occupation (Yeoh & Huang, 2010). With

a shift from institutional to community care, the model has been criticized as being contingent upon inexpensive and volunteer labor (Yeoh & Huang, 2010).

This stress often leads to estrangement between the elderly and their children. In certain circumstances, the State has instituted policies to ensure that children nevertheless provide economic support for their parents. In 1996 the Maintenance of Parents Act was created to allow older parents to take legal action against their adult children for not providing economic support (Attorney-General's Chambers, 1996).

Intergenerational conflict has increased in prominence. Elder abuse, though rarely reported, is thought to be prevalent enough to merit considerable attention (Mehta, 2006). More and more, the elderly are choosing to live alone. In this arrangement, however, older people often suffer from a deficit in adequate care that their family could have provided. They also significantly increase the likelihood of becoming socially isolated and impoverished.

Long Term and Chronic Care

Successful aging is often related to fulfilling an individual's desire to age-in-place, which is the ability to live as long as possible at home. The ability to age-in-place is compromised when community-based services are lacking. Historically, the Singapore health system has focused on acute care; as Singapore's population continues to age, greater emphasis will need to be placed on long-term care. Non-residential long-term care consists of home care, home therapy, home services, day rehabilitation, and dementia day care. Nursing homes, most of which are run by VWOs, provide a modest number of nursing home beds (currently about 9,000). Community hospitals offer step-down care following acute hospitalization. However, as noted below, the out-of-pocket cost for community hospitals has been a barrier to their consistent use and some long term care continues to occur in acute care hospitals until acceptable placement is found.

Singapore's network of VWOs are central to providing community-based care in the country. Much of their work is highly subsidized by the State. The services provided by these organizations include "door-step" services (i.e. in-home help, meal delivery), medical services, social-recreational activity programs, and educational programs. The state directly administers some day care services. These include Senior Activity Centers, the Wellness Programs, and the Senior Physical Activity Program. VWOs also run a befriending service for older adults that has been hugely successful and is undergoing expansion. The government recently introduced the Community Silver Trust, a billion dollar trust fund established and funded by the State; the hope of this fund is to have private sector funds match the government's commitment in financing long term care in Singapore.

Financing for long term care comes from multiple sources. Primarily, it consists of direct payments from an individual or family, using Medisave where possible, and assistance offered from VWOs or private operators. Individuals unable to pay out

of pocket can apply to Medifund, which is administered by the Ministry of Health. Increasingly, coordination of planning and financing is being centralized under the auspices of the Agency for Integrated Care (AIC), which was established as the “National Care Integrator” in 2008 (Agency for Integrated Care (AIC), 2012).

The demand for affordable nursing homes exceeds the available capacity. Currently Singapore has 209 beds per 10,000 individuals aged 65 years and above compared to the United States where there are 536 nursing home beds per 10,000 for the same population (E F Moody, 2007). In Singapore, most nursing homes are operated by VWO’s; a third are operated as privately-owned businesses (Reisman, 2005). For elderly with lower incomes, the State subsidizes nursing homes and non-residential care; eligibility for this subsidy is means-tested. Eligibility tests also limit access to publicly funded health and community services.

To promote successful negotiation with the complex health care system, one of the areas that Singapore is working to improve is transitional care and the integration of care. The transition from hospital to community is often fraught with medical, social, and financial issues that have tended to extend length of hospital stay particularly for older adults. Medisave can be used for in-patient hospitalization but not community-based care. This restriction to care creates an incentive to increase acute hospital length of stay. This may explain the observation by Reisman (2005) of a relationship between longer lengths of stay in hospital wards and age; the average hospital stay for an older person is 11.3 days whereas the average Singaporean stays in the hospital for 4.3 days.

In addition to social services and health support services, long-term care is increasingly aimed at addressing the growing prevalence of chronic medical conditions – a predictable consequence of aging. The dilemma faced by the State is how to expand access and quality of care without raising costs to unsustainable levels, and in a way that is consistent with the Singapore ethos of avoiding turning all of health care into a government-run enterprise. Efforts in this domain have included a broad range of community screening programs with referral to general practitioners, self-care education programs, as well permitting the use of Medisave funds for the care of specific chronic conditions, such as hypertension, diabetes, and depression.

“Baby Boom” Generation

Singapore’s “Baby Boom” generation consists of individuals born from 1947 to 1964. This group began reaching Singapore’s retirement age of 62 years in 2012. Currently, this cohort comprises roughly 30 % of the resident population of the island. The rapid development of Singapore distinguishes them from the earlier generation of elders. Baby Boomers will have greater retirement savings, higher rates of educational attainment, higher incomes, and “higher skilled” jobs than previous generations of elderly (Chan & Yap, 2009). Dramatically improved infrastructure in their lifetimes has, on the one hand, improved their health prospects; on the other

hand, behavioral and dietary changes have led to increased levels of obesity, vascular disease, and other chronic conditions.

Baby Boomer retirement preferences appear to be shaped by the amount of education they have completed. Individuals with less education are more likely to forego retirement; this same subset emphasizes income as the primary reason for employment in old age (Chan & Yap, 2009). Baby Boomers with more education stress reasons unrelated to income, like influencing younger colleagues and deriving a sense of meaning from their positions, as conditions that would impact their continued employment. The more education a Baby Boomer has received, the greater the likelihood that she will have a desire to live independently of children (Chan & Yap). There is a significant gap in educational attainment and employment between men and women of this generation, to the detriment of the latter.

The most common type of expected support from children for Baby Boomers is emotional, though men were more likely to expect physical care support (Chan & Yap, 2009). Women of this generation are more likely than men to rely on children and their spouse for financial support in retirement.

Alternative social and living arrangements are becoming more common with the Baby Boom generation. For instance, “singlehood,” i.e. individuals who have never married, is more prevalent in this subset of the elderly. The proportion of “single” older persons is expected to rise beyond 10 % by 2030 (Lee, 1999). It is important to stress that “singles” do not always live alone; they often share a living space with others. There is, however, an increase in the number of elderly living alone. In 1990, about 3 % of the elderly lived alone; in 2005, this proportion increased to roughly 8 % for those aged 65 and over (Wong & Verbrugge, 2009). Couples are increasingly likely to live independently of their children, defying cultural expectations. From 1990 to 1997, the proportion of elderly couples living without children increased from 7 to 15 % (Mehta & Vasoo, 2002). These alternative arrangements are not without effect. Those living alone, regardless of arrangement, are more likely to live with adverse economic conditions and suffer from poor health (Mehta, 2006).

These characteristics suggest Baby Boomers will require a qualitatively different manner of care from previous generations of elderly. More emphasis will be placed upon the emotional and social aspects of care, as opposed to financial concerns. Despite these idiosyncrasies, increases in all types of care will be required, given the size of this generation. In attempting to meet these demands, the cost for the state will invariably increase; the government, however, can ill afford to ignore the stipulations of the Baby Boomers. In the very near future, elder voters will become a quarter of the electorate (Reisman, 2005). The government has recognized the need to increase the civic and political participation of older adults. This is evidenced in the national dialogue which has made conversations with older persons a priority (http://www.channelnewsasia.com/stories/singaporelocalnews/view/1243055/1/html?utm_source=twitterfeed&utm_medium=twitter). According to the Member of Parliament, Baey Yam Keng, the concerns of older men (aged 45–60) included feelings of not being socially integrated and worries about being a burden to the next generation.

“They still have very traditional values, about caring for their families, taking care of their parents, and they feel sandwiched. And some of them are not able to keep up with the pace of the development of the country, and hence, they feel trapped. But at the same time, they do not want to burden their children.” (Baey Yam Keng, Member of Parliament as mentioned on Channel News Asia 16 December 2012 see http://www.channelnewsasia.com/stories/singaporelocalnews/view/1243055/1/.html?utm_source=twitterfeed&utm_medium=twitter)

Conclusion

The demographic and structural determinants of active aging in Singapore are complex and exceedingly fluid. The fundamental phenomenon underlying this situation is demographic. Not only is Singapore one of the fastest aging countries in the world, it has decades of decreasing fertility rates which has rapidly diminished family sizes.

These demographic shifts occur in the context of a well-established State philosophy of individual responsibility for social and health care. Greater demand for services, shrinking family size, and shifting expectations of the incipient elderly of the baby boom generation will continue to challenge the State ethos. To address the challenge, the VWO and private sectors are incentivized to provide more efficient and better quality social and health services. The government is promoting integration of non-government services, and engagement of the new wave of elders in the workforce, health promotion and self-care.

With the arrival of the Baby Boomers, the nature of active aging is further evolving; innovation in supporting those in this cohort to age well will become a matter of increasing urgency.

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Chapter 6

Policy and Program Measures for Successful Aging in Japan

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Introduction

In this chapter, we examine the social context of successful aging in Japan, a country in East Asia with one of the fastest growing aging populations and the longest life expectancy in the world. In particular, we focus on Japanese policy and program measures that have been undertaken to assist older adults to age successfully. We highlight socio-structural features of Japan that complement and enhance individual efforts in the aging process. In elucidating Japan's policy measures, insights can be gained on how a nation deals with the issues and challenges of its aged population, and this can serve as a useful reference for other countries facing similar demographics in the coming years.

The Japanese Context

The rather unique social context of Japan lends itself to some description. Japan, a nation of over 127 million people, is known for its mostly homogeneous, egalitarian and cohesive society. Japan's population is aging very rapidly as a result of declining birthrates and longer life expectancy. Fertility levels have been declining steadily

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and the total fertility rate currently stands at 1.37 children born per woman, way below the 2.1 replacement level. Japan's life expectancy is the longest in the world. Life expectancy at birth in 2010 was 79.64 years for Japanese men and 86.39 years for Japanese women (Ministry of Health, Labour and Welfare, 2011).

Consequently, the proportion of Japanese people aged 65 and older increased from 7 % in 1970 to 23 % in 2010, and is expected to reach 32 % by 2030 (Japan Statistics Bureau, 2010; National Institute of Population and Social Security Research, 2006). This translates to nearly one in three persons who will be 65-years old and over in the near future. Moreover, the segment of older adults aged 75 years and older is increasing at an even faster rate, giving rise to the coining of a popular term — '*cho-koreika*' (hyper-aging) — in Japan. These demographic trends have led to grave concerns among both Japanese policy makers and the public alike. Concerns are related primarily to the health and care of older Japanese, the impact of such care on the nation's healthcare expenditures, and sustaining Japan's economic productivity in the face of a shrinking labor force.

Traditionally, the care of older adults in Japan was provided informally by the family. Elderly Japanese parents typically coreside with the eldest married son and his family, and the daughter-in-law bore most of the responsibility for providing elder care (Hashizume, 2000). However, with rapid industrialization and urbanization, there have been changes to the multi-generational family structure and demographics which have reduced the availability, and increased the burden of, informal caregiving (Elliott & Campbell, 1993). The migration of young people to urban centers to seek employment while older parents remained in rural communities has resulted in a trend towards independent living by older Japanese. In overcrowded cities, housing is often too small to accommodate multi-generational living. Increasing female labor force participation has meant that women are less available to be at home to provide care. A rapid decline in fertility and smaller family sizes have also implied that there are fewer children available to give informal care. Furthermore, as the elderly are living longer, the caregivers themselves are also getting older and cannot adequately offer care (Ministry of Health, Labour and Welfare, 2002). All of these factors point to mounting difficulties in sustaining informal family care for older Japanese people. With these social changes, it has become increasingly clear to the Japanese government that the continued viability of family support systems is doubtful. Policies and programs that are supportive of, complementary to, and even independent of, informal support systems are needed to provide for the overall well-being of the increasingly aged population.

Thus, in 1995, the Japanese government issued the Basic Law on Measures for the Aging Society (Lilley, 2002). This law stipulated basic objectives, mandated an annual report to the national parliament, and established an Aged Society Policy Council chaired by the Prime Minister. A statement of general principles issued under the law followed in the next year. The principles included an emphasis on the independence, participation, and choices of the elderly population; systematic implementation of measures throughout the life cycle; and specific measures

in the areas of health and welfare, employment, social participation and active aging, and living environments (Lilley). Prior to and since the passing of the law, various policy and program measures for older Japanese have been formulated, implemented, reviewed and reformed accordingly. We look at the most pertinent measures in the rest of this chapter. Four areas will be reviewed, namely, healthcare, employment, social participation, and aging-in-place. When discussing Japan's healthcare policies and programs, relevant long-term care issues will also be briefly reviewed to illustrate the need to balance preventive and primary healthcare with long-term care in an aged population.

Healthcare for Older Adults in Japan

Universal Health Insurance Coverage

The Japanese government first established universal health insurance coverage for all its citizens in 1961. In 1973, at the peak of the economic boom in Japan, for political reasons, a Program for Free Medical Care was introduced for older Japanese aged 70 and older. When first implemented, the program did help economically vulnerable older adults. But over time the program put tremendous strain on, and affected the financial condition of, the health insurance system. The program also made hospitals a social gathering place for the elderly and caused a phenomenon known as 'social hospitalization.' The Free Medical Care Program was abolished in 1983 by the Law for the Health Care of the Elderly which introduced cost-sharing and required patients to pay a small amount of the medical fees out-of-pocket (Saito, 1999). However, increasing medical expenditures for the elderly was still a problem. In 2008, the Health Care Program for the Elderly was replaced by the Advanced Elderly Medical Service System.

The health insurance system also financed institutional long-term care (Campbell, 1984; Matsuda & Yamamoto, 2001). To meet the rapidly expanding needs for long-term care of older people, in 1989 the Japanese government introduced the 'Ten-Year Strategy to Promote Health Care and Welfare for the Elderly,' also commonly known as the Gold Plan.

The Gold Plan

The Gold Plan serves several specific objectives: to develop in-home services for the elderly at the municipal level, to reduce the number of bedridden older people, to establish a Longevity Social Welfare Fund, to rapidly develop institutional facilities, to enhance productive aging, to promote gerontological research, and to develop social institutions for the elderly (Ihara, 2000; Lilley, 2002). The basic principles

underlying the Gold Plan were autonomy, user-orientation, universality, supply of comprehensive services, and regionalization. Distinctive features of the Gold Plan were the shift to in-home services for older Japanese and the decentralization of services—municipalities were assigned responsibility for developing and implementing programs for the elderly and were required to produce a Local Health and Welfare Plan for the Elderly (Kolanowski, 1997).

The Gold Plan created a number of new services for older Japanese adults and their families. The new services included home-helpers, short-stay service facilities, home-visit nursing care, in-home-care support centers, group homes for the elderly with dementia, day-service centers, care houses, and multi-purpose senior centers. These services were provided by a variety of business entities including private-sector companies, social-welfare foundations, and agricultural, consumer and worker cooperatives. In Japan's major cities, high real estate prices and land scarcity made it difficult for local governments to build new facilities. To alleviate land shortage and encourage intergenerational contact, increasingly local governments built multi-purpose public facilities. There was also a growing trend to convert abandoned schools into public facilities that housed special homes for the elderly, classrooms for adult education, and civic centers. New services for the elderly were often located in the unused classrooms of active public schools or were combined in a single building with a child-care center (Kitamura, 2003).

A revision to the Gold plan was made in 1995. The New Gold Plan aimed to accelerate the development of services and included a strategy to rapidly increase the skilled workers required to provide the services. The new plan also began reimbursing families for the costs of home-care aides, nursing visits, home remodeling and special nursing-home care (Ihara, 2000). By 1999, 10 years after implementing the Gold Plan, approximately 3 % of Japanese over the age of 65 were living in institutions. Most of the targets set by the New Gold Plan had been met or exceeded nationally; however, there were gaps in certain municipalities and service types. Nevertheless, these targets helped to maintain older people's engagement in family and community to some extent.

The Gold Plan 21 was launched in April 2000 to continue development of programs and services for older people (Lilley, 2002; Tsuno & Homma, 2009). This plan sought to vitalize the image of the elderly, ensure and support their independent living with dignity, develop mutually supportive local communities and establish long-term care services users can trust (Tsuno & Homma). While the Gold Plan served its function in providing older Japanese with a wide range of services, over the years, the cost of long-term care services grew to become a large burden on Japan's health insurance system.

National Long-Term Care Insurance

In April 2000, the Japanese government enforced a national long-term care insurance (LTCI) law which essentially provided universal LTCI coverage for all

Japanese adults aged 65 and older. This national LTCI law was regarded as a watershed legislation that moved the country decisively towards a system of social care for its growing older population. The main objectives of the LTCI policy are to spread the burden of long-term care more evenly across society and to lessen the burden of caregiving on the family; to establish a cost-sharing mechanism for long-term care via tax revenues, insurance premiums and co-payments; and to provide older Japanese with the freedom to choose from a range of services provided by both public and private sector providers, the latter having been actively encouraged to enter the long-term care market to meet the rapidly increasing demand for care services (Campbell & Ikegami, 2000; Ihara, 2000).

Under the LTCI policy, all Japanese people aged 65 and over are eligible to be covered regardless of income, assets level or family situation. In addition, Japanese aged 40–64 who have disabilities caused by health-related conditions associated with aging (such as cerebrovascular conditions and early onset of dementia) and require assistance with activities of daily living are also eligible for benefits. The LTCI policy covers both home-based care services and institution-based facilities and services.

Implementation of the LTCI policy may have helped reduce the stigma attached to using welfare among older Japanese (Tsukada & Saito, 2006). Overall, the LTCI policy has contributed to the utilization and expansion of long-term care services. There has been some reduction in social hospitalization with a significant decrease in the number of geriatric beds covered by health insurance. Surveys conducted by the Cabinet Office of Japan (2010) showed that about half of all families who utilized LTCI services reported that their caregiving burden has been reduced. It is worth noting that there were two decisions made by policy makers when the LTCI policy was established. First, the LTCI was established as a social insurance. Second, an in-kind benefits system was chosen as a form of benefits payment (Ikegami & Campbell, 2002).

Care-Prevention Program

Care-prevention had been in place and its importance is recognized before the 2006 LTCI reform. The Care-Prevention program introduced in 2001 by the Ministry of Health, Labour and Welfare provides for the development of care-prevention plans to help older people stay healthy. The target clients of the care-prevention plans are older Japanese who are deemed independent and who have not yet requested for care services. Staff from local in-home-care support centers meet with their clients to prepare personalized plans that cover items such as participation in classes on good nutrition and fall avoidance and health consultations. The Ministry has also put together a manual for care-prevention programs and has trained people to serve as leaders in these programs at the prefectural level. The cost of the program has been shared equally by the local and central government (Ministry of Health, Labour and Welfare, 2001).

Healthy Japan 21 and 2nd Healthy Japan 21

Finally, apart from health and long-term care insurance schemes, the Japanese government has also, more fundamentally, recognized the importance of health-promotion and illness-prevention to keep older Japanese living as healthy as possible and out of hospitals and institutions. This is evident from the reforms made to the LTCI policy. Towards this end, a national health promotion framework, *Healthy Japan 21* (2000–2012), was constructed and launched as the national primary prevention program. Emphasis was placed on healthy behaviors and lifestyles such as improving dietary habits, increasing physical activity, eliminating taxes on fees at health promotion facilities, promoting appropriate relaxation and reducing smoking. Concrete numerical targets were set in each of these areas (Lilley, 2002).

In 2012, the Ministry of Health, Labour and Welfare reformed the Healthy Japan 21 and announced the 2nd Healthy Japan 21 (2013–2022). In this new health promotion policy, extension of healthy life expectancy and reduction in health inequality are the first priority over the next 10 years. Extension of healthy life expectancy was mentioned only briefly in the original Healthy Japan 21. The 2nd Healthy Japan 21 pays more attention not only to absolute length but also to the relative length of healthy life expectancy to life expectancy. As can be seen in Table 6.1, life expectancy and healthy life expectancy for both sexes increased from 2001 to 2010. In the estimation of healthy life expectancy, health status was defined by limitations in usual activities of everyday life. In a sense, the goal of extending healthy life expectancy was achieved. However, the proportion of healthy life expectancy decreased slightly. This indicates that over the last 10 years, population health status has not improved. One of the goals for the 2nd Healthy Japan 21 is to increase the proportion of healthy life expectancy to life expectancy, as well as the absolute length of healthy life expectancy.

With regards to health inequality, the Ministry of Health, Labour and Welfare presented the estimated differences in healthy life expectancy by prefecture in Japan. For 2010, the difference in healthy life expectancy between prefecture with the highest and the lowest is 2.79 years and 2.95 years for males and females, respectively. The goal of the new policy is to reduce the gap to less than the existing difference.

Table 6.1 Life expectancy and healthy life expectancy by sex in Japan: 2001 and 2010

		2001	2010
	Life expectancy	78.07	79.55
Males	Healthy life expectancy	69.40	70.42
	% of Healthy life expectancy	88.89	88.52
	Life expectancy	84.93	86.30
Females	Healthy life expectancy	72.65	73.62
	% of Healthy life expectancy	85.54	85.31
	Life expectancy		

Source: Ministry of Health, Labour and Welfare, 2012, information retrieved on September 30, 2012. <http://www.mhlw.go.jp/bunya/kenkou/kenkounippon21.html>

Employment and Re-employment of Older Japanese Workers

At the individual level, a longer and healthier life gives a person the choice to remain working longer. The many advantages of work for individuals are recognized: work keeps a person meaningfully occupied and contributes to self-esteem and identity. In addition, it helps a person stay physically active, mentally alert, socially connected, and financially self-reliant. At the societal level, older workers (65+) in Japan have one of the highest labor force participation rates in the OECD countries, at 29.4 % for males and 13.1 % for females (OECD, 2011). It has been noted that the reasons for this trend include a culture that puts a high value on remaining in the labor force throughout the life course, a long healthy life expectancy, a perceived economic necessity, a large proportion of self-employed workers, and the Japanese government's role in facilitating labor force participation among older workers (Williamson & Higo, 2009).

Since the 1990s, the Japanese labor force has been shrinking in tandem with continued plunging birthrates. Indeed, the population itself started to decline in 2006 (National Institute of Population and Social Security Research, 2012). The impending retirement of the large baby boom generation, which started to enter its 60th decade in 2007, was a further cause for concern, prompting new employment policy measures to be taken in order to maintain a work force vital to the Japanese economy and society and to allow individuals still able and willing to work to continue to do so. Some of the key work-related measures are discussed below.

Raising the Retirement Age and Promoting Continued Employment

The Japanese government has actively encouraged employers to retain older workers past 60-years old—the retirement age set by most companies in Japan. Phasing in the change gradually over a number of years, the government has been delaying the payment of public pensions from age 60 to age 65. In 2006, the Elderly Employment Stabilization Law was revised and passed to oblige companies to provide stable employment and keep employees until they are 65-years old so as to ensure that Japanese workers would continue to have a regular source of income between ages 60 and 64. Nevertheless, although by law older workers can remain in the labor force until age 65, the terms of extending employment are open to negotiation between employers and employees (Tsuno & Homma, 2009).

More recently, in anticipation of the Japanese baby boomers who are starting to reach 65 years of age from 2012 onwards, there has been a concerted attempt to further raise the retirement age to 70 or even to abolish the retirement age entirely and to introduce a structure of continued employment regardless of age. The option of abolishing the retirement age is most feasible in small-sized companies which are more likely to retain older workers, allowing them to continue working for as

long as they are able to do so. The option of introducing a structure of continued employment is more likely in large- and medium-sized companies which tend to replace older and higher-cost workers with younger, lower-cost workers, and select only a handful of older workers to continue working (Ministry of Health, Labour and Welfare, 2010).

There are positive and negative aspects of this policy for society. On the positive side, the policy reduces the burden on the Japanese pension scheme. Those who keep working can contribute to the pension system by paying for premiums and receiving reduced pension amounts. On the negative side, by keeping older workers, there may be fewer employment opportunities for young workers.

Re-employment of Older Workers

Measures to promote the re-employment of middle-aged and older workers have also been implemented. These include provisions for regular workers to be re-employed by transiting to contract work, working shorter hours or fewer days, engaging in job sharing, and other flexible work arrangements. Another measure is the active promotion of trial employment in which workers work for a trial duration before taking on a job which requires additional skill-sets. Additionally, the creation of collective employment opportunities for older workers to be re-employed is also encouraged. For example, if a group of three or more persons aged 45 years or older jointly start a new business and commit to employing middle-aged and older workers, a part of the cost of launching the business is subsidized by a government grant (Ministry of Health, Labour and Welfare, 2008, 2010).

Because the employment and re-employment of older workers entails financial burdens, strategic organizational planning (such as reviewing the wage structure and developing job categories) and changing mindsets, the Japanese government has put in place several related support structures. First, subsidies and financial incentives are offered to eligible employers and employers' organizations. Recognizing that the financial costs are particularly heavy for medium- and small-sized companies, subsidies are made available to businesses employing 300 or fewer regular employees covered by employment insurance that raises the retirement age or abolishes their mandatory retirement policies and introduces a continual employment system (Ministry of Health, Labour and Welfare, 2008, 2010). Companies implementing model activities that create new job categories, improve working conditions for the positive employment of older workers, and provide information and counseling for enhancing employment security measures are also given grants that are proportionate to the implementation costs and the accomplishments achieved. Second, Public Employment Security Offices (PESO) have also taken on the task of providing guidance and advice to companies on the establishment of various conditions related to the re-examination of personnel management systems, including revisions to wage and retirement benefit systems and the development and improvement of vocational capabilities for older workers. Specialists with professional and practical

expertise in the field of elderly employment, management, and social insurance serve as advisors to companies that are implementing elderly employment measures. Upon request, the advisors visit companies to give counseling and advice related to the identification and clarification of concrete issues, including procedures and methods for problem solving. In addition, advisors also provide training for corporate workplace administrators. Finally, various public information and educational activities have been developed for raising awareness of both employers and the general public about the employment of older workers.

Temporary and Short-Term Employment (Silver Human Resource Centers)

For older Japanese adults, particularly those who have already retired but wish to remain productive working in less demanding and light jobs, temporary and short-term community-based work is made available and promoted through Silver Human Resource Centers (SHRCs) that are located throughout Japan. SHRCs are established by local communities and serve a specific geographical area. Their primary function is to match older workers with appropriate employers within the community as well as to offer training and educational programs towards the objective of assisting older workers to obtain employment. Any worker over the age of 60 may register to become a member of a SHRC. The first SHRC was established in Tokyo in 1974 and it was a framework for older persons to work in the community. Funds from the Ministry of Health, Labour and Welfare are matched by local governments to pay for core staff, equipment, and administration. With the amendment of the law on Stabilization of Employment of Older Persons in 1986, other SHRCs were opened throughout the nation. As of March 2011, there are a total of 1,851 SHRCs in Japan and registered members total approximately 787,000 people nationwide (www.zsjc.co.jp).

Each SHRC negotiates for and generates contracted work with corporations, households, public organizations and others. It then allots the work to its registered members based on the work content, frequency and volume. The work that SHRCs undertake can be divided into several categories, including indoor and outdoor general work (e.g. park cleanup, weeding, building janitorial work, poster hanging), facility administration (e.g. administration of car parking lots, bicycle parking lots, schools, community centers, buildings, etc.), and office work (general office work, reception work, addressing of envelopes, etc.) (Bass & Oka, 1995). SHRC members are paid a set wage and the earnings they receive are not counted in pension-earnings tests and do not involve any pension penalties. The financial disbursements are calculated based on the content and duration of the work they perform. Compensation for work generally averages about 500–600 dollars (100yen = 1USD) monthly (Bass & Oka).

Temporary or short-term employment opportunities provided by SHRCs help retirees to be flexible and yet remain productive. These opportunities also prevent

older adults from becoming isolated from the community. However, in any given region their activity may hinder or compete with existing companies providing similar jobs such as gardening. In addition, there are reports of problems with health insurance coverage for injuries incurred while working.

Social Participation and Active Aging in Japan

The health benefits of social integration are widely recognized; more socially integrated individuals are at lower risk of having physical and mental health problems compared to their isolated counterparts (Berkman et al., 2000; House, Landis, & Umberson, 1988; Seeman, 1996). In particular, social integration is an important factor influencing the health of older people. Volunteer work, for instance, reduces the risk of death (Musick, Herzog, & House, 1999), lowers the level of depression (Musick & Wilson, 2003), and is predictive of better self-assessed health status among the elderly (Su & Ferraro, 1997). Why does being socially active yield health benefits, especially to older adults? The social role thesis provides plausible explanations. Individuals often experience social withdrawal with age as a result of retirement, reduced mobility, and the loss of meaningful relationships. From this standpoint, being a part of a community or social group reduces feelings of powerlessness, fosters a sense of purpose in life and, most importantly, provides general social roles and identity to older people (Lin, Ye, & Ensel, 1999).

In the face of the growing number of older people, the Japanese government has paid particular attention to social participation as the key determinant of elderly well-being. In 2001, the Cabinet Office of Japan launched the ‘General Principles Concerning Measures for the Aging Society’ (Cabinet Office of Japan, 2011). The main purpose of this program is to establish a social environment in which older people live worthwhile lives with a sense of security. Particular emphasis is placed on helping older individuals remain socially active through social activities, later life learning, and interactions with a younger generation. In addition to government-led programs, there is strong attention to the importance of helping the elderly remain socially active also on the side of the private sector.

Age-Less Life Practitioners and Groups Award

Guided by the idea of ‘age-less life’ that emphasizes the importance of the ability to live fulfilling lives regardless of age, the Cabinet Office of Japan annually recognizes individuals aged 65 and over who make extraordinary contributions to local communities. The program is called ‘Age-less Life and Social Participation Activities.’ The main objectives of the program are to introduce the examples of active aging to society and to help a younger generation recognize the importance of being physically and socially active at older ages. In 2011, in total, 60 older men and women were recognized as the distinguished practitioners of age-less life,

including a 92-year-old man in Tokushima prefecture who worked as a muscular training instructor. The award also goes to organizations consisting of older people who participate in social activities, such as the group of volunteers who promote the use of modern technologies (e.g., personal computers and software) among older people in the Tokyo area.

Life-Long Learning

It has been suggested that life-long learning could have positive influences on the well-being of the elderly (Williamsons, 1997). In 1972, the Université du Troisième Age (University of the Third Age) was founded in France to help promote active learning among the elderly (Lamdin & Fugate, 1997). Today, the idea of life-long learning has spread all over the world. In Japan, the ‘Life-Long Learning Promotion Act’ was introduced in 1990, and the ‘Fundamental Law of Education’ (implemented in December 2006) highlights the importance of supporting educational programs for older citizens. In 1999, almost 40 % of those aged 60 and over had participated in some kind of life-long learning classes over the previous year and those who took these classes tended to be socially active (Ministry of Health and Welfare, 2000).

Educational Supporter System

In 2008, the Ministry of Education, Culture, Sports, Science and Technology launched the ‘Educational Supporter System’ in which older persons function as teachers and share their knowledge and skills with a younger generation. The Akiruno city in Tokyo, for example, undertakes collaborations with local educational institutions and runs programs in which elderly persons, called ‘citizen guides,’ work as volunteer guides at museums, libraries and historical sites in the city.

JICA Senior Volunteer (SV)

The Japan International Cooperation Agency (JICA) is a leading government agency that provides bilateral international aid in the form of Official Development Aid (ODA). JICA sends a group of experts overseas as senior volunteers (SV). The SV program started in 1990 as a part of the Japanese government ODA project. JICA annually recruits Japanese men and women aged 40–69 as senior volunteers who work on specific projects in developing countries for 1 or 2 years. The SV program is a Japanese senior version of Peace Corps in the US. Over the past two decades, more than 4,500 people have worked as senior volunteers in more than 60 countries

in the world, primarily in Asia and Latin America. 37.1 % of the volunteers worked in the fields of education, such as school management and teaching the Japanese language, followed by machinery (16.2 %) and agriculture (12.9 %) (JICA, 2011).

One of the purposes of the SV program is to provide individuals with opportunities for personal development at older ages. It is of particular importance that the SV program helps elderly persons contribute their expertise even after retirement, thereby assisting in the formulation of personal satisfaction and development among older people. Thus, the SV program is based on a 'give-and-take' relationship: senior volunteers not only contribute their knowledge and skills in international cooperation, but also receive opportunities to learn and grow in later life.

JICA volunteers remain active even after they complete their missions overseas. There are a number of associations for the 'SV program graduates' all over the country. For instance, 'Senior Volunteer *Keiken wo Ikasu Kai*,' established in 2004, is a non-profit organization of about 200 people who once worked as JICA senior volunteers. The association seeks to share volunteers' unique experiences overseas with a younger generation in Japan. Members visit local schools and deliver lectures on the importance of promoting peace and supporting international cooperation. Although numbers are not yet large, the effect of the program has been to keep SV graduates in connection with the community.

Senior Citizens' Clubs: Rojin Clubs

Seniorcitizens' clubs (*rojin* clubs in Japanese) play a major role in enhancing social participation among elderly Japanese. The Gold Plan 21, the government program of health and welfare policies for the elderly population launched in April 2000, refers to *rojin* clubs as a key agency to ensure the active social participation of older people. However, *rojin* clubs were not established to deal with population aging in Japan. The concept of *rojin* club has existed for a long time in Japan. Following World War II, older adults voluntarily formed a group to cope with the aftermath of the war and with the changes in the family system in Japan (Murakami, 2005). Since 1963, and with the establishment of the Law for the Welfare of the Aged, *rojin* clubs have been receiving public subsidies. Clubs are located in all prefectures of Japan, and as of March 2010, there are 117,065 clubs with more than seven million members. The Japan Federation of Senior Citizens' Clubs was established in 1962 as the representative body of *rojin* clubs all over the country.

There are two types of activities at *rojin* clubs. First, clubs organize various social events to promote the well-being of members, such as physical exercise (e.g. walking, dancing, and swimming) and hobby programs (e.g. gardening, chess, and singing). Second, clubs provide their members with opportunities to be involved in the local community. Members visit nursery schools, teach arts and crafts at social service centers, and clean parks and streets as volunteers. Also, since it is crucial to ensure safety, *rojin* clubs have their own group insurance program that covers the costs related to unexpected injuries and accidents that take place during club activities.

Rojin clubs are probably more essential for men because while still working they tended to be away from their communities. Women of the current older generation, on the other hand, tended to stay at home. Once retired from work, men tend to lose their roles in the community and may withdraw from social participation. In order to prevent this from happening, activities run by *rojin* clubs are very important for men.

Japan Association of Second-Life Service (JASS)

Older people are at elevated risks of being socially isolated after they disengage from the formal work sphere. In order to help retired individuals keep in touch with the outside world, a group of private companies established the Japan Association of Second-life Service (JASS) in 1988. JASS seeks to strengthen ties among the retired and to enhance their physical and psychological well-being. As of March 2011, 94 companies, such as Toyota, Fujitsu, and Asahi Beer, are associated with JASS. The association organizes social events (namely physical exercise, cooking and weekend trips) for those who are retired from JASS member companies. In 2010, more than 61,000 people participated in JASS events.

Programs of Free/Reduced Fare for Public Transportation

There are initiatives to facilitate social participation for elderly citizens at the local level. Many large cities in Japan provide their elderly citizens a certificate for free or reduced fare for public transportation. For example, the Tokyo metropolitan government, jointly with the Tokyo Bus Association, started the program of the 'Tokyo Silver Pass.' Residents of the Tokyo metropolitan area aged 70 and over can purchase a pass for a reasonable price that allows them to freely use public transportation in the metropolitan area for 1 year. The purpose of this program is to promote active social engagement of older citizens through the formulation of an elderly-friendly social environment. However, implementation of these programs should be carefully planned. Many of these programs started in cities in Japan before the full scope of aging issues were fully understood. Some local governments, such as Osaka city, provided free transportation passes to the elderly. Now, the number of elderly has increased tremendously compared to when the program started, and the cost for the passes has become a huge burden for the city.

Ageing-in-Place: Housing and Transportation Policies

To enable older Japanese to age-in-place and continue to live within their community in a familiar environment rather than to move to institutional living, over the past few decades the Japanese government has also formulated and implemented

various housing and transportation policies for older Japanese (Kose, 1997). Housing measures include both the development of smaller seniors' apartments as well as larger dwelling places that can be either subdivided or extended to accommodate coresidence with other family members. As early as 1985, the Ministry of Construction established a Housing Plan for Senior Citizens in the Local Regions. This policy mandated every local government to establish a plan for housing older people. Housing loans at low-interest rates were made available from the Housing Loan Corporation to build barrier-free homes. In addition, the 'Silver Housing' program was launched to provide subsidies for the construction of senior housing for both widowed elderly and elderly couples. Under the Silver Housing program, subsidized housing was specially constructed to include senior-friendly features such as the removal of threshold steps, installation of hand rails and bars and the establishment of ample space for wheel-chair bound residents. In addition, on-site care facilities included a manager who oversaw living support for older residents and was on call for emergency situations. Apart from new construction, older public housing was also renovated to be barrier-free.

In 1995, after thoroughly studying the housing needs of the Japanese, the Ministry of Construction launched the 'Design Guidelines of Dwelling for an Ageing Society' which embraced the concept of universal design for all ages. The guidelines recommended that all dwellings be designed with level floors, handrails in critical places, and wider doors and corridors. These guidelines were tested in both public- and private-sector construction. They were found to be economically feasible, to increase aging-in-place, and to reduce institutionalization (Kose, 1997).

Finally, Japan's long-term care insurance policy as discussed in an earlier section also provides insurance coverage for certain home renovations such as installing handrails, eliminating the differences in flooring heights, changing flooring materials to prevent slipping and improve mobility, changing to sliding doors, installing western-style sit-down toilets and facilities, and making other incidental repairs. A maximum of 2,000 dollars is allowed for all six types of renovations (Makigami & Pynoos, 2002).

In terms of transportation policies for older Japanese, a barrier-free universal design was also introduced. The Transportation Accessibility Improvement Law was promulgated in May 2000 and enacted on November 15, 2000 (Ministry of Land, Infrastructure, Transport and Tourism, 2009). To ensure that older as well as disabled Japanese lead a self-reliant life to the greatest extent possible, the law required that railway operators improve the structures, passenger facilities (e.g. railway station terminals) and passenger cars for public transport, and that local governments improve the roads, station plazas, paths and other facilities in the areas around passenger facilities. The key objective is to ensure complete barrier-free accessibility at railway stations, streetcar stops, bus terminals, ferry terminals and airport passenger terminals. Implementing barrier-free design included eliminating differences in floor levels, installing tactile tile blocks to guide the visually impaired and installing toilets for the physically handicapped.

Conclusion

This chapter has reviewed some of the key policies and programs in the areas of health, employment, social participation, housing and transportation that are formulated and implemented specifically for older people in Japan. In view of space constraints, we have only been able to briefly describe these policies. A detailed discussion of each policy would merit separate chapters. Over the years, the Japanese government has continued to review and reform these measures, as well as set concrete targets to assist older Japanese to age successfully and gracefully. As the nation with the highest proportion of its population aged 65 and over in the world, Japan serves as an example and plays an important role in policy making for aging populations. In addition, while it is recognized that policies are context-specific and policymakers need to bear in mind the particular needs and characteristics of their society, the Japanese experience can serve to provide some point of reference for other countries faced with the graying of their populations in the coming years. The issues and challenges of this demographic transformation will be particularly demanding on countries with large populations as they will have to deal in the near future not only with an increase in the proportion of older people in the total population, but also with a large absolute number of older people.

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Part II
Family and Social Relationships

Chapter 7

Relationships Between Adults and Parents in Asia

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A paradox exists in many Asian nations between traditional expectations for assisting parents versus actual assistance when it comes to aging parent-adult child relationships. As described elsewhere in the chapter, adults in Asian nations typically harbor strong beliefs regarding respect and obligation to assist parents. Indeed, a study of undergraduate students at Beijing Normal University revealed that supporting parents is part of the basic feature of entry into adulthood (Nelson, Badger, & Wu, 2004). When asked to indicate the criteria that are “necessary for adulthood,” 89 % of students endorsed a statement regarding providing financial support to parents. Support of parents was endorsed by a slightly greater number of students than being able to support one’s own children (86 %). In other words, in order to truly view oneself as an adult, an individual must support his or her parents. By contrast, in Western countries, the predominant expectation is that parents will support their children at least through the young adult years. This expectation is demonstrated in empirical findings that show that support typically flows from parents to children, until the very final years of life (Albertini, Kohli, & Vogel, 2007; Fingerman et al., 2011).

Yet it would be an over-simplification to assume that commitment to parents is the sole value dictating parent-child relationships in Asia. For example, in that same study in Beijing, 80 % of college students endorsed the statement, “not deeply tied to parents emotionally” also was indicative of entry to adulthood. Moreover, actual behaviors may not be consistent with beliefs; the People’s Republic of

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China recently amended a law mandating that individuals visit their parents (The Associated Press, 2012). The motivation for this law stems from frequent reports about elderly parents being abandoned or ignored by their adult children. A recent survey found 33 % of Chinese adults reported they only saw their parents once a year and another 12 % had not been to visit their parents in many years (Tatlow, 2012). Although 16 % of Chinese adults see their parents every week, these reports are lower than expected and lower than rates of contact between adults and parents in most Western countries, including the United States (Fingerman & Birditt, 2011; Fingerman, Cheng, Tighe, Birditt, & Zarit, 2012). Of course, grown children may maintain other forms of contact through telephone calls, videoconferencing, or other communication technologies. Nonetheless, the amended law in China brings to light the paradox of parent-child relationships in Asia today. The belief that adults should be attentive, respectful and supportive of parents are still widely endorsed and viewed as core concepts in being an adult. The behaviors that would accompany those beliefs, however, are in flux.

This chapter discusses relationships between adults and parents as an important element of successful aging in Asia. First, we discuss filial piety and beliefs about family that lay the foundation of parent-child relationships, including differences between Asian and Western cultures and recent changes in these beliefs. Second, regarding actual behaviors in parent-child relationships, we consider living arrangements and provision of support, and review how these patterns of intergenerational exchanges impact the well-being of the elderly parents. Lastly, our discussion includes emotional aspects of parent-child relationships.

Filial Piety and Beliefs on Family in Asia

Filial piety is often regarded as the essence of “Asian” values, characterized as “close, interdependent family ties, responsibility and sacrifice, harmony, and viewing individuals in relation to the family” (Bengtson & Putney, 2000). Western scholars have contrasted the values pertaining to filial piety with Western individualism and its emphasis on independence, self-reliance, and self-fulfillment (Dai & Dimond, 1998). Although some variations in the expressions of filial piety can be found among Asian nations, Confucian ethics of filial piety have been the cultural ideal of parent-child relationships and the dominating social norms in Japan, Korea, China, Hong Kong, Taiwan, and Singapore for over 2,000 years (Ikels, 2004). For example, in Japan, despite its advanced industrialization and aging population, family patterns are more similar to those of Korea and China than to Western industrialized societies. Eldest sons in Japan feel obligated to care for aged parents, and intergenerational coresidence remains the norm, as it does in Korea and China (Maeda & Ishikawa, 2000). Filial piety still plays an important role as a cultural principle underlying intergenerational relations in Asia societies.

In Asia, the term “filial piety” refers to guidelines for offspring’s behaviors towards parents, including a range of beliefs and behavioral prescriptions. In

addition to supporting parents when they are in need, offspring are required to be obedient, show respect to parents and elders, sacrifice for parents, honor or promote the public prestige of parents and ancestors, live with parents or remain close if coresidence is not possible, take care of parents whether healthy or sick, and avoid injury to self because their body comes from their parents (Sung, 1995). That is, filial piety not only means the obligatory behaviors to help parents but even the behaviors and attitudes to make parents happy and free from worry. In addition, beyond a virtue, filial piety is a system of moral precepts that define an appropriate hierarchy of relationships in Asian societies (Ikels, 2004). Offspring who do not behave in ways consistent with precepts of filial piety will be sanctioned by other family members, neighbors, and even the government (Chou, 2011). Older parents whose children do not behave in appropriate filial ways are at greater risk of depression and even suicide (e.g., Choe, 2013; Cong & Silverstein, 2008; Traphagan, 2010).

Differences from Filial Norms in the West

In Europe and the United States, researchers have also examined filial norms regarding responsibility for older parents (Lowenstein & Daatland, 2006; Rossi & Rossi, 1990; Seelbach & Sauer, 1977). According to Seelbach and Sauer, the Western norm of filial responsibility is operationalized as living close to parents, caring for elderly parents when they are sick, providing financial help to parents when necessary, visiting or corresponding with parents regularly, and retaining a feeling of responsibility for parents. Although some attributes of these norms overlap with filial piety in the Asian sense, there are several differences in these concepts (Dai & Dimond, 1998).

First, although both filial responsibility and filial piety cover the idea that children should provide support to their parents, filial piety further emphasizes the manner in which adult children provide assistance. For example, Chow (2001) discusses the three levels of filial piety. The first level is providing support to meet the material and physical needs of parents, and the second level includes paying attention to parents' wishes and obeying their preferences. The third level includes pleasing parents and bringing them honor in the community, which emphasizes the expression of respect, being grateful, and saving face for parents. Individuals who provide assistance but do not respect or are not grateful for parents may score high in filial responsibility but low in filial piety. In contrast, in Western societies, children are expected to pursue their own individual interests, even when that takes their time and attention away from parents (Lang & Schütze, 2002).

Second, another difference between filial piety in the East and filial responsibility in the West can be found in parental attitudes toward receiving support. In the individualistic societies of the West, receiving support may imply loss of autonomy and may endanger self-esteem (Brown, Nesse, Vinokur, & Smith, 2003; Taylor, Welch, Kim, & Sherman, 2007). On the other hand, filial piety has played a role as the intergenerational contract in East Asia (Croll, 2006), under which

older generations are willing to receive support and even consider assistance and care from younger generations as the return and gratitude for previous sacrifices. Therefore, it may not undermine a parent's sense of independence to receive assistance. Supporting this point, Cheng and Chan (2006) looked at the discrepancy between Chinese parents' filial expectations toward their children and what the children do for their parents. They found that a child's overdoing of his or her filial role by giving more than expected was not detrimental to the parents' well-being among the Chinese older parents. Results from a US study, however, found a U-shaped curve, with well-being compromised when parents received too little or too much help (Silverstein, Chen, & Heller, 1996).

Finally, parental need is also a key factor that differentiates filial responsibility and filial piety. Although researchers have examined different types of support, the common understanding of filial responsibility in the West is that children should help older parents "at times of need" (Gans & Silverstein, 2006). In other words, healthy parents are not included in the social norms of support. Most older adults in Western societies wish to remain independent in every aspect for as long as possible, and are reluctant to receive help from their children while they are still capable of managing by themselves. However, one goal of filial piety as a "life-long responsibility" is to allow parents to be free from worry. Children should therefore live close to parents and take care of and respect them whether parents are healthy or sick. Regardless of parents' needs, the offering of support to parents is appreciated, and it is regarded as a way to express children's gratitude and love to parents.

Measurement of Filial Piety

Filial obligation in the Western literature refers to the beliefs or expectations about children's duty to provide assistance to their aging parents, differentiating from actual support behaviors themselves (Lee, Netzer, & Coward, 1994). In the conceptual framework of intergenerational solidarity, normative solidarity reflecting filial obligation is classified as a distinct dimension from actual social exchanges (i.e., functional solidarity; Bengtson & Roberts, 1991). However, there is no consensus on how to conceptualize and measure filial piety among researchers. Although many studies of Asian families assess filial piety, different researchers measure different aspects of the concept of filial piety. Some studies refer to beliefs or attitudes about filial piety, while other studies focus on behaviors and practices of filial piety. Typically, intergenerational coresidence and care provision by adult children have been used as a proxy for behavioral elements of filial piety. Due to concerns that social desirability may affect how Asians respond to questions about filial piety, researchers have tended to measure actual behaviors pertaining to filial piety in recent empirical studies (Chen, Bond, & Tang, 2007; Cheung & Kwan, 2009). Nevertheless, the lack of consensus makes it difficult to compare findings from studies using different definitions and measurements of filial piety.

When researchers first attempted to measure filial piety in Asian cultures, they began with one-dimensional scales listing behaviors reflecting the prescriptions of filial piety (Chen et al., 2007; Chow, 2001; Gallois et al., 1999; Ng, 2002) or filial beliefs (Ho, 1996; Ho & Lee, 1974). For example, Gallois et al. assessed filial piety by asking the “actual” frequency of filial behaviors such as maintaining contact, giving practical assistance with daily routines, providing financial assistance, being obedient on important matters, being accommodating on mundane matters, showing respect before others, taking the parent to the doctor when he or she is ill, providing personal care, and listening to problems. Similarly, to measure filial piety, Ng (2002) asked how often individuals have engaged in filial practices, such as caring, providing financial support, respecting, greeting, pleasing, and obeying.

Other researchers have attempted to assess attitude or beliefs about filial piety. A widely used Filial Piety Scale (FPS; Ho, 1996; Ho & Lee, 1974) assessed filial piety by asking how much one would agree or disagree with statements related to filial values and behaviors (e.g., “the ultimate crime is being disrespectful to one’s parents and failing to care for them,” “children should not travel to faraway places when their parents are still living,” and “as a son or daughter, one must obey one’s parents no matter what”). Sometimes statements regarding gender-based filial beliefs (e.g., “sons are more obligated to take care of parents in the parents’ old age than daughter”) were also included in filial piety scales (Ishii-Kuntz, 1997).

However, these one-dimensional scales of filial behaviors and beliefs have failed to provide consistent correlations with outcomes for individuals or for family relationships. For example, some one-dimensional measures of filial piety were correlated with lower parent-child conflict and greater support from adult offspring to older parents (Ishii-Kuntz, 1997; Yeh & Bedford, 2004). However, other studies found that offspring with higher levels of filial piety are likely to report negative outcomes, such as feelings of indebtedness to parents, parental overprotection, harshness, inhibition of children’s self-expression, and psychological or behavioral problems (Ho, 1994, 1996). The mixed findings suggest that one-dimensional scales of filial piety may not be appropriate for examining associations between filial piety and family outcomes, such as positive and negative relationship qualities for parents and offspring.

In attempting to capture multiple dimensions of filial piety, Sung (1990, 1992) collected reasons for providing care to older parents from 817 Korean filial piety prize winners. The filial piety prize is awarded by the Ministry of Health and Social Affairs of the Korean government annually to 150–380 people who performed exemplified filial behaviors, such as treating the parent with unusual deference and delaying marriage or education or withdrawing from social activities to be fully devoted to parent care. And then, Korean high school and college students rated the importance of each reason these prize winners reported (Sung, 1995). Two factors emerged among the reasons underlying these filial piety practices – emotional and behavioral factors. The emotionally-oriented factor refers to offspring’s intention to keep family harmony and love/affection and respect for parents as the motivation to practice filial piety. The behaviorally-oriented factor includes motivations of sacrifice, responsibility, and repayment to parents. However, because the factors

are based on items provided by filial piety prize winners who may have the ideal parent-offspring relationships in the society, the negative facets of filial piety were not identified.

Yeh and Bedford (2003) proposed two dimensions of filial piety in a Dual Filial Piety Model (DFPM) – reciprocal and authoritarian dimensions. Reciprocal filial piety refers to children's willingness to support parents with expressions of love and care. Behaviors and beliefs about reciprocal filial piety are motivated by gratitude for parental sacrifice as well as parents' long-term investment in the "support bank" (Antonucci & Jackson, 1990). An example item in this dimension asks participants how important it is to "be grateful to parents for raising you." Because reciprocal filial piety emphasizes offspring's repayment of parental investment, adults in Taiwan with higher reciprocal filial piety did provide more support to parents (Yeh, 2009). It is consistent with findings from the United States and Europe that more parental support and better relationship quality are associated with greater support from offspring (Grundy, 2005; Silverstein, Conroy, Wang, Giarrusso, & Bengtson, 2002). In contrast, authoritarian filial piety entails suppressing one's own wishes, complying with parents' wishes, and accentuates hierarchy and submission. These behaviors related to authoritarian filial piety originate from social norms involving the absolute authority role of parents. Thus, filial behaviors included in this category require individual's obedience due to their offspring role. Example items ask participants how important it is to "live with parents even after marriage" and "compliment your parents when needed to save their face." Such items of authoritarian filial piety may be more characteristic of Confucian cultures, whereas reciprocal filial piety may be relatively consistent across cultures (Yeh, 2003). For example, coresidence with parents after marriage, obedience, and saving parents' face are not found in measures of filial obligation in Western societies (Gans & Silverstein, 2006; Lowenstein & Daatland, 2006).

The inclusion of multiple dimensions may better represent the complexity of filial piety and stability/changes of beliefs expressed in traditional norms of filial piety. For example, studies indicate that younger generations in Asia are increasingly reluctant to seek the opinions of their parents and to value their parents' wishes, even in such important matters as choosing a job or considering marriage, while they still show high levels of agreement with statements about their duties to support their parents (Chow, 2001).

Changes in Filial Piety

One of the fundamental questions that Confucian countries are facing today is whether filial piety values will remain a key force in parent-child relationships in the future. Beliefs and behaviors pertaining to filial piety may change with industrialization and urbanization of societies. According to the modernization hypothesis, as a society becomes modernized, obligations to extended families weaken and nuclear family becomes an independent kinship unit (Goode, 1963).

Indeed, several studies support this trend in Asian countries (Hsu, Lew-Ting, & Wu, 2001). Survey data in Japan from 1960 to 1990, for example, showed that with economic development and changes of life style, the norm of caring for older parents and expectations of support from children steadily declined (Ogawa, Retherford, & Matsukura, 2006). Cheung and Kwan (2009) examined changes in filial piety by assessing behaviors pertaining to filial piety in various Chinese cities. Although this study had unequal sample sizes in different cities so that larger cities may be weighted more, there was a trend that people living in cities with higher economic development had lower filial piety behaviors.

However, it is noteworthy that not all cultures in Asia have changed in the same way as a result of industrialization and urbanization. Governmental policies also play an important role in changes in filial obligation. For example, Whyte (2004) compared filial beliefs and behaviors between cities in the People's Republic of China and Taiwan using data collected in 1990s. The results showed that some filial beliefs were similar between the two countries, but Taiwanese were more traditional than Chinese adults by endorsing the importance of coresidence with older parents after marriage and the importance of daughters-in-law as the main providers of support to their parents-in-law. Although Taiwan had better economic development at that time than the People's Republic of China, the Taiwanese government deliberately defended the traditional values of Confucianism and the main engine of economic growth was family-based companies. On the other hand, leaders in the People's Republic of China denounced traditional values, Confucianism in particular (Whyte, 2003). Moreover, many older adults in the People's Republic of China receive pensions from the government, so they can support themselves financially and be more independent (Xie & Zhu, 2009).

Policies regarding caregiving for older adults may also influence changes in filial behaviors. Although different Confucian societies historically shared similar beliefs regarding filial piety, with urbanization and different governmental policies, filial beliefs and behaviors show distinct patterns across different nations. In the People's Republic of China, due to the trend of diminishing filial involvement among adult offspring, parents have started to sign a contract called the Family Support Agreement (FSA) to ensure financial and practical support from adult offspring. About 13 million rural families have signed FSAs by 2005, and FSAs can now be found in some cities as well (Chou, 2011). The FSA is based on social norms, but violations of the FSA are subject to penalties by law. In Japan, the principle of private initiatives had required families to be the first resource for support of parents. Nonetheless, due to smaller family sizes with fewer children, more women working, and changing attitudes toward family responsibilities, Japan has instituted a program of national long-term care insurance (LTCI) since 2000 (Ishikawa & Maeda, 2000; Tokoro, 2009). A similar program has been instituted in South Korea since 2008 (Kwon, 2010). Thus, governments appear to be stepping in to fill gaps in the safety network for older adults, recognizing that shifts in filial behaviors have diminished familial support. Over time, these government policies may have the unintended consequence of further erosion in filial support (Kohli, 1999). For example, Chou (2011) indicated that the FSA as legal sanctions may

limit the spontaneity and flexibility originally embedded in filial piety, and may erode the affection and mutual trust in intergenerational relations.

Despite the steady declines in behaviors and attitudes pertaining to filial piety over time, however, the culture of filial piety still remains in Asia. In particular, it appears that gendered filial expectations of older parents have not changed much (Feldman, Tuljapurkar, Li, Jin, & Li, 2007). Under the patrilineal tradition of the Asian cultures, sons and daughters-in-law should be the major providers for parents in their old age, while daughters are regarded as belonging to other families after getting married and thus having no obligations toward their own parents. There is evidence of daughters' increasing financial and instrumental contributions to their parents with changing demographic contexts (e.g., Zhang, 2009), but Asian older adults still stick to traditional gendered filial expectations, revealing much higher preferences for living with their married sons than with married daughters (Park, Kim, & Kojima, 1999; Yan & Chi, 2001). For example, Cong and Silverstein (2012) examined 802 older parents in rural China, using a vignette design where a widowed parent is in need of care and has a son and a daughter. When they asked these Chinese older adults who should take care of the elder in the vignette, 62 % of the respondents indicated that the vignette son should take all or the majority of the responsibilities regardless of migration status and competing demands that the son and daughter have, and only 16 % believed that the vignette daughter should take all or a majority of the responsibilities.

Studies have indicated that the meanings and practices of filial piety are being modified and reinterpreted by elderly parents and adult children (Phua & Loh, 2008). Thus, the concept of filial piety in the context of changing societies must be understood in various ways. As mentioned previously, support behaviors, such as intergenerational coresidence and care for older parents, are often used as a proxy for filial piety in empirical studies, but these extreme long-term behaviors may not capture the dynamics and changes of filial piety, including behaviors, attitudes, and even motivations enacted in shorter-term or symbolic ways (Mehta & Ko, 2004). For example, the conflict between traditional norms regarding intergenerational coresidence and contemporary filial practices has led to the invention of a new custom of short-term intergenerational co-residence, so called "ritualistic co-residence" in rural China (Wang, 2004). Right after the wedding, Chinese couples briefly live in the paternal household to demonstrate their filial piety, even if they have no intention to continue the shared households. As another example, Phua and Loh (2008) indicated that among Chinese Singaporean parents, filial piety is experienced in the form of an "open" invitation by children to coreside, not in the form of "actual" coresidence. Thus, having non-coresident children who invited the parent to coreside can be as good as living together for some elderly parents, at least in terms of fulfillment of the traditional ideal.

Caregiving in response to parental needs is also undergoing transformations. Although the traditional norms of care have been providing care for aging parents at home, Zhan, Feng, and Luo (2008) pointed out that the meaning of institutional care for older parents in China has shifted from a stigma to a reinterpretation of filial

piety. If adult children are not available to provide direct physical care for the elderly parent due to busy schedules or geographic distance, they substitute their filial duties by paying for high quality and costly professional care institutions. Although these new filial practices may be class-specific, the modification and reinterpretation of filial piety suggests the need to look beyond mere traditional modes to understand intergenerational relationships and filial support in the changing contexts of Asian countries (Croll, 2006). In addition, as these studies show, research often has confounded filial beliefs and behaviors inferred as reflecting filial piety. Clearer distinctions are needed, particularly as beliefs and behaviors are both changing rapidly.

Living Arrangements and Support Exchanges

To understand older adults' experiences, it is also important to consider actual patterns of intergenerational relationships: living arrangements and support exchanges. As described previously, in Asia, the normative and traditional living arrangement in old age has been coresidence of parents with the eldest son and his family. Intergenerational coresidence facilitates the regular intergenerational contact that contributes to frequent material and emotional exchanges between generations (Yan & Chi, 2001). In particular, intergenerational coresidence in Asian countries has taken on special importance for the well-being of the elderly, given reliance on the family instead of the state to care for older persons. Indeed, studies have found that Asian older adults living together with family members have better psychological well-being and mental health than those living alone (Chen & Short, 2008; Chen & Silverstein, 2000; Do & Malhotra, 2012). According to a study in rural China (Silverstein, Cong, & Li, 2006), older parents who are living in a three-generation household reported better psychological well-being, which is explained by support from adult children. However, even after controlling for support exchanges, the positive effect of intergenerational coresidence remained. Thus, beyond its functional benefits, intergenerational coresidence can be important to older adults in the Asian contexts, as the fulfillment of a cultural ideal.

With changing socio-economic environments and family structures, studies have documented a steady decline of traditional coresidence in Asian countries (Ogawa et al., 2006). Nevertheless, the most common form of living arrangement for Asian elderly adults is still living with at least one adult child. Compared to Western countries (e.g., 14 % in United States; Ruggles, 2007), Asian countries maintain higher levels of coresidence of older adults (aged 65+) with their adult children, ranging from 43 % in Japan (Takagi & Silverstein, 2011) to 68.7 % in China (Zeng & Wang, 2003). If we look instead at living arrangements of adult children, the proportion of married children who coreside with any parent (husband or wife's parents) was 46.5 % in Taiwan and 38 % in China (Chu, Xie, & Yu, 2011). Despite an increasing preference of parents and children for independent living

arrangements, the limited social welfare system and public services for the elderly and the shortage of housing in the Asian nations are contributing to the high rates of coresidence between adult children and parents (Logan, Bian, & Bian, 1998).

Sometimes such high rates of coresidence in Asian countries are interpreted as evidence that adult children are adequately providing filial care for their older parents in comparison with Western countries (e.g., Karasawa et al., 2011). However, intergenerational coresidence in Asian families should be viewed as a far more complex phenomenon (Chan, 2005). Living apart from children does not necessarily preclude exchanges of support between generations, and coresidence does not automatically guarantee quality care for the older adults or better family relationships (Antonucci, Akiyama, & Birditt, 2004). For example, conflict between parents-in-law and daughter-in-law is a main reason for family conflicts in Asian multigenerational families (Keith & Lee, 1995; Ko, 2012; Lee, 2011).

Variations in Living Arrangements

According to another study in China (Lei, Strauss, Tian, & Zhao, 2011), 59 % of older parents (aged 60+) who have children but live alone or with only a spouse have at least one adult child living in the same village or community, and 79 % have at least one child living in the same county. Thus, it appears that the decreasing trend in coresidence between parents and adult children is accompanied by a rising trend in living in geographic proximity to each other. In this regard, studies have documented the various forms of “quasi-coresidence” – not living with family but having them nearby, which is growing as a popular living arrangement in Asian societies (Chan, 2005). In Japan, the younger generations choose to live in a separate house next door to older parents to reduce such conflicts, as daughter-in-law and mother-in-law each reside in and manage a separate household (Brown, 2003; Koyano, 1997). It is often observed in Asian countries that older parents who live close to their adult children take care of their grandchildren during the day and return these grandchildren to their parents in the evenings (Chen, Liu, & Mair, 2011). Such variations in living arrangements can be viewed as an attempt to balance the traditional norms of intergenerational coresidence and increasing desire for independence in the changing contexts of Asian countries. However, according to a study in Korea (Oh, Kim, & Hong, 2009), elderly parents who are living in the same area as adult children but in a separate household showed a higher probability of having depressive symptoms than those coresiding with adult children. In this situation, even though the elderly parents are living close to their adult children, they may feel neglected or lonely without closer daily interactions. These findings suggest that the implications of “quasi-coresidence” for elders’ well-being need to be more carefully examined.

Determinants of Living Arrangements

In Asian countries, family members' expectations and practices surrounding intergenerational coresidence tend to be determined by resources and needs of both parents and children, not just by the traditional ideology. Poor health and loss of a spouse are key conditions under which elderly parents live with their adult children (Kim, 2012; Li, Zhang, & Liang, 2009). Using longitudinal data, Korinek, Zimmer, and Gu (2011) showed that shifts to coresidence with adult children followed transitions to widowhood and deteriorating functional health among older adults in China. Thus, even though parents and adult children live apart, adult children coreside with parents when parental needs arise. However, the relationship between parental socioeconomic status and coresidence with children is mixed. On the one hand, studies have found that older people with higher socioeconomic status and greater family resources (e.g., more children and a living spouse) are more likely to prefer living independently (Hermalin & Yang, 2004; Kim & Rhee, 1997; Park et al., 1999). On the other hand, economic resources may confer power in negotiating living arrangements so that older parents with higher economic status are more likely to live with adult children (Han & Yoon, 2000; Takagi & Silverstein, 2011).

In Asian countries, intergenerational coresidence is also driven by the younger generations' needs for help from their parents, including needs for child care and housing (Zhang, 2004). For married adults in Taiwan and China, having a young grandchild increased the likelihood of coresidence with their elderly parents (Chu et al., 2011). It is common for older parents who are healthy to assume the role of caring for their grandchildren within the same household, thereby providing emotional and social security to the younger generation (Chen et al., 2011). Sometimes, older parents in rural areas live with their grandchildren in a skipped-generation household and receive remittances from their adult children (parents of the grandchildren who reside in cities) as compensation for the custodial care of grandchildren (Silverstein et al., 2006). In addition, due to high housing costs in urban areas, coresidence with parents enables adult children to marry when they cannot afford to live independently in a separate household. Chinese parents in urban areas provide housing or other services for their adult children and receive financial support from them in return (Lee & Xiao, 1998). When Chinese couples decide to coreside with the wife's parents, as a non-normative pattern of coresidence, it is mainly out of practical considerations, such as availability of living space (Pimentel & Liu, 2004). Thus, intergenerational coresidence in Asian families can be characterized by mutual aid and interdependence across generations, responding to the needs of both parents and children (Logan & Bian, 2004; Zhang, 2004). This is different from patterns in the United States, where coresidence between parents and adult children is mainly driven by child's needs, even after initial nest-leaving, and even for aging parents (e.g., Aquilino, 1990; Schoeni & Ross, 2005).

Support Exchanges with Non-coresident Children

Although coresidence continues to be the core of support relationships between older parents and adult offspring in much of Asia, studies suggest that older parents also exchange high levels of support with their non-coresident children (Li, Feldman, & Jin, 2004). According to a study in two major Chinese cities (Bian, Logan, & Bian, 1998), non-coresident children live close to parents, maintain high levels of face-to-face contact with parents, and provide help on a regular basis to parents. A recent study in Korea reported that 57 % of elderly parents have in-person contacts with adult children at least once a month and 89 % have contact with children via phone or emails (Park, 2012). Living away from children does constrain receiving help with daily activities, but it does not affect exchanges of financial support. Rather, when adult children migrated to urban areas for employment opportunities, they tended to provide more money to their parents as compensation for the absence of hands-on care, compared to non-migrant children (Guo, Aranda, & Silverstein, 2009). It appears that the financial support from non-coresident adult children plays a substantial role in reducing poverty among older Korean (Kim & Cook, 2011).

Asian countries have traditionally emphasized strong filial obligation of sons and their families. These patrilineal expectations for filial obligation have exerted a strong effect on the nature and structure of intergenerational exchanges (Feldman et al., 2007; Lin et al., 2003; Park et al., 1999). However, with demographic and economic changes, exchange patterns between older parents and adult children reveal a mixed form of patrilineal traditions and strategic responses to social/economic changes (Han & Yoon, 2004; Kim, Zarit, Fingerma, & Han, *in press*). In Korea, for example, adult children receive support from both sides of parents at similar levels, but the obligatory expectation to provide more support to husbands' parents appears to remain (Lee, 2011). Also, adult children are more likely to receive financial support from a husband's parents, but are more likely to receive emotional and practical help from the wife's parents (Lee, 2005). Thus, these exchanges cannot be accounted for by the patrilineal tradition or bilateral change. Rather, these changes may represent a strategic advance in response to economic challenges, which make it advantageous for parents and parents-in-law to give support to children, even after marriage, so they can achieve higher educational and economic status (Kim et al., *in press*).

The effects of support from children on elderly parents' well-being have shown inconsistent results across studies. Some studies show that receiving support from adult children compromises the psychological well-being of older adults (Krause, Liang, & Gu, 1998; Takagi & Saito, 2013), while other studies reveal that receiving support is beneficial for older parents (Chi & Chou, 2001; Silverstein et al., 2006). These conflicting findings may be related to the fact that many studies were based on cross-sectional designs, which often confound the parental needs for care and assistance and parental well-being outcomes. In other words, because older parents with health problems are more likely to draw help from children, support from children can be negatively related to parental well-being.

Another possible reason for inconsistency in the findings from Asian countries would be that the effects of support from children on elderly parents' well-being are often conditioned by cultural beliefs. Cong and Silverstein (2008) found that receiving instrumental support, for example, helps to reduce depression in older parents if it comes from the culturally appropriate sources, such as daughters-in-law. Another study shows that instrumental support contributes more to life satisfaction for older adults who have higher familism (Yeung & Fung, 2007). Studies examining adult children also support this, showing that effects of providing care/support to older parents can differ by their beliefs about filial piety. Lai (2010) found that adult children who reported higher levels of filial piety tend to perceive providing care to their parents as more positive, which leads to a lower level of caregiving burden. Thus, it is important for future research to consider changing normative contexts in Asia in examining consequences of intergenerational support on older parents and adult offspring.

Emotional Ties

While many studies have focused on the structural and normative aspects of Asian families, there is relatively little research from Asia on the emotional quality of parent-child ties, including affection and conflict between generations. Studies conducted in the West have consistently shown that relationship quality is the strongest predictor for well-being for both generations. Also, affectionate and intimate ties increase the likelihood of support exchanges between older parents and adult children (Fingerman et al., 2011; Merz, Consedine, Schulze, & Schuengel, 2009), whereas the extent of instrumental help has no effect on the perceived quality of the intergenerational relations across cultures (Nauck & Suckow, 2006). Indeed, studies in Asian countries confirm that emotional support from children (as one indicator of strong parent-child emotional ties) is beneficial to psychological well-being of older adults (Lin, Chang, & Huang, 2011; Yeung, & Fung, 2007).

Emotional closeness between parents and children has been implicitly expressed in the traditional norms of filial piety, such as showing consideration to parents' daily life and taking care of parental needs with respect and love (Sung, 1998). However, the Confucian tradition of Asian societies, including individual submission to family, age/generation-based hierarchy, and strict gender division within family systems, also may be a factor hindering development of intimate and affectionate relationships and expressive communications among family members. Comparing social networks of Canadian and Japanese adults, Otani (1999) found that 65 % of Canadian adults named their kinship members as close and intimate, but only 45 % of Japanese adults did. Jeong (2007) also found that Korean adults are likely to anticipate more instrumental support and less emotional support from their kinship members, compared to adults in Western countries. However, these findings may not necessarily mean that parent-child relationships are less important for Asian adults or indicate poor relationship qualities of intergenerational relationships among

them. Nauck and Suckow (2006) did not find any cultural differences in aging mothers' and adult daughters' perceptions of relationship quality in Japan, Korea, China, Indonesia, Israel, Germany, and Turkey. In all cultures, mothers tend to perceive relationships with their adult daughters as more positive than the daughters do, supporting the intergenerational stake hypothesis. Also, for Chinese older adults, positive relationships with vertical family members, including parents and children, are most important in explaining their well-being, while relationships with non-family members did not show significant effects (Cheng, Li, Leung, & Chan, 2011).

Kim, Sherman, Ko, and Taylor (2006) indicated that Asians are more reluctant to explicitly ask for emotional support from close others when they experience some problems. This is because Asian adults are concerned about the potentially negative relational consequences of such behaviors, such as worrying others, disrupting the harmony of the group, losing face, and making the problem worse. Thus, there is need to explore how emotional qualities of ties in Asian families can be captured in a culturally sensitive way.

Some studies about emotional qualities among Asian families have focused on conflicts between mother-in-law and daughter-in-law resulting from patriarchal characteristics of Asian families (Antonucci et al., 2004; Keith & Lee, 1995). In terms of ties between parent and children, a study in rural China (Guo, Chi, & Silverstein, 2012) showed that about 30 % of all parent-child dyads nested within 1,174 older parents were characterized by weak emotional cohesion and strong conflict. Despite differences in the measurement of intergenerational relations across studies, this rate far exceeds the prevalence rates of "disharmonious" ties in Western studies, which ranged from 4 % in Dutch families (Van Gaalen & Dykstra, 2006) to 15–20 % in American families (Fingerman, 2001; Silverstein, Gans, Lowenstein, Giarrusso, & Bengtson, 2010). Future research should explore how emotional qualities of ties in Asian families are changing and what factors contribute to the changes.

In addition, although the concept of ambivalence, which has been introduced into Western studies (Fingerman, Pitzer, Lefkowitz, Birditt, & Mroczek, 2008; Lowenstein, 2007; Lüscher & Pillemer, 1998; Pillemer et al., 2007), has potential value for studying Asian families, it has not yet been the focus of research. Ambivalence refers to the simultaneous experience of positive and negative sentiments about the same relationships, which can provide a useful framework for understanding the complexity of the parent-child relationship.

Ambivalence can be defined at two levels: structural/sociological and subjective/psychological levels. Regarding ambivalence at the structural level, arising from competing role expectations or demands embedded in social structures (Connidis & McMullin, 2002), Asian families can be an interesting setting for study. Changes in socioeconomic environments and normative expectations regarding the family are creating contradictory circumstances for intergenerational relations among Asian adults (Teo, Graham, Yeoh, & Levy, 2003). A few qualitative studies support this. Traphagan (2010) connected rising suicide rates of the elderly in contemporary Japan to the concept of intergenerational ambivalence. Specifically, he suggested that the high rates of suicide are associated with contradictions between expectations

and experiences in the changing contexts of multigenerational family relationships. From the perspective of adult children, Lee (2010) indicated that Japanese women are likely to experience ambivalence in negotiating elder care decisions than men. Despite increasing egalitarianism and acceptance of women working, normative expectations regarding gendered filial caregiving persist in contemporary Japanese families. Also, it appears that conflicting demands between providing care to aging parents and parents-in-law are becoming another source of ambivalence toward aging parents among Japanese women.

Little is known about psychological ambivalence experienced toward aging parents or adult offspring among Asian adults (Lüescher & Pillemer, 1998). Compared to European Americans, however, adults in Asia typically are more tolerant of contradictions (Peng & Nisbett, 1999). This cultural difference in emotion and motivation may lead to distinct patterns of intergenerational ambivalence among Asian countries (Pillemer & Suito, 2004). As Asian societies adopt more individualistic mores, people may be willing to talk about emotional ambivalence of parents toward children and vice versa.

Conclusions

In Asia, rapid changes of demographic, social and cultural environments are challenging the dynamics of intergenerational relationships. Research on parent-child relationships in Asian families has focused on the question, “is support for older parents declining?” This review of the literature reveals mixed evidence, including variations in the mode of support and filial beliefs. It is clear that Asian families are adjusting to changing social economic environment and renegotiating traditional notions of filial piety. To capture the changing modes of intergenerational support between generations and the underlying norms in culturally sensitive ways, we need to consider various aspects of parent-child relationships from both perspective of parents and children.

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Chapter 8

The Road to Successful Aging: Older Adults and Their Families in Japan

Keiko Katagiri and Tomoko Wakui

Japan is the most rapidly aging society in the world. As the proportion of Japan's population aged over 65 years exceeded 23 % in 2012 (Cabinet Office, Government of Japan, 2012a), Japanese families are experiencing great changes. Until 1970, Japanese scholarship on the family—which is mainly focused on domestic living arrangements—found that traditional norms persisted tenaciously because of the high rate of generational cohabitation; during that period, scholars generally treated families as aggregates. In the 1980s, the concept of social network was introduced into the literature, and individual family members came to be seen as mere components of a network (Yokoyama & Koyano, 1993). In the 1990s, just before the introduction of the long-term care insurance (LTCI) system, the problems of eldercare and social support were investigated intensely. Today, divergent aspects of family continue to be studied, but scholars focus their primary attention on eldercare. Investigations of the emergent social problems that families face, such as solitary death, social isolation, and elder abuse, have been conducted in order to improve our understanding of these phenomena and provide an empirical basis for policy formation (e.g., Matsushita & Okazaki, 2010; Ono, Takasaki, Sasaki, Kobayashi, & Itai, 2000; Saito, 2011). With these drastic changes in Japanese domestic life as a backdrop, it is often said that family bonds have recently weakened; yet, researchers continue to discover the importance of family for the well-being of older adults (e.g., Adachi, 1999). After the Great East Japan

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Earthquake of 2011, interest in the subjective importance of familial ties was reinvigorated. In this chapter, we seek to enumerate the importance of “family” to older Japanese adults and indicate the link between it on the one hand and their well-being and successful aging on the other; we go about this by reviewing the literature on this subject, which is written mainly in Japanese.

We refer to three major topics in this chapter, each of which is related to alterations in families. First, we describe the characteristics of Japanese families and introduce research that focuses on their recent rapid changes. Second, we discuss the contribution of family to the well-being of older adults. Third, we focus on the theme of family care. We close with a summary of our findings and a discussion of necessary future research.

Great Changes in Older Japanese People and Their Families

Description of the Aging Society of Japan

In 2012, the proportion of Japan’s population aged over 65 years was 23.3 % (Cabinet Office, Government of Japan, 2012a), and this figure is expected to reach 39.9 % by 2060. Of all Japanese households, 42.6 % include one or more older adults (aged ≥65 years). Among such households, the percentages consisting of a “married couple only” and “living alone” have been increasing, and the ratio of “three-generation households” has decreased (see Fig. 8.1). However, these percentages do

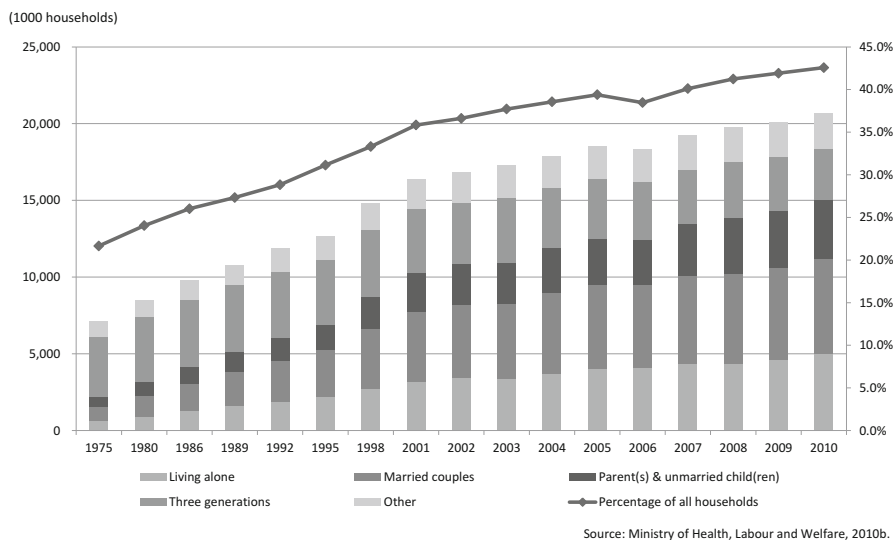


Fig. 8.1 Changes in the household structure of older adults in Japan

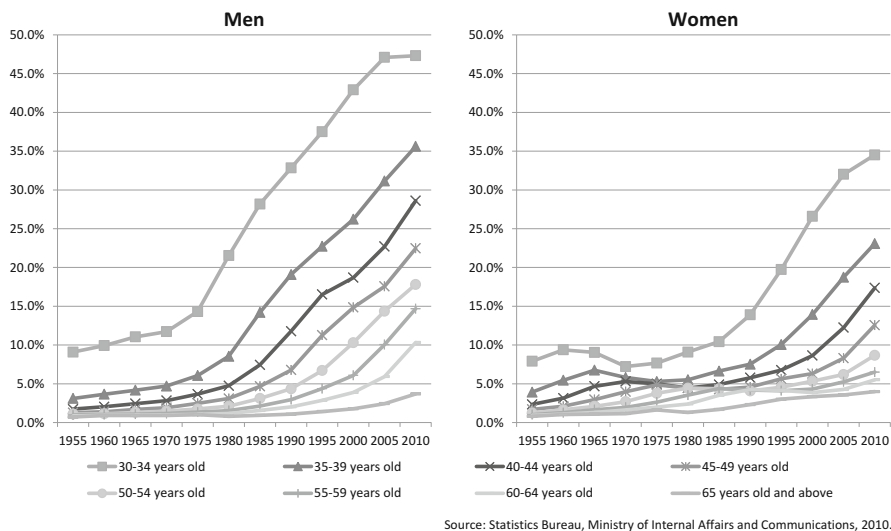
not mean that people reside in nuclear family units throughout their lives. Newlywed couples prefer to live separately from their parents, but as their parents grow older, become vulnerable, or widowed, these conjugal units begin to live with their parents (Kato, 2003). The Japanese traditional stem family system, in which the family of a couple's firstborn son's usually lives with them in the family home, is one that weighs lineal relationships heavily. However, the percentage of nuclear families has increased recently, and it seems as if the stem family system has disappeared. However, studies on living arrangements have revealed that Japanese people do not live as nuclear families throughout life but change their living arrangements according to life stage; this tendency has led to the emergence of what is called the Japanese modified stem family (Nasu, 1970). That family structure is similar to the stem family (i.e., cohabitation between families made of parents and children) but different in stressing the independence of two families as nuclear families and on mutual support. This term was based on the term "modified extended family" (Litwak, 1965), which means that the parents and their children's families live as separate nuclear families in the same neighborhood, forming a kin network. These two concepts are similar in that they contrast with the term "nuclear family," but they are different in that the Japanese one focuses on the stem family in the same household, whereas its Western counterpart focuses on support exchanges among kin.

The Decrease in the Younger Generation

In addition to aging, the decline in the fertility rate (1.39 in 2010; Cabinet Office, Government of Japan, 2012b) is a serious social issue in Japan. Although this intricate phenomenon requires various explanations, the tendency toward late marriage or remaining unmarried throughout life has three plausible main causes (e.g., Sawaguchi, 2009). Figure 8.2 raises three points: First, the age of marriage has gradually increased among both men and women. Second, the rise in the ratio of unmarried people is evident. Considering the low rate of children born to unmarried parents (2.0 % in 2010; Ministry of Health, Labour and Welfare, 2011a), the birthrate will likely decline further. Third, late marriage or staying unmarried often leads to decreased family size. Therefore, as social support for Japanese people comes mainly from family members, this type of sustenance may not be available for them when they grow old because of the decrease in the number of available family members.

The Entry of Women into the Labor Force

The entry of women into the labor force progressed greatly in the 1980s, especially after the Equal Employment Opportunity Law was implemented in 1986. However, the M-shaped curve of the labor force is still evident, as after childbirth, many women cease working outside the home in order to take care of their children, only to return to work sometime later. In 2011, the labor force participation rates



Source: Statistics Bureau, Ministry of Internal Affairs and Communications, 2010.

Fig. 8.2 Changes in the ratio of unmarried Japanese people

of people aged 25–29, 35–39, and 45–49 years were 77.2 %, 67.0 %, and 75.7 %, respectively. The middle figure, which is at the bottom of the M curve, increased 0.9 % from 2010 to 2011 (Ministry of Health, Labour and Welfare, 2011a). This figure has risen as more women work outside the home and become less available to care for their older parents than they were in the past.

The Lengthening of Life After Retirement

The increase in life expectancy means that older Japanese adults have very long retirement periods, since many Japanese companies still adhere to 60 years as the formal retirement age. Specifically, the average lengths of retirement that begins at age 60 years are 22.8 and 28.4 years for men and women, respectively (Ministry of Health, Labour and Welfare, 2012). Although healthy life expectancies are shorter than these durations, many Japanese people can expect long retirement periods.

Health and Financial Status

More than 70 % of older adults (i.e., those aged ≥ 60 years) said that their health circumstances are fairly easy, and only about 20 % faced difficulties performing activities of daily living. In terms of financial security, 71.0 % of those aged ≥ 60 years and 80 % of those aged ≥ 80 years expressed no worries. Thus, older adults currently appear to be in fairly good condition (Cabinet Office, Government of Japan, 2012a).

Engagement in Society

Despite the Elderly Employment Stabilization Law of 2006, which requires companies to provide work for employees until age 65 years, most companies continue to set a retirement age of 60 years. The labor-force participation rates of those aged 65–69 years are currently 46.2 % and 26.9 % for men and women, respectively. Overall, 44.0 % of people aged >65 years want to work (Cabinet Office, Government of Japan, 2012a); however, the social system in Japan cannot satisfy these wishes. Particularly, younger male older adults wish to continue to work.

The rate of social participation (i.e., participation in groups) among people aged >65 years is 59.2 %, having increased from 43.7 % just 10 years ago (Cabinet Office, Government of Japan, 2012a). However, this rate differs greatly by location and gender. Katagiri (2012) reported that the rate of social participation was less than 40 % in a large city and noted a huge decline from 2002 (60 %) to 2008 (40 %). Despite this decline, Japanese people continue to engage in work or social activities until their late sixties.

Changes in Norms

The Japanese family has undergone several modifications since the beginning of the Meiji period. First, the patriarchal legal system of the Meiji period, in which the father had controlling rights, was abolished after World War II. Second, traditional family roles, including the place of women in the domestic economy, were altered by urbanization and the structural changes in the economy (which in turn were brought about by rapid economic growth). Third, there have been profound demographic changes, such as the trend toward the nuclear family, a decreasing numbers of households, the ever-increasing flow of working families to urban areas, and an increase in the population proportion of older adults. Finally, cultural change promoted greater equality between genders (Goto, 1993). Although the traditional legal system disappeared after World War II, the sense of responsibility for older family members still endures (Naoui, 1993). Supporting older parents is regarded by children as an inevitable duty and a virtue. This value is often contrasted with those of nuclear familialism, which considers a conjugal couple and their children as the essential domestic unit (Naoui).

Filial Piety

Filial piety toward parents serves as a form of social security for older adults. In accordance with the diffusion of the nuclear family, older adults might not be able to expect the support of or the ability to cohabit with their children's families. Since parent care has emerged as a major social issue in Japan, much research has been conducted on the persistence of the traditional filial norm, which has gradually declined in prominence (Shirahase, 2005; Takanashi, Sugisawa, Okuyama, & Nisida, 1994; Yokoyama & Koyano, 1993).

The nuclear family is often linked to individualism; however, researchers define this word slightly differently from each other. Nagatsu (2004) insists that three concepts should be distinguished: *individualization*, the tendency to remain true to oneself and value individual self-fulfillment; *individuation*, the tendency toward preferring more isolated activities, such as watching television alone in one's room instead of with one's family; and *privatization*, the inclination to value private units, such as the family, rather than public units, such as companies or communities. However, most researchers use these three words interchangeably.

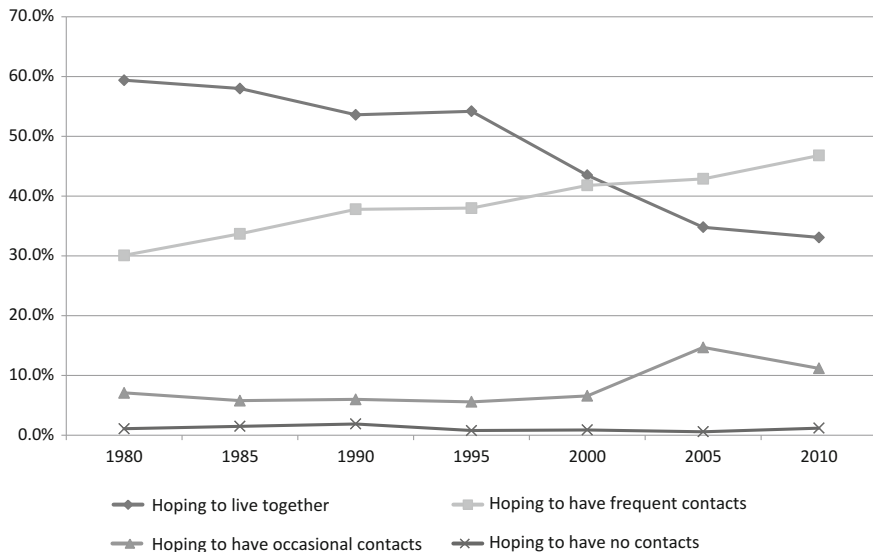
Both filial piety and nuclear familialism have been observed among Japanese people, with the former gradually declining through variations in living arrangements, gender, family structures, and relational closeness (Iwai, 2011; Takanashi et al., 1994). Filial piety continues to be expressed in cohabitation with widowed or fragile old parent(s) (Takanashi et al.).

Dependence or Independence

Women generally live longer than men. Children often take care of and live with their widowed mothers (Kato, 2003; Naoi, 1993; Shirahase, 2005; Takanashi et al., 1994). It is a good strategy for widowed mothers to depend on their children, especially their oldest sons, as suggested by the old proverb, "When old, obey your children" (Nakazato, Shimonaka, Kawaai, & Sato, 1996). However, Japanese society has recently come to value the idea of independence (Sodei, 2008). Older adults in general—and even older women, who were taught to be dependent and follow their husbands when young and then their sons as widows—now feel this need. The percentage of older adults who made or considered the decision to care for themselves was 44.6 %, though this ratio has increased (Arai & Arai, 2008). In addition, the percentage of older adults who live alone or have children who live far away is increasing. The percentage of those who desire to live with their children and grandchildren has decreased from 59.4 % in 1980 to 33.1 % in 2010 (Fig. 8.3). On the contrary, the percentage of older adults who prefer to see their families frequently has grown from 30.1 % in 1980 to 46.8 % in 2010, indicating that they desire to live apart from their children (Cabinet Office, Government of Japan, 2011). Here, living apart means that an older adult prefers to continue to live independently after his/her children leave home. As retirement communities similar to those in the USA do not exist in Japan, older adults in Japan might not have the option to move into such retirement communities.

The number of older adults who choose to dwell alone is increasing. When they are frail or suffer from disabilities, they utilize professional home support services to continue to inhabit their own homes. However, their conception of independence differs from one that stresses self-reliance and freedom from the influence of others; instead, it may be called "passive independence," since the primary motivation for it is not to interfere with the lives of their children (Fujisaki, 1998).

The development of the social security system helps older adults to be independent. The pension and LTCI systems (the latter of which was implemented in



Source: Cabinet Office, 2011. The surveys conducted in FY 2000, FY 2005, and FY 2010 included a response option "Don't know," and the rates of respondents who chose the option were 7.0%, 6.9%, and 7.6%, respectively.

Fig. 8.3 Older adults' expectations of their relationships with their children and grandchildren in later life

2000) supports their financial and physical independence (Iwai, 2001). Historically, Japanese families have supported their own without expecting public support, which was regarded as shameful. However, these attitudes have been changing in the direction of gradual acceptance of public support, especially after the introduction of LTCI. People have come to recognize that national and/or local governments should take at least partial responsibility for the social security, medical treatment, and nursing care for older adults (Iwai).

Changes in Social Relationships

The Broadening of Social Networks

In the past, Japanese social networks have primarily consisted of family members (Adachi, 1999); however, these networks have recently broadened to include neighbors, friends, and acquaintances (e.g., Kobayashi, Sugihara, Fukaya, Akiyama, & Liang, 2005). Generally speaking, older women living in large cities have wider networks than older men have (Aasakawa & Takahashi, 1992; Koyano, Nishimura, Ando, Asakawa, & Horita, 2000; Nishimura, Ishibasi, Yamada, & Koyano, 2000).

These members of broad social networks share emotional intimacy (Koyano et al., 2000), which ensures their own identities, gives meaning to their lives (Omori, 2005), and enhances their morale (Asakawa & Takahashi, 1992). Scholars have sought to determine whether these broad networks can function as support providers, substituting for family members; however, their findings have not been consistent (Kobayashi et al., 2005).

Changes in Familial Bonds

As already indicated, the familial bonds among Japanese people are very strong. The family functions as an anchoring point; within its confines, its members can feel at ease and relaxed and be themselves (Kamano, 2011) as they provide support for each other (Matsuzaka, 2004). Family relations are known to influence future health and the likelihood of death (Anme, Shinohara, Sugisawa, & Ito, 2006)

Challenges in Retired Couples

When traditional familial norms were strong, three generations typically lived together (Nishioka, 2000; Yokoyama & Koyano, 1993), and parent-child relationships were more valued than those between husbands and wives. However, husbands have recently come to value their wives more than they did previously (Nishimura et al., 2000).

Today's older Japanese couples may not be close companions, because before the retirement age of 60 years, husbands tend to be fully occupied with their work. Long work and commute times prevent them from partaking fully in family life, even when they wish to do so.¹ Males spend just 50 min on housework daily, compared with 3 h 26 min for working women (NHK Broadcasting Culture Research Institute, 2011).

The second reason is that husbands and wives construct separate social networks before retirement, and afterwards, husbands have difficulty finding interests to occupy themselves in place of work. A phrase that translates to “wet leaves”—which describes bored, retired husbands who cling to their wives—became popular in the 1980s. The spouses of such men sometimes become depressed (Kurokawa, 2005). In such cases, full reconstruction of marriage is necessary (Katagiri & Sugawara, 2007; Nagatsu & Tai, 2002), but little research has been conducted on this topic (Okamura, 2006).

¹Males have an average commute time of 1 h 25 min and an average work time of 8 h 27 min, and women have corresponding averages of 1 h 5 min and 6 h 8 min, respectively.

Notable New Familial Relationships

Research has illuminated the new features of familial relationships: mother-daughter and grandparent-grandchild. Pairs of women can be noticed dining at restaurants at lunchtime or shopping in department stores on weekdays; these are typically middle-aged or older mothers and their adult daughters who enjoy spending time together. This affectionate solidarity has been described as a “twin sister mother-daughter” relationship. Such relationships were not seen when more-traditional values held sway, because once a daughter married, she “belonged” to her husband’s family, and she and her mother seldom met. Excessively strong parent-child bonds have been regarded as pathological in Western societies, in which individualism is emphasized; however, positive effects of strong bonds between mothers and daughters have been reported (Nakanishi, 2006). For instance, in case of strong mother-daughter bonds, daughters feel more strongly motivated to look after their parents; older mothers are assured of their identities and former roles through their daughters’ approval. Strong mother-daughter ties may have positive or negative effects on the relationships between daughters on the one hand, and their husbands, fathers, parents-in-law, and children on the other, but these consequences have not yet been examined.

Second, with the recent increase in life expectancy, grandparents may be present in family life for periods exceeding 20 years. Though this topic has been the subject of few studies (e.g., Miyachi & Tomari, 2005), it appears that more grandmothers than grandfathers are intimate with their grandchildren. Furthermore, the relationship between a daughter’s children and their grandparents is closer than that between a son’s children and their grandparents; this is a new development caused by deviation from the traditional Japanese family structure. Since grandchild rearing is a different undertaking from child rearing, grandparents tend to enjoy special affectional bonds with their grandchildren (e.g., Miyachi & Tomari).

Intergenerational Exchange

Though filial piety suggests that older parents should receive care from their children, in reality, mid-life to young-old parents in their forties to sixties are typically still active and provide support to their adult children (Miyashita & Fujita, 1992). For parents, the transition from provider to receiver in terms of financial support occurs when male children reach their fifties and female children their late fifties (Yasuda, 2004). We can assume two probable reasons for this age difference between men and women in terms of the directionality of financial support. First, many male children feel a stronger obligation than female children to support their parents, especially financially; therefore, male children may start to support their parents earlier than do female children. Second, there are significant between-gender income differences, and while men typically have their own incomes, many wives depend on their husbands financially. It may be difficult for women to provide financial support to their parents unless their parents’ conditions become especially bad.

The term “parasite single” (Yamada, 1999) describes young adult children who continue to live with their parents after graduating from school and starting to work and who remain dependent on them for many daily necessities. Mothers engage in most of household work for such adult children. These adult children consume a good portion of their own incomes for themselves; thus, it is difficult for them to maintain their standards of living once they marry and leave their parents’ homes. Because these adult children benefit from this arrangement, many hesitate to marry and remain single. Thus, of working men, 71.7 % in their twenties and 67.7 % in their thirties live with their parents; the figures for working women in the same age groups are 80.4 % and 71.4 %, respectively. More generally, 29.7 % of men and 39.8 % of women younger than 49 years accept some form of financial support from their parents, and 51.8 % of men and 73.1 % of women receive housework support from them (Ministry of Land, Infrastructure, Transportation and Tourism, 2002). Far from facing an empty nest, their parents serve nurturing roles long beyond the customary timeframe.

The Contributions of Relationships to Successful Aging

Positive Aspects of Family

Many studies have delineated the broader social networks of Japanese older adults while arguing that the family remains the seminal institution that provides them with both instrumental and emotional support (e.g., Kumasaka, Inake, Yano, & Yuki, 2009). Upon the deaths of important others, such as spouses or best friends (which are among the major negative life events of later life), family members tend to alleviate older adults’ sorrow and help them to adapt (Fukukawa et al., 2005; Miyajima, Bessho, & Hosoyo, 2004). Active interactions with family members enhance morale and alleviate loneliness and depression (e.g., Fukukawa et al., 2002). Families serve to maintain older adults’ self-efficacy, self-confidence, and well-being, providing them with intimacy and peace of mind (Kamano, 2011; Matsuzaka, 2004).

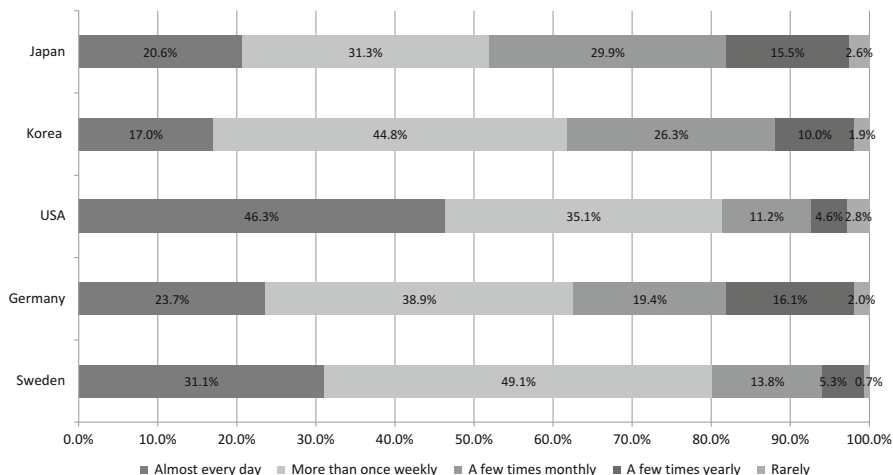
Studies reveal that retired couples sometimes have relational troubles late in life, but when both spouses have adapted to retired life, their marital satisfaction is fairly high (Sodei & Tsuzuki, 1985). Katagiri and Sugawara (2007) showed that social participation by husbands increases their wives’ life satisfaction, since these undertakings take the husbands away from home and hence reduce his tendency to cling to his wife. Further, husbands and wives sometimes take part in social activities together. Research findings on such cases are contradictory, but they can be interpreted as suggesting that if couples try to adapt to retired life and succeed in reconstructing their activities, then their marital satisfaction increases.

Negative Aspects of Family

Unfortunately, families do not always serve older adults properly, sometimes creating problems and stresses for them. Along with the inevitable emotional anxieties confronted by older adults as those dear to them become ill or pass away, their care is a serious problem. More than half of the studies on older adults are concerned with family care; such studies have been written from various perspectives and in different disciplines. In the next section “Caregiving and Family,” we will describe these inquiries in more detail. Parent care is a painful and burdensome experience for children; however, it does have positive aspects. Some studies show that care providers realize self-growth and strengthen their bonds with their parents and other family members (e.g., Nikura, Araki, & Sumitani, 2008). Provision of care to a spouse gives couples a chance to ponder their past and reconstruct their marital relationship (Hayashi, 2005).

Weakening Family Ties

The contraction of family size and the progress of individualization and individuation have contributed to the weakening of ties among family members (Nagatsu, 2004; Naoi, 1993). For example, older Japanese adults interact with their children from whom they live separately less frequently than do older adults in the Republic of Korea, the United States, Germany, and Sweden; this fact indicates the weakened ties among parents and children (Fig. 8.4).



Adapted from Cabinet Office of Japan, 2011

Fig. 8.4 Frequency of contact with children living separately: a comparison among five countries

These weakened primary relationships can cause social problems: isolation among older adults, solitary death (for a review, see Saito, 2011), seclusion (Harada, Sugisawa, Sugihara, Saito, & Asakawa, 2005), self-neglect (Kishi et al., 2011), abuse (for a review, see Matsushita & Okazaki, 2010), and suicide (Motohashi & Kaneko, 2008). Given the weakening community ties present today, these problems are not easy to solve.

Caregiving and Family

The family plays a crucial role in an older adult's later life in Japan. First, the family is the main resource for older adults who require long-term care. Second, the family exercises key decision-making functions for older adults with regard to the utilization of long-term care services, medical treatments, and end-of-life arrangements. In this section, we provide an overview of the role of the family in long-term care and discuss the impact of the LTCI system on family caregiving and prospects for future care in Japan.

The Family as a Care Provider

Caregiving has attracted public attention in rapidly aging societies, because it is one of the most pressing social issues in such populations; it is no exaggeration to say that Japan, which has the world's highest population ratio of older adults, has led the way in tackling this societal challenge. The number of Japanese older adults with a certified need for long-term care has dramatically increased in recent years. When the LTCI program was introduced in 2000, only 2.5 million older people were certified as needing care, but in the last 10 years this number has increased to 4.9 million, or 16.7 % of the older adult population; this figure is expected to increase further as the population continues to age (Ministry of Health, Labour and Welfare, 2001a, 2011d). With family structures changing drastically through delayed marriage, a shrinking birth rate, and social advancement among women, the family's place in providing care to older people has become less clear. The present changes are making it more difficult for the family to assume a caretaking role. Thus, Japan faces an essential social question: "Who is going to take care of older adults?"

Traditionally, family members—especially women—have provided long-term care (Maeda, 1983), and even after the implementation of the LTCI program, they remain the main resource in this area. As of March 2011, about one fourth of older people with long-term care needs are in nursing-care facilities, while three-fourths of LTCI program users continue to live in their communities (Ministry of Health, Labour and Welfare, 2011c). In all, 73.9 % of older adults who require care rely on family members as primary caregivers; 69.4 % of such caregivers who cohabit with older adults are women, although the percentage of male caregivers has been

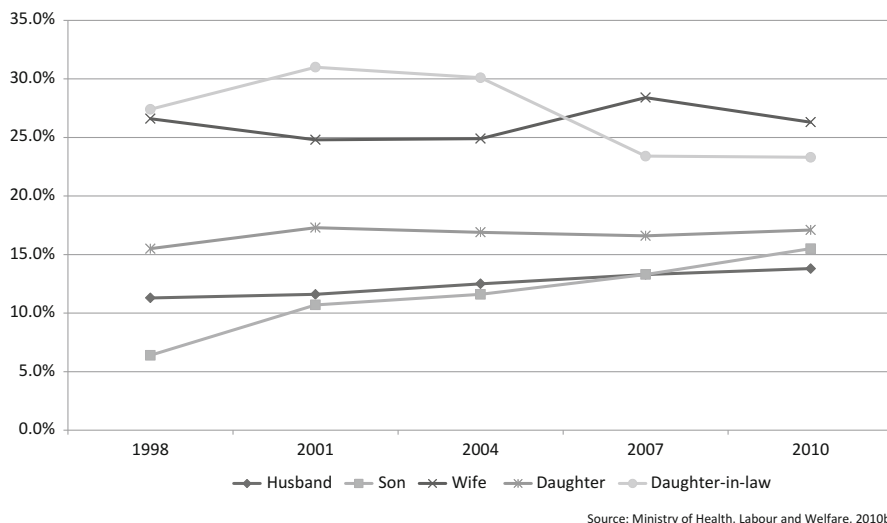


Fig. 8.5 Transition in relationships between caregivers and care recipients

gradually increasing and is now more than one fourth (about twice the corresponding percentage in 1995; Ministry of Health, Labour and Welfare, 1995, 2010b). Of family caregivers, wives, daughters-in-law, daughters, sons, and husbands account for 26.3 %, 23.3 %, 17.1 %, 15.5 %, and 13.8 %, respectively (Ministry of Health, Labour and Welfare, 2010b). It was a commonly understood social norm that daughters-in-law, usually the wife of the eldest son, were responsible for providing care (Traphagan & Knight, 2003); however, the percentage of daughters-in-law among caregivers has decreased from 31.0 to 23.3 % in the last 10 years, while the percentages of sons and wives of the person needing care in those caregiving roles have slightly grown (Fig. 8.5; Ministry of Health, Labour and Welfare, 1998, 2001b, 2004, 2007; 2010b). This change does not reflect social norms, but rather changes in individual decisions to assume caregiving roles (Kidachi, 2004). However, given the Japanese trend toward smaller families, it will be more difficult for young people to continue to offer such support. Caregivers themselves are also aging. In 1995, 37.4 % of caregivers were aged 65 years and older, while today, almost half have attained this age; particularly, 52.2 % of male caregivers are aged over 65 years (Ministry of Health, Labour and Welfare, 1995; 2010b).

Family caregiving affects those who provide such assistance. Most research on the topic has recognized that caregiving is burdensome. Caregivers are often forced to quit their jobs, sleep less, and cope with reduced time in which to pursue their own interests (Nagai & Konishi, 2000; Yamaguchi, 2004; Yokouchi, Fukushima, Wada, & Hoshino, 2003). These changes affect caregivers both positively and negatively (Wakui, Saito, Agree, & Kai, 2012). Caregivers are stressed, burdened, depressed, and less healthy than the general population (Doi & Ogata, 2000); particularly, caring for family members who have dementia leads to poorer mental health

among caregivers (Arai et al., 2004; Doi & Ogata, 2000). On the other hand, caregiving can offer relational satisfaction and create role confidence and mastery (Hirose, Okada, & Shirasawa, 2005b; Nishimura, Suda, & Campbell, 2005; Yamamoto-Mitani et al., 2004). These positive features of caregiving can alleviate burdens and depressive symptoms, buffer stress, and encourage engagement (Saito, Kunisaki, & Kanagawa, 2001; Schreiner & Morimoto, 2003; Yamamoto et al., 2002).

Unique features of Japanese caregiving should be noted. First, the entire responsibility for caregiving tends to be shouldered by one family member (Traphagan & Knight, 2003). The presence of other members is crucial, as they do support the primary caregiver physically, emotionally, and financially; better social and family supports have been associated with more-positive appraisals and satisfaction among caregivers (Fujino, 1995; Hirose, Okada, & Shirasawa, 2005a; Matsuoka, 1994; Nakatani, 1992). In addition, the concept of *sekentei*, “an individual’s concern about behaving in a socially acceptable manner, as judged by others” (Asai & Kameoka, 2007), has been discussed as social pressure to discourage family members from using nonfamily support (Asai & Kameoka, 2005; Murayama, Taguchi, Ryu, Nagata, & Murashima, 2011). Finally, codependence between care recipients and caregivers has been reported. While the former rely on the family physically or emotionally, some caregivers refuse to seek outside help or attend support programs because they believe “no one but me is capable of providing care” (Makino, 2002). These unique characteristics often influence family caregiving, and result in the underutilization of public services.

Long-Term Care Insurance and Family Caregiving

The LTCI program was introduced with the aim of supporting older adults and their family caregivers; it represents the socialization of care in Japan (Campbell & Ikegami, 2000; Hiraoka, 1998). In its early stage, long-term care services were underutilized because of a hesitancy to rely on the public sector by both older adults and their families (Sugisawa et al., 2002). However, the number of people who rely on public care has increased from 1.8 million in 2000 to 3.9 million in 2010 (Ministry of Health, Labour and Welfare, 2001a, 2011b); thus, it is increasingly seen as a viable alternative to family care in an aging society.

The LTCI program increases the security of long-term care and reduces the physical burdens and time requirements of family caregiving (Mitadera & Hayasaka, 2003). About half of those aged ≥ 20 years who participated in a 2010 survey favorably evaluated the LTCI program favorably (Cabinet Office, Government of Japan, 2010). The two main reasons provided for this positive appraisal were the reduction of family burden and service accessibility. While the program has had positive effects, certain aspects have been criticized. Financial costs (53.7 %) and lack of adequate support (44.3 %) ranked high on the list of criticism for the 28.8 % of respondents who expressed negative views of the program (Cabinet Office, Government of Japan). Specifically, financial expenses for welfare services were

judged as heavy and remain a significant worry for family members (Kawakami et al., 2002; Kondo, 2002; Ono & Kimura, 2003). Family caregivers also tend to report that their obligations have not been sufficiently reduced (Mizuno, 2011). Particularly, the failure of the LTCI program to lessen their emotional stress has been a subject of controversy (Hwang & Sekita, 2004; Kawakami et al., 2002; Kitahama, Takemasa, & Shimada, 2004; Kondo, 2002; Ono & Kimura, 2003).

The increase in expenditures for benefits for older adults is a concern for aging societies around the world. However, family caregiving continues to play a role in the reduction of formal outlays for long-term care (Greene, Ondrich, & Laditka, 1998; Yoo, Bhattacharya, McDonald, & Garber, 2004). We have learned from the experience with LTCI that the program helps to sustain family caregiving, which in turn greatly reduces program costs. This suggests that a profit-oriented financial analysis is not the only way in which to approach the problem of successful aging. The simultaneous development of the LTCI program and family caregiving could be a game changer in the controversy regarding the cost-benefit analysis of the LTCI program.

The Family as a Decision Maker

The family also has the crucial role of decision maker for older adults. It not only chooses long-term care services and medical treatments, but also makes decisions regarding admission to nursing homes (Bito et al., 2007; Kanagawa, 2003; Negi, 2011; Yamamoto & Wallhagen, 1998). Sometimes, the opinions of family members have more weight than those of older persons with long-term care needs (Aita, Takahashi, Miyata, Kai, & Finucane, 2007; Asai, Fukuhara, & Lo, 1995; Negi, 2011). Although the notion that older adults' preferences should be respected is widely accepted in Japan, older adults tend to prefer the involvement of family members in their decisions (Bito et al.). In addition, the general population's awareness of advanced care planning is still low (Arai & Arai, 2008). Written advance directives are sometimes considered as intrusive to older adults (Bito et al.). It is necessary to devise an advance directive policy that is respectful of Japanese cultural values.

Future Prospects for Caregiving in Japan

What we have learned from the experience of the rapid increase of older people with long-term care needs is that the situation of the family as primary caregiver is changing: caregivers are aging themselves, and caregiving is increasing among men. The LTCI program must promote a new style of caregiving in order to ensure its efficiency. Noteworthy that it is essential to pay close attention to older adults who lack family support. The current LTCI program is built on family-oriented care, and

its sustainability depends on family contributions. Considering that future family characteristics are crucial to sustaining the LTCI program, the role of the community in caregiving has recently been highlighted (Ministry of Health, Labour and Welfare, 2006, 2010a; Wakui, 2012). Although the LTCI program needs improvement, it is indispensable for older adults, families, and society. However, the costs of social security benefits are increasing dramatically. In order to achieve the original goal of “socialization of care”, the achievement of balance between the public long-term care program and family on the one hand and the community on the other is key in the arena of Japanese long-term care; indeed, such a balance could enable the successful aging of the entire society.

Conclusion and Future Research

In this chapter, we first presented the general characteristics of the Japanese family and traced the changes thereto. Second, we described its functions. Third, we explored recent problems in eldercare. Now, we conclude by arguing that the family contributes to the successful aging of older adults and suggest future directions for research.

Japanese Families and Successful Aging

The studies cited in this review confirm the importance of the family in successful aging. The family provides care for its older adult members, makes difficult decisions for them, and offers them instrumental and emotional support. Thus, the family alleviates the loneliness of older adults and assures their identities and sense of worth, all of which are essential emotional needs among both younger and older individuals. As Rowe and Kahn (1998) argued, “active engagement with life” is one of the three components of successful aging, and for it to occur, it is necessary to “relate to others” and “continue [one’s] productive activity.” Older adults can satisfy these requirements of successful aging through close connections to family, since they maintain intimate ties with those around them and receive assistance in continuing useful domestic or societal roles.

However, not all older adults may use this valuable resource. In cases of firm relationships with family members, the family has functioned in caretaking roles well in the past. Today, decreased family size and physical separation between family members make it difficult to maximize the use of this basic institution as a resource. We need to assume that some older adults will have no children or family members who are able or willing to care for them.

Future Research

Here, we present five areas for future research.

The Varied Situations of Older Adults

Differences among older adults have been increasing. It is necessary to explore older adults whose situations are divergent from the norm. For example, studies of the families of active older adults and of the new family pattern, with its weakened bonds and greater individualism, are needed. This is necessary because more and more older adults either cannot rely on their children or have none.

The Varied Relationships of Family Members

It will be interesting and necessary to investigate the relationships between family members. Interesting and informative studies will include those on older couples; the intergenerational relationships between grandparents, parents, and grandchildren; sibling relationships; and the independence vs. dependence of family relationships.

Studies from a Developmental Perspective

With a longer life expectancy, older adults will face increasing numbers of negative life events. Although painful, such experiences can be instructive and prepare them for future pain and loss. In addition, we can expect to learn from the experiences of others who have experienced painful occurrences. Thus, it would be valuable to inquire into the positive results of negative life events and their impacts on the social networks of those who have experienced them.

Older Adults in Various Circumstances

We have observed older adults in variations situations. Such divergence deserves further investigation. Among the topics worthy of study are the divergence between urban and rural older adults and the effects of Information and Communication Technology (ICT: Does it aid communication within families who live separately? Are there any observable differences between people who have good ICT skills and those who do not?).

Multi-perspective, Multidisciplinary Studies

It is necessary to explore trends such as the effect of LTCI on family relationships; studies to this end should be conducted from the nursing, juridical, sociological, welfare, and psychological perspectives; their findings should be integrated multidisciplinary so as to further more general comprehension of the issue. In addition, along with these more detailed inquires, we need a general framework to understand and discuss the problem. For example, integrated macro studies on the familial effects of LTCI are essential.

We are confident that future research on these topics would produce fruitful results and contribute to successful aging, not only in Japan but throughout the world.

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Chapter 9

Social Networks and the Wellbeing of Older Adults in Singapore

Leng Leng Thang

Introduction

While it is widely understood that the family forms the basis of social networks contributing to the wellbeing of older adults, in Asian societies, the family is all the more emphasized for its multi-dimensional roles beyond the provision of intangible emotional and psychological support, to include the tangible financial and care support for one's older parents and relatives in later life. The explicit expectations to rely on the family instead of the state in the caring of older adults has been regarded as the essence of Asian values which lays the foundation of not only the family, but also state policies on aged care in Asian countries (Croll, 2008).

Singapore is no exception in its consistent emphasis of the family as a key pillar of support for older adults under the rubric of the Asian family ideology (Teo, Mehta, Thang, & Chan, 2006). The State's welfare approach of "Many Helping Hands" mentioned in the 1999 Inter-Ministerial Aging Committee (IMC) Report states the need for multi-party partnerships to ensure the wellbeing of older adults; starting with the individual who has a personal responsibility to plan and prepare for his or her old age; and the family to come in as the first line, and community the second line of support for those who need care and support. The role of the State is thus to set the policy framework, and provide the infrastructure and resources necessary for the other sectors to play their part (IMC Report, 1999).

The 1999 IMC also initiated the framework of "successful aging" as a vision for its aging policy which continues to be adopted till this day. In 2007, when the new Ministerial Committee on Aging was formed to put in charge of aging issues,

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the four strategic tasks identified include “employment and financial security”, “aging-in-place” “healthcare and eldercare”, and “active aging”. Although at one glance, they appear to focus more on self-reliance and independent aging, as a speech by the Minister of Community Development, Youth and Sports (MCYS) shows, besides being “healthy, active, financially secure and independent senior citizens”, older adults are encouraged to be “integral members of their extended families and communities, actively involved in a supportive and mutually interdependent relationship with the latter” (MCYS, 2005).

While the image of an older adult who is healthy, financially secure, active, surrounded by caring and loving family members and friends indeed epitomizes the vision of what successful aging should be, on the contrary, the challenges of demographic aging and changing socio-economic trends have evoked the fear that with rising longevity and lesser number of children available, there will be limits to what the family may be able to provide for the older adults (Liu & Kendig, 2000; Teo et al., 2006). What are the nature and characteristics of the family as a core social network for the older adults? How do older adults strategize to maintain their social network, especially in cases where the family network is not available? Using qualitative data from a study of older adults who are either living alone or with family members, this chapter focuses on living arrangement as a platform to examine how prevailing living arrangements as expressed by the older adults shed light on the dependency of family. In addition, the role of non-family social network, in particular, friends and neighbors will also be explored in understanding their contribution to the wellbeing of older adults. A strong social network including family, friends and neighbors are known to play a vital role in reducing the vulnerabilities of social isolation, loneliness and enhances the wellbeing of older adults (Julha & Saarenheimo, 2010; Phillipson, 2004; Wu & Chan, 2012).

In focusing on social networks of older adults, this chapter is informed by Baltes and Baltes’ (1990) theoretical model of selective optimization and compensation which views successful aging as a process of adaptation by way of selection, optimization and compensation strategies. From this perspective, can non-family network be perceived as a compensation of the lack of family networks especially for older adults living alone? Such a theoretical framework thus emphasizes the dynamic process of adaptation to achieve one’s wellbeing without conforming one’s wellbeing in later life to a single trajectory. The dynamics in the personal networks of older adults also relate to changes in situational and personal characteristics, highlighting the structural constraints and opportunities available to an individual in the process of change (Van Tilburg & Thomese, 2010).

In the following, the chapter will first provide a general overview of aging in the Singapore context. This is followed with a brief note on data collection before examining the nature and characteristics of family and non-family social networks as compared between older adults in different forms of living arrangements.

Aging in the Singapore Context

The aging population is one of the biggest challenges facing Singapore today. Although the increase in the number of the proportion of persons aged 65 and over in the population has grown at a comparable rate to other industrialized societies – expanding almost threefold over the last 30 years, from 1970 to 2010 (Table 9.1), as the first post-war baby-boomers (born between 1947 and 1964) reach age 65 in 2012, the city-state is projected to experience an unprecedented rate of aging after that, reaching almost 19 % in 2030; in absolute terms, the older population will increase from 339,453 to 873,300 in a short span of 20 years (CAI, 2006). The realization of the magnitude of the challenge has led to active dialogues among different sectors with the State in the recent years, and more new measures and policies are expected to be formulated to better meet the needs of an aged society in the face of rapid socio-cultural and economic changes.

The rapid demographic shift in Singapore stems basically from two factors: the rise in life expectancy and a persistent fall in birth rate. With economic prosperity, coupled with improved public health and medical care, the average life expectancy in Singapore has risen rapidly from 65.8 years in 1970 to 78 years in 2000, and 81.8 years by 2010. In 2010, the average life expectancy for male and female is 79.3 and 84.1 years old respectively (Table 9.1). However, at the same time, the social phenomenon where more people are remaining single, marrying later and having fewer babies after marriage have translated to historic low birth rates; the TFR (total fertility rate) has seen a consistent decline from 3.07 in 1970, to 1.6 in 2000, and further fell to a critical level of 1.15 in 2010 (*ibid.*). The aging population

Table 9.1 Key demographic indicators and the older population (1970–2010)

	1970	1990	2000	2010
Total population ('000)	2, 074.5	3, 047.1	4, 027.9	5, 183.7
Resident population ('000)	2, 013.6	2, 735.9	3, 273.4	3, 771.7
Median age (years)	19.5	29.8	34	37.4
No. of persons aged 65+ ('000)	68.5	164.5	235.3	338.4
Proportion of persons aged 65+	3.4	6.0	7.2	9.0
Old age dependency ratio (65+ years per hundred aged 15–64)	5.9	8.5	10.1	12.2
Old age support ratio (number aged 15–64 years per 65+ year)	17.0	11.8	9.9	8.2
Total fertility rate	3.07	1.83	1.6	1.15
Life expectancy at birth (average)	65.8	75.3	78.0	81.8
Male	64.1	73.1	76.0	79.3
Female	67.8	77.6	80.0	84.1

Sources: Singapore Department of Statistics (2011) Key Demographic Indicators, 1970–2011, Wong and Teo (2011) Table 1 for proportion and number of persons age 65 and over in 1990–2010, MCYS (2010) Table 1.1 for proportion and number of persons age 65 and over in 1970

Note: Except for 1970, all figures are based on resident population

that resulted as a combination of these two factors has led to a rise in median age and a shrink in old-age support ratio over the three decades (Table 9.1). Within the older population, the increase has been most rapid in the 85 years and over group, which has grown at an annual average of about 6 % in the last decade (Wong & Teo, 2011).

What characterizes the profile of older adults in Singapore? The statistics released in 2011 on resident population shows more females among the older population, with 0.795 and 0.491 male to one female for the age 65 and over as well as the 85 years and over population. One-third of the 65 years and over population is widowed, with more females (50 %) than males (12 %) among the widowed persons. The current cohort of older adults tend to receive less education; and allowance from children is the main source of support for older adults (63 %). 2.4 % (8,200) of older adults in residential housing were reported to be non-ambulant in 2010 (Wong & Teo, 2011).

Singapore is unique among the industrialized advanced countries to be characterized with a relatively high percentage of older adults living with their spouses and/or children. The 2010 census shows 86.1 % of older adults living under such an arrangement (Table 9.2). It is more likely for those in the 85 years and over group (63.3 %) to be living with children only, indicating higher incidence of widowhood in later age. In terms of gender, higher percentages of males (76.7 %) are living with spouses than females (38 %), reflecting the likelihood of older males to have spousal carers. The percentage of those living alone has shown a consistent increase, from 5.5 % in 1990, to 6.6 % in 2000 and 8.2 % a decade later and it is projected to increase further with changing preferences for living arrangement among the older population (Thang, 2011).

Despite the high percentage of older adults living with spouse and/or children in general, further examination of living arrangement among 5,000 older adults through the 2009 SIHLS (Social Isolation, Health and Lifestyles Survey) reveals the norm of small household size among them, with 27 and 24 % living in two-person and three-person households respectively (ILC Singapore, 2011). This is

Table 9.2 Living arrangement of resident population 65 years and above, 2010

	Total	Male	Female	65–74 years	75–84 years	85+ years
Total	100	100	100	100	100	100
Living with spouse	55.1	76.9	38.0	65.6	43.3	22.0
No children in household	19.4	26.0	14.3	22.5	16.5	7.8
With children in h/h	35.7	50.9	23.7	43.1	26.8	14.2
Living with children only	31.0	12.1	46.0	20.8	42.5	63.3
Not living with spouse or children	13.9	11.1	16.1	13.6	14.3	14.6
Alone	8.2	6.3	9.6	7.9	9.0	6.7
With other elderly only	1.3	1.3	1.3	1.4	1.2	0.8
Others	4.4	3.5	5.2	4.2	4.1	7.1

Source: Wong and Teo (2011) Table 7

consistent with the increasing trend of smaller households nationally: the proportion of households with three persons or less has risen from 45.5 % in 2000 to 51.2 % in 2010 (DOS, 2011:12).

Intergenerational co-residence is commonly considered as an effective way to ensure the care of older adults by their children, even though there has been arguments about the assumption of living with children as a one-way support of the young for the old (Hermalin, 1997). Singapore's housing policy to promote three-generational living reflects such an underlying assumption on ensuring aged care in intergenerational co-residence, although in the recent years, with the increasing norm for nuclear households, the housing polices have expanded to include measures to encourage adult children and their parents to live close by, and not necessarily together. In this chapter, through an examination of the social network of older adults, taking into consideration their living arrangements, we seek to explore how the different living arrangements may affect the availability and their perception of social networks.

Method and Data

This chapter focuses on understanding the social networks of older adults, using qualitative data derived from a research project conducted with FeiYue Community Services on seniors living alone in Singapore between 2008 and 2011 (Thang & Lim, 2012). Although the project focuses on understanding the problems and concerns facing older adults living alone in Singapore, they provide valuable insights to one's perception of wellbeing and strategies to promote one's wellbeing. The chapter will refer to the interviews with 120 older adults living alone and 30 older adults who were living with their families. Semi-structured in-depth interviews were conducted mostly in the homes of the older respondents; and questions were centered on living arrangements, social network, sources of support and care, their daily living and activities, among others. Understanding the social network of older adults is an important objective of the research, especially when living alone is a strong predictor for social isolation (Wu & Chan, 2012). Interview data from these two groups will form the primary data for discussion in this chapter. For anonymity, there will be no name mentioned in the text.

The respondents from these two groups ranged from 65 to 90 years old, with an average age of 75. Two-thirds among the group of older adults living alone were either single (28.3 %) or widowed (43.3 %). For those who were widowed with children, some had chosen to stay in their own apartments after their spouse passed on, while some others were forced by circumstances. For instance, an older Chinese woman (CF13) had to move out of the son's house as a result of mother-in-law and daughter-in-law conflicts.

Among the 30 older adults living with family, two-thirds (66.7 %) of them were married, out of which 11 were living with spouse only, 7 with spouse and children, and 2 in three-generation households with grandchildren. Among the 8 (26.7 %)

who were widowed, 5 were living in three generation households. Although the household composition looks the same regardless of whether the seniors moved in to live with their children, or their children stayed with them in the house that belongs to the seniors, in reality, it can affect the sense of autonomy felt by the seniors. One widowed Chinese older woman (CF123) staying in her son's home saw herself as having no other option but to rely on her only son. Older adults who came to live together with their children often focus on how they are playing a role in the children's family (such as to care for their grandchildren) to justify their claims of independence and their contributions to the family.

Similar to the general older population, both groups of older adults tend to have low education levels. Among those living alone, 89 (74.2 %) of them lived in one-room public flats. Rental public apartment blocks are limited supply of housing generally available only to those from the low-income brackets. As home ownership in Singapore is consistently high (above 80 %) in the population as the State's public housing policy encourages home ownerships (DOS, 2011), living in rental public apartments thus often indicate one's inability to own one's own property. Out of this sub-group, 34 were receiving Public Assistance (with a monthly cash grant of S\$400 (equivalent to USD 320) and free medical treatments in government clinics and hospitals) only eligible for those without family support. 13 (10.8 %) lived in studio apartments which are 30 year-lease senior-friendly public housing where persons 55 years and older may purchase directly from the Housing and Development Board. Among those living with family, two-thirds were living in what is regarded as 4-room type public housing (about 90 sq m with 3 bedrooms and 1 living room) or smaller in size. The religious beliefs of both groups of older adults reflected the diverse ethnic and religious practices in Singapore (see Table 9.3 for profiles of the two groups). Chinese formed the majority of the older adults interviewed (total of 82 out of 150 respondents), parallel to the ethnic composition in the Singapore population, and there are equal number of males and females in both groups. In the following section, the two groups will be discussed in comparison under family and non-family social network.

Family Social Network

Family relations feature prominently in the social network of older adults. This is especially so for adults who live with their family, mostly their spouses, and/or children. Among the older adults living alone, half of them said that they would approach their family members – ranging from children to siblings, nieces and nephews when they need help. Family members provided varied forms of support for older adults, while those living alone tended to focus on monetary support, those living together reported more non-monetary forms of support such as housekeeping, transport, medical and emotional support with the spouses or children as the providers.

Table 9.3 Profile of older adults living alone and with family (per cent)

	Older adults living alone (N = 120)	Older adults living with family (N = 30)
Ethnicity		
Chinese	50 % (60)	73.3 % (22)
Malay	25 % (30)	13.3 % (4)
Indian	25 % (30)	13.3 % (4)
Religion		
Buddhism	18.3 % (22)	13.3 % (4)
Taoism	1.7 % (2)	13.3 % (4)
Catholicism	6.7 % (8)	6.7 % (2)
Christianity	16.7 % (20)	23.3 % (7)
Hinduism	14.2 % (17)	6.7 % (2)
Islam	32.5 % (39)	16.5 % (1)
Ancestral worship	–	3.3 % (1)
No religion	10.0 % (12)	10.0 % (5)
Marital status		
Single	28.3 % (34)	3.3 % (1)
Married	15.0 % (18)	66.7 % (20)
Divorced/Separated	13.3 % (16)	3.3 % (1)
Widowed	43.3 % (52)	26.7 % (8)
Housing type		
1-room HDB	74.2 % (89)	23.3 % (7)
Studio Apartment (HDB)	10.8 % (13)	3.3 % (1)
2-room HDB	5.8 % (7)	13.3 % (4)
3-room HDB	8.3 % (10)	20.0 % (6)
4-room HDB	0.8 % (1)	13.3 % (4)
5-room HDB	–	10.0 % (3)
Private housing	–	16.7 % (5)
Education level		
No qualification	30.8 % (37)	30.0 % (9)
Primary	50.0 % (60)	36.7 % (11)
Secondary	14.2 % (17)	26.7 % (8)
Post-secondary	5.0 % (6)	6.7 % (2)

Spouse as the Core Social Support Provider

Eleven out of the 30 older adults living with the family lived with their spouses only. Older adults recognized their spouse as the main source of support especially when it was a couple-only household, as a 75 year-old retired Chinese man (CM120) said of his wife who was still working daily at MacDonald's, "You can say so. Be it emotional, moral, or my daily activities. She's (Wife) the best."

The respondent above lived in a de-facto couple-only household as his son and daughter-in-law living together were working overseas most of the time. Some older

adults had chosen to live only with their spouses and apart from their children believing that this was a way to improve family ties and reduce friction between parents and children. A 72-year-old Malay man with five children lived only with his wife (MM165); he said after hearing about the bad experiences of older adults who lived with their children, he thought it would be difficult to stay with their children and moved in to a rental apartment instead. Another 70 year-old Malay woman (MF166) who used to live with her children and their families now chose to stay with her spouse so that she could maintain her independence.

Children and Mutual Dependent Relationships

For the older adults living alone and had children, children contributed to their wellbeing mainly in the form of monetary support (e.g. providing them with monthly allowance, paying for their medical expenditure). A 66 year-old Indian widow (IF132) living alone in a rental apartment had 9 children who rotated to provide her financially but she insisted that she would not take money from those who had financial difficulties themselves, such as a daughter with kidney problem and another who had an unhealthy child. Older adults also relied on their children when they needed care, such as after-hospitalization care. A 72 year-old Chinese man (CM14) who was a widower living alone had two married daughters who visited him occasionally. When he had an eye operation a few years ago, besides providing monetary support, one of his daughters provided care by receiving him temporarily in his home while he was recovering.

Although it is common for older adults in Singapore to receive monetary support from their children, recognizing the children as important source of social network does not necessarily meant that the children must be supporting them financially. Two older adults (CM151 and CM140) whose sons lived with them depend on them for monetary and care support as both of the sons did not work due to illness and disability respectively.

Among the older adults living with families, 4 of them were still working and another 3 had spouses still in the workforce, thus they still had an income. Probably due to the ambulant state of the older adults in the study, it was not uncommon for them to consider themselves as supporting their children instead. With the norm for young dual working-couples in Singapore, older parents who live together with their children often play essential instrumental roles such as caring for grandchildren, doing household chores and cooking for the whole family (Teo et al., 2006).

The Significance of Siblings and/or Their Children in the Lives of Older Adults Living Alone

Most of the older adults living with the family were in active contact with their siblings. It could be in the form of close social contact, such as in the case of

69 year-old Chinese woman (CF133) who went out with his sister for a walk on some Saturdays, and 81 year-old Chinese widow (CF149) whose sister called her everyday to chat. CF13, a 73 year-old Chinese widow used to have little contact with her siblings when she was living with her younger son's family as her daughter-in-law disallowed her to play mahjong at home with her siblings. After she moved out to live on her own in a rental apartment, relationships with her siblings became closer as she now has the liberty to meet them, and it had become a weekly affair for her siblings to get together at her apartment for mahjong sessions.

Siblings are also important as a provider of financial support. A 79 year old Indian divorcee (IM55) who was childless and lived alone often depended on her elder sister financially, although he felt uneasy about his dependence on her.

Among the older adults living with family, a 66 year-old Chinese man who was single (CM131) lived only with his younger brother in a one room rental public apartment. His siblings were his main sources of support, his younger brother worked to support both of them since he had stopped working and his younger sister living at a nearby block visited him daily to keep him company in the afternoon while his younger brother was at work.

Some older adults who were single and living alone might also receive support from siblings and their children. CF10 was a 68 year-old single Chinese woman who relied on the daughter of her foster sister for visits to the doctor each time. She had stayed with them for 4 months when she underwent breast cancer treatment a few years ago. Another 69 year-old single woman (CF08) living in rental apartment received financial support from her older sister and brother. She also maintained close relationships with her sister's three children and grandchildren as she used to live with them for 36 years and cared for them. She only moved out of her sister's house when their family expanded and needed more space for the grandchildren. Now, her siblings and their children visited her weekly and her nephew brought her to the doctor on a regular basis. Her close relationships with the nieces and nephews had provided her with a sense of security and support resembling those who have children.

However, several single older adults also mentioned that they had little contact with their family and relatives. Their definition of 'some contact' with their kin, when probed further, often refers to minimal contact such as once a year visit during the festive seasons. A 65 year-old single Chinese man (CM05) living in a rental apartment said he was disappointed with his siblings,

Yes, I have brothers and sisters. But I don't want to talk about them. They have money. If I visit them, they would immediately be afraid that I want to borrow money. They have no heart, that's just how I feel. So I'd rather just be by myself. Forget it. (CM05)

More men living alone mentioned about dwindling contact with their kin compared to the women, and many saw their parents as the point of contact for the family, once their parents passed on, contact with siblings reduced significantly. For CM05, instead of family members, he found friends and neighbors more important as his social network,

Sometimes, your friends are better than your own family, let me tell you. It's true... With friends, you can depend on them for help. For example they will take you to the hospital, and see the doctor. (CM05)

The diverse responses to the significance of siblings in one's social network implies the extent to which the siblings and/or their children is considered a compensation to the lack of spouse and own children in contributing to one's wellbeing.

Non-family Social Network

Besides the family relations, which generally forms the core of the older adults' social network, social lives with non-family relations constitutes the other part of one's life domain determined by the presence of friends, community and social activities (Penning & Chappell, 1987). In this section, the discussion focuses on friends and neighbors but it should be noted that for older adults who live in housing blocks that have senior service centers on the ground level, such as senior day activity centers and neighborhood link centers, they served as a venue to make friends and build non-family relationships. These eldercare centers provide a space for socialization, such as through the availability of common areas for relaxation and exercises, and organized activities such as morning group exercises, outings, tea gatherings, and classes such as Basic English lessons and cooking classes. More females were observed to be attending these centers than males. Likewise, for those who were actively engaged with church fellowship groups and other religious entities, these places where people congregate are also a node for non-family social network. Non-family social network can play a more significant role than the family domain compensating for the lack of family close by, especially for older adults living alone.

Friends

Among the older adults who are living alone, those who do not have any existing family ties tend to rely on their neighbors, friends or the social service centers in their community and religious organizations. The definition of friends is broad and could refer to colleagues or ex-colleagues from their current or previous workplaces, fellow older adults whom they have met at the social service centers or within the neighborhood and friends from their religious communities.

Friends offer a source of companionship for the older adults living alone, where they chat over the phone with, go travelling with and enjoy leisure activities together. Although living alone, the 68 year-old retired Malay divorcee (MM93) said he did not feel lonely since he had friends from the social service centre below his block as well as friends from the neighborhood coffee shop which he frequents. While friends

could be acquaintances for some, “just talking to pass time” (MM106), they could also serve as confidants for others, providing emotional wellbeing and support. As the 68 year-old single Chinese woman who recovered from breast cancer said,

“make more friends. Confide in friends whenever you have problems. In this way, you will feel better. Like me, I always confide in my Marsiling (place name) friend whenever I am met with problems. It is not good to keep everything inside, you will end up in depression this way”. (CF10)

Other than providing emotional support, friends also offer instrumental assistance to older adults. For 85 year-old Malay widow (MF85), her friends regularly accompanied her to the market to purchase groceries as she had walking difficulties. CM05 found friends to be closer than his own family members; as he was partially visual-impaired, he relied on his friends to bring him to medical appointments in the hospital. Friends were a source of financial support for 72 year-old Chinese male divorcee (CM11); his friends would lend small amounts of money and provide mutual financial assistance to each other. Similarly, 69 year-old Chinese single man (CM18) said that among his friends, they would inform each other of the various sources of financial help available to them. Compared with older women, the older men tend to refer to their former work colleagues as friends that they still kept in touch with occasionally. Public places like coffee shops in the neighborhood are the usual meeting places for men with their friends (and neighbors). Older women tend to make friends through social activities such as karaoke groups and exercise groups that they joined.

Compared with the older adults living alone, those living with their families tend to situate their friends more within the scope of social and emotional support. Friends provide companionship in activities such as singing karaoke, having drinks, shopping or travelling together. Friends also provide emotional support equally important to those provided by family members. A 65 year-old Chinese man (CM118) who lived only with his wife in a three-room public apartment (two bedrooms and one living room) that they purchased after selling off the larger five-room apartment (three bedrooms and two living rooms) was active with various leisure and life-long learning activities with fellow older adults. When asked if he considered his wife as providing the biggest moral support, he didn't agree totally, saying that “friends' support is equally important because as we get in touch with friends, it will also improve our mood.”

Neighbors

Neighbors feature more prominently among older adults living alone and those who have been living in the same rental public housing blocks for many years. CM5 who was single and living in rental housing alone regarded his friends and neighbors as more important to him than family members. He knew most of the neighbors, and felt especially grateful to one lady who together with her son, brought him to the

hospital when he needed to get admitted some years back. They also visited him at the hospital and even invited him to attend Chinese New Year reunion dinner at her place.

There are numerous examples eliciting the importance of neighbors in the lives of the older adults who were living alone. An 88 year-old man (CM09) living in rental housing and on public assistance readily mentioned three neighbors who helped maintained his wellbeing and independence: one female neighbor living on a different floor would help him with the cleaning of the house and provide for him breakfast and lunch. The other two male neighbors helped to carry things for him and also bought him dinner daily. They chatted with him on a frequent basis to ensure that he was doing fine. Neighbors whom one meets frequently may become closer than one's family members at times. For the 71 year-old Chinese male divorcee (CM11), many of his neighbors were old neighbors he had known before they were all relocated together to this block from a nearby district. He often hung out with them, "...they would look me up to go drink coffee (at the coffee shop)....If you do not go out to eat, drink coffee, talk with friends, it would be very boring to stay at home alone." He referred to his group of old neighbors and himself as a group who "had no money and no wives, alone...". They thus seek help mutually in more ways, including financial help. For CF10 who still worked at age 68, whenever she was at home in her rental apartment, she would keep her door open "so that my neighbors can keep a look out for me. That is what neighbors are for. We help to look out for each other". She had lived in the same block for 25 years.

Even for a 68 year-old Chinese single women (CF08) who had stayed in the rental apartment for only 5 years, she engaged actively in neighborly exchanges to compensate for the restriction she faced with her weak legs. She was grateful that her Malay neighbor who lived next door usually dropped by her place to ask if she needed anything whenever he was going for grocery shopping. CF08 considered her 88-year-old neighbor who lived downstairs in the same block as a good friend. She cooked everyday and often cooked extra so that she would be able to pack some food to bring to the 88-year old female neighbor living downstairs, regarding it as an act of a "good neighbor." They met and chatted often and the granny would call her on the phone to ask why she was not coming to her place whenever she did not visit her in the afternoon. This serves as an example of intra-generational mutual help among older adults.

Parallel to the Chinese saying that "relatives far away cannot be compared with neighbors close by (远亲不如近邻)", useful and helpful neighbors have shown to be more important sources of social support than the family for older adults who are living alone. Neighbors also provide more ready support than friends who do not live in close proximity. They help with daily tasks, provide companionship and look out for each other's wellbeing. On the other hand, relationships with the neighbors tend to be mostly casual for respondents who live with the family. Although most enjoy a harmonious relationship with their neighbors and get along well with one another, few of them consider their neighbors as sources of social or emotional support. The 65 year-old Chinese woman who lived only with his husband in a condominium unit (CF134) was one exception, she enjoyed swimming and other leisure activities

with her neighbors, and saw neighbors as important in providing mutual help and support, “We talk and help each other. If they have problems, we will go and help. Like some children when their parents are not around, they want to put their children at my place, I will help them”. (CF134).

It should be emphasized that in discussing the different types of social networks present among older adults, we should recognize the co-presence of the different forms of relationships at the same time, forming what is termed a ‘convoy’ of persons surrounding a person (Kahn & Antonucci, 1980). While this perspective is commonly explained through a life course perspective as some relationships diminishes in importance in providing certain form of support, and compensated by other new forms of relationships, CF13’s re-structuring of social lives as a result of her forced move out of her son’s house to live alone is a good illustration. While she used to center her daily life around the care of her granddaughter, it had transformed dramatically after she came to live alone. In place of the diminished contact with her son’s family was an expanded social life as an active volunteer at the day activity center situated on the ground level of her rental apartment block. Besides helping out at the reception counter and attending the array of activities organized by the center, she also resumed contact with her retired friends and now met regularly with them for karaoke sessions. In addition, she was able to rekindle ties with her siblings and their spouses now through regular mahjong sessions. In her case, the change in living arrangement enables new members into her social network.

Discussion and Conclusion

This chapter, in examining the nature and characteristics of social networks among older adults in Singapore has shown that as expected, family relations is a significant domain of one’s social network. Among older adults who are living alone in Singapore, those who have children also tend to rely on their children to provide for them financially, if not emotionally and practically as well. Indeed, as research findings on family life in the West have shown, despite population aging and changes in family structure, family relationships remain significant and children still form the core of the social network of older adults (Phillipson, Bernard, Phillips, & Ogg, 2001; Silverstein, Burholt Wenger, & Bengtson, 1998).

Given the higher likelihood of family and kin in providing unconditional instrumental and emotional support to their older adults (Antonucci & Akiyama, 1995), it is without doubt that family remains as the most preferred social network. Nevertheless, a study of the social networks among older adults with family and those who were living alone suggests changes in the nature and characteristics of dependency on the family. Further, the compensation of the lack of family social network with other forms of non-family networks among older adults living alone reveals how individuals strategized in ensuring the availability of appropriate social network in later life, whether out of choice or the lack of choice.

One changing trend relating to staying with family for older adults is the emerging phenomenon of mono-generation households consisting only of aging spouses. With longer life expectancies among older men and women, 'staying with one's family' can no longer be regarded simply as living with their children; and the trend is expected to rise with changing living preferences among the aging population. According to the 2009 baby-boomers survey, 75 % of baby boomers expect to live with their spouses for most of the retirement years/old age (MCYS, 2009:69). The availability of more housing options, such as the building of more studio apartments catering to older adults by HDB is predicted to further support the increasing trend. However, in Asian culture where family relationships tend to focus on intergenerational relations between parents and children, spousal relationship in later life is still a relatively new subject in understanding family relationships. With the increase in older spouse-only households, we can expect more concerns in areas such as the physical and financial abilities facing spouses who are the only caregiver for their husbands or wives. As a recent study on caregiving in Singapore with more than 3,000 older patients has shown, spouses constitute the largest number of caregivers for aged sick at home where many are reported to face a lack of social support and health problems of their own, among others (Poon, 2012).

Among the older adults living with their children and/or grandchildren, it is also important to recognize the two-way flows of intergenerational relationships between older adults and their adult children in co-residence arrangement where the flow can be that of adult children supporting their frail parents at a later point of time, as well as older adults supporting their adult children through grandchild care and household chores while they are ambulant. A study on childcare-giving in Singapore notes that with the preference among younger generations for childcare assistance from their own parents, grandparents in Singapore are not simply 'reserved army' to provide emergency childcare, but a 'regular army' expected to provide help in normal times (Sun, 2012).

Among older adults who live alone, 'family' as a social network has shown to entail a broader range of relations beyond the direct parent-child relationships, where one's lack of children may be compensated with closer relationship with nieces or nephews, who can play essential supporting roles like their own children. However, the replacement relationship of children with nieces and nephews may require cultivation from an earlier stage, such as through early years of co-living and constant contact and is mediated by one's closeness with their siblings as well. In this aspect, they relate to Baltes and Baltes' (1990) components of successful aging, where selection and optimization of available resources in relationships is essential to facilitate successful compensation to what is lacking.

The social networks of friends and neighbors in compensating for the lack of family members close by is common especially among older adults living alone. In this chapter, they are depicted through invitations to have reunion dinner together, daily visits to/from a neighbor to ensure the wellbeing of one another, receiving help from neighbors or simply the gesture of leaving one's main door deliberately open whenever at home. It also appears that neighborly network increase in importance especially when health problems further confines one's mobility and movement.

Such increasing significance of neighbors in one's social network echoes the findings by Wu and Chan (2012) in their empirical study of the neighborhood influences on the social interaction and amelioration of social isolation of older adults in public neighborhood-built environment in Singapore. Their conclusion that the HDB neighborhood environment has positive impact in the social interactions of older adults who are neighborhood-based and neighborhood-bound is especially evident among older adults living in one-room rental public housing blocks as well as studio apartment housing. Besides more likelihood of contact with others as a result of compact living in apartment housing, the availability of social service centers on the ground or second level of some of these blocks further serve as a meeting place for residents where friendship and neighborliness could develop, and possibly expand in a different capacity. However, the extent through which social network could alter in old age depends not only on the environment, but also the individual choice and personality. Gender-wise, older women have shown to be more active than older men in the utilization of these social services and thus benefit more from their presence close by.

In this chapter, the study of the nature and characteristics of social networks among older adults from different living arrangements highlights the circumstantial and structural constraints/opportunities available in contributing to the dynamics of social network for one's wellbeing. It suggests the need to tease out from the broader definition of family-centric support what interindividual variability (Dannefer, 1988) there may be, serving to remind the state that policy measures should take into consideration the variety of circumstances that may alter the availability of family support and how policy measures should be sensitive to the needs of appropriate social network among older adults so as to ensure the wellbeing of individuals in later life, whether with family living close by or otherwise.

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Chapter 10

The Intergenerational Support and Psychological Well-Being of the Elderly in Mainland of China

Wenjuan Zhang and Peng Du

Background

China is experiencing an accelerating aging process and a social transition period in recent decades. China has the largest old population in the world. By the end of 2010, the elderly aged 60 and over amounts to 177.7 million, which is about 13.26 % of the total population in mainland of China (National Bureau of Statistics of China, 2011). The population aging process in China is developing more rapidly than all industrialized countries. The family planning policy implemented since 1978 has gained great effect in fertility decline, which aggregated the population transition as well as the population aging process. Rapid increases in the absolute quantity and relative proportion of the elderly bring heavy burden of aging support for families, society and government in mainland China. Family support is the traditional aging support form in China. However, low fertility and frequent population migration as well as the fading of filial piety which is occurring with social modernization and transition, have impaired the function of families as dominant aging support resource.

Chinese government and society has made great efforts to cope with challenges and problems coming with population aging, and great improvement has been made in social aging support system in recent decades. The older people have multiple aging support resources currently, and the traditional family support system is converting slowly into a social support system based on the community. Early in 2007, new social rural pension insurance program has been implemented in rural areas, and it is intended to cover all rural areas by the end of 2020 (State Council of China, 2009). Pensions for retirement have increased steadily in urban areas

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corresponding with gains in wages of labor forces. By the end of 2011, more than 95 % of population is enjoying the medical insurance (National Development and Reform Commission, 2012). All the above indicated that the social aging support system is developing fast and the coverage of the social security system is increasing significantly in recent years in mainland. However, family support is still the dominant aging support resource for the elderly till now.

Data Sources

The data employed in this chapter is from population census conducted by the National Bureau of Statistics. However, those national population survey only provided primary information about social and demographic background of the older population. The detailed information about the intergenerational relationship as well as physical and mental health status of the elderly comes from other surveys of the elderly.

By now, the latest survey which can provide the detail information about the intergenerational support and psychological well-being of the Chinese elderly is “Sampling survey of the aged population in rural/urban China”. This survey, covering 22 provinces in China, was conducted in three waves in 2000, 2006 and 2010, by the China Research Center on Aging. The data of first and second wave has been released to the public. The information about the intergenerational support and psychological well-being of the elderly in this chapter mainly comes from the second wave of this survey which aimed to interview 20000 older people aged 60 and above, and got 19947 valid questionnaires at last (Guo & Chen, 2009, pp. 10–13).

Intergenerational Support of the Elderly

In China, the duty of adult children to care for their aged parents is both an institutionalized norm and a right protected by law. These dictates are reinforced by filial piety, a fundamental belief of Confucianism emphasizing the moral obligation of younger generations for older family members. The norm of filial piety requires children to show respect to their parents, provide financial support to fulfill their material demands, give daily care services to maintain their lives, and offer regular communication and consideration to release their loneliness and desperation.

A considerate body of research has been devoted to motivations of intergenerational support in Chinese families. The corporate group model and mutual aid/exchange model have been adopted in those studies to explain the intergenerational exchanges in Chinese families (Lee & Xiao, 1998; Silverstein et al., 2002; Sun, 2002; Zimmer & Kwong, 2003). In both corporate group model and mutual aid/exchange model, resources or authorities of older family members are needed

to induce support from adult children. However, the command of resources by older parents relative to adult children has decreased in modern Chinese society. In order to ensure intergenerational support to older people, public opinions and legislative measures have emerged as tools forcing children to obey the traditional rules (Zhang, 2008).

Financial Support in Chinese Elderly Families

The coverage of social income security system has improved rapidly in recent years, but family members remain the most important income source for the elderly. Whereas 57.1 % of the elderly aged 60 and over had family as the primary source of support in 1994, the figure dropped to 45 % in 2004 (National Bureau of Statistics of China, 2005, p. 124), and 40.72 % in 2010 (National Bureau of Statistics of China, 2012). The proportion of the elderly who consider children's role as one of providing economic security in old age is less than ever before. The figures from another survey, shown in Table 10.1, indicate that 37.2 % of the male elderly and 50.9 % of the female elderly in urban China believed in children's financial obligations to parents in 2000, and these proportions decreased to 16.4 and 23.4 % correspondingly in 2006. The same trend can also be found in the rural elderly. All the above reveals that financial support from children is going to play a less important role in the lives of Chinese elderly.

In urban areas, the proportion of the elderly financially supported by children declined between 2000 and 2006 (Table 10.2), and the percentage of the elderly aged 70 and over providing economic help to children increased. In 2000 and 2006, the average amount of monetary support for children is higher than that for the elderly (except for females in 2000). Those changes over time reflect the decrease in family support for the elderly. A reasonable explanation for this trend is that pension is the dominant income resource of the urban elderly, and the increase in coverage of social economic security as well as retirement income improved the

Table 10.1 The percentage of the elderly considering children's role as one of ensuring economic security in old age

Age groups	Urban area				Rural area			
	2000		2006		2000		2006	
	Male	Female	Male	Female	Male	Female	Male	Female
60–69	35.5	47.3	15.5	20.9	75.8	83.1	57.8	63.2
70–79	38.5	52.7	17.1	23.5	80.2	84.8	61.0	67.1
80+	45.8	65.0	20.2	34.4	80.3	86.0	68.5	71.9
Total	37.2	50.9	16.4	23.4	77.6	84.1	59.8	65.7

Data source: "Sampling survey of the aged population in rural/urban China" in 2000 and 2006, China Research Center on Aging (Zhang & Guo, 2010, pp. 113–117)

Table 10.2 Financial intergenerational exchanges between generations in 2000 and 2006

Age groups	Urban area							
	Elderly receiving financial support				Elderly providing financial support			
	2000		2006		2000		2006	
	Male	Female	Male	Female	Male	Female	Male	Female
60–69	28.3 %	45.4 %	29.5 %	38.6 %	69.7 %	64.2 %	63.1 %	63.4 %
70–79	36.3 %	54.8 %	32.7 %	44.3 %	65.4 %	48.7 %	66.8 %	56.3 %
80+	44.1 %	62.0 %	38.4 %	53.4 %	46.9 %	33.2 %	52.7 %	36.7 %
Total	31.9 %	50.0 %	31.4 %	42.3 %	66.9 %	56.2 %	63.4 %	57.9 %
Average amount per year (RMB)	1570.2	1532.8	1993.7	1944.6	2387.3	1509.7	3196.8	2234.6
Average amount per year (USD) ^a	189.6	185.1	251.1	244.9	288.3	182.3	402.6	281.4
Age groups	Rural area							
	Elderly receiving financial support				Elderly providing financial support			
	2000		2006		2000		2006	
	Male	Female	Male	Female	Male	Female	Male	Female
60–69	56.0 %	65.6 %	54.5 %	67.9 %	39.2 %	34.2 %	43.4 %	38.5 %
70–79	62.9 %	68.7 %	66.5 %	74.7 %	29.5 %	24.8 %	33.4 %	30.0 %
80+	69.0 %	68.4 %	69.9 %	75.2 %	20.4 %	20.1 %	27.8 %	24.8 %
Total	59.4 %	67.1 %	59.8 %	71.2 %	34.4 %	28.7 %	38.7 %	33.7 %
Average amount per year (RMB)	784.0	677.9	1106.7	792.1	589.7	414.2	513.4	244.9
Average amount per year (USD) ^a	94.7	81.9	139.4	99.8	71.2	50.0	64.7	30.8

Data source: “Sampling survey of the aged population in rural/urban China” in 2000 and 2006, China Research Center on Aging (Zhang & Guo, 2010, pp. 88–94)

^a1USD for 8.28 RMB in 2000 and 7.94 RMB in 2006

stability of economic status and living standards. In this sense, the social economic security development weakened children’s financial support for the elderly.

However, a different pattern has appeared in rural families (Table 10.2). The proportion of the elderly providing financial support to children has increased between 2000 and 2006, but the average quantity of monetary help has decreased during this period, and this trend was more obvious in females. The percentage of the elderly receiving material support from children rose between 2000 and 2006, and average amount of financial assistance increased correspondingly. A possible explanation for above changes is that the rural-urban migration has enlarged the income gap between generations and decreased opportunities of adult children providing instrumental support. As a result, children migrated out have to provide high financial support for old parents. This phenomenon has been confirmed in many provinces of China (Zhang, 2012; Zhang & Li 2004a). Significant gender difference can be observed in intergenerational support; female elderly tend to receive less financial contribution from children than males, which reflects the weak position of females in economic status and family lives.

Instrumental Support in Chinese Elderly Families

In this chapter, instrumental support is defined as help in the form of personal care (help with bathing dressing, feeding and toileting etc.) and performing household chores (cleaning, laundry, shopping and cooking etc.). Compared with financial support and emotional support, instrumental support is more related to the geographical distance between children and older parents. However, the likelihood of the Chinese elderly living with children is lower than ever before. Low fertility and massive rural-urban migrants reduce the number of children available for co-residence; 2.4 % of the elderly aged 65 and over lived separately from their children in 2000, which was projected to be 11.5 % in 2050 (Zeng et al., 2010, p. 238). The geographical distance between generations blocks the delivery of care service. The data from the “sampling survey of the aged population in urban/rural China 2006” revealed that 9.9 % of urban elderly and 9.3 % of rural elderly needed daily care services (Zhang & Guo, 2010, p. 143). Even though children are less likely to provide instrumental support for the elderly, they are still the first choice of care givers for older parents. Zeng et al. (2010, p. 171) revealed that, in 2005, 32.1 % of the Chinese elderly were taken care of by their sons when ill, 20.8 % by daughters-in-law, and 17.7 % by daughters. This result showed that children are the most important sick care providers for the Chinese elderly, with significant gender difference in taking up this role.

In Chinese families, older parents prefer to live with sons and their families (Logan & Bian, 1999; Logan, Bian, & Bian, 1998; Zhang & Li 2004a). A daughter’s responsibility to her own parents usually ends at marriage, at which time her responsibility is transferred to her husband’s family (Greenhalgh, 1985). Even though research indicates consistently that women rather than men are expected to assume responsibility for the care of elderly relatives and other dependents (Brody, 1981; Bulmer, 1987), gender-specific division of filial tasks may exist between married sons and their spouses, rather than between married sons and married daughters (Lin et al., 2003). Help provided for physical activities of daily living is more private than other daily cares, and has significant impact on the psychological well-being of the elders. Zhang (2006) pointed out that personal care is sensitive to gender either for care providers or receivers; the Chinese elderly prefers help from children or children-in-law with the same gender, particularly for more private personal care work. Evidences from east or western countries indicate that, women, even when they are employed full time, perform the bulk of routine housework and child care (Coltrane, 2000; Shelton & John, 1996). Most of the care services of the old parents are provided by sons and their spouses, and daughters-in-law are major care givers, which are highly related to the patrilineal family system in China. An empirical study found that daughters are playing a more important role as care givers in urban families also (Zhang, 2002).

Older parents usually provide help in looking after the house, doing house work and taking care of young grandchildren in daily lives. Figures in Table 10.3

Table 10.3 Elderly providing instrumental support to children

Age groups	Urban area (percentage)								
	Looking after house			Doing house work			Taking care of children		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
60–64	39.83	45.96	43.07	40.43	47.45	44.13	54.22	60.53	57.55
65–69	37.60	41.39	39.52	34.36	40.03	37.23	54.53	49.14	51.80
70–74	36.92	41.38	39.15	27.45	34.70	31.07	42.76	36.45	39.61
75–79	34.67	45.05	39.49	19.40	32.69	25.57	30.55	25.74	28.32
80–84	31.32	40.40	35.98	14.74	17.71	16.26	19.21	13.22	16.13
85+	32.90	42.80	38.87	7.10	16.53	12.79	15.48	13.14	14.07
Total	36.64	42.78	39.75	28.48	36.03	32.30	43.06	39.84	41.43
Age groups	Rural area (percentage)								
	Looking after house			Doing house work			Taking care of children		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
60–64	68.40	72.65	70.23	48.13	56.75	51.84	46.94	53.73	49.87
65–69	67.77	77.92	71.88	44.88	56.15	49.44	40.25	47.61	43.23
70–74	70.41	75.57	72.69	38.70	47.93	42.79	33.38	35.17	34.17
75–79	70.27	76.43	73.16	29.28	41.66	35.09	25.79	26.50	26.12
80–84	71.31	71.28	71.30	21.11	23.01	22.06	17.42	15.27	16.34
85+	72.07	67.36	69.61	16.22	15.29	15.73	13.51	10.74	12.07
Total	69.44	74.77	71.82	38.21	45.75	41.57	34.44	36.33	35.28

Data source: “Sampling survey of the aged population in rural/urban China” in 2006, China Research Center on Aging (Guo & Chen, 2009, pp. 157–158)

indicate that taking care of grandchildren is the first important help provided to adult children, and it is due to the high female labor force participation in urban areas. Most of the adult children have to work, while parents are retired and can provide free and reliable services such as baby-sitting. However in rural areas there is no specific time limitation in farm work, and it is more feasible for adult children to take care of their own kids. Further more, since there is no specific restriction in retirement age in rural areas, most of the elderly keep working until they are unable to do and their free time is much less than those of their urban counterparts. Looking after the house is the most important instrumental support that children receive from parents, and more than 70 % of the rural elderly has provided this help in 2005. A rational explanation is that many children migrated out with their spouses and children, and keep parents staying at villages, looking after their homes and farmlands. Help in doing housework is highly related to the living distance. Co-residence with children is more popular in rural villages than in urban areas, which enable the elderly to share household work with children. In Chinese families, female elderly play an important role in instrumental support to children. Such gender difference is consistent with traditional gender-specific division in responsibilities in families and society in China.

Table 10.4 The percentage of the elderly who receiving emotional supports from relatives

Emotional support	Percentage of the elderly receiving emotional support	
	Urban	Rural
Contacting with relatives at least once per month	87.9	88.8
Having relatives to tell their worries	86.2	87.1
Having relatives proving help in case of need	83.0	86.3

Data source: "Sampling survey of the aged population in rural/urban China 2006". China Research Center on Aging, 2010

Emotional Support in Chinese Elderly Families

Due to less developed socio-economic environment in China, less attention has been paid to children's emotional support to older parents. The latest national survey providing information about emotional support for the elderly is "sampling survey of the aged population in urban/rural China". This survey (Table 10.4) reveals that 87.9 % of urban elderly and 88.8 % of rural elderly had contacts with their relatives at least once per month, and the frequency of contact appears to decline with the age (Zhang & Guo, 2010, p. 301). The frequency of contact between relatives is higher in rural than in urban areas. With age, the proportion of elderly having regular contacts with relatives declines, and the decrease is larger among rural than among urban older people (Zhang & Guo, p. 302). This finding may be attributed in part to the worsening of IPADLs (Instrumental Physical Activity of Daily Living) of the elderly over time, and poor living environments in rural areas accelerate the downward trend IPADLs. The survey data also showed that the elderly with high educational attainment are more likely to have contacts with relatives and this finding is consistent with older adult's performance in social participation. Marital status of the elderly is significantly related to the receipt of emotional support. For the divorced elderly, the unsuccessful experience in marriage impaired their relationship with relatives, and for the elderly who were never married, most of them had no children, limiting the opportunities for social contacts.

The proportions of the rural elderly having relatives to tell their worries and relatives to provide help in case of need are higher than those of urban elderly. A reasonable explanation for the rural-urban difference is that people are closer in the small communities in villages, and filial piety remains a strong influence in rural families. An empirical study in Xiamen city indicated that the rural elderly are more dependent on family members than urban ones, and the possible reason is that urban elderly have larger and more heterogeneous social network (Zhang, 2002). The proportion of the urban elderly having relatives to tell worries is higher in older women than in older men, and it is possibly related to older women's higher inclination to talk. However, the proportion of the rural elderly having relatives to tell worries is higher in older men than in older women, perhaps because most of the older women are restricted to their household works. The elderly with higher educational attainments and those married are more likely to find relatives to talk

about their worries. For the elderly having relatives providing help, the same pattern with marital status can be found, and the male elderly reveals significant advantage in finding relatives for help.

Effects of Intergenerational Support on Psychological Well-Being of the Elderly

Over the past decade, a number of researches have studied the effects of intergenerational support on physical health and mortality of the elderly in rural and urban China (Zhang, 2004; Zhang & Li 2004b; Zhang, Li, & Merrill, 2005). However, less attention had been paid to the relationship between intergenerational support and psychological well-being of the elderly. Depression and life satisfaction are two important indicators employed by researchers to represent the psychological well-being of Chinese elderly.

Psychological Well-Being of Chinese Elderly

Because of its simple measurement method, people usually adopt life satisfaction as an indicator of psychological well-being. In “Sampling survey of the aged population in rural/urban China”, one question “in general, how satisfied are you with your life?” was used to measure the subjective well-being of the elderly. Information from this question enables people to know the life satisfaction of the elderly with different backgrounds, and compare changes in life satisfaction over time.

The results demonstrated that 45.9 % of the elderly were satisfied with their lives in 2006, with 56.8 % in urban area and 42.0 % in rural area (Table 10.5). The elderly in urban area showed higher life satisfaction than those in rural area, and the male elderly were more satisfied with their lives than females. The rural-urban and gender patterns have remained the same across 2000 and 2006. Guo and Chen (2009, pp. 198–200) found that the elderly with following characters: high educational attainments, married, living with spouse or in skipped generational household, and living separately from children, were more satisfied with their lives than other persons. Elderly living separately with children are usually more healthy and independent, which might be the reason why they reported higher life satisfaction.

Comparing the life satisfaction of the Chinese elderly in 2000 and 2006, obvious declines can be found in the data. In urban areas, the elderly satisfied with their lives decreased from 70.6 % in 2000 to 57.5 % in 2006, and in rural areas this proportion dropped from 60.2 to 42.0 %. The decrease in life satisfaction revealed the deteriorating conditions of psychological well-being, and this decline is more pronounced in rural areas.

Table 10.5 The life satisfaction the elderly %

Area	Year	Sex	Very unsatisfied	Fairly unsatisfied	So-so	Fairly satisfied	Very satisfied
Urban	2000	Male	4.4	4.1	19.1	51.2	21.2
		Female	5.3	6.0	19.7	48.4	20.6
		Total	4.9	5.1	19.4	49.7	20.9
	2006	Male	3.6	7.0	31.9	47.2	10.3
		Female	5.0	6.1	32.7	45.5	10.7
		Total	4.3	6.6	32.3	46.3	10.5
Rural	2000	Male	3.2	8.2	27.0	50.1	11.5
		Female	3.4	8.6	29.2	46.7	12.0
		Total	3.3	8.4	28.1	48.4	11.8
	2006	Male	4.0	8.6	44.1	38.1	5.1
		Female	4.1	8.4	46.7	35.8	4.9
		Total	4.1	8.5	45.5	37.0	5.0

Data source: "Sampling survey of the aged population in rural/urban China" in 2006, China Research Center on Aging (Guo & Chen, 2009, p. 197)

Effect of Intergenerational Support on Depression

Several studies have been conducted to examine the effects of intergenerational support on depressive symptoms of the elderly, and differences in the effects of financial support, instrumental support, and emotional support have been confirmed. A study on the Chinese oldest-old revealed that children's visits have a positive effect, and this effect was proportional to the number of children frequently visiting (Zhang & Li 2004b). However, contradictory findings about the effects of emotional support on depression were revealed. An empirical study on urban Chinese elderly pointed out that excessive emotional support was harmful to the psychological well-being of the elderly (Silverstein, Chen, & Heller, 1996).

Inconsistent findings about the effect of instrumental support have been reported. Zhang & Li indicated (2004b) that sick care from children was associated with increased depression of the elderly. Another study (Silverstein et al., 1996) found that moderate instrumental support received from adult children is beneficial to parents, and excessive support increased the depressive symptoms of the elderly. A later study (Cong & Silverstein, 2008a) revealed that instrumental support showed inconsistent effects on the psychological well-being of rural Chinese elderly, depending on who was providing the service. When an older woman shared home with a child in-law, her presence and support was particularly beneficial to her psychological well-being, but help from her own children was damaging and was associated with increased depressive symptoms.

From Cong and Silverstein's study (2008a) we can see that living arrangements and who the support provider is can lead to inconsistent effects of intergenerational support. In a study on the oldest-old (Zhang & Li, 2004b), the effects of living

arrangement and support provider were also demonstrated. They pointed out that co-residence with children can reduce the depression of the oldest-old, and for the children living with parents, emotional support from daughters showed higher positive effect on the psychological well-being of the elderly than that provided by sons. However, among the children living separately from parents, sons' frequent visits showed higher positive effects than those of daughters. So, an important conclusion can be drawn from above analysis that instrumental support and emotional support could alleviate the depressive symptoms of parents, depending on living arrangements and support providers.

In order to more fully understand the relationship between intergenerational support and psychological well-being of the elderly, mutual exchanges of support between children and older parents have to be taken into consideration (Cong & Silverstein, 2008b; Silverstein et al., 1996). Silverstein et al. (1996) revealed that providing support to children reduces depression associated with being unmarried in later life. Another study (Cong & Silverstein) examined how children's financial support influenced the depressive symptoms of older parents in rural China, and indicated that the psychological benefits of economic receipts were contingent on whether older parents provided child care for the offspring of their migrant children.

Zhang and Li (2004b) also found that economic dependency on children increased the depression of the elderly. They speculated that economic dependency on children brought insecurity and shame to the parents, and this negative mood might be alleviated by reciprocating with instrumental support to children.

Effect of Intergenerational Support on Life Satisfaction

A considerate body of research has been devoted to the relationship between intergenerational support and life satisfaction in Chinese elderly families, and their results confirmed that emotional support has positive effect on the life satisfaction of the elderly (e.g. Chen & Silverstein, 2000; Krause & Liang, 1993; Krause, Liang, & Gu, 1998). Li (2004) has examined the relationship between social support and life satisfaction of the Chinese oldest-old, and found that financial support and emotional support from children was associated with higher life satisfaction in the oldest-old. Another study on rural Chinese elderly (Zhang & Li, 2005) echoed his conclusion. A paradox has been found in the effect of instrumental support; help with household chores was positively correlated with life satisfaction in the elderly, but personal care was associated with lower well-being (Zhang & Li, 2005).

Zhang and Li (2005) demonstrated that both the number of children and the extent of support a child provided were significantly related to life satisfaction. The result indicated that excessive financial and instrumental support not only were related to higher anxiety in the elderly but also brought heavy burden to children, reducing intergenerational intimacy and blocking communication, which in turn resulted in decreased life satisfaction. The direct negative effect of financial support

on life satisfaction as well as its indirect effect via reduced emotional support was supported in another study (Krause et al., 1998).

Significant gender difference has been identified in the effects of intergenerational support on life satisfaction of the elderly. Sons and their spouses were regarded as primary intergenerational support providers for older parents; their financial support, emotional support and help in household chores showed higher positive effects on the life satisfaction of parents than those of daughters (Zhang & Li, 2005). This result is consistent with the conclusion drawn from western studies, which indicated that social support provided by the anticipated provider significantly benefited the psychological well-being of the receivers (Li, Seltzer, & Greenberg, 1997).

Discussion

In brief, there are conflicting findings concerning the effects of intergenerational support on the psychological well-being of Chinese elderly, and more studies should be done to fully examine the relationship between intergenerational support and psychological well-being. Many former studies agreed on the positive effects of emotional support on the psychological well-being of the elderly, but the effects of financial and instrumental supports are more complicated, and difficult to identify.

The unique cultural background added more difficulties to the research work. For the Chinese elderly, their life experiences and education in the early days deeply impacted their family norms, and the concept of filial piety was firmly rooted in their minds. Other than the cardinal principles of obedience and respect, supportive behaviors such as offering gifts, foods, clothes, festival packet, daily assistance, and visits were treated as different ways to show their good will for the parents. However, for young generations in modern China, their family norms were deeply impacted by western culture, and intergenerational relationship is supposed to be more equal and mutual. Furthermore, spouse and children have replaced parents to become key figures in adult children's lives. So for adult children, parents' authority and priority in the allocation of family resources is weakened, and tangible support is provided only in case of needs such as poor economic status, illness or disability. Cong and Silverstein (2008a) believe that the attachment to traditional expectations for support may make elders more depressed in a rapidly changing society, and elders will be psychologically disadvantaged unless they align their expectations with the changing social realities of Chinese society.

Summary

On the whole, intergenerational support is the most important social support for the elderly in current China, but its function is weakening in recent decades. Financial support from children is the dominant source of income for most older

parents and most of them consider children as the source of economic security in old age. However, an improving social economic security system alleviated this heavy burden of children to some extent in recent years. Family members, especially females, remain the first care providers of the elderly, but shrinking size and frequent migration of children reduce the capacity of families as care providers. Most of the elderly contacted and communicated with children, and more closed and traditional communities enable the rural elderly to obtain higher emotional support from children. Gender and urban-rural differences can be found in intergenerational support, and differences in gender roles, economic status, life style and the physical environment explain the diversity. Rural-urban migration enhanced the financial support to rural elderly as well as the instrumental support to adult children. However, a fast developing social security and social service system enable formal social support to replace adult children to be aging support providers in urban areas.

Despite the fact that formal social support is playing a more important role for the elderly in modern China, intergenerational support is still important to the elderly who have been deeply influenced by traditional filial piety and family norms. Appropriate financial, instrumental, and emotional support from children not only alleviate difficulties in the lives of the elderly and improve their psychological well-being, but also indicate their respect and consideration to parents. However, the context of the intergenerational support – who, where, how and what kind of support was provided—appear to influence the nature of the relationship between intergenerational support and psychological well-being.

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Chapter 11

Life Satisfaction Among Older Adults in Taiwan: The Effects of Marital Relations and Intergenerational Relations

Ju-Ping Lin

Introduction

Taiwan is experiencing a rapid aging process. Due to the aging trend in recent decades, gerontological studies in Taiwan have focused not only on the care of ill or disabled elders, but also on how to make life healthier and more satisfactory for the elderly. These studies include discussions on “successful aging” (e.g. Cheng, 2011; Hsu, 2007, 2011; Hsu & Chang, 2004). What are the important elements of successful aging? Overall, researchers concluded that elderly people in Taiwan most valued health, and also placed considerable importance on economic security and family support. Moreover, for the elderly in Taiwan, the subjective meaning of well-being was most influenced by family support, that is, receiving substantial assistance, recognition, love and advice from family members (Dai, Catanzaro, & Dimond, 1998). In all, family is of uttermost importance for the elderly in Taiwan, and relations with family members are considered key to later life.

Although there has been some research pointing out that family life is the key to a good and long life for the older Chinese people in Taiwan, the complexities in the relationships between family relations and well-being have largely been ignored so far. Furthermore, life satisfaction and aging are both cultural in practice. Life satisfaction is known to be strongly affected by the cultural characteristics of the society (Fry, 2000). While placing my attention on the well-being of the elderly, this chapter was based on the cultural and social context of Taiwan. The family relations and life satisfaction of the elderly were discussed. Specifically, I analyzed the concept of “aging well” in Chinese communities before studying the

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elderly's marital relations and their intergenerational relations with adult children. A further analysis was made on the relations between the elderly's marital relations, intergenerational relations and perception of filial norms and their life satisfaction.

Background

Graying of Taiwan's Population

The population structure has undergone great changes over the last few decades, and Taiwan is now an aging society. With medical advances raising the average life expectancy over the years, the proportion of people aged 65 and older has been steadily increasing. The proportion of those aged 65 and older population reached 7% in 1993, qualified it as an “aging nation” as defined by the United Nations, and it is forecast to double to 14% in 2018, entering the UN's “aged nation” status. Conversely, the proportion of those less than 15 years of age has been decreasing. Based on these trends, the Council for Economic Planning and Development (2012) has forecast that Taiwan's population will peak at 23.7 million in 2024, and then fall to 18.9 million in 2060. By then, the proportion of those 65 or older will increase to 39%, while the percentage of those in the 15–64 age group will decline to 51%, and the percentage of people under 15 will fall from 15% in 2011 to 10% (Fig. 11.1).

As a Chinese saying goes, “an old person in a home is like a treasure of a family.” In Chinese communities, traditional family ethics are deeply rooted in people's minds, and filial piety is the core of such ethics. Giving back to one's

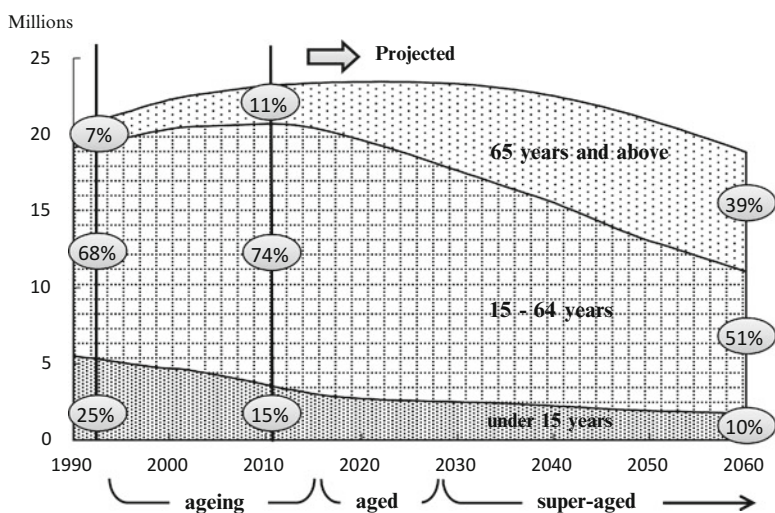


Fig. 11.1 Population changes and projection in Taiwan: 1990–2060 (Source: Population Projection 2011–2060 in Taiwan, Council of Economic Planning and Development, 2012)

parents is children's most important duty (Hsu, 1988). As the society of Taiwan evolves, however, the younger generation are either marrying at a later stage in life or not marrying at all. As the country's fertility rate continues to decline and the divorce rate gradually rises, the notion of family relations is being challenged in an unprecedented way.

The Concept of "Aging Well" in Chinese Society

"Successful aging" has become an important issue in gerontology. Phelan and Larson (2002) pointed out that successful aging includes a wide range of factors including life satisfaction, longevity, freedom from disability, mastery, active engagement with life, independent functioning and positive adaptation. Other researchers also proposed that successful aging is a social and cultural construction (Torres, 1999, 2003). It is likely that different values and cultures might result in different concepts of successful aging. Moreover, because the attributes of successful aging have been identified from Western literature, it has been argued that they reflect Western perceptions. For example, the meaning of "success" is usually associated with individual achievements (Torres, 1999).

The family has traditionally been the basic unit of Chinese society. Confucianism, which bases social order on family ethics and filial piety, profoundly influences the life values and political philosophy of the Chinese. Previous studies verified that good interpersonal relationships, especially among family members, are considered a source of happiness in Chinese communities (Lu & Shih, 1997). In a Confucian civilization, a person's happiness must be based on the welfare of the group that he or she belongs to, in particular the attainment of family goals (Lu, 2001). Dai et al. (1998) delved into the subjective meaning of well-being for middle-aged to older people in Taiwan, and included five themes: (1) family support; (2) completion of all obligations toward their family; (3) a sense of dignity; (4) self-reliance; and (5) extra-familial support. Hsu's study (2007) found that the concepts of successful aging held by elderly people in Taiwan include: family and social support, mastery over life, health, enjoyment of life, and autonomy. Cheng (2011) discussed elderly Hakka women's perceptions of successful aging. For elderly Hakka women, successful aging was defined as: (1) having good health; (2) having sufficient finances; (3) being looked after by children; (4) having a good family; and (5) a peaceful death. Synthesizing the above-mentioned research results, Chinese culture did shape how the elderly perceive what a good old age means. Family plays an important role in the lives of the elderly in Taiwan. Filial piety being a key to traditional Chinese philosophy, the elderly in Taiwan also considers "filial children" a major source of happiness. Furthermore, the traditional Chinese concept of well-being in later life consists of "five blessings" (五福): longevity, wealth, health, virtue, and a peaceful death. This is deeply rooted in the minds of the elderly people in Taiwan.

Culture, Family Supports and Life Satisfaction When Aged

In the *Encyclopedia of Aging*, Palmore (1995) says that a comprehensive definition of successful aging “would combine survival (longevity), health (lack of disability), and life satisfaction (happiness)” (p. 914). As the older population becomes increasingly diverse, the concept of successful aging may become even more difficult to define. One solution may be to return to an early (and continuing) theme in research on successful aging, that is, that successful aging is in the eye of the beholder. In this framework, successful aging is measured with indicators of subjective well-being such as life satisfaction (Bearon, 1996). Life satisfaction is an indicator most commonly referred to in studies on the elderly’s quality of life. In addition to economic and health factors, relevant family variations have also been found to be of key importance for older people’s well-being (Mancini & Blieszner, 1989).

A good deal of prior research has charted how conceptions and experiences of well-being vary across cultural contexts. Furthermore, these studies show that much cultural variation in well-being is tied to fundamental cultural differences in conceptions of self and relationships (Karasawa et al., 2011). In Western societies, independence is highly-valued among the elderly, and national social welfare systems are a key factor in their financial stability. In comparison, family is one of the major social pillars in Taiwan, and harmonious and interdependent family relations are emphasized. With a cultural heritage of strong filial piety, supporting elderly parents is considered a necessity to show reverence, and the family remains a crucial source of support during old age (Lin et al., 2003; Lin, 2012). Therefore, it seems reasonable to expect that family relations affect the well-being of older people in Taiwan.

Francis Lang-kwang Hsu, a famous Chinese psychological anthropologist, proposed the “Hsu hypothesis” of kinship structure (Hsu, 1965, 1971; Li & Yang, 1988). According to Hsu, when it comes to kinship structure in a society, not every type of kinship is equally important, and only one of them is predominant. Hsu believes that, in traditional Chinese communities, predominant kinship refers to parent-child relationships, especially father-son relationships that form a “father-son dominated system.” Nowadays, in Taiwan, family structure is gradually becoming more based on a husband-wife dyad than a father-son dyad. During this transitional period, many families are based on both kinship patterns. On the one hand, they retain the characteristics of a traditional father-son family in an agricultural society; on the other, they have developed new features of a modern husband-wife family. A mixed-pattern family like this may find it difficult to fit in and may be prone to conflicts. Family relations are expected to impact the life satisfaction of the elderly but the associations between them are likely to be complex. Therefore, this study focused on the relations between life satisfaction and marital and intergenerational relations of the elderly in Taiwan.

Marital Relations and Life Satisfaction Among the Elderly

In Taiwan, most studies on the influence of marital relations on later life focused on health or social support. Previous research showed that divorced or widowed men had an evidently lower rate of continued health (Ho & Li, 2007). Those who do not have spouses (widowed, divorced or unmarried) have smaller interpersonal networks and a lower chance of receiving support (Lai, 2009). Studies on middle-aged and senior employees' retirement plans found that people who have no spouses tend to believe life will become worse after they retire (Hsueh & Tseng, 2002). The above-mentioned research results verify Chappell's (1991) statement: having a spouse is the best way to ensure support in later life. However, in Taiwan, social gerontological research on the relations between elderly people and their spouses, as well as the role of marital satisfaction in senior life, is very rare.

Marital satisfaction is a subjective perception. Studies showed that personal characteristics (e.g., gender and age), as well as conjugal compatibility (e.g., religious), are important factors affecting marital quality (Crawford, Houts, Huston, & George, 2002; Glenn, 1998). Recent studies moved on to marital interaction between couples, stressing that conjugal interactional properties were associated with marital satisfaction (e.g., Crawford et al., 2002). In traditional Chinese communities, marriage is considered a union of two families. A father-son dyad based on kinship is much valued by family. As an admonishing Chinese saying goes, "there are three ways to be unfilial, and the worst is to not produce offspring." This shows that marriage in traditional Chinese communities is about extending the family, not fulfilling the couple's needs. In the process of modernization, people in Taiwan have increasingly accepted western marital concepts while valuing marital relations more (Xu, 2000). In Taiwan, marriage in later life has also become less stable. Over the last decade, the divorce rate of couples married 30 years or more has increased by 6.51 %, which is the most drastic change among all age groups (Ministry of the Interior, Department of Statistics, 2009). This indicates that family-based marital values are being challenged. Studying marital satisfaction of the elderly helps clarify how people evaluate their feelings in marriage according to changing standards. Furthermore, analysis on marriage and the well-being of the elderly can also reflect the position of marriage in Taiwanese society.

Intergenerational Relations and Life Satisfaction Among the Elderly

To respond to the needs of older people in Taiwan, the government has conducted the "Survey of Senior Citizen Condition in Taiwan" eleven times since 1986. According to the latest survey in 2009, the most common living arrangement was "living with

children” (68.47 %). Forty-two percentage of the older people relied on children to provide financial support. More than 60 % of unhealthy elderly were looked after by their spouses, children or daughters-in-law, but there was a gender difference and order of preference in these caregivers. The male elderly were mostly taken care of by their spouses (25.43 %), while their female counterparts were looked after by sons (24.01 %) and daughters-in-law (16.81 %). The situations in cities and the countryside were also different. In Taipei, the rate of older people looked after by foreign domestic helpers was significantly higher (31.41 %). Overall, in Taiwan, older people mainly rely on their families during their later life. However, as more women join the labor force and the co-residence ratio between parents and adult children declines, problems of senior care emerge. Older parents feel insecure, lamenting how unreliable their children are (Hu & Chou, 1996). The more educated these older people are, the more likely they are to opt for a self-sufficient lifestyle (Chen, 1996). Adult children, too, feel pressured having to look after their elderly parents. They have conflicting feelings between the roles to be played and how to take care of themselves (Li, 2000). These ambivalent relations between parents and children may also have gender differences, reflecting the different roles played, or expected to be played, by men and women within the social and cultural context of the society (Lin, 2012).

As the old saying goes, “store crops for famine time and rear children for one’s senior days,” meaning that just as one stores up grain against lean years, parents bring up children for the purpose of being looked after in old age. Influenced by Confucianism and filial piety, in Chinese communities, intergenerational relations are based on the “invest–return” dimension during a person’s lifespan. Such relations are featured by the “feedback” type of care given by adult children to their parents, as well as comfort provided to them. As the society of Taiwan continues to change, however, the dynamics between adult children and their parents have become more diverse due to the “resources” and “opportunities” they have (Lin, 2012). Subtle changes have occurred in the status of the elderly in families. Researchers have noted that although older people thought their children were obliged to repay them, considering the present circumstances, they were not very hopeful (Hu & Chou, 1996; Yen, 1997). The elderly started to mention the importance of self-reliance on the well-being (Dai et al., 1998; Hsu, 2007). It can be seen that older people no longer enjoy an absolute advantages in families. The reshuffling of power between the two generations also indicates that older people today are faced with more complicated intergenerational relations.

For older people, the quality of contacts with family members influences their well-being more than the quantity (Beckman, 1981). Researchers have also suggested that different aspects of intergenerational relations should be taken into consideration before conducting analyses on the influence of intergenerational relations on the well-being of the elderly (Lee & Ellithorpe, 1982). To understand the complexity of intergenerational family relations in later life, Bengtson and Schrader (1982) proposed a model of intergenerational family solidarity that focuses on family cohesion as an important component of family relations, particularly

for successful adjustment to old age (Silverstein & Bengtson, 1994). This model emphasizes family solidarity as a multi-dimensional construct with six elements of solidarity: structural, associational, affectual, consensual, functional, and normative (Bengtson & Schrader, 1982; Roberts, Richards, & Bengtson, 1991). On the other hand, although family life is programmed for positive interactions, the probability of negative interactions is also high. Recently, the solidarity/conflict model – simultaneously investigating both – has become one of the most important research trends in studying the complexities of adult child-parent bonds (Bengtson, Giarrusso, Mabry, & Silverstein, 2002; Bengtson, Rosenthal, & Burton, 1996; Katz, Lowenstein, Phillips, & Daatland, 2004; Van Gaalen & Dykstra, 2006).

When it comes to how intergenerational relations may affect the well-being of older people, most studies focus on how the exchange of intergenerational support affects the well-being of older people. From a social exchange viewpoint, Dowd (1975) commented that older people feel detached from society when they have fewer resources and fail to establish a reciprocal, balanced exchange relation. Lee (1985) expounded on this perspective, noting that an imbalanced exchange relation, which makes the older person feel dependent, has a negative effect on his or her psychological well-being. Researchers also found that compared with the need to be supported, the inability to establish a reciprocal relationship could more seriously devastate the older person's morale (Liang, Krause, & Bennett, 2001; Stoller, 1985). However, numerous reports have pointed out that patterns of intergenerational support are different between the West and the East. Lin, Chang, and Huang (2011) conducted studies on older women in Taiwan and found out that being mainly a recipient of support from adult children was related to a higher level of life satisfaction. In addition, stronger emotional bonds with adult children increased older women's life satisfaction. Cheng and Chan (2006) studied Chinese people in Hong Kong and pointed out that, as urbanization and double-income families become common place, the expectations of older people on their children's fulfilling the obligation of filial piety have turned from material offers and daily-life assistance to emotional support. Co-residence with children is no longer as important as before. What older people value is the quality and not quantity of intergenerational interactions. Overall, as society evolves, emotional relations with children also become more important to the well-being of the elderly.

Reviewing studies conducted in Taiwan in recent years, filial piety is still a core value held by the Taiwanese public. Research has shown, however, that changes have been made to family-based filial piety in today's society (Chuang & Yang, 1991), and the concept of "neo filial piety" has emerged. The main difference between the new and old types of filial piety is their basis and how they are expressed (Lu, Kao, & Chen, 2006). The traditional type of filial piety stresses parental authority and family extension. Neo filial piety, however, emphasizes emotion-based reciprocal treatment. The "dual filial piety model," which Yeh and Bedford (2003) proposed, divides filial piety into the traditional "authoritative filial piety" and the new "reciprocal filial piety." If culture is regard as "a knowledge system shared by the general public" (Chiu, 2004), people recognize and practice

cultural values shared by most in society, and this will also be helpful to personal life adjustment. Previous studies showed that, in the collective society of Taiwan, individual recognition of social norms is a key predictor for life satisfaction (Suh, Diener, Oishi, & Triandis, 1998). Lu, Gilmour, and Kao (2001) also founded that recognizing important cultural values in Chinese communities helps enhance the subjective happiness of a Chinese person. Prior literature has shown that filial piety as a value and belief shared by most members of Taiwanese society is beneficial to older people's subjective well-being. In addition, since filial piety plays an important role in parent-child relations in Chinese communities, most people in Taiwan see "children fulfilling filial piety" as a key source of happiness (Lu & Shih, 1997). Thus, in addition to discussing how older people's perception of filial norms may influence their well-being, the relations among filial norms, intergenerational relation and the well-being of older people should also be discussed.

In brief, the study examined how family relations influence life satisfaction for older adults in Taiwan today. In particular, the study focused on the relations between the elderly's marital relations, intergenerational relations and perceptions of filial piety and life satisfaction. Since the aging women have been shown to have closer relationships with their adult children than aging men, who tend to play the more distant, authoritative role of traditional Chinese fathers, (Baker, 1979; Cohen, 1976; Lin, 2000), gender differences were considered as well. This study analyzed the samples of men and women separately. Furthermore, I suspected that filial piety may operate in interaction with intergenerational relations in determining life satisfaction among the elderly. An attempt was thus made to specify which conditions are at play when the interaction between filial piety and intergenerational relations increases or decreases the life satisfaction of older adults.

Methods

Data and Sample

Using data from the 2011 Taiwan Social Change Survey (Institute of Sociology, Academia Sinica, Taiwan, 2011), the Family Module consists of an island-wide sample of 2,135 adults aged 18 years old and above who were randomly chosen using a multi-stage stratified sampling method and interviews. In this study, only subjects married, aged 55 years and older with at least one adult child (aged 19 and above) were analyzed. After deleting unmarried subjects with no adult children, the final sample included 555 respondents (male = 313, female = 242). The men ranged in age from 55 to 91 (mean = 66.66, SD = 8.51), and the women ranged in age from 55 to 83 (mean = 64.37, SD = 6.93). The Taiwan Social Change Survey adopted the "focal child" strategy for measuring intergenerational relations between the elderly and their adult children, asking the elderly to choose the child they saw most frequently. This selection strategy ensured that the focal child was the one

with whom the parent had the maximum opportunity for interaction; thus, we have not underestimated the parent's involvement with the children, because we did not randomly select against this child.

Measures

- (1) **Marital Relations.** In this study, marital relations of the elderly in Taiwan were analyzed in terms of the division of household labor, affectional expression behavior, marital conflicts and marital satisfaction. The division of household labor includes the frequency of the older person and his or her spouse doing household chores, such as preparing dinner, doing laundry, tidying up the house and simple repairs. Based on the frequency, the respondents were then divided into three groups, "the wife doing more housework than the husband," "the husband doing more housework than the wife," and "the husband and the wife doing the same amount of housework." Affectional expression behavior refers to "the frequency of expressing gratitude to one's spouse" and "the frequency of perceiving the spouse's gratitude-paying behaviors." Marital conflict was measured by the responses about the degree of conflict between couple. Marital satisfaction was investigated by the item: "how satisfied are you with your marriage?" This was rated on a five-point Likert-type scale, with 1 = *highly dissatisfied*, and 5 = *highly satisfied*.
- (2) **Intergenerational Relations.** According to the intergenerational solidarity and conflict model (Bengtson et al., 2002), intergenerational relations were dictated by various components: living arrangements (co-residing/not co-residing with adult children), intergenerational support exchange (giving/receiving instrumental support, e.g., financial support and assistance with household chores; giving/receiving emotional support), frequency of intergenerational conflict and the quality of intergenerational relations. The quality of intergenerational relations was measured by the item: "How are you and your focal child getting along at the moment?" The scores ranged from *poor* (1) to *excellent* (5).
- (3) **Filial Piety Concept.** The "dual filial piety model" proposed by Yeh and Bedford (2003) was adopted in this paper, and divides people's perception of filial piety into "authoritarian filial piety" and "reciprocal filial piety." For each dimension, three questions were asked, and the answers were rated on a five-point Likert-type scale ranging from 1 to 5, in which a higher score indicates more recognition.
- (4) **Life Satisfaction.** Life satisfaction of older adults in this study was measured by the question: "All things considered, how satisfied are you with your life as a whole these days?" The answers to this question were rated on a five-point Likert-type scale ranging from 1 to 5, in which a higher score indicates higher life satisfaction.
- (5) **Control Variables.** In addition to the above variables, the following characteristics of elderly adults were controlled for: age, health status and family

income. Self-reported health was measured on a five-point Likert-type scale ranging from *very bad* (1) to *very good* (5). Regarding family income, the respondents were asked, "How does your family income compare with that of average households in our society?" The five response choices were: *far below average*, *below average*, *average*, *above average*, and *far above average*.

Results

Marital Relations of Older Adults

In this study, marital relations of the elderly in Taiwan were analyzed in terms of the division of household labor, affectional expression behavior and marital conflicts. Table 11.1 shows that household division of labor of elderly couples in Taiwan was still bound by gender conventions. It was evident that women's frequency of doing housework was higher than men's ($t = -16.192, p < .001$). As to affectional expression behavior, husbands reported feeling more such expressions from their spouses than did wives ($t = 2.202, p < .05$). When it came to marital conflicts, women indicated more than men that they had conflicts with their spouses ($t = -3.187, p < .01$). How did older people in Taiwan evaluate their marital relations? Both men and women tended to express satisfaction towards their marital relations, but men reported a significantly higher level of marital satisfaction than women ($t = 6.098, p < .001$).

The ordinary least-squares method was used to estimate multiple regression models to predict marital satisfaction by gender. Table 11.2 shows the factors influencing the elderly's marital satisfaction when personal characteristics variables (age, health and income) were controlled. For older men and women, marital conflicts had negative effects on marital satisfaction ($\beta = -.189, p < .001$; $\beta = -.345, p < .001$). Division of household labor had no influence on marital satisfaction of elderly men. Older women, however, were less satisfied with marriage if they devoted more time to housework than their husbands did ($\beta = -.130, p < .05$). For both men and women, affectional expression behavior was a key factor in marital satisfaction in later life ($\beta = .184, p < .05$; $\beta = .233, p < .01$), especially for women. Spouse's affiliative behavior significantly influenced the marital satisfaction of older women ($\beta = .166, p < .05$).

Intergenerational Relations Between Older Adults and Their Adult Children

This paper focused on four sub-dimensions of intergenerational relations: living arrangements, intergenerational support exchange, intergenerational conflicts and the quality of intergenerational relations (Table 11.1). Most older people (57.8 %) still lived with their adult children. Generally speaking, the elderly in Taiwan

Table 11.1 Description of analytic variables (N = 555)

Variables	Range	Male (n = 313)		Female (n = 242)		t value	χ^2
		Mean	SD	Mean	SD		
Marital relations							
1. Division of household labor							
(1) Household labor (self)	1-7	3.38	1.41	5.11	1.10	-16.192***	
(2) Household labor (spouse's)	1-7	4.94	1.22	2.85	1.52	17.440***	
(3) Household labor compare with spouse (n, %)							
Wife doing more		126	40.3	141	58.3		
Husband doing more		10	3.2	5	2.1		
Equal		177	56.5	96	39.7		
2. Affectional expression							
(1) Affectional expression (self)	1-5	2.88	1.11	2.82	1.15	0.680	
(2) Affectional expression (spouse's)	1-5	2.88	1.12	2.67	1.18	2.202*	
3. Marital conflict	1-5	2.02	.82	2.26	0.93	-3.187**	
4. Marital satisfaction	1-5	4.29	0.54	3.95	0.80	6.098***	
Intergenerational relations							
1. Co-residence (n, %)		182	57.8	121	50.0		3.337
2. Intergenerational support exchange							
(1) Instrumental support given to G2	1-5	1.93	0.92	2.11	1.03	-2.186*	
(2) Instrumental support received from G2	1-5	2.54	1.00	2.82	1.04	-3.117**	
(3) Emotional support given to G2	1-5	2.71	1.09	3.01	1.23	-3.102**	
(4) Emotional support received from G2	1-5	2.78	1.08	3.13	1.10	-3.817***	
3. Intergenerational conflict	1-5	1.60	0.72	1.65	0.74	-0.773	
4. Quality of intergenerational relations	1-5	3.80	0.85	3.99	0.82	-2.640**	
Filial piety							
1. Authoritarian filial piety	1-5	3.99	0.76	4.03	0.76	-0.573	
2. Reciprocal filial piety	1-5	4.82	0.36	4.84	0.32	-0.624	
Life satisfaction	1-5	4.05	0.71	4.00	0.71	0.720	
Characteristics of the elderly							
1. Age (n, %)							
55-64		154	49.2	139	57.4		
65-74		96	30.7	74	30.6		
75+		63	20.1	29	12.0		
2. Health status	1-5	3.52	1.02	3.57	1.00	-0.526	
3. Family income	1-5	2.72	0.73	2.71	0.62	0.155	

Note: * p < .05, ** p < .01, *** p < .001

Table 11.2 Standardized OLS regression coefficients predicting older adults' marital satisfaction, intergenerational relations, and life satisfaction (Male = 313, Female = 242)

Model (β)	Marital satisfaction		Quality of IG		Life satisfaction			
					Male		Female	
	Male	Female	Male	Female	Model 1	Model 2	Model 1	Model 2
Household labor ^a								
Less than spouse	.027	.017						
More than spouse	.015	-.130*						
Affect express (self)	.184*	.233**						
Affect express (spouse)	.141	.166*						
Marital conflict	-.189***	-.345***						
Marital satisfaction					.363***	.370***	.399***	.393***
Co-residence ^b								
Instrumental support give to G2			-.055	-.176**				
Instrumental support receive from G2			-.046	-.142*				
Emotional support give to G2			.117*	.189**				
Emotional support receive from G2			.091	.008				
IG conflict			.226**	.218*				
			-.198***	-.185**				
Quality of IG					.036	.033	.204**	.195**
Authoritarian filial piety						.137*		.005

received more intergenerational support from their adult children than they gave. Compared with their male counterparts, elderly women also received more instrumental support and emotional support from their adult children ($t = -3.117, p < .01$; $t = -3.817, p < .001$). The frequency of conflict was low between the elderly and their adult children. In terms of the quality of intergenerational relations, elderly women enjoyed better interactions with their adult children than did men ($t = -2.640, p < .01$).

What were the factors affecting the quality of the relationship between the elderly and adult children in Taiwan? Table 11.2 shows that, for older women, co-residence reduced the quality of intergenerational relations ($\beta = -.176, p < .01$). For both men and women, the more support they received from adult children, the better the quality of intergenerational relations was. One thing worth attention is that, the more instrumental support elderly women provided to their adult children, the worse their relationship quality was ($\beta = -.142, p < .05$). Intergenerational conflicts had negative effects on quality of intergenerational relations ($\beta = -.198, p < .001$; $\beta = -.185, p < .01$).

Life Satisfaction of Older Adults: The Effects of Marital Relations and Intergenerational Relations

Table 11.1 shows that the elderly in Taiwan were generally satisfied with life. Table 11.2 presents standardized estimates predicting life satisfaction of older adults by gender. It shows gender did not play a significant role in the research results. When personal characteristics variables (age, health and income) were controlled, family relations did affect life satisfaction of the elderly. For older men, marital relations affected their life satisfaction ($\beta = .363, p < .001$). For older women, both marital relations and intergenerational relations affected life satisfaction ($\beta = .399, p < .001$; $\beta = .204, p < .01$).

Looking at the filial piety concept, the elderly's perception of filial piety was not different between men and women. Also, they recognized reciprocal filial piety more than the authoritative type (Table 11.1). Table 11.2 shows that older men's life satisfaction was significantly influenced by their perception of filial piety. The more they recognized traditional filial piety, the more they were satisfied with life ($\beta = .137, p < .05$). Furthermore, model 2 added the interaction terms between filial piety and quality of intergeneration relations. With regard to life satisfaction, the interaction between traditional authoritative filial piety and quality of intergenerational relations was statistically significant ($\beta = -.165, p < .01$). For older men, the better intergenerational relations they had with adult children, the less authoritative filial piety affected life satisfaction (Fig. 11.2). In other words, acknowledging traditional authoritative filial piety was indeed beneficial to the well-being of elderly men in Taiwan. The better relations elderly men had with their adult children, the less authoritative filial piety affected life satisfaction.

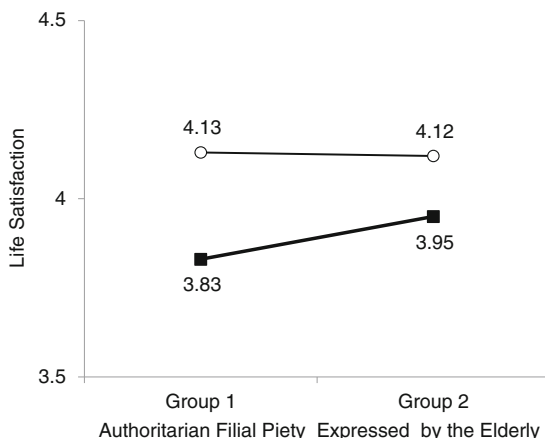


Fig. 11.2 Predicted relationship between authoritarian filial piety and life satisfaction by quality of intergenerational relations among older men (N = 313)

Note: The mean scores of authoritarian filial piety from group 1 (lower authoritarian filial piety, 3.27) and group 2 (higher authoritarian filial piety, 4.50) are significantly different ($t = -23.038$, $p < .001$)

○— the quality of intergenerational relations (higher)
 ■— the quality of intergenerational relations (lower)

Discussion and Conclusion

This chapter aimed to discuss the relations between family relations and the elderly’s life satisfaction. It was based on the social and cultural context of Taiwan and focused on the relations between the elderly’s marital relations, intergenerational relations and perception of filial piety and life satisfaction. The research results show that (1) the elderly in Taiwan were satisfied with life, and marital satisfaction affected life satisfaction more than intergenerational relations do; (2) when it came to how parent-child intergenerational relations and the quality of such relations affected life satisfaction, there was a difference between older men and women; (3) the perception of traditional authoritative filial piety affected the life satisfaction of older men, and this was related to the quality of intergenerational relations.

The elderly in Taiwan were satisfied with life. Also, family relations did affect the life satisfaction of older people. What’s worth noticing is that marital relations affected later life more than intergenerational relations between the elderly and adult children do, which is different from the conditions in traditional Chinese families, which are based on the “father-son dominated system.” Judging from this, in today’s Taiwanese society, the foundation of a family has become “husband-wife” than “father-son.” In addition, compared with physical housework, affectional expression behavior affects marital satisfaction more. For the elderly, marriage today means something different in society than before, and it is no longer based so much on

family. Marriage is not just a union of two families or family extensions. In later life, marital relations become more important for elderly people. In particular, positive interactions in marriage are keys to marital satisfaction.

In terms of intergenerational relations, older women enjoy more intergenerational support exchange and better quality of intergenerational relations than their male counterparts. With regard to gender roles, “the man goes out to work while the woman looks after the family” is the norm in traditional Chinese households. Women are expected to fulfill housework and child-rearing duties. A father is authoritative, and a mother has closer relations with children. In addition, the more support the elderly receive from adult children, the better quality of intergenerational relations they enjoy. For older women, providing children with financial and physical assistance reduces the quality of intergenerational relations. This is different from the elderly playing the giver’s role, or the notion that balanced, reciprocal intergenerational relations are beneficial to the well-being of the elderly, as stated in western studies (e.g., Lowenstein, 2007; Lowenstein, Katz, & Gur-Yaish, 2007). In Asian settings, because traditional Chinese values highlight the importance of both filial piety and the responsibility of adult children in taking care of parents in their old age, most adult children support their older parents. What’s more, family interactions in Asia are based on “the rule of demand” rather than “the equity rule” or “the equality rule” (Hwang, 1987, 1988). On the other hand, while three-generational co-residence is a long-standing tradition in Chinese communities, it has a negative effect on the relations between elderly women and their adult children. Hu and Chou’s study (1996) on elderly women in Taiwan also suggested that, according to traditional filial norms, older women accept three-generational co-residence by living with their son(s). But they can already feel that intergenerational conflicts may take place.

What’s worth attention to is how filial piety affect the elderly’s life satisfaction. For older men, acknowledging traditional authoritative filial piety, which takes parents as the authorities, is beneficial to life satisfaction. However, traditional authoritative filial piety become less influential when older men have good quality of relations with adult children. In other words, while inheriting cultural traditions, emphasizing family extensions and valuing paternal authoritativeness are beneficial to older men’s life satisfaction, good quality of intergenerational relations is the key.

To sum up, the elderly in Taiwan see marriage differently than before, and positive marital interactions have become the core of the elderly’s marital relations. While the elderly in Taiwan still expect children to support them when they are old, in terms of intergenerational relations between the elderly and adult children, the well-being of elderly people in Taiwan is more influenced by intergenerational support than co-residence. However, marital relations affect the well-being of the elderly more than intergenerational relations do. This is reminiscent of the “husband-wife unit” in western households. As Yang (1996) pointed out that, as the society evolves, the ethnic Chinese people in Taiwan are less inclined to develop social-oriented thinking and behaviors influenced by traditional cultural values, and are increasingly likely to have individual-based mindsets and behaviors, influenced by western cultural values. Nevertheless, the pace and level of the increase or decline

of psychological traits and substantial behaviors differ. Overall, traditional beliefs and value systems and societal transformation have shaped the Taiwanese elderly's perceptions of what a good old age means.

Much is written about the policy challenges faced by ageing society. It is increasingly well recognized in policy that the quality of older people's social relationships is crucial to their well-being (Bazalgette, Holden, Tew, Hubble, & Morrison, 2011). In Taiwan, policy responses to current demographic challenges include prolongation of active life by means of health improvement and lifelong learning. National Health Insurance Act was established in 1994 and the National Pension Act was passed by the legislators in 2007. Both Acts have profound impacts to the well-being of the aged in Taiwan (Tsai, 2009). In addition, Taiwan's "Family Education Law" was passed in 2003. This Law indicates the scope of family education including the parent education, filial education, gender education, marriage education, ethical education, family resource management education, and education regarding other family issues. Since then, family education has been promoted in communities and at schools around the country. The Government has an ongoing publicity campaign to retain family values, including the strengthening intergenerational relationships in the family and respect for the grandparents, which is inherent in filial piety. Moreover, in 2010, the designation of Grandparents Day, which falls on the fourth Sunday of August, was aimed at strengthening relationships between young and older generations and to promote intimacy among family members. As publicity campaign to raise public awareness of the day, family education centers in various cities and counties around the country sponsored summer camps for grandparents and grandchildren.

Recently, most family life education programs provided to the elderly have been organized specifically to promote grandparent-grandchildren bonding. In terms of marriage education, some social service and educational agencies have developed programs to enrich marriage relationship in later life. However, the scale is still small. The finding that marriage relation is a crucial aspect of the subjective well-being of older people in Taiwan suggests that the marriage education is an important area for policy consideration. In order to increase the marriage education programs available to older people, the programs should be delivered in more flexible and creative ways.

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Chapter 12

Grandparenting and Volunteering Among Older Adults in Hong Kong: A Dilemma

W.Q. Vivian Lou and Hongmei Tong

Introduction

Hong Kong, a special administrative region in the People's Republic of China, became an aging society in the early 1990s. In 2011, the percentage of adults aged 65 or over reached 13.3 % (Census and Statistics Department, 2012a), and it is estimated that the proportion of older people will reach or exceed 33 % by 2041 (Census and Statistics Department, 2012b) (see Fig. 12.1).

As proposed by Rowe and Kahn (1998), increases in the relative and absolute number of the aging population in a society call for particular attention to studying not only the care receiving aspects of aging, but also the positive aspects, including the contributions of older adults to family and society. The vast majority of older adults in Hong Kong are Chinese who still favor a social-oriented life that emphasizes not only receiving support from younger generations, but also providing support to their children (Mjelde-Mossey, Chi, & Lou, 2005; Lou & Ng, 2012). In particular, taking care of grandchildren is normatively expected within the family context (Lou & Chi, 2012). However, it is reasonable to assume that grandparenting roles would be challenged by the process of social change relating to values and living arrangements (Mjelde-Mossey, 2007). It would be worthwhile to examine grandparenting roles and their impacts on the psychological well-being of older adults in Hong Kong.

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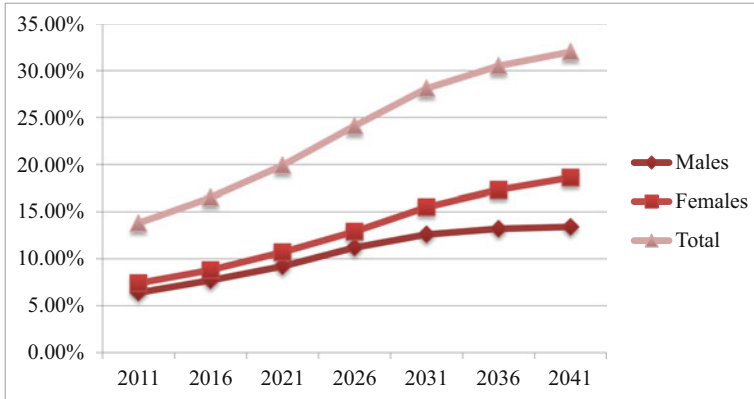


Fig. 12.1 The aging population of Hong Kong and its projection (Source: Census and Statistics Department, 2012b)

After over 30 years of developing community support services for older adults in Hong Kong, there are now more opportunities for older adults to participate in voluntary work (Agency for Volunteer Service, 2012). Previous studies found that Chinese intend to apply different behavioral rules to family members, familiars, and strangers (Chen, Chen, & Huang, 2013; Hwang, 1987). It would be interesting to examine participation in these volunteering programs and its impact on the psychological well-being of older adults in Hong Kong.

This chapter begins with a brief description on the features of grandparenting and volunteering among older adults in Hong Kong, and then examines their associations with the psychological well-being of older adults, before discussing service and policy implications.

Grandparenting

Living Arrangement of Grandparents and Grandparenting Roles

Prolonged longevity provides more opportunities for older adults in Hong Kong to have grandchildren. Unfortunately, there are no territory-wide statistics available on the socio-demographic characteristics of grandparents in Hong Kong except the living arrangement. The rate of older people living with grandchildren is approximately 53 % in Hong Kong, which is comparable to other Asian countries, such as Thailand and Japan, but higher than in the US (Census and Statistics Department, 2013; United Nations, 2010). The higher percentage of older adults living with their grandchildren in Hong Kong could be regarded as a logical consequence of value inclination towards multi-generational families in Hong Kong society. According to a family survey conducted in 2011, more than 61 % of

Table 12.1 Frequency distribution of the top 10 grandparenting activities engaged in sometimes and very often

Item	Frequency (%)
Reward grandchildren for good behavior	41 (19.0)
Share feelings with grandchildren	39 (18.1)
Teach grandchildren what is right and wrong	35 (16.3)
Advise grandchildren on important things	33 (15.3)
Play together	32 (14.9)
Share secrets	30 (13.9)
Advise children on important things relating to grandchildren	23 (10.7)
Do the household chores, except taking care of grandchildren	22 (11.2)
Pass on values and cultural traditions	21 (9.8)
Act as brokers between children and grandchildren	20 (9.3)

Source: Lou (2005)

respondents aged 55 or above agreed that “A three-generation extended family is more ideal than a nuclear family.” More than 65 % of respondents aged 35 or above said that they were willing to live with their parents regardless of their marital status at the time of the survey (Home Affairs Bureau, 2011).

The findings of the few studies that examined grandparents who had adolescent grandchildren in Hong Kong (Lou, 2005; Lou & Chi, 2012) revealed that the grandparenting activities they most frequently engaged in included rewarding grandchildren for good behavior, sharing feelings with grandchildren, teaching grandchildren what was right and wrong, and advising grandchildren on important things. Table 12.1 lists the top ten activities performed by Hong Kong grandparents in Lou’s study. Fewer than 20 % of the respondents engaged in various grandparenting activities sometimes or often (Lou, 2005). Female respondents were more active in caregiver roles than male respondents ($t = -2.47, p < .05$). This study found no significant differences among respondents of different marital status or levels of education. Respondents who were in their 60s played more roles in the categories of disciplinarian, emotional supporter, advisor, and instrumental supporter ($F = 5.77, p < .01$ and $F = 4.70, p < .01$). When compared to the respondents who lived alone or in residential homes, respondents who lived with family members or with someone else at home played more active roles in discipline, emotional support, advice, and instrumental support ($F = 10.89, p < .001$ and $F = 9.05, p < .001$). In sum, only about 20% of grandparents having adolescent grandchildren in Hong Kong actively played grandparenting roles in providing advices to adult children and guidelines on grandchildren’s behaviors. Those comparatively younger, female, and co-residing grandparents were more likely to play active grandparenting roles.

Grandparenting roles are manifested in the process of interacting with parents and grandchildren. Hence, grandparenting roles can be better understood if all three generations are examined. One study on grandparenting in Asia showed that Hong Kong family members (including the generations of grandparent, parent, and grandchildren), as with grandparents in other Asian countries, including Singapore,

Thailand, and Japan, agreed that grandparents functioned as daily care providers and transmitters of culture, reflecting personal and social meaning in a collective family-oriented cultural context (Lou & Chi, 2012). However, fast social development might bring different influences to the grandparent, parent, and grandchildren generation in terms of perceived grandparenting roles. Lou and Chi's study (2012) showed that while grandparents regarded themselves as educators and advisors for their children, parents perceived grandparents as a symbol of the family and fun companions for their grandchildren. The role of grandparents became vague and diminished from the grandchildren's perspective. This study seems to suggest that there are discrepancies between generations in perceiving grandparenting roles. Grandparents still perceive grandparenting roles significant, parents only attach symbolic meaning and fun to grandparents, but grandchildren perceive grandparents as roleless.

Grandparenting and Psychological Well-Being

Taking care of grandchildren often involves exchanging support with adult children and grandchildren, which can have impacts on psychological well-being of grandparents. Studies on grandparenting in Hong Kong have shown that caring for grandchildren has both negative and positive effects for older adults. On the positive side, being grandparents gives life meaning and esteem to older adults (Lou & Chi, 2008). A reduced advisory role for grandmothers showed a negative association with their life satisfaction (Lou, 2011). On the negative side, grandparenting was also associated with a sense of responsibility and worry, creating stress (Lou & Chi, 2008). On top of that being grandparents is associated with embedded parental responsibilities. Taking care of grandchildren also increases possibilities of experiencing conflicts and tensions with adult children and grandchildren. A qualitative study by Ko (2012) argued that increased intergenerational interactions may lead to more tension between generations, which were stressful to grandparents. In sum, being grandparents can have both positive and negative impacts on psychological well-being of older adults in Hong Kong.

Volunteering

Volunteering: Opportunities and Participation

While Hong Kong older adults still have opportunities to contribute to the family by being grandparents, not everyone is taking active grandparenting roles. Moreover, family structure change excludes some older adults from being grandparents. As of 2008, childless older adults made up 9.7 % of Hong Kong's population (Census and Statistics Department, 2005, 2009a, b). In fact, in the early 1990s, the government of Hong Kong began to notice that population aging and family structure change could

occur hand-in-hand (Hong Kong Government, 1990). In the last two decades, the Hong Kong government, via the Social Welfare Department, supported the establishment of territory-wide neighborhood-based community centers. Promoting volunteering among elders is considered essential at community centres – older volunteers engage in taking attendance, maintaining classroom hygiene, facilitating peer activities, and participating in voluntary groups to help others in the community.

Other government departments also engage in promoting volunteering for all ages through establishing infrastructure and supporting community projects. For example, the Agency for Volunteer Service was established in 1970 to promote and facilitate volunteering for all ages at a territory level. Since 2001, the Community Investment & Inclusion Fund (CIIF) has supported territory-wide projects to promote intergenerational solidarity (CIIF, 2013). The Elderly Commission initiated the Neighbourhood Active Aging Project in 2008, and more than 60 district projects have been launched since 2012 to “promote harmonious family relationship and enhance neighbourhood support network” (Legislative Council Panel on Welfare Services, 2013).

Regardless of the fact that volunteering programs have been promoted by different government bureaus or departments, unfortunately no territory-wide data are available on older volunteering in Hong Kong. Moreover, existing limited statistics seem to suggest that Hong Kong older adults are less active in community volunteering. Across all age groups, older Hong Kong residents belonged to the group that provided least help to relatives or friends, and volunteering in the community (see Fig. 12.2) (Agency for Volunteer Service, 2012). Only around 10 % of older adults reported helping friends or relatives and around 5 % engaged in volunteering in the community. One possible explanation is that Chinese cultural tradition prefers a family-oriented life, in which people tend to maintain active engagement and

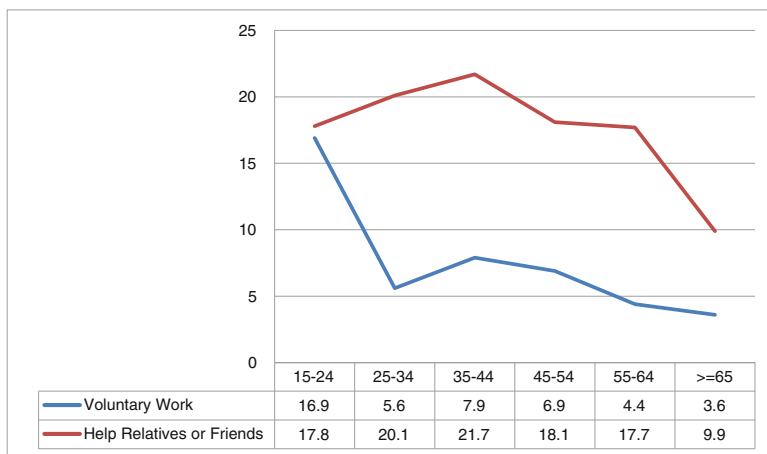


Fig. 12.2 Voluntary work and helping relatives or friends by age (2003) (Source: Census and Statistics Department, 2003)

exchange support with family members and familiars, rather than strangers (Chen, Chen, & Huang, 2013; Hwang, 1987). Another possible explanation is that the current cohort of Hong Kong older adults lack formal education during their youth, which has been argued to be one of the key barriers for volunteering (Cheung, Tang, & Yan, 2006). In sum, regardless of the fact that volunteering opportunities were available and promoted at the community and territory level, limited statistics and studies seemed to suggest that Hong Kong older adults were less active in volunteering due to cultural tradition and inadequate education.

Volunteering and Psychological Well-Being

In line with findings from other countries, volunteering in Hong Kong was found to be positively associated with enhanced social support and better health outcomes (Kumar, Calvo, Avendano, Sivaramakrishnan, & Berkman et al., 2012). Post-retirement volunteering among Hong Kong older adults was found to be positively associated with higher self-efficacy, greater life satisfaction, and less psychological distress (Wu, Tang, & Yan, 2005). A voluntary home-visiting program showed the positive effects on the psychological well-being of volunteers (Lou & Chan, 2011).

The positive association between volunteering and well-being is not only observed at the individual level, but also at the interpersonal and community levels. For example, volunteering in intergenerational activities and programs run by non-government organizations showed positive effects on intergenerational solidarity (Aberdeen Kai-fong Association, 2012). A study on the impact of intergenerational programs showed that enhanced intergenerational ties or cooperation, mutual learning, and support across generations had positive effects on social capital in the community (Chan & Ping, 2006).

To our best knowledge, no study has found that volunteering is associated with psychological distress among Hong Kong older adults. However, a previous study identified burn-out experiences among older volunteers in Hong Kong, for which a lack of personal accomplishment and higher emotional depletion were the main predictors (Yan & Tang, 2003). This finding implied that volunteering might be associated with negative emotions among older adults.

Conclusion

The above discussion revealed dilemmatic pictures of both grandparenting and volunteering among older adults in Hong Kong. Within the family context, while some older adults are able to play grandparenting roles by taking care of grandchildren, some others may not have the chance, due to the childlessness of their children or living arrangements. Even for those who took up grandparenting roles, values attached to grandparenting were inconsistent among the grandparent, parent and grandchildren generations. The grandparental generation attaches positive

and significant values to grandparenting; parents treat grandparenting as more symbolic; whereas the grandchild generation tended to perceive grandparents as without significant roles. Beyond the family context, regardless of the fact that infrastructures have been established and opportunities for volunteering in the community are available, limited statistics show lower volunteering participation of Hong Kong older adults compared to other age groups.

The relationship between grandparenting, volunteering, and the psychological well-being of older adults is also not straightforward. Some studies showed that engaging in volunteering and being grandparents can generate positive and meaningful life experiences, while others showed associations with negative emotions. Further studies should examine the dynamic relationships of engaging in volunteering or grandparenting over time and their relationships with psychological well-being.

Based on the above discussion, three policy and program implications can be drawn. First, the grandparenting dilemma suggests that cultural values and practices are always evolving and that people belonging to different generations have different trajectories of change. It is important that future policy initiatives in Hong Kong are able to take generational discrepancies into consideration. Second, the dilemma in elderly volunteering suggests that there is a gap between infrastructure availability and the behavioral commitment of older adults. Future policies and services should fill this gap based on systematic examination of elderly volunteering and its motivational factors. Last but not least, theoretically, grandparenting and volunteering are an almost perfect match that can synergize opportunities for older adults to maintain continuous contribution to family and the society. Ideally, older adults can contribute to their family by grandparenting, and contribute to society by volunteering. However, considering that being grandparents and volunteering may not necessary generate better psychological well-being, caution should be exercised when encouraging older adults to engage in either activity. A balanced view should be disseminated to older adults and their family members so that older adults can be encouraged and supported to take an active participation in either grandparenting or volunteering.

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Part III
Optimizing Physical & Mental Health

Chapter 13

Implications of Temporal Trends in Chronic Illness Burden

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Population ageing is occurring worldwide and Asia is no exception where the number of people aged 65 and above is expected to grow exponentially over 50 years, from 247 million in 2000 to 1,155 million in 2050 (United Nations, 2011). Japan has the oldest population in Asia, with 27.3 % of people aged 65 and above in 2010, and the proportion is expected to reach 36.1 % in 2025 and 43.8 %, or 124 million in 2050 (United Nations). The population in China is also ageing rapidly, with the proportion of people aged 65 and above rising from 9.4 % in 2010 to a predicted 15.8 % in 2025, and 30.8 %, or 430 million by 2050 (United Nations). Similarly, the population in Hong Kong (a special administrative region in China) also shows rapid changes. In 2011, there were about 950,000 people aged 65 and above in Hong Kong, a doubling of the number compared with two decades ago (Census and Statistics Department of Hong Kong Special Administrative Region, 2012a). By 2041 it is projected that approximately one in three people will be aged 65 years and over (Census and Statistics Department of Hong Kong Special Administrative Region, 2012b). Other countries in Asia will also experience significant increases in the share of older population. For example, in Singapore, there were over 370,000 people aged 65 years and above in 2012 (Department of Statistics of Singapore, 2012), and is projected to increase to over 1,000,000, or approximately over one-third of the population in 2050 (Institute of Policy Studies of Singapore, 2011). Yet chronological age is not as important as ‘functional’ age: that is whether one can retain physical and cognitive function and avoid chronic diseases. Desirable goals accompanying increased life expectancy include

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avoidance or optimal control of chronic diseases with ageing; avoidance of geriatric syndromes of sarcopenia and frailty resulting in dependency; and avoidance of cognitive decline. Strategies to promote these goals should be an essential part for policies in ageing societies. Chronic diseases commonly encountered with ageing include cardiovascular diseases (CVDs) (hypertension, ischaemic heart diseases and stroke), diabetes, osteoporosis and neurodegenerative diseases such as dementia. These diseases in turn predispose individuals to as well as magnify the impact of geriatric syndromes of sarcopenia and frailty. Estimating the burden of these diseases would inform health and social policy relating to prevention and service provision, as well as enable health economic estimations to be made. Examining temporal trends in prevalence, incidence and mortality of chronic diseases would enable projections for future years to be made. Disease burden at any one time is a composite of incidence and case fatality. Yet, the estimation of trends and burden of chronic diseases would not be possible without accurate population-based surveillance data. While data gaps impede an accurate assessment of the disease burden in many countries around the world, Hong Kong has been collecting data regarding disease prevalence, incidence and mortality and therefore is used as an example for other countries in the region. In this chapter the trend in disease burden as well as costs for diabetes, stroke, dementia, chronic obstructive pulmonary disease (COPD), and hip fracture of the elderly in Hong Kong will be described. Trends in some cardiovascular risk factors will also be described, with implications on prevention.

Diabetes Mellitus

Trends in Prevalence, Incidence and Mortality of Diabetes

Although diabetes mellitus (diabetes) has been known as a health problem for many decades, it still presents a challenge and will most certainly continue to post a significant burden in the society as our population continues to age. According to World Health Organization (WHO) estimates, the prevalence rate of diabetes for all age-groups worldwide was projected to reach 4.4 % by 2030, representing a 57 % increase from 2000 to 2030 (Wild, Roglic, Green, Sicree, & King, 2004). The prevalence of diabetes is also rising quickly in Asia. For example, in China, the prevalence of self-reported diabetes increased rapidly from 1.9 % in 1993 to 5.6 % in 2003 (Ministry of Health of the People's Republic of China, 2004). It was projected that the number of people with diabetes in China would more than double from 20.8 million in 2000 to 42.3 million in 2030 (Wild et al.). In Japan, the prevalence of self-reported diabetes was around 15.0 % among those aged 60 and above in 2000 (Ministry of Health, Labour and Welfare of Japan, 2001). It was projected that the number of people with diabetes in Japan would increase moderately from 6.8 million in 2000 to 8.9 million in 2030 (Wild et al.).

As in China and Japan, the prevalence rate of diabetes is increasing in Hong Kong. The prevalence rate of self-reported doctor-diagnosed diabetes among

population aged 65–74 increased from 11.2 % in 1995–1996 (Janus et al., 1996) to 14.3 % in 2003–2004 (Department of Health of Hong Kong Special Administrative Region and Department of Community Medicine of the University of Hong Kong, 2005). The prevalence rate of diabetes increased with age. Based on the Population Health Survey 2003/2004, the prevalence rate of diabetes among those aged 18–64 was 2.2 %, while for those aged 65 and above, it was 13.5 % (Department of Health of Hong Kong Special Administrative Region and Department of Community Medicine of the University of Hong Kong; McGhee et al., 2009).

With respect to incidence statistics on self-reported doctor-diagnosed diabetes, an increasing trend was also observed, with the rate increased from 12.4 per 1,000 among people aged 70 and above in 1991–1992 (Woo, Ho, & Yu, 2002) to 55.6 per 1,000 among people aged 65 and above in 2003–2004 (Department of Health of Hong Kong Special Administrative Region and Department of Community Medicine of the University of Hong Kong, 2005; McGhee et al., 2009). However, this increase may be due to methodological differences between studies, rather than entirely explained by a true increase.

Despite the increase in diabetes prevalence and incidence, the age-standardized mortality rate from this disease among those aged 65 and above has remained fairly stable since 1981 and was 50.8 per 100,000 population in 1997. The age-standardized rate increased sharply in the late 1990s, peak at 114.7 per 100,000 population in 2000, then decreased to 46.4 per 100,000 population in 2009 (Department of Health of Hong Kong Special Administrative Region, 2005, 2011a). In 2010, diabetes was the tenth leading cause of death, accounting for about 1 % of all deaths among the population aged 65 and above (Department of Health of Hong Kong Special Administrative Region, 2011b).

With population ageing, prevalence of diabetes is expected to increase, even if no changes occur in the age-specific prevalence rate of diabetes. Based on an assumption that prevalence rate of diabetes (12.4 %) would remain constant over the years, an estimated 0.11 million people aged 65 and above had self-reported doctor-diagnosed diabetes in 2006. By 2036, the number was expected to rise to 0.30 million, more than double the corresponding number in 2006 (McGhee et al., 2009).

Physical Disability and Psychological Burden of Diabetes

Although mortality rates for diabetes have declined considerably in recent years, it continues to be one of the major contributors to disability. Among people aged 60 and above, having diabetes was associated with increased odds of difficulties in performing various tasks of activities of daily living (ADL), with odds ratios ranging from 1.8 to 4.1; moreover, the odds ratio of reporting disability in self-care, mobility or higher functioning was 1.8 after adjusting for confounding factors (Chou & Chi, 2005a). In another study among people aged 70 and above, those

with diabetes were associated with increased odds of mild-to-moderate functional limitation, with the age- and sex-adjusted odds ratio being 1.5 (Woo, Ho, Yu, Lau, & Yuen, 1998). Comparable findings were observed in the National Health and Nutritional Examination Survey in the U.S., where the adjusted odds ratios of disability among those having diabetes ranged from 2.0 to 2.5 (Kalyani, Saudek, Brancati, & Selvin, 2010).

Diabetes is also considered to be one of the most psychologically demanding chronic diseases and is often associated with depressive symptoms (Chou & Chi, 2005b), cognitive impairment and increased risk of dementia (Biessels, Deary, & Ryan, 2008; Biessels, Staekenborg, Brunner, Brayne, & Scheltens, 2006; Luchsinger et al., 2007; Pasquier, Boulogne, Leys, & Fontaine, 2006; Yaffe et al., 2004). Findings from the Elderly Health Centre cohort 1998–2001 indicated that more people aged 65 and above with diabetes had depressive symptoms (12.2 %) and severe or moderate cognitive impairment (8.0 %), compared with those without; moreover, the level of cognitive function was significantly associated with the living arrangement of the people with diabetes, with more people with diabetes living in institutions who tended to have severe or moderate cognitive impairment than those who lived in the community (Department of Health of Hong Kong Special Administrative Region, n.d.; McGhee et al., 2009). These findings were consistent with the results from other populations (Luchsinger et al. 2007; Mogi et al., 2004).

The Cost of Diabetes

Diabetes exerts high costs on the health and social care systems and the population, especially on older people who are at the highest risk of developing disease. The treatment of diabetes is costly, with direct health care costs ranging from 2.5 to 15 % of annual health care budgets in different countries (World Health Organization, 2012b). In Hong Kong, it has been estimated that the attributable direct cost of diabetes from public medical sector care was about HK\$ 1.4 billion (US\$ 179 million) in 2006 for those aged 65 and above, with HK\$ 1.2 billion (US\$ 154 million) of which was spent on hospital care. By 2036, the corresponding cost will increase to HK\$ 3.5 billion (US\$ 449 million). It should be noted that some costs were not included in the above estimates, such as the costs from private sector care, over-the-counter medication and other prescribed medications. Therefore, the actual cost is expected to be higher (McGhee et al., 2009).

Stroke

Trends in Prevalence, Incidence and Mortality of Stroke

According to the latest Global Burden of Disease (GBD) report by the WHO published in 2008, 30.5 million people worldwide suffered a stroke and the

corresponding prevalence rate of first-ever stroke was 0.5 % in 2004 (World Health Organization, 2008c). In China, the prevalence rates of self-reported stroke among the community-dwelling population increased from 0.4 % in 1993 to 1.0 % in 2008 (Ministry of Health of the People's Republic of China, 2008). No comparable data are available from Japan, although data are available from the Fifth National Survey on CVDs, showing a prevalence rate of self-reported stroke for people aged 30 and above of 3.0 % (Ministry of Health, Labour and Welfare of Japan, 2001).

In Hong Kong, the prevalence rates of stroke among community-dwelling population aged 65 and above have increased by almost one-half, from 2.8 % in 1998–2001 to 5.5 % in 2003–2004, 4.2 % in 2004, and 4.9 % in 2008 (Census and Statistics Department of Hong Kong Special Administrative Region 2005, 2009; Department of Health of Hong Kong Special Administrative Region, n.d.; Department of Health of Hong Kong Special Administrative Region and Department of Community Medicine of the University of Hong Kong, 2005). Although stroke can affect individuals at any age, the prevalence of this condition increases progressively with age. Based on the Population Health Survey 2003/2004, the prevalence rate of stroke among those aged 15–64 in Hong Kong was 0.4 % and that of 65 and above was 5.5 %, which was 14 times higher (Department of Health of Hong Kong Special Administrative Region and Department of Community Medicine of the University of Hong Kong).

With respect to incidence data, a decreasing trend has been observed between 2000 and 2007, with the annual age-standardized incidence rates of first-ever stroke among people aged 65 and above being 14.1 per 1,000 population in 2000–2001 and 10.5 per 1,000 population in 2006–2007, based on hospital admission data (Wu et al., 2012; Yu et al., 2012). Furthermore, sub-type differences in stroke incidence were identified, with a decreasing trend observed in ischaemic stroke but a non-decreasing trend in haemorrhagic stroke (Chau, Woo et al. 2011). The differential trends in ischaemic and haemorrhagic stroke may be explained partly by a difference in risk factors for stroke sub-types (Woo, Lau, & Kay, 1992) and differential trends in risk factors. Thus for ischaemic stroke, declining incidence may reflect the falling prevalence of smoking and hypercholesterolemia, rather than trend in prevalence of hypertension since the latter has actually increased (Department of Health of Hong Kong Special Administrative Region, 2007; Department of Health of Hong Kong Special Administrative Region and Department of Community Medicine of the University of Hong Kong, 2005; Janus et al., 1996). The latter may also explain the rising trend in incidence of cerebral haemorrhage in the middle aged, as against the static trend in other age groups.

Declining trends in stroke mortality among people aged 65 and above have also been observed. From early 1980s to 2000, the age-standardized mortality rate for stroke has dropped by almost one-half, with the rate being 843.3 per 100,000 population in 1981 and 528.1 per 100,000 population in 2000 (Department of Health of Hong Kong Special Administrative Region, 2005). After 2001, the rate decreased steadily to 331.5 per 100,000 population in 2009 (Department of Health of Hong Kong Special Administrative Region, 2011a). The 30-day case-fatality rates among people aged 65 and above also showed a steady decline, with the rates being 14.0 %

in 1999 and 12.8 % in 2007 (Yu et al., 2012). In spite of the declining trends in stroke mortality in recent years, stroke is the fourth leading cause of death, accounting for about 8.9 % of all deaths among the population aged 65 and above in 2010 (Department of Health of Hong Kong Special Administrative Region, 2011b).

With the growth of the elderly population, the prevalence of stroke is expected to increase, even if no changes occur in the age-specific prevalence rate of stroke. Based on an assumption that prevalence rate of stroke (6.7 %) would remain constant over the years, it was estimated that the number of stroke survivors aged 65 and above would increase from 0.06 million in 2010 to 0.16 million in 2036, with about one-third of them living in institutions (Yu et al., 2012).

Physical Disability and Psychological Burden of Stroke

Stroke is a disease with significant impact on the individual, the family, as well as the society, because approximately half of all strokes result in disability as well as physical dependency (Young & Forster, 2007). These sequelae of stroke may be considered in terms of the WHO's classification into impairment, functioning (or disability), and participation (or handicap) (World Health Organization, 2001). A Hong Kong population-based survey of stroke survivors aged 70 years and above showed that stroke was associated with severe functional limitation (Woo et al., 1998). Comparable findings were observed in a prospective population-based registry in Australia, where about one-third of the stroke survivors remained disabled 5 years post-stroke (Hankey, Jamrozik, Broadhurst, Forbes, & Anderson, 2002). In England, similar results were observed, with 26 % of the stroke survivors were classified as moderately or severely disabled and 51 % handicapped 3 years post-stroke (Patel et al., 2006).

The negative effects of stroke on the psychosocial well-being of survivors have also been well documented in the literature, where a high prevalence rate of depression (17.2 %) was found in a sample of first-time stroke survivors in Hong Kong (Tang et al., 2002), while quality of life deteriorated steadily over 1 year post-stroke as reported in another study (Chau, Woo, & Chang, 2007; Kwok, Lo, Woo, Kay, & Leung, 2007). A high prevalence of dementia following stroke had also been reported (Leys, Henon, Mackowiak-Cordoliani, & Pasquier, 2005). Among stroke survivors aged 50 and above in Hong Kong, the prevalence rate of dementia at 3 months post-stroke was 15.5 % (Tang et al., 2004). Similar findings were observed in the Framingham Study in the US, where people with first-ever stroke had double the risk of dementia compared to those without stroke at 10 years post-stroke, after controlling for age, sex and education (Ivan et al., 2004). Another US study also found that people with first-ever ischaemic stroke had 8.8 times higher risk of dementia compared to those without stroke at 1 year post-stroke (Kokmen, Beard, O'Brien, & Kurland, 1996).

The Cost of Stroke

Stroke is a leading cause of death and disability and the cost is expected to be high. In Hong Kong, over HK\$1.3 billion (US\$ 167 million) were spent on the direct medical costs including hospitalization, out-patient care, rehabilitation service and community allied health service among population aged 65 and above in 2006, of which over 80 % were spent on hospitalization (HK\$ 1.1 billion or US\$ 141 million) and the corresponding projected costs in 2036 would increase to HK\$ 4.0 billion (US\$ 513 million). In addition, the direct costs of institutional care (covering public and private sectors) and the indirect costs of informal care were HK\$ 1.6 billion (US\$ 205 million) and HK\$ 5.0 billion (US\$ 641 million) respectively for the same age group in 2010. By 2036, the corresponding costs were projected to increase to HK\$ 4.5 billion (US\$ 577 million) and HK\$ 13.3 billion (US 1.7 billion) respectively. However, these estimates include part of the costs involved in caring for stroke patients only. Therefore, the cost of providing care to older people with stroke would be greater than the above estimates (Yu et al., 2012).

Trends in Dementia

Trends in Prevalence, Incidence and Mortality of Dementia

Dementia is a typical disorder of the elderly and it is one of the major contributors to disability and increases the burden to caregivers as well as health and social care systems (Sabat, 2009). It is a neurological disease characterized by an irreversible decline in cognitive and intellectual function, affecting memory, comprehension, learning, ability to think and calculate, language expression, as well as problem solving. The self-care capability of those with dementia will gradually deteriorate, some patients may also have mood and behavioral disorders. With ageing populations all over the world, the number of people with dementia will more than double. The Alzheimer's Disease International has estimated that the number of people with dementia globally would rise from 35.6 million in 2010 to 115.4 million by 2050 (Alzheimer's Disease International, 2009). Furthermore, amongst selected Asia Pacific Regions, Japan had the highest prevalence rate of dementia in 2005 (1.5 %), followed by Australia (1.0 %), Singapore (0.5 %) and China (0.4 %) (Access Economics, 2006; Yu et al., 2010).

Like other developed countries, Hong Kong is facing the challenges of an ageing population, as a result of this, a parallel increase in number of people with dementia. Based on three serial cross-sectional household surveys, the prevalence rate of self-reported dementia among the community-dwelling population aged 60 and above increased from 0.6 % in 2000 to 1.1 % in 2004, and this rate remained unchanged

until 2008 (1.1 %) (Census and Statistics Department of Hong Kong Special Administrative Region, 2001, 2005, 2009). An increasing trend in prevalence rate was also shown by clinically diagnosed data, with the rate among the community-dwelling population aged 70 and above increased from 4.5 % in 1995 (Chiu et al., 1998) to 9.3 % in 2005–2006 (Elderly Commission of Hong Kong Special Administrative Region, 2006; Lam et al., 2008). The prevalence rates of dementia among people living in institutions were higher. Based on a study among people living in institutions in Hong Kong, the prevalence rate of clinically diagnosed dementia among the institutional population aged 70 and above was 17.4 % in 1995 (Chiu et al.). The prevalence rate of dementia increased with age. Based on the Population Health Survey 2003/2004, the prevalence rate of self-reported dementia among the community-dwelling population aged 85 and above (5.0 %) was almost 5 times that among those aged 65–69 (0.8 %) (Department of Health of Hong Kong Special Administrative Region and Department of Community Medicine of the University of Hong Kong, 2005). Like self-reported data, the prevalence rates of clinically diagnosed dementia in Hong Kong increased with age, with the rates approximately doubled for every 5 years until around age 90 (Chiu et al.). The situation in Hong Kong was comparable to overseas evidence that the prevalence rate of dementia nearly doubles for every 5 years after the age of 65 (Lobo et al., 2000). In 2005–2006, the prevalence rate of clinically diagnosed dementia among the Hong Kong population aged 60–64 was 1.2 % and among those aged 85 and above, it was 32.1 % (Elderly Commission of Hong Kong Special Administrative Region; Lam et al.).

With respect to incidence data, only a longitudinal study has been carried out in Hong Kong. It was found that the incidence rate of self-reported doctor-diagnosed dementia was 2.6 per 1,000 population (Yu et al., 2010). As with prevalence, incidence rates increased with age, with annualized rates increased from 1.4 per 1,000 population for those aged 70–79 to 4.3 per 1,000 population for those aged 80 and above (Yu et al.). It should be noted that the incidence rates based on self-reported data may be underestimated due to undiagnosed condition. However, reliable estimates of incidence of clinically diagnosed dementia are not available.

Dementia is the leading cause of death worldwide, contributing to approximately 0.5 million deaths annually (World Health Organization, 2008a) and was projected to 0.8 million by 2030 (World Health Organization, 2008b). In Hong Kong, the age-standardized mortality rate from dementia among population aged 65 and above has remained fairly stable since 2003 and was 40.8 per 100,000 population in 2007. The rate increased sharply in 2008 and was 75.1 per 100,000 population in 2009. In 2010, dementia was the ninth leading cause of death, approximately 761 people aged 65 and above dying from dementia in 2010, accounting for 2.3 % of all deaths (Department of Health of Hong Kong Special Administrative Region, 2011b).

With population ageing, the number of people with dementia is expected to increase. Based on an assumption that prevalence rate (8.2 %) of dementia would remain constant over the years, an estimated 0.11 million people aged 60 and above in Hong Kong had dementia, among whom about 0.02 million were living

in institutions. By 2036, the corresponding numbers were estimated to increase to 0.27 million and 0.05 million, respectively (Yu et al., 2010).

Physical Disability and Psychological Burden of Dementia

Although dementia is not a fatal condition, it is the leading cause of functional disability leading to dependency. Among people aged 70 and above in Hong Kong, those with dementia was significantly associated with mild to severe functional limitation (Woo et al., 1998). Comparable findings were observed in previous population-based studies in Sweden and Japan, which showed that dementia had a greater influence on the development of functional disability than did stroke or other chronic diseases (Aguero-Torres et al., 1998; Yoshida et al., 2012). Furthermore, there is evidence of social concealment of dementia leading to some degree of stigma and social exclusion (Byrne, 2001; Werner & Heinik, 2008). People with dementia appear reluctant to disclose their problems and seek professional help, which in turn contribute to the late recognition, diagnosis, and treatment of the disease (World Health Organization, 2012a), and can result in excess disability (Sabat, 2009). Unfortunately, stigma associated with dementia has not been fully addressed and dealt with attention in Hong Kong (Chau et al., 2010; Department of Health of Hong Kong Special Administrative Region, 2010).

The Cost of Dementia

Dementia is a very costly condition given its duration, disease burden and the level of disability associated with the illness over time. In 2005, the cost of dementia was about US\$ 315.4 billion worldwide, of which 37 % were attributed to informal care (Wimo, Winblad, & Jonsson, 2007). In Hong Kong, the costs for dementia including hospitalization, institutional care and informal care were HK\$ 12.2 billion (US\$ 1.6 billion) in 2010 among people aged 60 and above, of which over 80 % were spent on informal care (HK\$ 10.4 billion or US\$ 1.3 billion) and that the corresponding projected costs in 2036 would increase to HK\$ 31.8 billion (US\$ 4.1 billion). While the hospitalization costs covered both the public and private sectors, this is likely an underestimate due to complications of dementia such as pneumonia, which were not coded as dementia. To account for this underestimation, the attributable risk methodology was adopted. It was estimated that the attributable cost of hospitalization for the same group was as high as HK\$ 2.9 billion (US\$ 372 million) in 2010 and HK\$ 7.6 billion (US\$ 974 million) in 2036. Nevertheless, these estimates only take into account the demographic changes but not the possible rising incidence or increase in medical or assistive technological costs associated with care (Yu et al., 2010).

COPD

Trends in Prevalence, Incidence and Mortality of COPD

Chronic Obstructive Pulmonary Disease (COPD), including chronic bronchitis and emphysema, affects millions of people, and the number of people with COPD is increasing. According to WHO estimates, about 60 million people had COPD worldwide in 2000 (World Health Organization, 2002), and the number increased to 64 million in 2004 (World Health Organization, 2008c). Worldwide, it was estimated that 14.2 % of the older people had COPD (Halbert et al., 2006). The prevalence rate of COPD is also high in Asia. For example in China, a prevalence rate of self-reported doctor-diagnosed COPE of 13.4 % has been reported among people aged 65 and above between 2000 and 2001 (Xu et al., 2005). Based on spirometry data, the prevalence rate of COPD was estimated to be 11.7 % among people aged 60 to 69 and those aged 70 and above being 20.4 % between 2002 and 2004 (Zhong et al., 2007). Similarly, the prevalence rate of COPD based on spirometry was 24.4 % among people aged 70 years and above in Japan (Fukuchi et al., 2004).

In Hong Kong, there was no clear evidence of either an increasing or a decreasing trend in the prevalence of self-reported COPD among older people between 1991 and 2008 (Chau, Chen et al. 2011), with the rate of chronic bronchitis or emphysema among those aged 70 and above increased from 8.1 % in 1991–1992 to 9.0 % in 2003–2004 (Ko et al., 2006), and the rate of Chronic Obstructive Airway Disease (COAD) among people aged 65 and above decreased from 6.2 % in 1998 to 5.1 % in 2001 (Chau, Chen et al. 2011; Department of Health of Hong Kong Special Administrative Region, n.d.). Based on the Population Health Survey 2003/2004, the prevalence rate of self-reported COPD in the community-dwelling population aged 65 and above was 4.6 % (Department of Health of Hong Kong Special Administrative Region and Department of Community Medicine of the University of Hong Kong, 2005). In 2008, the prevalence rate of chronic bronchitis, emphysema or asthma among community-dwelling population aged 60 and above was 4.1 % (Census and Statistics Department of Hong Kong Special Administrative Region, 2009), which was far below the estimates based on spirometry measures (varying from 12.4 to 25.9 % according to different diagnostic criteria) (Ko et al., 2008). Therefore, prevalence estimates based on self-report data were likely to be underestimated.

With respect to incidence statistics, information on COPD incidence is very limited. Based on two population-based studies in Hong Kong, the incidence rate of COPD among population aged 70 and above appeared to be stable over 1991 to 2004, with the annual incidence rate of self-reported COPD being 10.3 per 1,000 population in 1991–1992 (Ho et al., 1994) and 10.0 per 1,000 population in 2003–2004 (Chau, Chen et al. 2011; Department of Health of Hong Kong Special Administrative Region and Department of Community Medicine of the University

of Hong Kong, 2005). Nevertheless, as with self-reported prevalence, self-reported incidence rate are likely to be underestimated.

The age-adjusted mortality rate of COPD among people aged 65 and above in Hong Kong decreased from 1984 to 1991, increased from 1991 to 1992, and decreased again until 2009. Amongst elderly people aged 65 and above, the COPD mortality was 200.7 per 100,000 in 2009, accounting for 5.6 % of all deaths of the age group (Department of Health of Hong Kong Special Administrative Region, 2011a). In 2010, COPD was the fifth leading cause of death (Department of Health of Hong Kong Special Administrative Region 2011b).

Although there is no increasing trend in the age-specific prevalence rate of COPD, the number of older COPD patients can be expected to increase owing to the larger number of older people who are most at risk of developing the disease. Based on an assumption that prevalence rate (4.9 %) of COPD would remain constant over the years, an estimated 0.04 million people aged 65 and above in Hong Kong had COPD. By 2036, the corresponding number was estimated to increase to 0.12 million (Chau, Chen et al. 2011). These estimates only take into account the demographic changes, and undiagnosed cases were not included.

Physical Disability and Psychological Burden of COPD

COPD is a major cause of disability, especially in older COPD patients who are more likely to have further restrictions in ADL. The prevalence of functional limitations among COPD patients in Hong Kong was high, with about 73.2 % of the COPD patients aged 65 and above had mild to severe functional limitations; moreover over half of them reported difficulty in bathing (71.1 %) and stair-climbing (54.6 %) (Lee, Lee, & Mackenzie, 2006). Based on a national sample of COPD patients aged 45 and above in the US, the majority of COPD patients reported limitations in normal physical exertion and around half of them reported some limitations in lifestyle, household chores, social activities and sleeping (Schulman & Bucuvalas, 2001). In Singapore, ADL impairments were reported in 11.6 % of Chinese COPD patients aged 55 and above (Ng, Niti, Fones, Yap, & Tan, 2009).

COPD patients also carry a substantial psychological burden related to their disease and frequently suffer from depression and poor health-related quality of life (HRQoL) (Omachi et al., 2009). In a population-based study of 2,000 elderly Chinese men and 2,000 elderly women in Hong Kong, having chronic respiratory disease was associated with increased odds of depression, with an adjusted odds ratio of 1.5 (Wong et al., 2006). Data from the Elderly Health Centre cohort 1998–2001 also showed a significantly higher prevalence of depressive symptoms and worse self-rated health among those with COPD than those without (Chau, Chen et al. 2011; Chau, Woo et al. 2011; Department of Health of Hong Kong Special Administrative Region, n.d.); moreover, those with COPD had lower HRQoL than those without, based on the Short Form 12 (SF-12) scale (Chau, Chen

et al. 2011; Chau, Woo et al. 2011; Ma, 2008). Comparable findings were observed in previous studies in the US (Katz et al., 2009) and Singapore (Ng et al., 2009).

The Cost of COPD

COPD imposes a huge economic burden worldwide. In Hong Kong, about HK\$ 3.0 billion (US\$ 385 million) were spent on COPD hospitalization in the public sector for the population aged 65 and above in 2010. By 2036, such cost would increase to approximately HK\$ 7.8 billion (US\$ 1.0 billion). The direct costs of care increased with progression of disease severity, with the costs for managing severe COPD patients in Hong Kong approximately 3 to 8 times of those with moderate disease, indicating the needs to prevent deterioration of the disease to a severe disease stage. In addition, smoking accounted for HK\$ 0.4 billion (US\$ 51 million) public hospital costs of COPD in the population aged 65 and above in 1998, indicating the importance of smoking cessation in reducing economic burden of COPD (Chau, Chen et al. 2011).

Osteoporosis-Related Hip Fractures

Trends in Incidence and Mortality of Hip Fractures

Osteoporosis is an age-related condition characterized by a reduction in bone mass and deterioration of the microarchitectural structural of bone tissue, leading to an increased risk of bone fragility and fractures (The National Institutes of Health of the United States, 2000). Among all the osteoporosis-related fractures that can occur, hip fractures are recognized as the most serious consequence of osteoporosis in giving rise to significant disability, morbidity and mortality, particularly among people aged 65 and above (Wolinsky, Fitzgerald, & Stump, 1997). With population ageing, the number of hip fractures increases, and is being projected to be over 6 million by 2050 globally, of which 51 % would occur in Asia (Cooper, Campion, & Melton, 1992). As in other countries in Asia, there was a significant increasing trend in the age-specific hip fracture incidence rates among Hong Kong Chinese before 1985, followed by a static trend from 1985 to 1995 (Kung, Yates, & Wong, 2007; Lau, Cooper, Fung, Lam, & Tsang, 1999). Since 2001, based on hospital admission data, the age-standardized incidence rate of hip fracture among the population aged 65 and above in Hong Kong decreased from 692.3 per 100,000 population in 2001 to 579.9 per 100,000 population 2009. In both men and women, hip fracture rates increase exponentially with age, where people aged 85 and older were 12–14 times more likely to sustain hip fractures than those aged 65–74. Women also sustain the majority of all hip fractures, with over 70 % of cases occurring among women.

Hip fractures substantially increase mortality in the elderly. In Hong Kong, the age-standardized mortality rate from hip fractures among population aged 65 and above has remained fairly stable between 1981 and 1995, being 0.4 per 100,000 population in 1995. The age-standardized rate increased sharply in the late 1990s, peaked at 10.5 per 100,000 population in 2002, then decreased to 5.7 per 100,000 in 2009 (Department of Health of Hong Kong Special Administrative Region, 2005, 2011a). The age-standardized all-causes case-fatality rate of hip fracture among the population aged 65 and above was also stable, with 30-day case-fatality being 3.2 % in 2001 and 3.5 % in 2009; 180-day case-fatality being 11.8 % in 2001 and 12.2 % in 2009; and 365-day case-fatality rate being 17.9 % in 2001 and 18.1 % in 2009.

Physical Disability and Psychological Burden of Hip Fractures

As a result of the decreasing trend of hip fracture incidence and static mortality rates in Hong Kong, older people who had fractures may be frailer and have higher risk of disability. A recent review paper revealed that over one-third of hip fracture patients lost their ability to walk independently as a result of the fracture and over 10 % were no longer able to climb stairs independently (Bertram, Norman, Kemp, & Vos, 2011). The psychological burden of hip fracture can also be devastating. Fear of falling is of particularly important because it has been associated with poorer participation in rehabilitation (Visschedijk, Achterberg, Van Balen, & Hertogh, 2010). Depression is also common in older people with hip fracture, with the prevalence rates ranging from 9 to 47 % (Holmes & House, 2000), and this condition was shown to be associated with increased mortality and dependence and decreased ADL skill (Givens, Sanft, & Marcantonio, 2008). Furthermore, hip fractures can adversely affect the quality of life for the elderly, with an overall impact on their health and independence (Adachi et al., 2010). One study reported that 80 % of women would rather be dead than be institutionalized as a result of hip fracture (Salkeld et al., 2000).

The Cost of Osteoporosis-Related Hip Fractures

Information on cost of hip fractures in Hong Kong is not readily available, not to mention osteoporosis-related hip fractures. Nevertheless, studies in various countries have estimated the costs of osteoporosis and hip fractures. Worldwide projections estimated that the number of hip fractures by 2050 could range between 7.3 and 21.3 million (Gullberg, Johnell, & Kanis, 1997), with the total cost of hip fractures of US\$ 131.5 billion (Johnell, 1997). In Europe, the direct medical costs for osteoporotic fractures, including hospitalization and rehabilitation, were 36.3 billion euros in 2000 among people aged 50 or above, of which two-thirds were

attributed to hip fracture (24.4 billion euros) and that the corresponding projected costs in 2050 would increase to 76.8 billion euros (Kanis & Johnell, 2005).

Conclusion

As in other countries all over the world, countries in the Asia Pacific Region are facing or will face population ageing accompanied by increasing prevalence of many chronic diseases with significant associated disability and psychological impact. By using Hong Kong as a case study in detail, it can be seen that the health and social implications of increasing chronic disease burden are great, and the need for preventive strategies to optimize physical and psychological health are of vital importance. Similar data relating to prevention, service provision, as well as cost estimations collected by other countries in Asia may be used to inform health and social policies for ageing populations.

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Chapter 14

The Role of Nutrition in Successful Aging

Kris Yuet-Wan Lok, Ruth Suk-Mei Chan, and Jean Woo

Introduction

Nutrition interacts with the aging process in a number of ways and the risk of nutrition-related health problems increases in later life. It is generally agreed in the literature that chronic diseases including diabetes, cardiovascular disease (CVD), cancer, osteoporosis and obesity is associated with dietary factors, which is a modifiable risk factor, therefore adopting a healthy diet and lifestyle practice can help maximize the prospects for successful aging. Literature has also suggested that these aged-related health conditions or chronic diseases could be reduced or prevented by optimal diet and nutrition.

The objectives of this chapter are to discuss the importance of optimal body weight, and to provide an overview of recent update of nutrition in achieving successful aging through slowing down the rate of physical and mental decline, and prevention of chronic diseases. Some food or dietary components that are unique in Asia and beneficial for successful aging will also be highlighted.

Importance of Optimal Body Weight

Undernutrition, defined as a body mass index (BMI) value $<18.5 \text{ kg/m}^2$ exists in institutional settings, the prevalence ranging from 15 to 65 % (Arvanitakis et al., 2008), at the same time as the occurrence of obesity in the general population. Undernutrition increases susceptibility to infection, loss of muscle

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strength (predisposing to falls) and functional decline, healthcare utilization and increased mortality (Elia, 2009). On the other hand, high BMI has been shown to be a risk factor for CVD, diabetes, cancer and dementia (Brown, Fujioka, Wilson, & Woodworth, 2009). While optimal values for BMI and waist circumference (WC), an indicator of central obesity, have been derived for the general adult population (World Health Organization, 2000), they may not be applicable to older persons aged 70 years or above, as a result of age related changes in body composition (Snijder, Van Dam, Visser, & Seidell, 2006) and height, so that the cutoff values applied to adults may need revision in older subjects (Inelmen et al., 2003; McTigue, Hess, & Ziouras, 2006). A J- or U-shaped relationship between BMI and mortality in older adults have been documented, showing that underweight is hazardous whereas mild-grade overweight, obesity and even central obesity might be protective for older adults (Auyeung et al., 2009; Corrada, Kawas, Mozaffar, & Paganini-Hill, 2006; Kulminski et al., 2008).

Since the associations between adult values for overweight and obesity and certain adverse health outcomes in elderly populations show conflicting results with a suggestion that higher values may not result in adverse health outcomes, it may not be appropriate to apply existing adult values to elderly people aged 70 year or over (Chan & Woo, 2010). With respect to body weight in the older population, the strategy for successful aging would be to place the emphasis on weight maintenance rather than weight reduction, and to avoid applying evidence obtained from studies of adult population of all ages to the elderly population to determine desirable anthropometric values.

Role of Diet and Nutrition in Chronic Disease Prevention and Successful Aging

Cardiovascular Health and Diabetes

Cardiovascular disease (CVD) is estimated to be the leading cause of mortality and loss of disability-adjusted life years (World Health Organization, 2008). The global rise in CVD is congruent with a similar rise in the elderly population. As the occurrence of CVD is deferred to later years because of improvements in the treatment and medical advances, the importance of CVD in the elderly increases, with 50 % of all deaths in persons aged over 65 years attributable to this disease (Kannel, 1997).

Risk factors that influence the occurrence of CVD in elderly are much the same as those that operate in middle age. The major determinants of these risk factors that increase with age appear to be weight gain, lack of physical activity and an unhealthy diet which also links to the rising prevalent in hypertension, obesity and diabetes (Kannel, 1997). The burden of major cardiovascular risk factors is substantially greater in the obese, with a strong correlation with the degree of adiposity (Kannel, D'Agostino, & Cobb, 1996). The association between obesity and CVD, and the risk factors that promote it is well established; paradoxically

weight loss appears to be associated with excess mortality (Andros, Muller, & Sorkin, 1993). Hypertension is a powerful contributor to CVD in the elderly. It seldom occurs in isolation of other risk factors and cardiovascular conditions in the elderly. About 80 % of elderly people have one or more additional risk factors and 25 % already have one or more cardiovascular conditions (Kannel, 1997).

Glucose intolerance is an independent risk factor for CVD. It tends to deteriorate with advancing age and the prevalence of diabetes has increased threefold to fivefold in Asia during the past three decades, making this condition a major concern in the elderly population (Yoon et al., 2006). Age, abdominal obesity, a positive family history of diabetes or CVD and a high blood sugar are all strong predisposing factors for CVD. Impaired glucose tolerance of any degree has been shown in the Framingham study to be a powerful contributor to the development of CVD, increasing risk 2–3 fold. Its impact diminishes somewhat with advancing age, as reflected by the risk ratios, but the absolute and excess risk is greater in the elderly (Kannel, 1994). Thus, preventive measures should include weight reduction, exercise and diet. As the older population increases, so does the need to identify how dietary choices affect quality of life and survival.

Dietary Patterns

The role of diet in the prevention and control of morbidity and premature mortality due to non-communicable diseases have been well established by numerous large scale studies. There is growing awareness of preventive nutrition to decrease diet related diseases such as CVD and diabetes. The American Heart Association has focused on preventive nutrition in the elderly. They recognize that a Mediterranean-type diet has notable effects on the CVD prognosis and have recommended that populations follow a similar diet (Kris-Etherton et al., 2001). High intakes of vegetables, fresh fruits, cereals and olive oils and low intakes of saturated fats are defining characteristics of the Mediterranean dietary pattern. Mediterranean diet is recognized for its cardioprotective properties; however the effect of the diet on mortality risk cannot be solely contributed to one component. A current review of evidence that focuses on these studies that investigated food habits on CVD risk in elderly population summarizes findings that a dietary pattern like the Mediterranean diet seems protective in elder people's cardiac health (Tourlouki, Matalas, & Panagiotakos, 2009). It has been suggested that this dietary pattern may prevent lipid abnormalities, systolic and diastolic blood pressure rise, arrhythmias, diabetes and obesity incidence, and some types of psychological disorders (depression) through the amelioration of insulin sensitivity and their anti-inflammatory and antioxidant actions (Panagiotakos et al., 2007; Schroder, 2007). Dietary patterns such as the Mediterranean diet that promote weight maintenance may protect against the development of diabetes (Tourlouki et al., 2009). In addition results from the ATTICA study, which included 3,042 middle-aged men and women from Greece, showed that greater adherence to the Mediterranean diet was associated with increased total antioxidant capacity and reduced CVD risk due to its ability

to protect individuals from oxidative stress (Pitsavos et al., 2005). However, while dietary patterns have been linked to CVD risk, multiple factors that hinder healthy eating amongst elderly have yet to be determined. Additionally, due to the limited studies that investigate diet and CVD risk in elderly, findings from middle-aged populations steer older adult guidelines.

Most dietary components influencing diabetes risk have similar effects on biomarkers of cardiovascular risk and inflammation. A recent review was conducted on the epidemiologic and clinical trial studies relating nutrients, foods and dietary patterns to diabetes risk. They conclude that those plant-based foods containing abundant fibre, and a lower intake of red meat, meat products, sweets, high-fat dairy and refined grains, known as the so-called prudent diet, or a Mediterranean dietary pattern rich in olive oil, fruit and vegetables, including whole grains, pulses and nuts, low fat dairy and moderate alcohol consumption (mainly red wine) appear as the best strategy to decrease diabetes risk (Salas-Salvado, Martinez-Gonzalez, Bullo, & Ros, 2011). In Asia, recent data from the Singaporean Chinese Health study, included 43,176 Chinese men and women (aged 45–74 years), free from diabetes, CVD, and cancer at baseline (1993–1998) and followed up through 2004. A dietary pattern with higher intake of vegetables, fruits, soy foods was inversely associated with risk of incident type 2 diabetes, and a pattern with higher intake of dim sum, meat and processed meat, sweetened foods and beverages, and fried foods was associated with a significantly increased risk of type 2 diabetes in Chinese men and women in Singapore (Odegaard et al., 2011).

The Role of Fat

As fat is the most energy-dense nutrient, the conventional dietary strategy for obesity and related conditions (i.e. diabetes) has been a low-fat diet (<30 % of total energy). However many observational studies have shown that total dietary fat is not a risk factor for developing diabetes (Harding et al., 2004; van Dam, Willett, Rimm, Stampfer, & Hu, 2002). In general, intake of monounsaturated fatty acids (MUFA) have been found to be neutral regarding diabetes risk in prospective studies (Hodge et al., 2007; van Dam et al., 2002). Interestingly, the potential protection from diabetes by a Mediterranean-style diet, which is akin to the prudent diet but has a higher total MUFA content have been reported in some cohorts and randomized feeding trials (Esposito et al., 2004; Estruch et al., 2006; Martinez-Gonzalez et al., 2008; Mozaffarian et al., 2009). Given the important contribution of olive oil to total fat intake in the Mediterranean diet, it is believed that many of the health benefits of this dietary pattern, including insulin sensitivity, are attributable to this rich source of MUFA and antioxidants (Tierney & Roche, 2007).

It has been suggested that saturated fat increases low-density lipoprotein (LDL) cholesterol levels; while high carbohydrate reduces high-density lipoprotein (HDL) cholesterol levels and raise fasting triglyceride. Replacement of saturated fatty acids with polyunsaturated fatty acids rather than MUFAs or carbohydrates has been shown to prevent coronary heart disease over a wide range of intakes (Jakobsen

et al., 2009). Recent study investigated the relationship between dietary fat intake and CVD risk among 1,486 elderly people (>65 years) living in Mediterranean islands, called the MEDIS study (Polychronopoulos et al., 2010). Data analysis revealed that 18.5 % of males and 33.3 % of females had three or four CVD risk factors. The major source of fat was olive oil. It was revealed that high intake of fat from meat was associated with an increased likelihood of having more CVD risk factors among the elderly. No significant associations were observed regarding the other types of fat consumed by the elderly participants.

Salt Reduction

There is considerable body of literature linking a diet that is lower in salt to reduction of both blood pressure (Maruthur, Wang, & Appel, 2009; Sacks et al., 2001) and CVD risk (Stamler et al., 1989). Treatment guidelines for hypertension in Western countries recommend salt restriction to 6 g per day or less for hypertensive patients (Chobanian et al., 2003). Some Asian countries such as Japan have higher salt intake than Western countries. In Japan, especially in Tohoku District intakes are high, at about 11 g/day. Therefore, most Japanese are consuming about two times the required amount of salt (Kawano et al., 2007). Therefore, salt intake of less than 6 g/day is considered to be ideal for the prevention or treatment of hypertension (Kawano et al., 2007). Since hypertension is a major risk factor for stroke, reducing salt intake would be an important goal in the prevention of stroke, with its accompanying dependency (Bibbins-Domingo et al., 2010). Apart from the adverse effect on blood pressure, a high salt intake may also increase the risk of osteoporosis, through the increased obligatory urinary excretion of calcium (Woo, Kwok, Leung, & Tang, 2009).

Osteoporosis

Osteoporosis is a skeletal disorder characterized by comprised bone strength, which predisposes those affected to an increased risk of fractures. Nutrition is an important modifiable factor for optimal bone health and prevention of osteoporosis. The role of calcium and vitamin D in improving bone mineral density (BMD) and reducing fracture risk has been well established (Anderson, 1996; Bonjour et al., 1997; Gallo, 1996; Peters & Martini, 2010). In addition, studies have shown that diets high in fruits and vegetables have positive effects on bone mineral status and that nutrients and vitamins including vitamin K, vitamin C, phosphorus, potassium, magnesium, protein and sodium are important for the maintenance of optimal bone health (Prynne et al., 2006; Tucker et al., 1999).

Adequate intake of calcium is important for reducing the risk of osteoporosis, this effect being more marked among populations such as the Chinese with low calcium intake as a result of low consumption of dairy products (Lau, Woo, Lam, & Hong, 2001). Calcium intake may need to be increased as a result of high salt intake.

The recommended daily intake for calcium in the elderly is at least 800 mg per day, while a calcium balance study in Chinese postmenopausal women require a mean intake of 735 mg/day to achieve zero balance, with a higher value of 900–1,000 mg for reducing the rate of bone loss (Chen, 2003).

There is increasing evidence to show that vitamin D deficiency is an important risk factor in the development of osteoporosis and fractures (Ceglia, 2008; Kulie et al., 2009). Available evidence suggests that the elderly need a mean serum concentration of at least 75 nmol/L of vitamin D (which is equivalent to approximately 800–1,000 IU vitamin D intake a day) to maintain bone health and reduce the fracture risks (Bischoff-Ferrari, Giovannucci, Willett, Dietrich, & Dawson-Hughes, 2006; Heaney, 2005).

Two recent meta-analyses have suggested that oral vitamin D supplementation reduces the risk of non-vertebral fractures and hip fractures (Bischoff-Ferrari et al., 2009; Boonen et al., 2007). There is also evidence to show that calcium supplementation is needed to reduce the risk of fractures with vitamin D supplementation (Boonen et al., 2007). In a recent patient level pooled analysis of 68,500 patients from seven major vitamin D fracture trials in US and Europe, supplementation with vitamin D alone in doses of 400–800 IU was not effective in preventing fractures. Instead, supplementation with 400 IU of vitamin D plus 1,000 mg of calcium a day was recommended to reduce both hip fractures and total fractures (Group, 2010).

In addition to calcium in the presence of an adequate supply of vitamin D, dietary proteins represent key nutrients for bone health and thereby function in the prevention of osteoporosis. Several studies point to a positive effect of high protein intake on BMD. This fact is associated with a significant reduction in hip fracture incidence, as demonstrated in a large prospective study carried out in a homogenous cohort of postmenopausal women (Bonjour, 2011). Low protein intake (<0.8 g/kg body weight/day) is often observed in patients with hip fractures and intervention studies indicate that protein supplementation attenuates post fracture bone loss, increase muscle strength and reduce medical complications (Bonjour, 2011). It however appears reasonable to avoid very high protein diets (i.e. more than 2.0 g/kg body weight/day) when associated with low calcium intakes (i.e. less than 600 mg/day). The recommended daily intake value of 0.8 g/kg may not be adequate for the maintenance of muscle mass for adults aged 55–77 (Campbell, Trappe, Wolfe, & Evans, 2001), and values in excess of 1 g/kg may be needed to retard the loss of muscle mass with ageing (Houston et al., 2008; Scott, Blizzard, Fell, Giles, & Jones, 2010).

Other Vitamins

Emerging evidence show that vitamin K may also have a protective role against aged related bone loss (Shearer, 1997). This is mediated mainly through the vitamin-K dependent gamma-carboxylation of osteocalcin used as a marker for general vitamin K status. Osteocalcin carboxylation decreases after the age of 50 and this coincides with the onset of age-related phenomena like increased rate of bone loss and vascular calcification (Vermeer, 2012).

Findings of epidemiological studies on the association of dietary vitamin K intake with fracture were limited and these studies were mainly conducted in Caucasian or Japanese populations. Most of these studies showed associations of vitamin K intake with hip fracture (Booth et al., 2000; Feskanich et al., 1999; Yaegashi et al., 2008).

In the prospective analysis of data from 72,327 women aged 34–77 years followed up over 10 years in the Nurses' Health Study, low dietary intake of vitamin K was associated with an increased risk of hip fracture after adjustment for calcium and vitamin D intake (Feskanich et al., 1999). In contrast, a recent prospective study in Chinese community-dwelling older population did not find any association between dietary vitamin K intake and hip or nonvertebral fracture risk (Chan, Leung, & Woo, 2012).

Findings of observational studies of the relationship between vitamin K intake and BMD were less consistent. A positive association between vitamin K intake and BMD at the femoral neck and spine was reported in early postmenopausal Scottish women (Macdonald et al., 2008). Similar findings were observed in women but not in men aged 29–86 years in the Framingham Heart Study (Booth et al., 2003). Other studies however reported the absence of association between vitamin K intake and BMD (Booth et al., 2000; Chan et al., 2011; Rejnmark et al., 2006).

Oral supplementation of vitamin K has been addressed in several randomized trials on reducing fracture risk (Cockayne et al., 2006). Although studies have shown that low dietary intake was associated with increased fracture risk in human, a protective effect of vitamin K supplementation was not confirmed in randomized controlled trials (RCTs). These discrepancies may be due to the collinearity between intake of vitamin K and intake of other nutrients. Although vitamin K level is an excellent biomarker of vitamin K status, it does not necessarily reflect a person's overall nutritional status (Ahmadieh & Arabi, 2011).

Current review article also provide evidence that other vitamins may have an effect on bone health such as vitamin B complex, C and E that correlated positively with BMD at multiple skeletal sites and/or were associated with reduced risk of fracture, independent of BMD. Therefore nutrients may have adverse effects on bone strength in a variety of ways other than affecting bone mass (Ahmadieh & Arabi, 2011). The relationship between vitamins other than vitamin D on bone is complex and seems to be affected by genetic factors, gender, menopausal status, hormonal therapy, smoking and calcium intake. It is possible that dietary patterns, and not individual foods or vitamins are important in bone health, thus explaining some of the paradoxical results related to individual nutrients (Ahmadieh & Arabi, 2011). Therefore a balance of adequate nutrition is essential in preserving bone mass and reducing the risk of osteoporosis and fractures.

Dietary Patterns

Recently, based on data from 5 European countries of the EPIC study, the incidence of femoral neck fractures was determined over the period of 8 years and examined

with respect to associations with the consumption of certain food groups (Benetou et al., 2011). Among the 18,545 women and 10,538 men aged 60 years and older, 275 femoral neck fractures occurred during follow-up. In multivariate adjusted regression models, no significant association was observed for any of the investigated food groups. Using retrospective analyses of data of the Canadian Multicenter Osteoporosis Study, the associations between dietary patterns and the occurrence of fractures were investigated (Langsetmo et al., 2011). Three thousand five hundred and thirty-nine women and 1,649 men aged ≥ 50 years were followed for 10 years with respect to incident fractures. The “nutrient dense” pattern, characterized by a high consumption of vegetables and fruit, was associated with a reduced fracture risk in women. In men, a similar effect was observed that did not reach statistical significance (Langsetmo et al., 2011).

Recent longitudinal study (InCHIANTI study) conducted among 434 women aged 65–95 years identified dietary patterns and BMD over 6 years using the same questionnaire developed by the EPIC (Pedone et al., 2011). This study showed that cortical bone density declined less with age in persons eating a diet exceeding the recommended daily allowance (RDA) for macronutrients and marked differences were observed in the intake of total energy, proteins, and nutrients affecting bone health such as calcium and vitamin D.

Physical, Muscle Functions and Sarcopenia

The aging process is characterized by an involuntary loss of muscle (sarcopenia); this degenerative loss of skeletal muscle occurs at a rate of 3–8 % per decade after the age of 30 and accelerates with advancing age (Holloszy, 2000). Sarcopenia is associated with decreased metabolic rate, increased risk of falls and fracture and as a result, increased morbidity and loss of independence (Rolland, Czerwinski, & Abellanvan Kan, 2008). Inadequate nutrition and sedentary lifestyle have been associated with sarcopenia. This section will discuss the relationship between nutrition and sarcopenia, with a particular focus on protein, antioxidants, vitamin D, long chain fatty acids, and will dedicate a short mention to cognitive function in the later session.

Protein

The main amino acid reservoir in the body is skeletal muscle, which contains 50–75 % of all proteins in the human body (Food and Nutrition Board, 2002). Based on the results of all available studies that have estimated the minimum protein intake necessary to avoid a progressive loss of lean body mass, protein intake under normal conditions equate to 0.6 g/kg per day according to the estimated average requirements (EAR) and 0.8 g/kg per day according to the RDA (Genaro Pde & Martini, 2010) is recommended. It is emphasized that intake must be accompanied by an adequate energy supply to achieve optimal protein utilization and it should account for 10–35 % of total energy consumed (Food and Nutrition Board, 2002).

Therefore ensuring the elderly, in particular, have an adequate dietary protein intake with high quality proteins and adequate calcium is essential for preserving muscle mass (Genaro Pde & Martini, 2010).

Antioxidants

A major source of antioxidants is diet; they are found in foods such as vegetables, fruits, nuts and spices (Kim, Wilson, & Lee, 2010). Blueberries, cranberries, blackberries, plums, apples, cherries, and prunes are fruits particularly rich in antioxidants. Red and black beans, artichokes and russet potatoes are vegetables with the highest content of antioxidants. Ground cloves, cinnamon and oregano contain the greatest amount of antioxidants among spices. Nuts highest in antioxidants include pecans, walnuts and hazelnuts (Wu et al., 2004). Among dietary antioxidants that enhances antioxidant systems include vitamin C, E, glutathione, carotenoids, flavonoids and ubiquinones (Kim et al., 2010). Current reviews have suggested the importance of consuming a diet rich in antioxidants in combating sarcopenia (Inzitari et al., 2011).

Vitamin D

Dietary sources of vitamin D are limited mainly to animal products such as oily fish and to fortified margarines. Although sunlight is the major source of vitamin D, many adults avoid sun exposure as it has been associated with an increased risk of skin cancer (Myint & Welch, 2012). Vitamin D deficiency has been associated as a contributing factor to sarcopenia. Recently the US Institute of Medicine (IOM) committee examined evidence published up to 2010 on falls and physical performance and overall found a lack of sufficiently strong evidence to support Dietary Reference Intake development for vitamin D (Institute of Medicine, 2010). Thus, while they identified some support for an association between serum 25(OH)D levels and physical performance they noted that high-quality observational evidence from large cohort studies was lacking. Also data from RCTs suggests that vitamin D dosages of at least 20 μg (800 IU/d) provide greater benefit for physical performance than high doses of vitamin D (i.e. $\geq 20 \mu\text{g}$ or 800 IU/d). They argued that the evidence is insufficient to define the shape of the dose and response curve for higher levels of intake (Millward, 2012). The IOM considered 18 studies, only four found significant effect of vitamin D on fall incidence. Their overall conclusion in terms of a causal relationship between vitamin D intakes or achieved blood level and incidence or risk for falls was that such a relationship was not supported by the evidence published to date (Institute of Medicine, 2010).

Long Chain Polyunsaturated Fatty Acids (PUFAs)

Long chain PUFAs are essential nutrients with many potential health benefits, in particular EPA (eicosapentaenoic acid) and DHA (docosahexaenoic acid). Recent

evidence suggest long chain n-3 PUFA found in oily fish influence the development of sarcopenia (Calder, 2010; Calder et al., 2009; Fetterman & Zdanowicz, 2009). In addition, omega-3 fatty acids have anti-inflammatory properties, which may also help alleviate the muscle anabolic resistance in older adults (Fetterman & Zdanowicz, 2009). Dietary omega-3 fatty acid supplementation augments the hyperaminoacidemia-hyperinsulinemia induced increase in the rate of muscle protein synthesis in older adults and may be useful to combat sarcopenia (Smith et al., 2011).

Dietary Patterns

Dietary patterns characterized by high consumption of fruit and vegetables, which are rich in antioxidants, are associated with reduced markers of inflammation and of endothelial dysfunction (Lopez-Garcia et al., 2004). Adherence to the Mediterranean diet is associated with lower circulating levels of inflammatory markers, such as C-reactive protein, IL-6 and fibrinogen (Chrysohoou, Panagiotakos, Pitsavos, Das, & Stefanadis, 2004). Higher levels of inflammatory markers have potentially negative consequences; since they increase the risk of decline of muscle strength (Schaap, Pluijm, Deeg, & Visser, 2006) and muscle mass (Visser, Deeg, Lips, & Longitudinal Aging Study Amsterdam, 2003). Although studies on single nutrients have been vastly investigated, studies examining dietary patterns are limited.

Cognitive Decline

Vitamins (especially B6, B12 and folate), trace minerals and dietary lipids can affect the risk of cognitive decline and dementia, especially in frail older adults (Gillette Guyonnet et al., 2007). Although evidence on the relation between B vitamins and cognitive functioning and decline is inconclusive (Inzitari et al., 2011), some studies have shown an association between low levels of either vitamin B12 or folate, or high homocysteine and the risk of developing Alzheimer's disease (Kim et al., 2008). The intake of PUFAs has been associated with cognitive decline (Cherubini et al., 2007). Omega-3 fatty acids are also postulated to affect brain function and hence cognition and mental health, via neurotrophic and neuroendocrine factors (BDNF, IGF-1), which act on cell signaling and neural pathways, which in turn affect neuronal function, synaptic plasticity and adult neurogenesis (Dauncey, 2009; Edington et al., 2004). A recent review of the possible neuroprotective properties against dementia show that while they may have an effect in slowing cognitive decline in elderly people without dementia, there is no evidence that they have a role in the prevention or treatment of dementia. However data was only available from only four small clinical trials (Fotuhi, Mohassel, & Yaffe, 2009). Finally, low levels of anti-oxidants, and in particular low levels of vitamin E, might expose to a higher risk of cognitive decline and dementia (Cherubini et al., 2005). Cognitive dysfunction might be associated with reduced physical functioning

(Inzitari et al., 2007), representing a further potential contributor to negative functional outcomes. Conversely, the dietary consumption of fruits and vegetables seems protective against cognitive decline (Gillette Guyonnet et al., 2007).

Some Foods Unique to Asia and Beneficial for Health

Soya Beans

Beneficial effects of soy products have been documented on blood lipid profile, bone density, and glycemic control with intakes of isoflavones >80 mg/day (Zhan & Ho, 2005). Possible sites of action include oestrogen-receptor modulators, effect on hepatic lipase activity, up-regulation of LDL receptors and induced gene expression of enzymes and proteins important in lipid metabolism. At intakes exceeding 90 mg/day soy isoflavones decrease bone turnover and reduce bone loss (Ma, Qin, Wang, & Katoh, 2008a, 2008b). A dose response relationship with BMD in postmenopausal women has also been shown (Ho et al., 2008; Ho et al., 2003). An intake of 40 mg of soy isoflavone per day reduced fasting glucose concentration (Ho, Chen, Ho, & Woo, 2007), the likely underlying mechanism being increased insulin sensitivity by increasing glucose uptake preferentially in skeletal muscles (Cederroth & Nef, 2009). A small reduction in breast cancer risk in the high compared with the low soy intake group among Caucasians, but not Asians, has also been documented (Trock, Hilakivi-Clarke, & Clarke, 2006).

Tea, Especially Green Tea

Green tea has a sixfold higher concentration of phenolic compounds compared with black tea (Cabrera, Artacho, & Gimenez, 2006). In vitro and animal studies, it has been shown a greater potential for beneficial effects on cardiovascular risk factors, cancer, diabetes and glucose control, weight control, bone health, and neurodegenerative diseases (Cabrera, Artacho, & Gimenez, 2006). In humans, green tea consumption reduced cardiovascular risks (Thielecke & Boschmann, 2009), atherosclerosis (Yung et al., 2008) and stroke (Schneider & Segre, 2009), and possibly cancer risk (Schneider & Segre, 2009). There have been limited and inconclusive studies in humans with respect to glucose, weight control, and bone health. Only neurodegenerative diseases have been suggested (Cabrera et al., 2006).

All Tea

Individuals consuming ≥ 3 cups per day had a 21 % lower risk of stroke, stroke volume, and mortality compared with those consuming <1 cup per day (Arab, Liu,

& Elashoff, 2009). Those who consume >3 cups per day also had a 20 % lower risk of developing diabetes (Huxley et al., 2009). Studies on cancer and vascular function have conflicting results (Garden, Ruxton, & Leeds, 2007; Sharma & Rao, 2009). Among Chinese men aged 65 years and over, Chinese tea consumption was positively associated with telomere length after adjustment for multiple confounding factors. The mean difference in telomere length in those consuming >3 cups per day or 750 ml compared with those consuming ≤ 0.28 cups per day or ≤ 70 ml was 0.46 kb, corresponding to approximately 5 years of life (Chan, Woo, Suen, Leung, & Tang, 2012).

Rice (Black Rice Versus White Rice)

Black rice is rich in anthocyanins which has potential health beneficial effects shown by in vitro and animal studies, mediated through its anti-oxidant, anti-inflammatory, anti-atherogenic and insulin enhancing properties (Chiang et al., 2006; Guo et al., 2008; Xia et al., 2006). Among the few studies in humans, a 6 week study comparing black rice versus white rice in overweight premenopausal Korean women showed reduction in weight, body mass index, and body fat; increase in HDL-cholesterol and glutathione peroxidase activity in the black rice group (Kim, Kim, da Lee, Kim, & Lee, 2008). In a trial over a period of 6 months in 60 patients with coronary heart disease aged 45–75 years, a more favorable cardiovascular risk profile was observed in the group consuming black rice (Wang et al., 2007). There may also be a beneficial effect on memory and cognition (Spencer, 2010).

It is well documented that consumption of whole grains (brown rice) reduces the risk factors for CVD and diabetes (Flight & Clifton, 2006). Whole grains are a preferred carbohydrate source, especially in areas with a high prevalence of diabetes, CVD and obesity such as in India. Brown rice lowers the risk of type 2 diabetes, while white rice (refined grain) intake is associated with higher risk (Sun et al., 2010). Increase in the ratio of white rice to brown rice intake may contribute to increasing risk of type 2 diabetes (U.S. Department of Health, 2005).

Conclusions

During the aging process, modifiable risk factors, such as inadequate diet and nutrients interaction with genes and environmental factors are key factors that affect the preservation of physiologic reserve of different organs and systems (Inzitari et al., 2011). Reduction in reserve increases the risk of chronic diseases such as CVD, hypertension, obesity, osteoporosis and sarcopenia. Evidence from studies suggests the contribution of these potentially modifiable risk factors may help improve health and subsequently lead to successful ageing. There is increasing support that a diet high in vitamins and antioxidants, long chain fatty acids, and

polyphenols is effective in supporting optimal ageing and reducing the incidence of chronic diseases (Bengmark, 2006). Ageing is accompanied by significant changes in body composition as fat increases at the expense of loss of muscle mass in both genders (Inzitari et al., 2011). The demand for most nutrients are even higher in older people and therefore in order to avoid deficiency in specific nutrients, it is important that older people eat foods that have a high nutrient density (Pirlich & Lochs, 2001) to compensate for reduced food intakes.

In conclusion, a healthy lifestyle, incorporating a well-balanced diet and physical activity play a useful role in successful ageing. Efforts to promote healthy lifestyles should take into account effective strategies for achieving behaviour change, a supportive environment and affordability considerations. Inclusion of traditional foods in Asia such as soy, green tea and black rice, should also be encouraged.

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Chapter 15

Role of Physical Activity in Successful Ageing

Jean Woo, Forest Yau, and Ruby Yu

The relationship between physical activity and health has been extensively documented. In this chapter we focus on the types and measurement of physical activity, as well as health outcome measures that are specifically relevant for ageing populations. In addition, issues relating to the promotion of increasing physical activity in health and disease will be discussed.

Physical inactivity has been described as the biggest public health problem of the twenty-first century. Physical inactivity predisposes individuals to low cardio respiratory fitness, which accounts for about 16 % of all deaths in a large US prospective survey, more than other risk factors (obesity, smoking, hypertension, hyperlipidemia, diabetes) with the exception of hypertension for men (Blair, 2009). Yet there is no universal measure to assess fitness; no ‘normal’ ranges of values corresponding to reduced health risks (as for blood pressure measurement); and little focus on effective interventions to promote physical activity among those with or without chronic diseases. Rather, research efforts have been directed towards an ‘exercise pill’, that can counteract the adverse health consequences of inactivity- the search for an ‘exercise mimetic’ acting at the level of skeletal muscle mitochondria (Hawley & Holloszy, 2009). Thus far this goal has been elusive, underscoring that research goals should be to find ways to motivate people to exercise and adopt healthy lifestyle choices. In older populations among whom chronic diseases may be prevalent, the role of exercise is all the more important in the prevention of these diseases. Furthermore, exercise also has a role in preserving function and

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ameliorating the effects of diseases in rehabilitation, in prevention of geriatric syndromes such as falls, in promoting wellbeing, psychological health and cognitive function (Bassey, 2000; Flicker, 2010).

Health Outcomes Relevant to Elderly Populations

Physical activity together with nutritional factors are key components in the promotion of disability-free life expectancy, owing to its beneficial impact on functional, physical and psychological health (Woo, 2000). Health outcomes of relevance for elderly populations include mortality, incidence of common chronic diseases, physical performance measures as indicators of physical function, cognitive decline, well-being or health-related quality of life, depression, sarcopenia and frailty.

Physical activity is a well-known modifier of metabolic risk factors for various chronic diseases, including hypertension (Launer, Masaki, Petrovitch, Foley, & Havlik, 1995), obesity (Gustafson, Rothenberg, Blennow, Steen, & Skoog, 2003), impaired glucose tolerance (Peila, Rodriguez, White, & Launer, 2004) and inflammation (Schmidt et al., 2002). Moderate physical exercise (150 min per week) reduces the risk of coronary heart disease by approximately 30 % (Blair et al., 1996). Regular aerobic exercise is also associated with a lower incidence of stroke, particularly in middle-aged and older adults (Lee & Paffenbarger, 1998; Sacco et al., 1998). Mozaffarian et al., (2009) reported an 82 % reduction in incidence of type 2 diabetes in people who have the full range of healthy lifestyle factors and Blair and Brodney (1999) demonstrated that the risk for the development of type II diabetes mellitus is reduced by 50 % in physically active persons. Cross-sectional and intervention studies in elderly consistently indicate that endurance exercise training is associated with lower fasting and glucose-stimulated plasma insulin levels, as well as improved glucose tolerance and insulin sensitivity (Hersey et al., 1994; Kirwan, Kohrt, Wojta, Bourey, & Holloszy, 1993; Seals, Hagberg, Hurley, Ehsani, & Holloszy, 1984). In a group of obese glucose-intolerance patients, endurance-trained patients showed a normal insulin/glucose ratio, compared with untrained persons (Lindgarde & Saltin, 1981). Improvement in glucose and insulin metabolism was evident in elderly patients before changes in body weight or body composition occur (Cononie, Goldberg, Rogus, & Hagberg, 1994). Exercise also modifies lipid abnormalities and hypertension. Data available generally support the conclusion that elderly people improve their plasma lipoprotein lipid profiles with exercise training (Seals et al., 1984).

Regular physical activity in terms of recommended guidelines such as exercising for at least 30 min per day on most days of the week have been shown to reduce mortality risk in 252,925 subjects aged 50–71 years, even for those who did not meet the US national guidelines but carried out some activity at a lower level (Leitzmann et al., 2007). Among highly functioning elderly subjects between the ages of 70 and 82 years, expenditure of energy through regular daily activities is associated with lower risk of mortality in healthy older adults, suggesting that

simply expending energy through any activity may have beneficial effects on survival in older adults (Manini et al., 2006). Exercises such as Tai Chi that improves balance and leg strength have been shown to reduce falls (Li et al., 2005), while habitual physical activity levels have been associated with performance measures of physical function and mobility in older men (Morie et al., 2010). Healthy lifestyle behaviors which include physical activity among 13,358 men and women in Europe have been shown to improve quality adjusted life years (Myint et al., 2011). In the Honolulu-Asia Aging study, high physical activity assessed by distance walked per day appeared protective of 8 year incidence of depression (Smith et al., 2010). The Cochrane Database for Systematic Reviews (Angevaren, Aufdemkampe, Verhaar, Aleman, & Vanhees, 2008) suggests that aerobic physical activities which improve cardiorespiratory fitness (CRF) may be beneficial for cognitive function in healthy older adults, a conclusion which have been supported by more recent studies. Direct measurement of CRF has been associated with brain structure, cognition, and memory (McAuley et al., 2011), while physical exercise during the life course as well as in late life, appears to retard decline in cognitive function (Middleton, Barnes, Lui, & Yaffe, 2010). For older adults with coronary artery disease, cardiopulmonary fitness is associated with cognition (Swardfager et al., 2010). Exercise or performance-based physical function has been shown to be associated with reduced risk for incident dementia in older people (Larson et al., 2006; Wang, Larson, Bowen, & van Belle, 2006). Interventional studies with cognitive performance as an outcome measure also showed that exercise results in improvements in cognitive function (Chan et al., 2005; Morley, 2008; Snowden et al., 2011; Teri, Logsdon, & McCurry, 2008). Prevention of cognitive decline and dementia through lifestyle modification will be discussed in greater detail in Chap. 5.

Types of Physical Activity, Frequency and Intensity

Types of physical activity include occupational, household, exercise, and leisure activities. While the terms physical activity and exercise are often used interchangeably, exercise is not equivalent to physical activity (McAuley et al., 2000; Stathi, Fox, & McKenna, 2002). Physical activity is defined as any bodily movement produced by the contraction of skeletal muscles that result in a substantial increase over resting energy expenditure (Pate et al., 1995). There are different types of exercises that benefit a particular area of function, such as aerobic, resistance, mind body, flexibility and balance exercises. Goals of exercise appropriate to elderly include minimizing biological changes of ageing (Fiatarone et al., 1990), reversing disuse syndromes (Bortz, 1982), the control of chronic diseases, maximizing psychological health (Singh, Clements, et al., 1997; Singh et al., 1997), increasing mobility and function (Fiatarone et al., 1994; Ory et al., 1993) and assisting with rehabilitation from acute and chronic illnesses for many of the geriatric syndromes such as sarcopenia and falls common to this vulnerable population.

With respect to aerobic activities, the 1995 Centre for Disease Control (CDC) and the American College of Sports Medicine (ACSM) recommended that “every US adult should accumulate 30 min or more of moderate physical activity on most, preferably all, days of the week” (Pate et al., 1995). Moderate physical activity of approximately 3 to 6 metabolic equivalents (METs) was preferred. This is also true for the elderly and was adopted by the World Health Organization (2003). The new recommendation applies to all elderly aged ≥ 65 year (Nelson et al., 2007). To promote and maintain health, elderly need moderate-intensity aerobic physical activity for a minimum of 30 min on 5 days each week or vigorous-intensity aerobic physical activity for a minimum of 20 min on 3 days each week. Combinations of moderate and vigorous physical activity can be performed to meet this recommendation. On a 10-point scale, where sitting is 0 and maximal exertion is 10, moderate physical activity may be represented by 5 or 6, producing increased heart and respiratory rates. 7 or 8 represent vigorous intensity, producing large increases in heart and respiratory rates.

In a prospective cohort study of 416,175 adult participants in Taiwan followed up for a mean of 8 years, 15 min a day or 90 min a week of moderate intensity exercise had a 14 % reduction of all cause mortality and a 3 year longer life expectancy (Wen et al., 2011). However it has been shown that simply expending energy through any activity in an individual’s free-living environment may confer survival advantage (Manini et al., 2006), suggesting that formal adherence to exercise programs may not be essential when mortality is considered as the outcome.

Physical Activity and Physical Fitness

Physical fitness is a measurement that provides an indication whether adequate levels of physical activity associated with beneficial health outcomes have been attained. Although various scales have been used to evaluate physical activity in the elderly, such as the Physical Activity Scale for the Elderly (PASE) (Washburn & Montoye, 1986), a more objective indicator is assessment of CRF through measurement of maximal oxygen consumption (VO_{2max}). CRF is related to the ability to perform large muscle, dynamic, moderate-to-high intensity exercise for prolonged periods. Performance of such exercise depends on the functional state of the respiratory, cardiovascular and skeletal muscle systems. Assessment of CRF a major component of functional capacity in old age (Bruce, Kusumi, Bruce, & Hossack, 1985), is important in empirical studies of the disabling process and for identifying early stages of functional decline in research and clinical settings. CRF, measured as VO_{2max} has been preferred as the validation criterion for physical fitness in the last decades, and is considered the gold standard in the assessment of exercise tolerance (Myers et al., 2002). VO_{2max} declines with age at a rate of approximately 1 % per year (Lemura, von Duvillard, & Mookerjee, 2000), accelerating to 15 % per decade with ageing (Heath, Hagberg, Ehsani, & Holloszy,

1981). Decreases in both maximal cardiac output and maximal arteriovenous O_2 difference contribute to the age-associated reduction in VO_{2max} (Stratton, Levy, Cerqueira, Schwartz, & Abrass, 1994). Maximal heart rate decreases 6–10 bpm per decade and is responsible for much of the age-associated decrease in maximal cardiac output (Pollock et al., 1997). Evidence also indicates that elderly have smaller stroke volume during maximal exercise (Ogawa et al., 1992). Specific pathogenic mechanisms such as hyperglycemia, low capillary density, alterations in oxygen delivery, increased blood viscosity, or presence of vascular and neuropathic complications may also contribute to the decreased VO_{2max} .

Meta-analysis of CRF studies showed that a 1 MET higher level of maximum aerobic capacity was associated with 13 and 15 % decrements in risk of all-cause and cardiovascular mortality respectively (Kodama et al., 2009). Together with higher levels of habitual physical activity (PA), high levels of CRF are associated with many health benefits (Hart & Sesso, 2001). As a result, CRF is recognized as an important predictor of mortality and morbidity in elderly (American College of Sports Medicine Position Stand. Exercise and physical activity for older adults, 1998; Sandvik et al., 1993). Aerobic exercise capacity measured as VO_{2max} or METs is not only the major predictor of mortality in cardiovascular disease but for all-cause in normal subjects (Gulati et al., 2003).

CRF is an independent determinant of stroke incidence in initially asymptomatic and cardiovascular disease-free adults, and the strength and pattern of the association is similar for men and women (Hooker et al., 2008). Patients with type 2 diabetes have low VO_{2max} values when compared with healthy age-matched controls (Kato, Hara, Kurusu, Miyaji, & Narutaki, 1996), and VO_{2max} had a strong, inverse and graded association with the risk of having metabolic syndrome as defined by the National Cholesterol Education Program criteria. Men and women in the lowest third of VO_{2max} had 10.2- and 10.8-fold higher risks and those in the middle third had 2.9- and 4.7-fold higher risks ($p < 0.0001$ for all) of metabolic syndrome than those with the highest VO_{2max} after multivariate adjustments. It has been suggested that low CRF could be considered a feature of metabolic syndrome (Hassinen et al., 2008). CRF also predicted cancer mortality (Farrell, Cortese, LaMonte, & Blair, 2007). Physical activity and higher CRF protect against cancers of the colon, lung, prostate and breast (Activity and Health Research, 1992; Batty & Thune, 2000; Colbert et al., 2001; Wannamethee, Shaper, & Walker, 2001). Increases in CRF are associated with a reduction in death from all causes (Blair & Brodney, 1999).

Methods of assessment of level of physical activity in relation to health outcomes vary from questionnaires of varying lengths to individual monitoring of CRF. Large population epidemiological studies tend to use short questionnaires which had been validated against physiological measures, such as the European Prospective Investigation into Cancer and Nutrition (EPIC) physical activity questionnaire with 12 questions covering occupational and leisure time activities, yielding a four level activity index (Wareham et al., 2002). However such questionnaires lack sensitivity to change (Jackson et al., 1990) compared with direct VO_{2max} measurement, and the latter also has the advantage of avoiding daily fluctuations in physical activity level.

CRF assessment consists of measuring oxygen uptake while the subject follows an exercise protocol on a treadmill or bicycle ergometer. Use of such objective measures has the advantage of educating participants about their current health-related fitness status, providing data that are helpful in developing safe and effective exercise programs, collecting baseline and follow-up data that allow evaluation of the participants' progress, motivating participants by establishing reasonable and attainable fitness goals, and stratifying cardiovascular risk. CRF assessment is usually not performed in public health settings because of expensive equipment requirements, potential risks of exercise exertion, need for experienced personnel and time demands (Cao et al., 2010). These obstacles have been partially resolved by the development of a small metabolic analyzer designed for measurement of oxygen consumption during exercise manufactured by Cosmed: FitMate Pro™. It is a small, easy-to-use, inexpensive, light-weight, battery-powered unit that is designed for metabolic measurements during graded exercise, and has been validated against existing methods (Nieman et al., 2007).

Another method is the 6-Minute Walk Test (6MWT), which is a more practicable assessment of CRF when equipment is not available or when the older person is unfamiliar with using exercise machines. The ability to walk for a distance is a quick and inexpensive measure of physical function, and an important component of quality of life, since it reflects the capacity to undertake day-to-day activities, and also a hallmark of independence, particularly for the elderly. Cooper (1968) developed the original 12-minute walk test as a field test to predict VO_{2max} in athletes. This was adapted to the 6 min version by Guyatt and colleagues (1985) and used in patients with chronic heart failure and respiratory diseases. Currently, the 6MWT is regarded as a valid and reliable measure of aerobic capacity in elders with cardiac, peripheral vascular and respiratory disease (Bittner et al., 1993; Montgomery & Gardner, 1998; Simonsick, Gardner, & Poehlman, 2000; Solway, Brooks, Lacasse, & Thomas, 2001). 6MWT can be performed by elderly people with varying degrees of frailty, for whom VO_{2max} cannot be measured. Two large studies of thousands of elderly who performed the 6MWT reported no untoward events (Enright et al., 2003; Roomi et al., 1996). 6MWT assesses exercise tolerance by measuring the distance that a subject can walk quickly on a flat, hard surface in 6 min (Enright & Sherrill, 1998). They are allowed to pace themselves as opposed to having a fixed predetermined load. Subjects can easily comply with these instructions and perform to the best of their capacity. A pre-measured level hallway, stopwatch and specific instructions are all that are necessary (Cahalin, Mathier, Semigran, Dec, & DiSalvo, 1996). A literature search using the Medline database revealed 72 papers in which the 6-Minute Walk Distance (6MWD) was used in various diseases, either to estimate functional performance and exercise capacity or to evaluate treatment efficacy (Troosters, Gosselink, & Decramer, 1999). The 6MWT has also been used as a one-time measure of functional status of patients, as a predictor of morbidity and mortality, as regular assessment of functional exercise capacity in patients with chronic heart failure and chronic obstructive pulmonary disease and their response to rehabilitation programs (Butland, Pang, Gross, Woodcock, & Geddes, 1982).

Exercise Components for Maintenance of Function in Older Adults

The largest number of studies of exercise and health outcomes among older adults has been carried out for aerobic exercises. These improve cardio respiratory function as well as muscle function. However, exercises specifically designed to counter age related sarcopenia such as resistance exercises, flexibility and balance exercise, are of particular importance in the prevention of frailty. The potential for mind-body exercises in promoting both physical and psychological health is particularly relevant for older people (Chan et al., 2005). Current guidelines stress the importance of multi-modal exercise for improving function and quality of life in the elderly, to include strengthening, cardiovascular, flexibility, and balance training. A systematic review in 2001 revealed limited data showing that multi-modal exercise has a small effect on physical, functional and quality of life outcomes, and called for robustly designed trials with varying dose intensities based on single modal studies (Baker, Atlantis, & Fiatarone Singh, 2007). Recent research has also focused on the components of exercise training necessary to improve function, the need to have consensus on core outcome measures (Howe & Skelton, 2011), and the effectiveness of power versus conventional resistance training in improving function in elderly people (Tschopp, Sattelmayer, & Hilfiker, 2011).

Participation in Physical Activity (PA) Among Elderly Hong Kong Chinese and Relationship With Health Outcomes

From the Sports Participation Survey in 2001, 49 % of the Hong Kong elderly did different types and volume of exercise, including swimming, jogging, hiking or walking (Hong Kong Sports Development Board, 2001). In the Population Health Survey (Department of Health, 2005), 1.5 % of elderly aged above 65 reported they had engaged in vigorous physical activity in the 7 days preceding the survey. The mean number of days in a week in which such activities were conducted was 4.49 and the mean duration per day was 85.3 min. 1.9 % undertook some moderate physical activity; the mean number of days in a week was 5.82 and the mean duration was 69.2 min. 88.5 % walked at least 10 min, the mean number of days in a week was 6.5 and the mean duration was 72.1 min. 6.42 hr in an average day were spent in a sedentary state. 63.2 % of elderly undertook some form of physical activity in the month preceding the survey.

In a prospective study of 2,032 Chinese participants aged 70 years and over (mean age 80 years), higher levels of physical activity were associated with reduced mortality and hospitalization (Woo, Ho, & Yu, 2002). A healthy lifestyle assessed using a lifestyle score calculated from information regarding current knowledge, use, and development of a healthy lifestyle (with exercise as one of the components), was an independent contributor to the positive ageing process (Woo et al., 2008).

In a study of 4,000 men and women aged 65 years and over, physical activity assessed using the PASE score was positively associated with the physical and mental component of health-related quality of life, frailty index, and 4 year mortality (Woo, Chan, Leung, & Wong, 2010).

Studies on Cardio Respiratory Fitness and Health Outcomes in the Older Chinese Population

Normative values for VO_{2max} for Chinese women were established from two cohort studies consisting of 659 women aged 55–94, the mean being 20.3+/- 4.1 ml/kg/min (range 7.9–35.7 ml/kg/min), the rate of decline with age being 7.1 % per decade. Rate of decline was inversely associated with physical activity level (Yu, Yau, Ho, & Woo, 2011). However, level of physical activity was not able to prevent age-related decline in VO_{2max} . The mean values for men aged 65 years and over were higher compared with women and decreased with age. The mean (95 % CI) for men aged 70–79 (n = 560) was 22.7 (22.3–23.0) ml/kg/min; the mean for men aged 80+ (n = 190) was 19.7 (19.2–20.2) ml/kg/min. For every 1 year increase in age, VO_{2max} decreased by 0.369 ml/kg/min (Yau, 2011).

Another measure of CRF used in older populations is the 6MWD, where those with greater fitness would achieve a longer distance walked in 6 min. The reference range for Hong Kong Chinese men at age 70–79 years was 453.3–466.6 m and for age ≥ 80 years was 382.6–403.3 m. Among women, respective values were 396.1–406.8 m and 333.9–357.2 m. There was an age-related decline of 9.06 m and 7.35 m per year in men and women respectively. Fitness measures using both methods correlated significantly with physical activity levels as assessed by the PASE questionnaire. There was a dose-response relationship between CRF and physical activity estimated by PASE ($r = .241$ in men, $r = .214$ in women), and between 6MWD and PASE ($r = .257$ in men, $r = .184$ in women).

Men who met the ACSM & Hong Kong Department of Health (HKDH) guidelines had better CRF than those who failed to meet those guidelines. By following the ACSM physical activity guidelines (30 min or more of moderate physical activity on most, preferably all, days of the week or vigorous activity for a minimum of 20 min 3 days per week) men would have 1.68-fold likelihood of having a normal CRF when compared with an only 1.04-fold likelihood of a normal CRF by following the HKDH guidelines (minimum of 30 min at least on 3 days per week of an intensity to induce sweating). Based on this study of CRF among elderly Chinese, the recommendation is that elderly should do at least 150 min a week of moderate-intensity aerobic physical activity, or at least 60 min a week of vigorous-intensity aerobic physical activity, or an equivalent combination of moderate- and vigorous-intensity activity to maintain a better CRF. While the effect of physical activity in the past influence CRF measures, the effect diminished with time (Yau, 2011).

Data from the same cross-sectional study showed that men with hypertension had significantly lower VO_2 peak ($p = .023$) and shorter 6MWD ($p = .014$) compared with those who were normotensive. Men with a history of myocardial infarction and angina also had a shorter 6MWD. For women, only those with diabetes had shorter 6MWD ($p < .04$). VO_2 peak was found to be correlated with measures of psychological health: cognition and depressive symptoms. Scores for both cognitive function and depressive symptom scales estimated by the Community Screening Instrument for Dementia (CSI-D) (Prince, Acosta, Chiu, Scazufca, & Varghese, 2003) and the 15-item Chinese Geriatric Depression Scale (GDS-15) (Chiu et al., 1994) respectively were associated with CRF in both genders ($p = .003$). On the other hand, 6MWD was found to be correlated with cognitive status estimated by Mini-Mental State Examination (MMSE) & CSI-D ($p < .0005$), and depression status estimated by GDS-15 in both genders ($p < .04$) (Yau, 2011).

CRF has been shown to modulate the adverse health outcomes of obesity in terms of mortality, morbidity and the development of cardiovascular risk factors (Fogelholm, 2010). However only 2 studies examined the elderly population prospectively among Caucasian population aged >60 years (McAuley, Pittsley, Myers, Abella, & Froelicher, 2009; Sui et al., 2007); the lowest mortality being observed in obese men with high fitness. The impact of CRF was examined among the Hong Kong Chinese elderly population. Four thousand community-living Chinese men and women aged 65 years or over were recruited, stratified so that approximately 33 % were in each of the age groups; 65–69, 70–74, and 75 or above. Medical history, height, weight, waist hip ratio, body composition using dual energy X ray absorptiometry, and walking speed were obtained. They were followed up for a mean of 7.3 years to ascertain death. Walking speed was used as an indicator of CRF, as this measure showed a good correlation with $\text{VO}_{2\text{max}}$ measurements in a subgroup of participants during the follow up period. Compared with the high fitness category, those in the moderate and low categories have a 43 % and 68 % increased risk of mortality at 7 years adjusting for age, sex, medical history (diabetes, stroke, hypertension, myocardial infarction, angina, and congestive heart failure), current smoking habit, cardiovascular medications (angiotensin converting enzyme inhibitor, aspirin, beta blocker, calcium channel blocker, hydorxymethylglutaryl CoA reductase inhibitor), body mass index, hip and knee pain in the past 12 months. The study showed that among an elderly Chinese population with a mean age of 72 years, higher levels of fitness represented by faster walking speed exerted a protective effect only within a range of fatness indicators represented by the 2nd or 3rd quartile values. At extreme ranges of fatness indicators, the relationship with mortality was little affected by CRF, confirming that CRF ameliorates the adverse impact of fatness indicators. The findings underscore the importance of maintaining physical fitness through exercise and re-confirm the importance of weight maintenance in reducing mortality risk.

Strategies for Promoting Physical Activity/Exercise and Exercise Prescription

While evidence supports the health benefits of increasing the level of physical activity and the regular practice of different types of exercises to achieve specific health outcomes relevant for ageing adults, there is a gap between promotion and incorporation of these recommendations into daily practice. In order to narrow this gap, education of the public as well as all health professionals needs to be coordinated and organized from the perspective of the older adult. Motivational issues in adopting exercise recommendations need to be addressed. Finally maintenance of such practices is required, through lifestyle modification. Healthcare and social systems may need some modification in order to support these activities.

Firstly it is important what messages are to be promoted, and how they should be promoted effectively so that there is no misunderstanding and that they are not quickly forgotten. Messages should be tailored for different stages of ageing, so that the older person would not have the perception that they are too old or that they have various diseases and therefore they cannot exercise. This is a common response to advice regarding exercise given by healthcare professionals. There should be specific instructions regarding general activity, aerobic, resistance, flexibility and balance exercises. There should be instruction on how different types of activity benefit which parts of body function and how to carry out these exercises. The emphasis should move away from recommendation for a particular sports or culture-based exercises such as Tai Chi, Qi Gong or yoga, but on simple movements that can be adapted to different stages of ageing. This is particularly important for those with chronic diseases that benefit from certain specific exercises such as heart failure, chronic obstructive pulmonary disease, diabetes, or osteoarthritis of the knees. Exercise prescription has been used for this group of elderly people, but is generally referred to as rehabilitation by healthcare professionals. As a result there is poor uptake as these tend to be short term and hospital based. Similarly for increasingly frail elderly people, the term 'exercise' tends to be misunderstood. It is important to promote the concept of exercise during all the stages of the downhill trajectory of physical and cognitive function that is universal to all, and modify promotional efforts accordingly.

Talks or lectures are not effective means of achieving change in practice, since knowledge retention is low and gives rise to little change in behavior. Effective elements include group activities in a social setting that combines enjoyable social interaction with actual practice, in order to incorporate these practices into everyday life as much as possible. Design of programs of long duration in terms of months rather than weeks, with variations in content between sessions, is an important strategy. For example the group falls prevention program developed in the UK (FAME) (Skelton & Dinah, 1999), which has been shown in trials to be effective, lasts 31 weeks with slowly increasing degree of effort. This program has been started in a community setting combining social and health goals, in

the Tai Po Cadenza Hub, an experimental project to promote healthy ageing, coping with chronic diseases, and caring for frailty, in the community in a social setting (www.jcch.org.hk). Comments from participants have been very instructive, illustrating how important it is to design service from the users' perspective. Some participants had been unable to walk normally or were unsteady, requiring use of aids, on discharge from hospitals. Some went to hospital rehabilitation programs but did not find the experience helpful. The most important observation from a group sharing session was the spontaneity with which participants who had completed the 'course' shared their experience with newcomers. This is likely to be the most powerful method of promoting exercise programs. Participants who find that they live near each other then continued to practice exercises in other social settings. Their enthusiasm and impressive results were captured in a Radio Television Hong Kong feature television program on 6 September 2011. These observations may guide policies into continuing development of community services for the ageing population, in integrating health and social components seamlessly.

The results of the above program are being evaluated objectively using performance measures. In general, there have been few studies comparing different methods of increasing physical activity and exercise in older adults and their long lasting effects. A US study of 186 sedentary adults aged 60–83 compared the long term effects of a lifestyle intervention and structured exercise intervention on physical fitness and cardiovascular risk factors. The lifestyle program consisted of integrating physical activity into their daily routines with home-based programs supported by telephone calls. The structured program consisted of sessions in a fitness centre three times a week. The duration of the program was 11 months, and targeted endurance, strength, flexibility and balance. At 23 months, improvements in CRF persisted in both groups. The structured group showed long term improvements in muscular fitness while the lifestyle group showed long term improvements in functional performance (Opdenacker, Delecluse, & Boen, 2011). This study provides some evidence for the effectiveness of long duration lifestyle programs in changing behavior resulting in maintaining function, and may guide future practices in promoting activity or exercises for the elderly population.

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Chapter 16

Prevention of Cognitive Decline in Later Life

Linda C.W. Lam and Wai C. Chan

It is well recognized that cognitive function is highly susceptible to decline when one passes from adulthood to late life. However, there are great individual variations in the trajectories of cognitive function across life span. Lifestyle factors may act as important modifiers of cognitive function and clinical manifestations of neurodegenerative conditions such as Alzheimer's disease (AD). The benefits of physical exercise on health and cognition have been well studied. It is also interesting to note that continual active engagement in cognitively stimulating tasks and adherence to certain dietary patterns would help to preserve our brain function. Interventions in these directions may offer a low cost and low risk perspective in prevention of dementia. A community-based multimodality intervention in prevention of cognitive decline should be developed and carefully evaluated. Therapeutic elements should be derived from current knowledge about putative neural mechanisms of cognitive modulators, and adapting to the individual needs as one passes through the cognitive spectrum with age.

Age and Cognition

In parallel with physical function, cognitive abilities change across the lifespan. The human nervous system develops rapidly after birth, and intellectual performance tends to peak in early adulthood. From a developmental perspective, the rapid growth of cognitive abilities helps a child to learn and experience the world.

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Our brain is also programmed to adapt for functional independence, when frontal executive functions develop in the adolescence to early adulthood with neural networking intensely organized and enriched. Adulthood represents a stage of maturity and productivity. Cognitive and physical function reaches a peak level when an individual fulfills his or her major life tasks. Upon approaching midlife, cognitive function generally assumes a downward slope.

Nonetheless, not all cognitive abilities exhibit the same pattern of changes with age. Functions related to processing speed and executive function appear to be more vulnerable to the effects of age (Albinet, Boucard, Bouquet, & Audiffren, 2012). Dual (Cognitive-Motor) tasks are less efficiently performed in healthy older adults, deteriorate rapidly when neurodegenerative diseases set in, and display complex interactions with cognitive abilities (Bruce-Keller et al., 2012). However, some aspects of cognition tend to stand the test of time better. Language functions are less affected by normal aging. More interestingly, experience accumulated over life provides a reserve for the brain to make judgments and set priorities. The experience and ability to master and manage important life circumstances develops over the life course, and is heavily bind to cognition and emotion (Richards & Hatch, 2011).

Compared to other periods, brain function and cognition is much more susceptible to the influence of pathological conditions in late life. Prevalence of Alzheimer's disease (AD) is strongly influenced by age. AD affects over one in four adults in the eighth decade of life. While there may be a gentle decline of cognition in healthy older adults, cognitive function runs a global and relentlessly downhill course when a person develops AD.

The process of degeneration is chronic, cognitive impairments are only late manifestations of the disease. Brain pathology may be present many years before the onset of cognitive impairment. It is pertinent that intervention to be started early in the preclinical phase, so that genuine prevention of dementia may be possible.

Life Style Modifiers of Cognitive Function

Cognitive function in late life is determined by different factors that operate since conception. From a life course perspective, genetic predisposition influences the risk of developing dementia. In about 2 % of cases, presenilin genes and amyloid precursor protein gene mutation lead to autosomal dominant inheritance with early onset Alzheimer's disease (AD). Among other susceptibility genes, the most well documented one is Apolipoprotein E (ApoE) gene, which is a risk factor for late onset AD. Other multiple genes affecting cholesterol and inflammatory pathways have also been reported to be associated with an increased risk of developing AD. Experiences after birth, including schooling, education, occupation and activities, also influence cognitive function. Epidemiologic studies on risk factors of cognitive impairments and dementia suggested that an active life style is likely to be protective against cognitive decline. Physical exercise, intellectual activities and dietary patterns have been reported as potential modifiers of brain function.

Physical Exercise

Physical exercise and activity has repeatedly been found to offer positive benefits to brain health. Prospective population-based studies consistently reported that a high level of physical activity is associated with better cognitive function, lower incidence of cognitive decline and possibly lower mortality risk (Geda et al., 2010; Rovio et al., 2005; Scarmeas et al., 2009, 2011; Weuve et al., 2004; Xu et al., 2011). In the Swedish twin registry study with over 30 years of observation, midlife participation of exercises are associated with a reduced risk of dementia (odds ratio [OR] = 0.63, 95 % confidence interval [CI], 0.43–0.91 for light exercise; OR = 0.34, 95 % CI, 0.16–0.72 for regular exercise) (Andel et al., 2008). The Rush Memory and Aging project adopted objective measures of physical activity using actigraphy. Physical activity level was associated with incident AD (hazard ratio [HR] = 0.48; 95 % confidence interval 0.27–0.83) and global cognitive decline ($p = 0.007$) at 4 years (Buchman et al., 2012). Physical fitness, as measured by motor coordination, was associated with a reduced risk of developing MCI or AD at 12 years (Sattler, Erickson, Toro, & Schroder, 2011).

In a study that examined neuropathological AD features in 69 cognitively normal older adults, elevated tau, phosphorylated-tau and amyloid retention was found in subjects with a lower level of physical exercise level over the past decade, especially in ApoE4 non-carriers (Liang et al., 2010). In an 8-year prospective study of 774 community dwelling adults, daily physical activities, energy expenditure and magnetic resonance imaging of frontal and temporal lobes were recorded at the baseline. Participant with low total energy expenditure were at risk of frontal atrophy progression (Yuki et al., 2012).

Despite increasing volume of research reporting positive association between physical exercise and cognition, a recent meta-analysis showed no definite association between physical activity and dementia in age adjusted models. The possibility of reverse causation needs to be carefully considered (Morgan et al., 2012).

Intellectual Activities

A regular practice of intellectual leisure activities such as reading, playing board games, musical instruments, computer activities is associated with a reduced dementia risk (Geda et al., 2012; James, Wilson, Barnes, & Bennett, 2011; Lopes, Ferrioli, Nakano, Litvoc, & Bottino, 2012; Sattler, Toro, Schonknecht, & Schroder, 2012). Late life participation in cognitive activities was also found to delay the onset of accelerated memory decline before clinical diagnosis. However, after the onset of clinical disease, the protective effects were no longer present (Hall et al., 2009). In the Three-City Study in France, frequent assumption of intellectually stimulating leisure activities was associated with reduced risk of AD (HR = 0.39, 95 % CI: 0.21–0.71) and overall dementia (HR = 0.49, 95 % CI: 0.31–0.79)

(Akbaraly et al., 2009). In the Rush Memory and Aging project conducted in the United States, 951 older adults were evaluated for life course factors of cognition. Education and early reading ability are associated with cognitive function. In addition, late life cognitive activities are most strongly associated with perceptual speed (Jefferson et al., 2011). In a study of monozygotic twin pairs, midlife cognitive activities may modulate cognitive function at a later period (Carlson et al., 2008). From a study of 505 Chinese older adults with no dementia, more intense participation of intellectual activity was associated with a reduced incidence of cognitive decline as measured by a drop in the Cantonese version of Mini-Mental State Examination. The association was independently observed with intensity of participation in terms of total hours /week (OR = 0.97, $p = 0.003$) and variety of activities performed (OR = 0.74, $p = 0.018$) (Leung et al., 2011). A study of lifestyle association of physical and intellectual activities with β -Amyloid (A β 42) deposition in healthy older adults showed that individuals with high level of early and mid-life cognitive activity were associated with a lower amyloid deposition (Landau et al., 2012).

The hypothesis relating physical exercise to neuroprotection has been attributed to its impact on cerebrovascular risk, enhanced production of brain-derived neurotrophic factor, and synaptogenesis (Ahlskog, 2011). Recent reports also suggested that exercise may have a direct impact on AD pathology. In mice models for AD and Parkinson's disease, there have been evidence that exercise enhanced production of neurotrophic factors, attenuate the deposition of A β 42 protein and improved mitochondrial function (Lau, Patki, Das-Panja, Le, & Ahmad, 2011; Maesako et al., 2012). There are also reports indicating enhanced brain network connectivity and larger brain volumes in the aerobic exercise, and social intervention groups, suggesting a brain modulating response to life style interventions (Ahlskog, Geda, Graff-Radford, & Petersen, 2011; Mortimer et al., 2012).

Dietary Patterns

Diet is an important component of life style. The potential impact of Mediterranean diet (MeDi) on cognition received much discussion in the past two decades. The MeDi includes high consumption of fish, olive oil, vegetables, fruits, and cereals, moderate consumption of dairy products and wine, as well as low consumption of meat. The high monounsaturated fat and fiber content, antioxidant and anti-inflammatory properties, have been suggested to enhance brain health. Prospective studies reported a positive association between high adherence to Mediterranean diet and lower risks of cognitive decline (Féart et al., 2009; Scarmeas, Stern, Tang, Mayeux, & Luchsinger, 2006).

Two cohorts comprising 1,880 community-dwelling elders without dementia in New York were followed up approximately every 1.5 years from 1992 to 2006. Adherence to a Mediterranean-type diet (low, middle, or high) and weekly

participation in various physical activities (light, moderate, vigorous) were evaluated. Higher Mediterranean-type diet adherence and higher physical activity were independently associated with reduced risk for AD (Scarmeas et al., 2009). However, a 4-year observation of dietary pattern in 1,528 healthy older adults found that Mediterranean diet was not protective of cognitive decline, but high caloric and monounsaturated fats intake was predictive of MCI (Cherbuin & Anstey, 2012). In the Framingham Offspring Cohort study, 1,391 dementia free subjects were periodically evaluated since the 1970s. Higher past choline intake was associated with lower white matter hyperintensity volume (Poly et al., 2011).

A study examined the combined effects of diet control and physical activity on cerebrospinal fluid (CSF) A β 42 levels in normal aging and MCI. In normal older adults, high intensity physical activity attenuated the effects of high saturated fat and high glycemic index diet on CSF A β 42 levels. In MCI subjects, high intensity physical activity potentiated the effects of low fat and glycemic index diet. Exercise may have a role in interacting with diet to modify the risk of AD (Baker et al., 2012).

A Preventive Strategy

Life Style Interventions on Cognition

Significant cognitive decline, although not inevitable, are highly prevalent in old age. It is of public health and individual interests to identify measures that may attenuate the functional disabilities. So far, available treatments for AD and other dementia are limited. Although immense resources have been injected into drug discovery, no medication has been approved for the prevention of dementia. As abundance of literature supported that life style factors may modulate cognitive decline, it is of great interests if findings from these observational studies would be translated into preventive strategies.

Physical Exercise

Clinical interventions on physical exercise reported benefits in different aspects of cognition. In a meta-analysis of the effects of exercise intervention on cognition in older adults without known cognitive impairment, eight of the 11 studies reported aerobic exercise increased cardiorespiratory fitness and cognitive capacity (Angevaeren, Aufdemkampe, Verhaar, Aleman, & Vanhees, 2008). A meta-analysis of physical activity intervention for people with dementia reported benefits in physical function, but information on quality of life and depression was limited (Potter, Ellard, Rees, & Thorogood, 2011). In a randomized controlled trial (RCT)

of home based physical activity intervention conducted in Perth, Australia for older adults at risk for Alzheimer's disease, the exercise group showed an improvement in Alzheimer Disease Assessment Scale- Cognitive Subscale (ADAS-Cog) over controlled group at 6 and 18 months (Lautenschlager et al., 2008). Another RCT of 6 months aerobic training in subjects with MCI suggested that gender specific responses in cognitive enhancement may be present, and may possibly be related to differences in metabolic responses to aerobic training. There was also evidence to suggest that aerobic exercise in older adults with glucose intolerance was associated with improved executive function ($p = 0.04$), cardiorespiratory fitness ($p = 0.03$) and insulin sensitivity ($p = 0.05$) (Baker et al., 2010). The effects of physical training on motor performance were examined in a group of people with mild to moderate dementia. Parameters on motor performance as measured by maximal leg press strength and five-chair-stand test improved significantly ($p < 0.001$) (Hauer et al., 2012). In a RCT of walking and vitamin B supplementation on quality of life (QOL) in subjects with MCI, increased attendance to walking was associated with modest improvements in QOL scores ($p = 0.04-0.06$) (van Uffelen, Chin, Paw, Hopman-Rock, & van Mechelen, 2007). The modality of exercise may have different impacts on cognition. In a 1-year intervention of mind body (Tai Chi) exercise intervention in Chinese older adults at risk of cognitive decline, completers of Tai Chi intervention had better preserved delayed recall and lower odds of developing dementia (OR = 0.21, 95 % CI: 0.05-0.92) (Lam et al., 2012). A 3-month study compared cybercycling with traditional exercise on a recumbent stationary ergometer in healthy older adults revealed that cybercyclists had a lower risk of developing MCI, and significant better score in composite executive function ($p = 0.002$) (Anderson-Hanley et al., 2012).

Cognitive Training

Apart from physical exercise, cognitive interventions are also an area of increasing interests. A study in Kyoto compared executive function and aerobic training with standard occupational therapy in non-demented older adults. The participants in both intervention groups showed better memory performance over usual care (Sugano et al., 2012). A study of 12-week computer-based memory and attention training in MCI suggested benefits in episodic memory with effects persisted at six months (Herrera, Chambon, Michel, Paban, & Alescio-Lautier, 2012). The use of a memory support system with training in use of notebook system appeared to improve daily functioning and self-efficacy in memory in older adults with MCI (Greenaway, Duncan, & Smith, 2013). In a recent review of RCTs of cognitive stimulation for dementia, there was evidence that such programmes benefit people with dementia. However, interpretations were limited by small sample sizes and methods of randomization (Woods, Aguirre, Spector, & Orrell, 2012). In other systematic reviews of cognitive interventions for older adults with MCI, similar conclusions were made. Evidence for cognitive enhancement was observed but

quality of trials was variable and issues of generalization into daily functioning had not been adequately addressed (Gates, Sachdev, Fiatarone Singh, & Valenzuela, 2011; Reijnders, van Heugten, & van Boxtel, 2013).

Multimodality Interventions

Cognitive decline is determined by complex interactions between driving forces for neurodegeneration and protective mechanisms. The failure of pharmacological treatment to halt the progress of dementia informs us that single factor intervention may not be adequate. Life style interventions preserve cognition through enhancing neural reserve such as optimizing stimulation and promoting neuro-protective responses. As the effect sizes of single domain intervention are likely to be limited, it is possible that multi-modality interventions may offer a greater effect size with clinical significance.

The Multidomain Alzheimer Preventive Trial (MAPT) in four French cities (Bordeaux, Limoges, Montpellier and Toulouse) recruited subjects with memory complaints, limitation in instrumental activities of daily living, and slow walking speed for randomization in omega 3 supplement, exercise and cognitive training (Gillette-Guyonnet et al., 2009). The Finnish Geriatric Intervention Study to Prevent Cognitive Impairment and Disability (FINGER) is a multi-centre multi-domain life style intervention on cognitive preservation. The modality of interventions includes nutritional guidance, cognitive training, social activity, intensive monitoring of vascular risk factors (Solomon, Kivipelto, & Soininen, 2013). The Prevention of Dementia by Intensive Vascular Care (PreDIVA) is a cluster randomized trial in 3,700 older adults with intensive vascular care comprising treatment of hypertension, hypercholesterolemia and diabetes, as well as reducing overweight, smoking and stimulating physical exercise in primary care settings (Richard et al., 2009). A few more multi-modality interventions for prevention of dementia are currently underway (Gates et al., 2011; Richard et al., 2012). The findings of multi-modality interventions would hopefully offer practical guides in training protocols in prevention of cognitive decline.

There are also other uncertainties requiring further research. For the interventions to be applied as preventive strategies in the real world, more studies regarding clinical effectiveness, proof-of-concept for neural mechanisms, acceptability, content and adherence issues are required (Barber, Clegg, & Young, 2012; Hooghiemstra, Eggermont, Scheltens, van der Flier, & Scherder, 2012; Lautenschlager, Cox, & Cyarto, 2012; Liu-Ambrose et al., 2010; Logsdon, McCurry, Pike, & Teri, 2009). The curriculum design should also take serious considerations from the perspective of the users. From a pragmatic perspective, the target users are older adults with compromised cognitive and physical strengths, program contents require constant adaptations to meet the changing needs of individuals to enhance long term adherence. Mental states of the older adults may also affect motivation for participation. It is important to integrate components of psychological intervention

to enhance self-efficacy and positive regards towards the effects of intervention. Elements of cognitive behavioral and mindfulness based interventions should be explored to enhance long term adherence.

Prevention of cognitive decline, dementia and its associated functional disabilities will be a major public health challenge. To advance knowledge in this challenging area, a perceptive mind that integrates knowledge from different fields is required. Life style interventions may be one promising area for further exploration, and will definitely not be the only way.

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Part IV
Emotional Resilience

Chapter 17

In the Pursuit of Emotionally Meaningful Goals: When Would the Older East-Asians Display or Not to Display the Positivity Effect?

Xin Zhang and Yuen Wan Ho

Aging research within the recent two decades has increasingly shown that older adults enjoy a similar or even higher level of emotional well-being than younger adults (Carstensen, Pasupathi, Mayr, & Nesselrode, 2000; Gross et al., 1997; Scheibe & Carstensen, 2010). Although older adults have greater declines in physical and cognitive functioning (Charles & Carstensen, 2004; Herzog & Rodgers, 1989; Reynolds, Gatz, & Pedersen, 2002), many studies showed that older adults used different strategies to maintain or even enhance social relationships with others (Birditt & Fingerman, 2005; Birditt, Fingerman, & Almeida, 2005; Blanchard-Fields, 2007; Coats & Blanchard-Fields, 2008; Luong, Charles & Fingerman, 2011). As a result, older adults enjoy a high level of emotional well-being (Scheibe & Carstensen, 2010). Socioloemotional selectivity theory (SST: Carstensen, Isaacowitz, & Charles, 1999) attempts to explain this phenomenon by proposing that future time perspective shapes our prioritization of knowledge seeking versus emotionally meaningful goals. When people grow older, they perceive future time as increasingly limited and thus focus more on present-focused emotionally meaningful goals over future-oriented knowledge seeking goals. Compared to younger adults, past studies showed that older adults favored and maintained emotionally close social partners in their social networks (Carstensen & Fredrickson, 1998; Lang & Carstensen, 1994). As SST argues that older adults attach greater importance to emotional goals, they are more likely to display the positivity effect, in which older adults process positively valenced stimuli to a greater extent than neutral or negatively valenced stimuli (Carstensen & Mikels, 2005; Isaacowitz, Wadlinger,

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Goren, & Wilson, 2006a, 2006b; Kennedy, Mather, & Carstensen, 2004; Mather & Carstensen, 2005). On the one hand, numerous studies examined the conditions that gave rise to the presence of the positivity effect (Comblain, D'Argemeau, Van der Linden, 2005; Denburg, Buchanan, Tranel, & Adolphs, 2003; Gruhn, Smith, & Baltes, 2005; Kensinger, Brierley, Medford, Growdon, & Corkin, 2002). On the other hand, others looked into the effects of positivity on emotional well-being among older adults (Isaacowitz, 2012; Isaacowitz & Noh, 2011; Noh, Lohani, & Isaacowitz, 2011). Moreover, recent studies tested the generalizability of the positivity effect from the US samples where the effect was first found to East-Asians (Fung et al., 2008; Fung, Isaacowitz, Lu, & Li, 2010; Fung & Tang, 2005; Kwon, Scheibe, Samanez-Larkin, Tsai, & Carstensen, 2009; Ko, Lee, Yoon, Kwon, & Mather, 2011). Interestingly, these findings provide different conclusions regarding the manifestations of positivity effect. In this chapter, we will first review socioemotional selectivity theory and the theoretical rationale behind the "positivity effect". Next, we will review Western findings on positivity effect and its linkages to emotional well-being. Then we turn to look at studies conducted among Hong Kong Chinese and Koreans (Fung et al., 2008; Fung et al., 2010; Fung & Tang, 2005; Ko et al., 2011; Kwon et al., 2009) and note the incongruent findings between the Asian and the Western literature. To explain the cross cultural similarities and differences in positivity effect, cultural norm hypothesis (Chentsova-Dutton et al., 2007; Chentsova-Dutton, Tsai, & Gotlib, 2010), affect valuation theory (AVT: Tsai, Knutson, & Fung, 2006) and dialectical thinking (Peng, Ames, & Knowles, 2001) are reviewed. Based on these theoretical frameworks, we argue that culture shapes what, when and how older adults would select, attend and remember emotional information to maintain the social relationships. Finally, this chapter also suggests future directions for examining age and cultural differences in positivity effect.

Socioemotional Selectivity Theory, Positivity Effect and Emotional Poignancy

Despite age-related declines in neurological (see for review, Mather, 2004) and physiological (see for reviews, Levenson, 2000; Uchino, Birmingham, & Berg, 2010) functioning, studies have shown that older adults have a similar or even higher level of emotional well-being than do younger adults (Carstensen et al., 2000; Gross et al., 1997; Mroczek & Kolarz, 1998; Mroczek, 2001). According to the socioemotional selectivity theory, (SST; Carstensen, Gross, & Fung, 1997), emotional enhancement in old age can be driven by perceived limitation in future time. Younger adults tend to perceive future time as more expanded than do older adults. From the younger adults' perspectives, acquiring new information and interacting with a wide range of social partners expand one's horizon to prepare for unknown future. Younger adults are more likely to engage in events that serve the purpose of knowledge seeking, even if the events evoke negative feelings. In contrast, older adults tend to perceive future time as more constrained.

Compared with younger adults, older adults are more likely to focus on the present moment, rather than the distant future. From the older adults' perspectives, seeking new knowledge may not be useful in their remaining lifetime. Instead, older adults place more emphasis on emotional gratification. Early research in age differences in the recall of emotional memories (Carstensen & Turk-Charles, 1994), selection of social partners (Carstensen & Fredrickson, 1998) and social network composition (Carstensen, 1992; Lang & Carstensen, 1994) supported the postulation of SST. For example, Carstensen and Turk-Charles (1994) examined age differences in memory by asking participants to recall a story they read in the experiment. Their results showed older adults remembered more from the emotional aspects than the neutral parts of the story. Moreover, when asked to select, evaluate and group different types of social partners whom they would like to spend time with, older people were more likely than their younger counterparts to classify social partners on the basis of the potential emotional content of the social interaction (Carstensen & Fredrickson, 1998). In fact, Lang and Carstensen (1994) also found similar results when they asked older adults of different age cohorts to nominate and evaluate the social partners they interacted with in their social network. Although older cohorts had smaller number of social partners in total, such network reduction was mainly driven by the decrease in peripheral (less emotionally close) social partners over time. Neither younger nor older cohorts suffered significant reductions in emotionally close social partners. As older adults focused more on emotional goals to maintain positive social experience, they were also more likely to avoid negative social interactions (Birditt & Fingerman, 2005; Blanchard-Fields, 2007; Coats & Blanchard-Fields, 2008) and reported fewer interpersonal tensions in their daily interactions (Birditt et al., 2005).

Recently, more research on SST has extended the theory to explain age differences in the pattern of emotional information processing. Compared with younger adults, older adults were more likely to show the positivity effect, in which they focused, recognized and remembered more positively valenced information than neutral and negatively valenced information. For example, older adults looked towards positive stimuli and away from negative stimuli while younger adults tended to look toward negative stimuli (Isaacowitz et al., 2006a, 2006b). Moreover, older people recalled more positive information than neutral and negative information compared with younger adults (Charles, Mather, & Carstensen, 2003; Kennedy et al., 2004; Mather & Knight, 2005; Spaniol, Voss, & Grady, 2008; Sullivan, Mikels, & Carstensen, 2010; Thomas & Hasher, 2006). In addition, compared with younger adults, older adults spent more time on choices with positive attributes when purchasing cars (Mather, Knight, & McCaffrey, 2005, Study 4B) and rated positively framed messages as more informational and useful than negative ones for decision making (Shamaskin, Mikels, & Reed, 2010).

Further, some researchers argued that the positivity effect would be more pronounced when individuals were motivated to regulate emotional experiences (Scheibe & Carstensen, 2010). The presence of positivity effect could be related to the controlled processing that required cognitive effort to focus, recognize and remember positive information. Recent studies have supported that the positivity

effect, such as visual preference to positive information, is probably driven by top-down strategic processing at the conscious level (Isaacowitz et al., 2006a, 2006b), but not bottom-up automatic processing, such as visual searching (Hahn, Carlson, Singer, & Gronlund, 2006; Leclerc & Kensinger, 2008; Mather & Knight, 2006; Mickley Steinmetz, Muscatell, & Kensinger, 2010). In addition, other studies showed that cognitive abilities (such as the levels of cognitive control and executive functioning) played a role in influencing the positivity effect. Older adults with higher cognitive functioning are more likely to display the positivity effect in attention, memory and mood repair tasks (Isaacowitz, Toner, & Neupert, 2009; Knight, Seymour, Gaunt, Baker, Nesmith, & Mather, 2007; Mather & Knight, 2005, Experiment 2; Waring & Kensinger, 2009).

Although older adults prioritized emotional goals to enhance positive emotions, some studies found that older adults experienced more mixed emotions (termed poignancy) than younger adults (Carstensen et al., 2000; Ersner-Hershfield, Mikels, Sullivan, & Carstensen, 2008; Ong & Bergeman, 2004; Zhang, Ersner-Hershfield, & Fung, 2010). In fact, such emotional poignancy occurs when older people face the potential loss of something emotionally meaningful. Therefore, even when older adults regulate emotions to feel more positive, the perceived time limitation (also) makes them feel negative at the same time.

In summary, socioemotional selectivity theory provides a motivational account to explain what and how individual awareness of constraints in future time perspective influences the prioritization of emotionally meaningful goals. As the older adults are more likely to sense anticipated endings, they are more motivated to use different strategies to satisfy emotional needs and to optimize their emotional well-being (Blanchard-Fields, & Coats, 2008; Fingerma & Charles, 2010; Lang & Carstensen, 1994; Urry & Gross, 2010). Moreover, some researchers suggest that older adults are more likely to display the positivity effect as an emotion regulatory strategy. However, this requires older adults to spend cognitive effort, such as cognitive control and executive functions to regulate emotional states. It should also be noted that older adults do not always experience positive feelings. When they find that their potential loss (e.g., an anticipated ending) is emotionally meaningful for them, older adults are more likely to experience emotional poignancy and have mixed feelings.

Cross-Cultural Research in Socioemotional Aging and the Positivity Effect

The aforementioned studies related to socioemotional selectivity theory and the positivity effect mostly come from the mainstream literature in the West. When aging researchers examined relevant topics in the East-Asian contexts (e.g., Fung & Ng, 2006; Fung, Stoeber, Yeung, & Lang, 2008; Fung & Tang, 2005; Fung et al., 2008; Kwon et al., 2009; Yeung, Fung & Lang, 2008), their studies showed inconsistent findings when compared with the Western literature. For example,

past studies on social network composition found that older people maintained a stable number of close social partners but reported fewer peripheral (less closer) social partners as they got older (Lang, 2000; Lang & Carstensen, 1994; Lang, Staudinger, & Carstensen, 1998). However, Fung and her colleagues (2008) showed that age and the proportion of close family members in the social network were positively related among Hong Kong Chinese but the relationship was negative among Germans. Moreover, age and the proportion of acquaintances in the social network were negatively associated among Hong Kong Chinese but the relationship was positive among Germans. In order to understand the effects of culture on older adults' social network, Yeung and colleagues (2008) examined the moderating role of interdependent self-construal, which defines self as embedded in in-groups and interconnected with others (Markus & Kitayama, 1991), in age differences in social network composition among Hong Kong Chinese. Their results showed that the typical age differences in social network composition found in the West were observed only among Hong Kong Chinese with low interdependent self-construal, but not those with higher interdependent self-construal. These results suggest that interdependent self-construal may be one of the factors that drive cultural differences in age-related social network composition.

The universality of positivity effect is also challenged by the East-Asian researchers. For example, Fung and Tang (2005) asked older Hong Kong Chinese to memorize information under positive, neutral or negative background music. Interestingly, they found that older adults remembered more information with negative, but not positive or neutral background music. In addition, cross-cultural differences were found in visual attention (Fung et al., 2008) between older Hong Kong Chinese and older Americans. Prior research (Isaacowitz et al., 2006a, 2006b) found that older Americans looked towards happy faces and away from negative (angry, sad, and fearful) faces; however, such positivity enhancement (i.e., looking toward positive faces) and negativity reduction (i.e., looking away from negative faces) were not found among older Hong Kong Chinese. Later, a follow-up eye-tracking study (Fung et al., 2010) investigated the moderating effect of interdependent self-construal in the age-related positivity effect among Hong Kong Chinese. By recording participants' attention towards two paired characters (representing either positive or negative image), the study showed that interdependent self-construal moderated the observed positivity effect. For participants with lower interdependent self-construal, they exhibited a typical positivity enhancement effect (or negativity reduction effect) with age. However, for those with higher interdependent self-construal, they did not show any significant age differences in visual attention. Fung and colleagues (2010) also examined age differences in memory toward positive, negative and neutral images. They found that among Hong Kong Chinese with lower interdependent self-construal, older adults showed both the positivity enhancement effect and the negativity reduction effect to a greater extent than did younger adults. However, among those with higher interdependent self-construal, older adults were more likely to show the positivity enhancement effect but not the negativity reduction effect, relative to younger adults. Kwon and colleagues (2009) examined age differences in positivity

effect among Koreans. They basically replicated the positivity effect by finding that older Koreans recalled a higher proportion of positive relative to negative images than did younger Koreans. However, they also found that older Koreans were more likely to perceive images as positive.

Taken together, the above findings suggest that the typical age-related positivity enhancement and negativity reduction effects found in the West may not always be found among older adults in the East-Asian cultures. In fact, several factors such as interdependent self-construal (e.g., those higher in interdependent self-construal) may modulate the cognitive processing of emotional information among older Asians. Moreover, older East-Asians may be more likely to find negative information as emotionally meaningful as positive information. As the East-Asian collectivistic cultures emphasize relational harmony (Kwan, Bond, & Singelis, 1997; Markus & Kitayama, 1991; Oyserman, Coon, & Kemmelmeier, 2002), older adults in the collectivistic cultures may find negative information useful to discern and avoid potential social tensions in daily interactions. Compared with older adults in the Western individualistic cultures, older East-Asians may focus as much on negative information as positive information to promote relational harmony for emotional gratification. We further elaborate on these possible explanations below.

Cross-Cultural Differences in Positivity Effect: Insights from Cultural Norm Hypothesis, Affect Valuation Theory and Naive Dialecticism

As mentioned above, past studies showed that older East-Asians did not always exhibit the positivity effect (e.g., Fung et al., 2008; Fung & Tang, 2005). Cross-cultural differences in the age-related positivity effect may be attributable to cultural norms. According to the cultural norm hypothesis, different cultures have different ideal ways of experiencing and expressing emotions (cultural norms). People in different cultures follow their respective cultural norms to respond to stimuli and to display patterns of positive and negative emotional reactivity (Chentsova-Dutton et al., 2007; Chentsova-Dutton et al., 2010). For people in the individualistic cultures such as the North Americans, they emphasize more on the open expression of one's emotions as a way of asserting one's individuality (Bellah, Madsen, Sullivan, Swindler, & Tipton, 1985; Wierzbicka, 1992, 1999). Although these norms apply to both positive and negative emotions, the experience and expression of high arousal positive emotions such as happiness, excitement and cheerfulness are particularly valued in individualistic cultures (Bellah et al., 1985; Kotchemidova, 2005; Tsai et al., 2006). If people in these cultures fail to enact the individualistic norms of having cheerful emotional states and pleasurable experiences, they would be more likely to experience depressive symptoms (Lutz, 1985; Mesquita & Walker, 2003). Therefore, older North Americans engage in social practices that enhance their positive emotions. They also tend to focus and remember more on positive information and materials to increase the positive feelings in their everyday life.

Compared with their North American counterparts, people from East-Asian cultures are more likely to experience and express emotions that help them to avoid interpersonal tension (Bond, 1991; Heine, Lehman, Markus, & Kitayama, 1999; Iwata, Roberts, & Kawakami, 1995; Markus & Kitayama, 1991; Russell & Yik, 1996). For example, Japanese are more likely than European Americans to recognize that open expression of happiness may endanger interpersonal harmony (Uchida, Norasakkunkit, & Kitayama, 2004). Past studies found that college students and healthy adults in the East-Asian context experienced and expressed lower levels of high arousal positive emotions than those in the North American context (Eid & Diener, 2001; Mesquita & Karasawa, 2002; Scherer, Matsumoto, Wallbott, & Kudoh, 1988; Tsai, Chentsova-Dutton, Freire-Bebeau, & Przymus, 2002). Moreover, people in the East-Asian cultures are more likely than European Americans to mask or suppress their expressions of high arousal positive emotions (Gross & John, 1998; Gross, Richards, & John, 2006; Matsumoto et al., 2008). They also tended to express the emotions indirectly (Hsu, 1985). From the perspectives of the East-Asians, both positive and negative emotions are equally important social cues for them to detect potential conflicts and tensions in social relationships. Therefore, East-Asians rely on both positive and negative information to monitor and avoid interpersonal conflicts. As older East-Asians are motivated to achieve socio-emotional satisfaction, instead of focusing on positive emotions only, they attend to and remember negative information as much as positive information to maintain harmonious relationships with other people.

In addition, affect valuation theory (AVT; Tsai et al., 2006) posits that culture shapes the ideal affect that individuals want to feel. While North Americans value high arousal positive affect (such as excitement) more than Asians, Asians value low arousal positive affect (such as calmness) more than North Americans. According to AVT, the valuation of ideal affect could be due to different cultural emphasis on influencing (changing other people's behaviors to satisfy personal demands) and adjustment goals (changing the individual's behaviors to satisfy other people's demands) (Tsai, Miao, Seppala, Fung, & Yeung, 2007). For people who pursue the influencing goals, they value high arousal positive emotions more, in order to feel more active and engaged in changing other people's behaviors. For people who pursue the adjustment goals, they value low arousal positive emotion more, in order to downplay the importance of personal needs for fitting in with the social environment. Therefore, people in the Western cultures are more likely to desire to experience high arousal positive feelings as they tend to make changes and exert influences on others. When people grow older in the Western societies, they would be more active to select and remember positive information to maximize their emotional gratification. In contrast, East-Asian cultures place more importance on how individuals should adjust themselves to get along with others. When people grow older in the East-Asian cultures, they tend to use both positive and negative information to regulate low arousal positive emotions in their social interactions. As a result, even though older adults in both Western and Asian societies focus more on emotionally meaningful goals over the knowledge related goals, and they are motivated to optimize the emotional experiences in later life, culture shapes older

adults in different cultures into valuing different ideal affect for emotion regulation. Based on the cultural norm hypothesis (Chentsova-Dutton et al., 2007; Chentsova-Dutton et al., 2010) and affect valuation theory (Tsai et al., 2006), low arousal positive emotions and group harmony are both highly valued by Asians. Moreover, monitoring negative emotions (such as anger) could maintain and promote social harmony in the East-Asian societies. Thus, older East-Asians are encouraged to seek emotional meaningfulness through attending to both positive and negative information. Compared with older Westerners, they are more likely to select, remember and use the emotion information that helps them to avoid interpersonal conflicts and regulate low arousal positive feelings.

Further, the dual focus on both positive and negative information found in older East-Asians may reflect the unique thinking system – dialectical thinking. With dialectical thinking, individuals tend to tolerate, rather than eschew, psychological contradiction (Peng et al., 2001). Dialectical thinking recognizes and accepts duality in all matters (yin/yang), including the self. Such thinking style is regarded as normative and adaptive in East-Asian cultures (especially Chinese culture). There are three essential elements in dialectical thinking, i.e., the principle of contradiction (two opposing propositions may both be true), the principle of change (the universe is in flux and is constantly changing), and the principle of holism (all things in the universe are interrelated). In contrast, Western cultures tend to be more linear or synthetic in their thinking: They would consider both sides of an opposing argument and then search for synthesis and the resolution of incongruity, guided by three basic principles (Peng & Nisbett, 1999): the law of identity (if A is true, then A is always true), the law of noncontradiction (A cannot equal not A), and the law of the excluded middle (all propositions must be either true or false). As a result, Westerners are generally less comfortable with contradiction, and attitudinal ambivalence is associated with psychic tension and conflict (Festinger, 1957; Lewin, 1951).

In fact, the perspective of dialectical thinking influences how East-Asians evaluate themselves, their lives, and their personal well-being. In the domain of self-perception, East-Asians are inclined to acknowledge and accept contradictory (negative) appraisals of the self. Compared with North Americans who display self-enhancement tendency, Japanese exhibit self-criticism and accept their failures as readily as their successes (Heine et al., 1999; Heine & Lehman, 1999). In the affective domain, dialectical cultures may also emphasize the importance of negative emotions as much as positive emotions (Schimmack, Oishi, & Diener, 2002). Individuals in the dialectical cultures experienced a greater balance of positive and negative emotions, but the North Americans experienced a greater proportion of positive emotions (Bagozzi, Wong, & Yi, 1999; Diener, Diener, & Diener, 1995; Suh, Diener, Oishi, & Triandis, 1998). Often, dialectical thinkers recognize that positive and negative emotional experiences are interchangeable (the dialectical principle of change) that good feelings could have bad consequences and a loss may turn out to be a gain. Therefore, dialectical thinkers may expect and accept greater negativity in their lives in general, and report lower levels of subjective well-being than do synthesis-oriented cultures (Lee & Seligman, 1997). For older East-Asians who have high dialectical thinking, they are more likely to

accept and experience negative emotion. For example, Kwon and colleagues (2009) found that older Koreans tended to perceive negative pictures less negatively and also positive and neutral pictures more positively, compared with their younger counterparts. This might be the case because older Koreans adopted dialectical thinking style when interpreting the emotional information. At least, the results suggested that older East-Asians who have greater tolerance towards the negative information would be more likely to accept both positive and negative information.

Implications for Successful Aging (Emotional Well-Being) in East-Asia

In the social psychology literature, North Americans reported a higher level of subjective well-being than did their East-Asian counterparts (e.g., Diener et al., 1995). However, such mean differences in the levels of subjective well-being between the Westerners and East-Asians may represent a specific response tendency. For example, Heine and his colleagues (1999) found self-critical tendencies in self-evaluations and attributions among East-Asians. Moreover, different cultural emphases of social norms may also explain why East-Asians express happiness and joy less frequently than do Americans (Suh, 2003). Although the Western findings showed positivity effect (Carstensen & Mikels, 2005; Isaacowitz et al., 2006a, 2006b; Kennedy et al., 2004; Mather & Carstensen, 2005), researchers did not find such effect among older East-Asians (e.g. Fung et al., 2008; Fung et al., 2010; Fung & Tang, 2005). Moreover, older East-Asians with high interdependent self-construal and/ or naive dialectical traditions might be more likely to display the negativity enhancement effect. Some researchers (Scheibe & Carstensen, 2010) suggest that positivity effect is useful for older adults to regulate positive emotions; older adults are motivated to process positively valenced information that helps to improve their affective well-being. However, not all older East-Asians display the positivity effect; does it mean that they are less likely or less capable to optimize emotional experiences in their late life? To answer this question, we do not intend to use dialectical thinking to reply it as both yes and no. Nevertheless, cross cultural research in emotional well-being have argued that whether or not individuals from different cultures feel positive would be more dependent on their cultural definition and meanings of happiness. Markus and Kitayama (1994) proposed the culture-specific genesis of emotional well-being. They argued that the attainment of culturally prescribed goals, or engagement in culturally appropriate behaviors would make people feel happier. According to their self-construal theory (Markus & Kitayama, 1991), it is possible that individuals with high independent self-construal such as North Americans would be more likely to consider feelings of powerful, superior, and unique to be positive and meaningful for them to pursue in their culture. In contrast, the East-Asians with high interdependent self-construal may find negative stimuli as informative and equally important as positive stimuli to maintain group harmony (Kitayama & Karasawa, 1995, as cited in Kitayama,

Markus, Matsumoto, & Norasakkunkit, 1997). Thus, they are more likely to seek both positive and negative information to monitor and improve their social relations with other people in their own culture. If an individual's goal is to seek emotional meaningfulness, East-Asians would be more likely to perceive the negativity as equally meaningful as the positivity. It won't be surprising that they would report lower levels of positive affect and higher levels of negative affect in the Positive and Negative Affect Scale (Diener et al., 1995). Although these results suggest that East-Asians tend to feel less positive, East-Asians might focus more on what and how they regulate their emotions. They may regulate emotions not for their own hedonism, but more for their social partners in the relationships. To the extent that culturally prescribed goals shape what and how individual should think, feel and act, individuals with high independent self construal are more likely to distinct and separate themselves from others. As a result, they feel good to be proud of their individuality. In contrast, individuals with high interdependent self-construal are more likely to identify themselves as socially embedded. As they seek to maintain harmonious relationships, they feel good to have strong bonding and social connections with others. Consistent with these hypotheses, Kitayama, Markus, and Kurokawa (2000) found that the frequency of good feelings was closely associated with the frequency of friendly feelings in Japan, but the frequency of good feelings highly correlated with the frequency of pride in the United States. Moreover, self-esteem (Diener et al., 1995) and freedom (Oishi, Diener, Lucas, & Suh, 1999) were stronger predictors of life satisfaction in individualistic cultures than in collectivistic cultures. Relationship harmony predicted life satisfaction above and beyond self-esteem among Hong Kong students, but not among American students (Kwan et al., 1997). How an individual's life is perceived by the important others also played a more important role in predicting East-Asians' life satisfaction than European Americans' life satisfaction (Radhakrishnan & Chan, 1997; Suh, 1999). These findings suggest that the well-being of East-Asians may depend not only on how they view themselves but also on how they are viewed by important others (Heine et al., 1999; Triandis, 1995). Furthermore, the salience of the external perspective among East-Asians (Suh, 1999) suggests that the type of goal progress conducive to East-Asians' well-being might be different from European Americans'. As a result, even though older East-Asians (e.g. Hong Kong Chinese) with higher interdependent self-construal did not show the positivity effect (Fung, et al., 2010), this does not necessarily imply that they are more likely to have lower emotional well-being.

Nevertheless, whether Chinese and other East-Asian cultures truly possess inferior psychological well-being relative to Westerners is still a debate. Diener and other scholars have argued that cultural differences in judgments of self-worth should not be interpreted as implying true underlying differences in mental health (e.g., Diener et al., 1995; Heine & Lehman, 1999). Some research (e.g., Heine & Lehman, 1999; Suh et al., 1998) even suggested that negative self evaluations and emotional conflicts have less detrimental mental health implications for East-Asians. For example, Heine and Lehman (1999) found that on the one hand, Japanese showed a larger gap between how they currently viewed themselves and

how they ideally wanted to be than did European Canadians. On the other hand, the actual-ideal discrepancies were not as strongly related to depression for Japanese as compared with European Canadians. More studies are needed to accurately measure and compare the emotional well-being of older people across cultures.

Future Directions and Conclusions

Although some researchers (Fung et al., 2010) found that older East-Asians, under certain conditions (e.g. interdependent self construal), did not show the positivity effect, we only had limited studies to explain why, when and how this occurred. Other than replicating the Western studies to test the generalizability of the positivity effect among older East-Asians, more research is needed to examine the psychological processes that underlie the presence and absence of the age-related positivity effect across cultures. We believe that the aging population in East-Asia opens new research opportunities and agendas for researchers in the field to understand and celebrate the cultural diversity of the aging process. Finally, we propose several topics that we and other researchers can further investigate:

Understanding the Socio-cultural Meaning of Emotional Information and the Display of the Positivity Effect

Although previous studies found that older Hong Kong Chinese with different levels of interdependent self-construal showed divergent patterns of the positivity effect (Fung, Isaacowitz, Lu & Li, 2011), we do not know whether they indeed recognize, interpret and process the emotional information in different ways. Similarly, several studies from Fung's research team (Fung et al., 2008; Fung, Isaacowitz, Lu, & Li, 2010; Fung & Tang, 2005) demonstrated that older Hong Kong Chinese might use emotional information in a way different from their Western counterparts. However, there is no direct evidence for this interpretation. Future studies should directly test the above arguments by comparing socio-cultural interpretations of emotional stimuli among younger and older adults in different cultures.

Examining Cross-Cultural Similarities and Differences in the Relationship Between Cognitive Processing and the Occurrence of the Positivity Effect

Although many studies in the West have found the age-related positivity effect in emotional processing (Carstensen & Mikels, 2005; Isaacowitz et al., 2006a,

2006b; Kennedy et al., 2004; Mather & Carstensen, 2005), other studies argue that the positivity effect can be bounded by certain conditions and limited to specific stages of emotional processing (Comblain et al., 2005; Denburg et al., 2003; Gruhn et al., 2005; Kensinger et al., 2002). As mentioned above, the positivity effect might require older adults to spend more cognitive effort to selectively attend to and remember positive over negative and neutral information. The positivity effect sometimes fail to be displayed among older Westerners in contexts where cognitive functioning is interfered or impaired (Isaacowitz et al., 2009; Mather & Knight, 2005). However, response bias and/or memory bias might play an important role in recognition and retrieval of information (Spaniol et al., 2008). In terms of response bias, the positivity effect is driven by the motivational tendencies to attend to, recognizes and remembers more positive stimuli. For memory bias, the positivity effect occurs as older adults have higher familiarity and higher accessibility to the positive aspects of memory. Moreover, some studies used brain scans and neurophysiology to examine the occurrence of the positivity effect (Feng, Courtney, Mather, Dawson, & Davison, 2011; Langeslag & van Strien, 2009; Nashiro, Sakaki, & Mather, 2012). Their findings suggest that the behavioral manifestations of the positivity effect can be consistently reflected in patterns of brain activity, startle eye blink responses, and also activations of late positive potential. As all of the studies mentioned above were conducted in the West, there is a lack of empirical evidence to show what, when and how older East-Asians would have similar and/or different patterns of cognitive processing and brain activation during the presence of positivity effect. Therefore, we suggest that future research should include both cognitive and neurophysiological measures to understand the presence of positivity effect among older East-Asians.

Linking Cross-Cultural Differences in the Positivity Effect and Related Psychological Mechanisms to Affective Well-Being

Finally, some aging researchers in the West have called for more empirical studies to verify the functions of positivity effect, particularly whether it promotes older adults' emotional maintenance and enhancement (Isaacowitz & Blanchard-Fields, 2012). As mentioned above, not all older East-Asians display positivity effect. Nevertheless, this does not necessarily mean that older East-Asians have lower motivation to rely on their own cultural ideals and norms for emotional gratification. Future studies should further examine whether older East-Asians with divergent patterns of the positivity effect would use different strategies and tactics (e.g. coping) to promote their emotional well-being. For example, affect valuation theory (Tsai et al., 2006) postulates that cultural factors influence what we want to feel (ideal affect) and temperament factors shape what we actually feel (actual affect). Previous studies also showed that European Americans valued more on high arousal positive emotions such as excitement but less on low arousal positive emotions such

as calmness, as compared to Hong Kong Chinese. Future research can extend Tsai and her colleagues' work (2006, 2007) to investigate the associations between the positivity effect and emotional well-being among the older East-Asians. In fact, past studies showed that culture influenced whether discrepancy between actual and ideal affect would predict depression (Tsai et al., 2006). The discrepancy between actual and ideal high arousal positive predicts depression among European Americans. However, the discrepancy between actual and ideal low arousal positive predicts depression among Hong Kong Chinese. To the extent that individuals from different cultures value different arousal levels of positive information and feelings, it would be interesting to see whether the age-related positivity effect would be moderated by the endorsement of ideal affect in different cultures.

Further, studies on naive dialecticism (e.g., Peng & Nisbett, 1999; Spencer-Rodgers, Peng, Wang, & Hou, 2004) showed that the balance between positive and negative emotions would be beneficial for individuals in the dialectical cultures. However, we need future studies to examine whether dialectical thinking would moderate the relationship between positivity effect and emotional well-being among older East-Asians.

To sum up, this chapter reviews the Western literature on the age-related positivity effect. We also summarize the related findings shown in the East-Asian literature. To explain the presence or absence of the positivity effect among older East-Asians, we argue that culture does not only shape older adults' emotional experience and expression, but it also influences them to select, remember and use different emotional information to optimize their social relationships. Given that the number of cross-cultural studies on the age-related positivity effect is still rare; we hope that future studies would enhance our understandings of socio-emotional aging across cultures.

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Chapter 18

Psychological Adaptation of Older Workers: Findings from the Western and Eastern Countries

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The number of mature workers in Western and Eastern labor forces has been growing rapidly, especially when baby boomers (those born between 1946 and 1964) are increasingly reaching middle and old age. For example, the percentage of labor force aged 45 and above has increased from 34.9 % in 2000 to 42.9 % in 2010 in the United States (U.S. Bureau of Labor Statistics, 2011), 28.3 % in 2000 to 34.6 % in 2010 in Mainland China (Organisation for Economic Co-operation and Development, 2011), 28.4 % in 2001 to 40.1 % in 2011 in Hong Kong (Census and Statistics Department, 2011), 47.5 % in 2002 to 49.6 % in 2012 in Japan (Statistics Bureau, 2012), and 30.9 % in 2001 to 43.1 % in 2011 in Singapore (Manpower Research and Statistics Department, 2011). It is estimated that nearly half of the workforce will be composed of adults aged 45 years and above in the next decade. Yet, as a result of the low birth rate, the proportion of working adults aged under 24 years will decrease substantially from 15.5 % in 2000 to 11.2 % in 2020 in the U.S. (Toossi, 2012), and 12.9 % in 2001 to 7.2 % in 2020 in Hong Kong (Census and Statistics Department, 2010), 11.1 % in 2005 to 9.5 % in 2020 in Japan (Japan Aging Research Center, 2006), and 11.1 % in 2010 to 9.0 % in 2050 in Singapore (Chuan, 2007). The upsurge of older workers and the shrinkage of younger workers may motivate employers to retain older and skilled workers and rely less on younger workers in order to maintain productivity and human capital such as skills and knowledge in the organizations (Shultz & Adams, 2007). However for many years, there are often stereotypes and misconceptions that older workers are resistant to changes and trainings, have poorer perceptual and cognitive abilities, and do not perform as good as younger workers (Greller & Simpson, 1999; Hedge, Borman, & Lammlein, 2006; Maurer, 2007). It becomes increasingly essential for management personnel to understand capabilities and work-related

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behaviors of older workers in performing their work duties. Past research has suggested that older adults are capable of adapting to developmental changes through resource allocation and regulatory behaviors (Baltes & Baltes, 1990; Featherman, 1992; Park, 1994). In this chapter, we will review empirical findings on SOC strategies (including selection, optimization and compensation), emotion regulation, and conflict management obtained from Western countries to recognize the similarities and differences in work-related behaviors between younger and older workers. We will also discuss the generalizability of Western empirical findings to Chinese populations. Understanding of older workers' capabilities and work-related behaviors will help employers to design effective training and development programs as well as to modify organizational policies to fit the needs of aging workforce (Hedge et al., 2006; Koppes, 2003; Shultz & Adams, 2007).

The terms "Western" and "Eastern" countries are used to describe a great variety of countries and regions. Given that most relevant studies were conducted in North America, Europe, and the Greater China (Mainland China and Hong Kong), this chapter refers to empirical findings conducted in North America and Europe as "Western" findings, and those obtained from the Greater China as "Eastern" findings.

Age Differences in SOC Strategies in Western and Eastern Contexts

The theory of selective optimization with compensation (SOC; Baltes, 1997; Baltes & Baltes, 1990) provides a theoretical framework for understanding psychological adaptation to the processes of aging. According to the theory, mental, physical and social resources become increasingly limited with age; and the individual experiences greater losses than gains over time (Baltes, 1987; Baltes & Baltes, 1990; Freund & Baltes, 2002). These limitations and constraints necessitate adaptive strategies for allocating scarce resources within the person, including selection of the most important goal from a pool of alternatives, optimization of skills and capabilities for goal attainment, and adoption of pragmatic strategies and external aids for performance maintenance (Wiese, Freund, & Baltes, 2000). These strategies are labelled as selection, optimization, and compensation respectively.

Past research has demonstrated that the use of selection, optimization and compensation increases from young to middle adulthood (Freund, 2006; Freund & Baltes, 2002). As individuals grow older, it becomes more difficult for them to maintain peak performance in all domains of life activities. Therefore, they consciously select and commit themselves to a small number of domains to maintain performance (selection). There are two forms of selection, namely elective selection and loss-based selection (Bajor & Baltes, 2003; Freund & Baltes, 1998, 2002). Elective selection refers those selections from a pool of available options. For example, a person chooses to pursue a professional qualification rather than to

develop his/her interests in music. Loss-based selection arises when a person has encountered a loss of resources that restricts his/her selection of goals from a narrowed range of options. For instance, an officer may give up some secondary job responsibilities after a surgery. In addition to selection, individuals may also devote increased effort and extra time to optimize performance in the selected, prioritized domains. Such strategy is known as optimization. Furthermore, they may seek alternative means to compensate for the consequences of age-related declines in abilities that might affect their performance. For example, a person seeks assistance from his coworker to finish work tasks after a surgery. The employment of the four SOC strategies stated above can help to minimize negative consequences of declining abilities and strengthen abilities and performance of older adults.

Western Findings on Age Differences in SOC Strategies

Previous research on organizational behaviors has supported the positive effects of SOC strategies on work-related outcomes (Abraham & Hansson, 1995; Bajor & Baltes, 2003; Wiese, Freund, & Baltes, 2000, 2002). In particular, in a sample of 224 American workers aged between 40 and 69 years, older workers who use more selection, optimization, and compensation exhibit a higher level of performance maintenance and goal attainment than their younger counterparts (Abraham & Hansson, 1995). Moreover, the use of SOC strategies among middle-aged managerial workers was predictive of higher supervisory ratings of job performance, even after accounting for the effect of conscientiousness (Bajor & Baltes, 2003). Furthermore, the beneficial effect of SOC strategies is also observed in other work-related behaviors. For instance, the employment of SOC strategies was positively associated with workplace collaborative coping among 562 middle-aged American employees (Killian, 2005). In another study with a sample of 133 German employees aged between 16 and 65 years, the use of SOC strategies was related to more positive affect (Zacher & Frese, 2011). This study also found that in low-complexity jobs, older workers who used more SOC strategies had stronger focus on job opportunities, such as new goals, options and possibilities related to their work future, than those use SOC strategies less frequently.

Furthermore, past research demonstrated the long-term effect of SOC strategies on work outcomes. Specifically, in a 3-year longitudinal study (Wiese et al., 2002), the use of SOC strategies among professional workers at the initial study predicted greater subjective career success, job satisfaction, and emotional balance 3 years later; and such positive impacts remained significant even after accounting for the effect of personality factors. All in all, empirical findings reviewed above illustrate the beneficial effect of SOC strategies on working adults, that is, to help older workers successfully adapt to age-related changes in human abilities and to maintain a satisfactory level of job performance.

Eastern Findings on Age Differences in SOC Strategies

Similar to Western countries, the population of mature workers is also expanding in China; however psychological adaptation of older Chinese workers remains largely unknown. Yeung and Fung (2009) assessed the effects of four SOC strategies, including elective selection, loss-based selection, optimization, and compensation on job performance and tested whether Western findings reviewed above could be generalized to Chinese populations. The sample consisted of younger and older insurance sales workers residing in Hong Kong. Results of their cross-sectional survey study showed that both elective selection and compensation were positively associated with performance maintenance, with the effect of compensatory strategies being stronger in older workers than in younger workers. This project also made use of the experience sampling design to further investigate the relationship among task difficulty, SOC strategies, and global and momentary job performance across actual work situations. Results of a 5-day experience sampling study are two-folds: At the momentarily level, older workers' use of elective selection and momentary task performance were more strongly correlated when the task difficulty was high than when the task difficulty was low or medium; and such moderating effect was not found in younger workers. At the global level, employing the four SOC strategies in work situations with low or medium task difficulty contributed to the post-sampling increase in sales productivity of older workers; yet the relationship was negative when the task was highly difficult and a reverse pattern was found in younger adults.

Results of this project are consistent with the findings obtained in the West and demonstrate the benefits of using SOC strategies at work. Findings from the experience sampling study also support the proposition of SOC theory that when older individuals are in the situations of limited resources, the employment of SOC strategies in general helps to improve their well-being and everyday functioning (Baltes & Lang, 1997; Freund & Baltes, 2002; Lang, Rieckmann, & Baltes, 2002). However, in a highly difficult situation with resource constraints, the positive effect of SOC strategies on global job performance is reduced, and additional resources are required for older adults to exhibit the SOC behaviors and maintain a satisfactory level of job performance. In sum, past studies on SOC strategies reveal a universal phenomenon that older adults in both Western and Eastern countries are capable to adapt to age-related changes and uphold job performance through reprioritizing their goals and regulating their work behaviors.

Age Differences in Emotion Regulation in Western and Eastern Contexts

Most jobs nowadays depend more on interpersonal skills and emotional intelligence and less on physical efforts (Kanfer & Ackerman, 2004), such as jobs in service-oriented or banking industries. Past research on workplace affect has demonstrated

that positive and negative emotions at work are predictive of job satisfaction (e.g., Fisher, 2000) and job performance (e.g., Fisher & Noble, 2004; Saavedra & Kwun, 2000). It suggests that effective emotion regulation can help working adults to remain calm and emotionally stable even in negative social situations.

Emotion regulation is defined as a conscious effort a person makes to modify and regulate positive and negative emotional responses experienced in everyday life (Gross, 1998, 2007). Socioemotional selectivity theory (SST; Carstensen, 2006; Carstensen, Isaacowitz, & Charles, 1999) stresses that older people are better at regulating their emotions than younger people. Specifically, individuals shift their priority from knowledge-related goals to emotional goals when they perceive their future time as increasingly limited. Knowledge-related goals are targeted towards acquisition of knowledge and career advancement, whereas emotional goals refer to goals that can provide emotionally meaningful experiences to the individual. According to SST, individuals with limited future time like older people are motivated to regulate their emotions and make use of emotion regulatory strategies to maximize their emotional experiences. In contrast, individuals with expansive future time perception like younger people emphasize knowledge gains and focus less on emotional goals (Carstensen, Fung, & Charles 2003; Fung, Lai, & Ng, 2001; Lang & Carstensen, 2002). Accordingly, emotion regulation is not prioritized in younger people relative to their older counterparts.

Western Findings on Age Differences in Emotion Regulation

In support of SST, previous research from the West consistently revealed age differences in emotion regulation in the face of everyday life problems (Blanchard-Fields, Jahnke, & Camp, 1995; Blanchard-Fields & Coats, 2008; Carstensen, Pasupathi, Mayr, & Nesselrode, 2000; Coats & Blanchard-Fields, 2008). In particular, older adults are more likely to use passive emotion-focused strategies (e.g., avoidance or suppression of emotions) and less likely to use proactive emotion-focused strategies (e.g., confrontative emotion coping or seeking social support) compared with younger adults when dealing with family problems (Blanchard-Fields, Stein, & Watson, 2004). Additionally, older adults are less likely to give negative comments (Charles & Carstensen, 2008) and react behaviorally in response to negative social situations relative to younger adults (Birditt, Fingerman, & Almeida, 2005).

Age differences in emotion regulation are also observed in the work context. However, research is limited as there were only a handful of studies conducted in this area. Thomas (2002) examined age differences in the frequency, intensity, and expression of anger in the contexts of work and home among 405 American employees aged between 18 and 76 years. The results revealed that there were no significant age differences in the frequency and intensity of anger experienced at home and at work. However, further examination of the results showed that age differences existed among females. Specifically, women in forties experienced significantly more anger at work than women in fifties as well as women of

younger age groups. Furthermore, when expressed anger both at work and at home is taken together, younger women were more likely to express anger than older women. These findings generally support the propositions of SST that older adults, particularly older women, are better at regulating emotional expression, which helps to reduce the frequency and intensity of negative emotions experienced at work.

Another study further demonstrated age differences in emotion regulation in response to psychological contract breach (Bal & Smit, 2012). Psychological contract breach refers to one's perception that the promises and obligations are not fulfilled by the employer. Results of this study showed that the positive association between psychological contract breach and negative affect was only found in younger Dutch workers but not in older workers. Furthermore, in response to psychological contract breach, younger workers were more likely to benefit from the use of suppression to uphold their positive emotions while older workers experienced less positive affect when more suppression was used. The findings from this study demonstrate that the effect of emotional suppression on affective well-being varies with age, with a positive effect on younger people but a reverse effect on older people. As shown in previous research, emotional suppression only inhibits the behavioral manifestation of negative emotions but cannot reduce the level of distress within the individual (Carstensen et al., 2003; Gross, 1998; Gross & John, 2003). Therefore, older adults who are motivated to maximize emotional experiences may not truly benefit from the use of suppression to regulate their emotions. Rather, they may reappraise the event cognitively to maintain emotional stability (Carstensen et al., 2011). These findings suggest that older adults are more effective at regulating their emotions than younger people when dealing with negative events.

Additionally, another research examining age differences in turnover has provided further support to SST (Bal, de Lange, Ybema, Jansen, & van der Velde, 2011). The study recruited 1,597 employees working in the Netherlands and assessed procedural justice, trust towards the leader, and turnover over a 3-year period. The results showed that older workers reacted less strongly than younger workers in response to procedural injustice. Furthermore, it was found that while there was a negative association between procedural justice and turnover for younger workers, such association was even stronger for older workers when they had a high level of trust towards the leader. Results of this study disclose that in the face of unfair treatment, older workers are more likely to perceive a damaged relationship with the leader and the organization so that they will turn to other organizations for seeking a more trustworthy relationship. Such explanation is indeed consistent with the prediction of SST that older adults are motivated to maximize an emotionally meaningful experience, even in the work context.

Eastern Findings on Age Differences in Emotion Regulation

In the previous section, we reviewed some Western findings on age differences in emotion regulation towards mundane problems and work-related situations.

Older adults are better at regulating their emotions and experience fewer negative emotions than their younger counterparts. When looking into the Chinese culture, one may suspect that age-related differences may not be as salient as those found in the West (Fung, Ching, & Yeung, 2007). This is because Chinese people are generally more cautious about their emotional expression in order to maintain social harmony (Bond, 1993). Therefore it is possible that Chinese people, regardless of age, emphasize emotion regulation when confronting socially undesirable situations in order to maintain a positive relationship with the social partner. Below we examine whether Western findings on age differences in emotion regulation can be generalized to Chinese populations.

In one study, emotional responses and coping towards the SARS outbreak were examined among 385 Hong Kong Chinese whose age ranged from 18 to 86 years (Yeung & Fung, 2007). Participants' emotional responses in terms of sadness, fear, anger, and shock, as well as coping strategies, including problem-focused and emotion-focused coping, were assessed at the peak and at the end of the outbreak. Consistent with the predictions, older adults experienced less anger and used more emotion-focused coping than younger adults as the SARS outbreak progressed. These findings suggest that older Chinese adults are better at regulating their emotions than their younger counterparts, even when facing a crisis.

To understand the role of emotion regulation in explaining age differences in emotional experiences, Yeung and colleagues (2011) conducted a cross-sectional survey in a sample of 654 Chinese adults aged between 18 and 64 years. Participants responded to a set of questionnaires on two emotion regulatory strategies, including cognitive reappraisal and emotional suppression, and positive and negative emotions. Similar to the findings of John and Gross (2004), this study showed that older people used more cognitive reappraisal to regulate their emotions than younger people. However the two age groups were similar in their use of emotional suppression. In addition, age-related increase in positive emotions was partially mediated by cognitive reappraisal, suggesting that a higher level of positive emotions observed in older adults can be explained by their use of cognitive reappraisal. These findings support the proposition of SST that older adults are more effective in regulating their emotions compared with their younger counterparts, which contributes to more positive emotions experienced by older people.

In addition to age-related differences, researchers are also interested in knowing whether the effect of emotion regulation on work-related outcomes found in Western countries can be generalized to Chinese populations. Yeung and Fung's (2012) experience sampling study helps to address this concern. In the study, 87 insurance workers recruited from local companies in Hong Kong were invited to participate in a five-day experience sampling study. Momentary reports of work-specific emotional experiences, emotional suppression, and task performance were collected. As predicted, findings revealed that the use of emotional suppression helped older workers to reduce momentary negative emotions but such negative association was not shown in younger workers. Furthermore, older workers who used suppression more frequently were more productive while the positive impact

of suppression was not found among younger workers. In short, our experience sampling study provides further evidence that the effect of emotion regulation on work outcomes varies across age groups.

In summary, research findings obtained from Hong Kong Chinese population are partly consistent with those from the West. Similar to their Western counterparts, older Chinese adults exhibit greater emotional control and experience fewer negative emotions but more positive emotions compared with younger adults. However inconsistency is found when looking into the effect of emotion regulation. Western research often shows a negative association between emotional suppression and affective well-being and performance (e.g., Gross, 1998; Gross & John, 2003). In contrast, use of emotional suppression is beneficial to older Chinese workers through reduction of negative emotions and increase in sales productivity (Yeung & Fung, 2012). Such cultural discrepancy may be due to the habitual use of emotional suppression in a wide range of social situations among Asians (Butler, Lee, & Gross, 2007). Future studies should compare the effectiveness of emotion regulatory strategies in different cultural groups to confirm whether the age-related pattern in emotion regulation is culturally distinctive.

Age Differences in Conflict Management in Western and Eastern Contexts

The line of research on age differences in emotion regulation suggests that older and younger adults differ in the social goals that drive the way emotions are regulated, experienced, and expressed. The influence of these differences in goal orientation may also extend to behavioral responses, particularly when managing situations that are emotionally salient, such as conflict responses at the workplace. Conflict behavior is defined as an action that is escalatory or de-escalatory in nature (Tjosvold, 1991; Thomas, 1992; Van de Vliert, Euwema, & Huismans, 1995) and is largely determined by the way in which conflict situation is cognitively processed (Sorenson, Morse, & Savage, 1999). One of the major theories in conflict management that takes into the account of goal orientation is the dual concern model. According to the dual concern model, conflict styles can be determined by motivational orientation, or one's concern for self and others (Blake & Mouton, 1964; Pruitt & Rubin, 1986; Rahim & Bonoma, 1979; Thomas, 1992). The theory posits that differences in these two dimensions of concern will lead to differences in the utilization of conflict strategy (see Fig. 18.1). When an individual has a high concern for others but not the self, obliging style will be used. In contrast, individuals will employ dominating style when they are high on concern for self but not others. Integrating style is adopted by individuals who are high on both concern for self and others. On the other hand, individuals who are neither concern for self nor the others will likely utilize avoiding style. Finally, when concern for self and others are moderate, a compromising strategy will be adopted (Rahim, 1983).

When applying this model to explain age differences in conflict management, it is expected that as people grow older, the use of conflict strategies should change

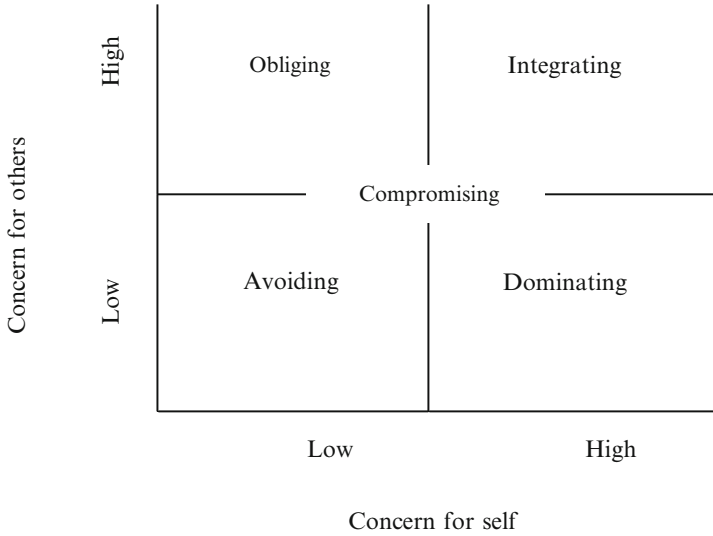


Fig. 18.1 The dual concern model (Rahim & Bonoma, 1979)

from assertive styles to passive styles. Older adults emphasize emotional goals thus they are concerned for others more than themselves. As such, they should be more likely to use passive strategies such as obliging style. Assertive strategies such as dominating style will likely be avoided by older adults as these strategies will prevent them from maximizing positive emotional experiences. In contrast, younger adults should use more assertive strategies when managing conflict situations as they focus on knowledge-related goals and are concerned for themselves more than others.

Western Findings on Age Differences in Conflict Management

Previous research from the West provided evidence for age differences in conflict styles for managing interpersonal conflict (Berens, 2000; Birditt, 2003; Feifel & Strack, 1989; Quayhagen & Quayhagen, 1982). Consistent with the propositions of SST, Birditt and Fingerman (2005) showed that older adults are more likely to use passive-constructive strategies (e.g., delaying response or adapting) while younger adults prefer to use active-destructive strategies (e.g., winning at all costs or anger expression) when dealing with interpersonal conflict. Similarly, findings from Bergstrom and Nussbaum's (1996) study pointed out that younger adults have a preference for controlling strategies that are characterized by aggression and uncooperative behavior, while older adults prefer solution-oriented strategies that involve cooperative behavior and mutually favorable solutions. Taken together, these findings suggest that older people are more likely to use conflict strategies that

aim at finding a beneficial resolution for both parties than younger people. Since these strategies not only resolve the conflict itself but also ensure that a positive social relationship is maintained, the goal for a positive emotional experience is also attained.

When looking into past literature on age differences in workplace conflict, we found that only a few studies have been conducted in the West. Two particular studies should be noted. With data from a national survey of 1,785 working adults in the United States, age differences in the relationship between job authority and interpersonal conflict at work was examined (Schieman & Reid, 2008). Consistent with the predictions, a positive relationship between job authority and interpersonal conflict was observed among all participants, but the association was strongest for younger male workers. The researchers attributed the findings toward the age-related behavioral changes, such that younger male workers, more often than do older male workers, engage in more aggressive and competitive behaviors when they have higher authority in a work relationship. It was suggested that younger workers' aggressive conflict responses might be due to their inexperience in handling interpersonal conflict without eliciting negative emotions relative to their older counterparts.

More recently, a study applied the theoretical concept of SST to examine age differences in behavioral responses towards conflict in the workplace (Davis, Kraus, & Capobianco, 2009). In the study, conflict behaviors of 2,513 working adults in the United States were reported by their bosses, peers, and subordinates. Results demonstrated that older workers are more likely to use passive-avoidant strategies (e.g., yielding or adapting) and similar to their younger counterparts in the use of active-constructive strategies (e.g., perspective taking, creating solutions, or expressing one's feelings and thoughts). However, inconsistent to the prediction, younger workers did not use more active-destructive strategies (e.g., arguing vigorously or expressing anger) than older workers. A possible explanation for this unexpected finding, according to the researchers, is that while previous research focused on conflict with family and friends, this study focused on conflict with individuals in the workplace. It is likely that work relations may not be as emotionally meaningful as those with family members and friends, which might foster the use of active-destructive strategies even among older workers.

In summary, findings from the current work on conflict management in the workplace are consistent with those in the literature on emotion regulation, providing further support to SST that older adults are more effective than younger adults in maintaining positive emotions and avoiding negative emotions, even in the face of emotionally salient situations like workplace conflict.

Eastern Findings on Age Differences in Conflict Management

In the above section, we reviewed Western findings on age differences in conflict behaviors towards family, friends, and colleagues. Earlier in this chapter, we

questioned whether Western findings are generalizable to the Chinese culture as Chinese people of all age groups should equally be cautious about the way their emotions are expressed in order to maintain a harmonic relationship with their social partners (Bond, 1993). Findings from cross-cultural studies on conflict management in the workplace have provided support for the unique pattern of conflict responses among the Chinese (Brew & Cairns, 2004; Giebels & Yang, 2009; Wan, 2007). For example, a study comparing conflict behavior between samples of Chinese and British managers in Hong Kong revealed that the Chinese sample preferred compromising and avoiding styles while the British sample preferred collaborating and competing styles (Westwood, Tang, & Kirkbride, 1992). Additionally, in a study of conflict management comparing differences between management students from Hong Kong and the United States (Tinsley & Brett, 2001), participants were asked to discuss the hypothetical conflict situation in pairs by roleplaying in order to reach a solution. It was found that Chinese participants were less likely than American participants to discuss parties' interests and synthesize multiple issues, but were more concerned for the collective interests and authority. These findings suggest that Chinese managers have more concern for the interests of others over the interests of their own, providing further support to the proposition that Chinese people value social relationships and therefore prefer strategies that maintain harmony, even at the expense of one's personal interests. In light of these findings, there are reasons to believe that age differences may not be observed in behavioral responses among the Chinese. Therefore, Chinese people, regardless of age, are relatively more passive in managing conflict compared to the West.

As is the case with studies conducted in the West, the literature on age differences in conflict management in the workplace among Chinese populations is very limited. In one study, perceptions of conflict management styles were examined among a sample of younger and older adults from Mainland China, whose age ranged from 18 to 87 years (Zhang, Harwood, & Hummert, 2005). The findings revealed that participants in this study, regardless of age, gave the lowest ratings for the use of competing style and the highest ratings for the use of accommodating style. Even though this finding contrasts with those from the West, it is consistent with Chinese people's compliance with social norms for maintaining harmony, politeness, and respectfulness in interpersonal relationships (Zhang et al., 2005). In addition, both age groups dispreferred the avoiding style. The researchers pointed out that this finding indeed conforms to the Chinese cultural values, particularly in terms of behaving respectfully and appropriately towards social partners.

In a more recent study, Rahim's (1983) five conflict styles in the work context have been examined among 264 Hong Kong Chinese employees aged between 20 and 62 years (Yeung, Fung, & Chan, 2012). Preliminary findings revealed that compared with older workers, younger workers preferred dominating strategies to deal with a hypothetical conflict situation with a coworker. Consistent with the predictions, Chinese workers, regardless of age, exhibited a similar level of compromising and integrating strategies when dealing with workplace conflict. However, contradictory to past findings (Davis et al., 2009; Zhang et al., 2005), younger workers adopted more avoiding strategies across conflict situations than

did older workers. Further examination of the relationship among conflict styles, job satisfaction, and age may provide a possible explanation for this inconsistent finding. In particular, older workers with lower job satisfaction had a greater preference of avoiding styles than those with higher job satisfaction, but such pattern was not found in younger workers. It reveals that the use of avoiding strategies may be prevalent only in older workers who were dissatisfied with their job, whereas older workers with higher job satisfaction and younger workers were less likely to avoid dealing with the conflict.

To conclude, the findings obtained from Chinese populations are partly consistent with those obtained from the West. On the one hand, compared with younger people, older Chinese people are similar to their Western counterparts to use fewer dominating strategies when dealing with interpersonal conflicts. On the other hand, Chinese working adults, regardless of age, prefer compromising and integrating styles when conflict arises. This finding is inconsistent with Western findings. The discrepancy may be attributed to the emphasis of social harmony among Chinese people of all age groups, so that both younger and older adults prefer reaching a mutually acceptable agreement in order to preserve a positive relationship with the conflict partner.

Discussion and Directions for Future Studies

Contrary to the common stereotypes and misconceptions about the capabilities of older workers, our review of the literature suggests that with age, people are capable to maintain a satisfactory level of job performance through the use of adaptive strategies to compensate for age-related declines in physical, cognitive and social resources and to attain positive emotional experiences. Studies reviewed above demonstrate that age differences in SOC strategies, emotion regulation, and conflict management could be found in both Western and Eastern countries, though the age-related pattern and the effectiveness of these strategies on work-related outcomes are not culturally universal.

It is undeniable that mental and physical resources become increasingly limited with age. Rather than a hindrance on their job performance and work-related outcomes, the resource constraints of older workers actually necessitate a change in prioritization of goals that are important to them, thereby allowing them to devote extra resources to strengthen their skills and capabilities and to use compensatory aids in order to maintain their performance on the selected domains. The benefits of SOC strategies have been found among older workers in both Western and Eastern countries. It is only when work tasks become highly difficult for the older workers that the effectiveness of SOC strategies is negated and job performance diminishes. The majority of past studies examined the effectiveness of SOC strategies in white-collar workers. Future research should therefore extend the investigation to blue-collar workers because their performance and work efficiency are largely affected by the age-related changes in physical abilities.

Further to these findings, past research also suggests that emotional well-being can actually be maintained or even be improved with age by reprioritizing one's goals. While younger workers emphasize knowledge-related goals, older workers prioritize emotional goals due to perceived time limitation. Emphasis on emotional goals motivates older workers to focus on regulating their emotions so that they can achieve a positive experience even when the situation is socially undesirable. In particular, in comparison with younger workers, older workers are better at emotional expression, react less strongly to emotional salient situations, and are more likely to look for experiences that are emotionally meaningful. These age differences in emotion regulation are generally consistent between the West and the East. Although older workers from both Western and Eastern countries experience fewer negative emotions than younger workers, the effects of emotion regulation are largely different. While the use of emotional suppression is associated with negative outcomes for Western older workers, it is a beneficial strategy for their Eastern counterparts. Such discrepancy in the effectiveness of emotion regulation may be attributed to the importance of group harmony imbedded in the Chinese culture (Bond & Hwang, 1986), where Chinese workers tend to suppress their negative emotions when the situation is emotionally undesirable.

Emphasis of emotional goals also influences the way older workers manage a conflict situation. Since conflict situations invoke negative emotions and damage social relationships, older workers who value positive emotional experiences are generally more effective than younger workers in these situations. Like emotion regulation, older workers in the Western countries tend to use passive strategies that minimize negative emotions. On the other hand, younger workers tend to actively seek out and resolve the conflict situation through the use of assertive strategies. However, these findings are not consistent with those found in Eastern countries. While it may be a universal phenomenon for older workers to emphasize positive emotional experiences, the way it is achieved can differ by culture. Specifically, although older Chinese workers use fewer dominating strategies, there are no age differences in the use of compromising and integrating strategies when managing conflict. These findings provide further support for cultural influences in human development during adulthood. As stated above, in an interdependent culture that highly values harmony in social relationships (Markus & Kitayama, 1994), Chinese working adults, regardless of age, should remain polite and respectful even towards the opposing party. Therefore, nonaggressive forms of response such as compromising and integrating strategies are equally used across age groups.

While the existing literature has provided some insights into the effectiveness of SOC strategies among younger and older workers, age differences in the effectiveness of emotion regulation and conflict strategies on work-related outcomes have not been explored. Future studies on emotion regulation and conflict strategies should go beyond comparing differences between age groups to evaluating whether these strategies have distinctive age-related impacts on outcomes such as work stress, job satisfaction, and work performance. For example, previous research suggests that emotion-focused strategies are maladaptive in managing stress (Chan & Hui, 1995), yet older workers prefer to use these strategies over problem-focused approaches.

It is speculated that age would moderate the relationship between emotion regulation strategies and work-related outcomes such that the use of passive strategies is beneficial for older workers who emphasize emotional goals to a greater extent, while a reverse pattern would be found for younger workers.

Furthermore, a theoretical framework should be developed in future studies to explain the age-related differences in emotion regulation and conflict management. In a recent study, Yeung and colleagues (2012) attempted to identify the underlying mechanism of age-related increases in passive emotion-regulation and decreases in problem-focused and proactive emotion-focused strategies, through testing the mediating role of future time perception as proposed by SST. From two samples of 196 and 133 Hong Kong Chinese, with an age range of 17–94 years, this project revealed that future time perspective only mediated the effect of age on problem-focused strategies but not passive and proactive emotion-focused strategies. Therefore the underlying mechanism for explaining age differences in emotion regulation still remains unclear and is worthy of further investigation.

In addition, Shultz and Adams (2007) stressed that individual and contextual factors such as work-related motives, family responsibilities, supervisor-and-supervisee relationships, and organizational practice would also influence aging and work. For instance, the positive effect of goal selection on work-related outcomes may be strengthened when the goal is intrinsically motivated than those are externally imposed. Employers' attitudes toward older workers may also moderate the effects of conflict management among older workers. Future studies should include both individual and contextual factors to test these predictions in order to provide a more comprehensive picture for understanding psychological adjustment of the aging workforce.

All in all, findings on age differences in SOC strategies, emotion regulation strategies, and conflict management strategies suggest that the capabilities of older workers from both Western and Eastern cultures can be maintained or improved in diverse situations despite undeniable age-related declines. These findings contrast with the existing stereotypes and misconceptions about older workers. It is therefore important for employers to understand that older adults are not at a disadvantage when it comes to work. Their achievements may even outperform younger workers when their personal goals are matched with those of the organization. With the rapid expansion of aging workforce, management personnel should provide training and development for older workers that are tailored towards strengthening a specific set of skills such as goal selection, emotion regulation, and conflict management so that their work performance can be optimized. Job design should also be reviewed regularly so that the employer can allocate suitable tasks to fit the needs of mature workers and maximize their strengths at work.

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Chapter 19

Cross-Cultural Differences in Attitudes About Aging: Moving Beyond the East-West Dichotomy

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Old age, believe me, is a good and pleasant thing.

Confucius

All diseases run into one, old age.

Ralph Waldo Emerson

Introduction

Perceptions of aging and attitudes towards older people have been associated with a range of consequential outcomes. Among older adults, views and expectations about aging have been linked to cognitive performance (Chasteen, Bhattacharyya, Horhota, Tam, & Hasher, 2005; Hess, Auman, Colcombe, & Rahhal, 2003), physical and emotional well-being, and – ultimately – longevity and mortality (Levy & Myers, 2005; Levy, Slade, Kunkel, & Kasl, 2002). Among younger age groups, views on aging may affect communication and behavior towards older adults in everyday contexts and – more importantly – in healthcare settings (Laganà & Shanks, 2002; Pasupathi & Löckenhoff, 2002; Williams, Kemper, & Hummert, 2005).

Until recently, the research record on aging attitudes was dominated by a focus on interindividual differences with a disproportionate emphasis on Western cultural contexts. However, mounting evidence indicates that attitudes and perceptions of aging differ significantly across cultures and nations (Arnhoff, Leon, & Lorge, 1964; Giles et al., 2003). In particular, cross-cultural comparisons have focused

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on contrasting Asian and Western cultures (for reviews see Giles et al., 2003; Löckenhoff, et al., 2009). Originally, this line of inquiry was fueled by the notion that youth-obsessed Western nations would hold more negative views of the aging process, whereas Asian societies, inspired by cultural values of filial piety and elder worship, would view aging in a more positive light (e.g., Palmore, 1975). Empirical evidence, however, has revealed a more complex picture and suggests that economic contingencies and population structure may play an important role above and beyond culturally shared values (e.g., Löckenhoff, et al., 2009). To date, research on East-west differences in aging attitudes has relied largely on pairwise contrasts between specific countries. Moreover, individual studies differ widely in theoretical underpinnings and methodological approaches. Thus, accumulating data points have yet to be integrated into a larger picture.

With this aim in mind, the present chapter reviews empirical data on cross-cultural differences in aging beliefs and attitudes with a particular emphasis on comparisons between Asian (i.e., Japan, Singapore, South Korea, Hong Kong, Taiwan, and Mainland China) and Western countries (i.e., Western Europe, North America, Australia, and New Zealand). In doing so, we aim to move beyond broad descriptions of East-west dichotomies towards an understanding of the underlying mechanisms. We begin with a definition of attitudes towards aging and discuss relevant theoretical frameworks for understanding cross-cultural patterns. We then consider empirical data on cultural differences in specific aspects of aging beliefs and attitudes and conclude with practical implications and an agenda for future research.

Attitudes Toward Aging

Compared to attitudes based on gender, race, or nationality, aging attitudes are unique in that individuals eventually become the subjects of their own expectations. Specifically, attitudes about aging begin to emerge in early childhood, when older adults are perceived as a distant out-group, but as individuals proceed through the life span, their views and perceptions about aging become increasingly self-relevant and self-fulfilling (Haught, Walls, Laney, Leavell, & Stuzen, 1999; Hawkins, 1996; Scott, Minichiello, & Browning, 1998).

Following common convention (Eagly & Chaiken, 2007; Ostrom, 1969) we define attitudes towards aging as a system of responses to the aging process and older adults as a group. Like other forms of attitudes, aging attitudes are multi-dimensional and can be differentiated into a *cognitive component* involving beliefs and expectations, an *affective or evaluative component* encompassing emotional responses, and a *behavioral component* capturing interactions and communications with older adults (Eagly & Chaiken).

Research on the cognitive component of aging attitudes suggests that people's perceptions of aging reflect a mix of accurate depictions and distorted views. Perceived age trends in cognition, everyday functioning, and personality traits, for

example, closely match the direction of actual age differences (Chan et al., 2012; Löckenhoff, et al., 2009), although the degree of age-related changes tends to be overestimated (Kite, Stockdale, Whitley, & Johnson, 2005). Evaluations of aging and older adults, in turn, were found to incorporate both positive and negative characteristics (Heckhausen, Dixon, & Baltes, 1989; Hummert, Garstka, Shaner, & Strahm, 1994; McTavish, 1971), although negative aspects generally outweigh the positives. Finally, and perhaps most importantly, age was shown to be an important factor in shaping interpersonal behavior and communication, often to the disadvantage of older adults (Laganà & Shanks, 2002; Pasupathi & Löckenhoff, 2002).

Theoretical Perspectives on Cross-Cultural Differences

Although much of the research record has examined attitudes towards aging at the individual level, social representations theory (Moscovici, 1988) argues that, within a given culture, aging attitudes can be understood as a shared cultural representation constituting a system of ideas, values, and customs related to aging and older adults. This raises questions about cross-cultural differences in such attitudes, and over the past three decades, various theoretical frameworks have proposed specific underlying mechanisms. After reviewing each of these perspectives in more detail, we highlight their implications for expected patterns of East-west differences.

Before we discuss any specific theories, however, it should be acknowledged that cross-cultural differences in aging attitudes may of course reflect *actual differences* in aging trajectories and characteristics of older adults. Healthy aging is linked to predictable changes in many areas of functioning ranging from cognitive and physical performance (CDC, 2007) (Salthouse & Davis, 2006), to personality traits (Roberts, Walton, & Viechtbauer, 2006), emotional experience, and interpersonal relations (Charles & Carstensen, 2010). To the extent that such changes are rooted in maturational processes and biological aging, one would expect to find only limited cross-cultural differences. However, the role of biological determinism varies across domains of functioning. Cognition and physical performance are subject to relatively strong biological influences (DiGiovanna, 2000; Salthouse & Davis, 2006). Personality traits, affective responses, and social interactions, however, depend less on biological factors and more on goal priorities (Carstensen, Isaacowitz, & Charles, 1999) and social roles (Lodi-Smith & Roberts, 2007), and are thus more likely to differ across cultures. Consistent with this view, a recent study examined perceptions of age-related changes across 26 cultures (Löckenhoff, et al., 2009) and found that perceptions of physical and cognitive changes showed greater cross-cultural consistency than perceptions of changes in socioemotional functioning and social status. However, knowing which aspects of aging show the greatest cross-cultural variation, does of course not explain why such variations are seen in the first place.

In search for the mechanisms behind cultural differences in aging attitudes, early studies found intriguing evidence that higher levels of industrialization and

economic progress are linked to more negative attitudes towards aging and a lower status of older age groups (Arnhoff, et al., 1964; Bengtson, Dowd, Smith, & Inkeles, 1975; Palmore & Manton, 1974; Simmons, 1945). Building on this evidence, modernization theory (Cowgill, 1972, 1986) has argued that a change in modes of production towards an industrialized economy limits older adults' societal status in a number of ways. First, as new technologies are developed, older adults' experience-based knowledge becomes less valuable. Second, industrialization changes control over means of production from older adults to large companies. Third, with increasing urbanization, traditional, multi-generational families become geographically displaced and family structure is disrupted (Cowgill, 1972). While early versions of modernization theory painted a bleak picture of aging in the industrialized world, Inglehart and colleagues (Inglehart & Baker, 2000; Inglehart & Norris, 2003) proposed a revised version of the theory arguing that industrialization eventually gives way to a post-industrial stage, which is characterized by rational, tolerant, and participatory values. At that stage, traditional ideas that older adults deserve authority and respect by virtue of their advanced age may be eroded but, simultaneously, increasing emphasis on self-expression and individual welfare may increase appreciation for older adults' experience-based insights and heighten concern about their well-being (Inglehart & Norris).

While modernization theory emphasizes levels of industrialization as a driving force behind cross-cultural differences, social psychological perspectives have interpreted negative attitudes towards aging as the result of an inter-group conflict between age groups (Binstock, 2010; Ng, 1998; Silverstein, Angelelli, & Parrott, 2001; Silverstein, Parrott, Angelelli, & Cook, 2000). Intergenerational conflict is thought to be particularly salient when the proportion of older adults in the population is rising (Binstock, 2010; Ng, 1998) and when a poor economy increases competition over limited resources in the labor market as well as public welfare and healthcare systems (Campbell, 2009). From this perspective, one would expect that aging attitudes are more closely linked to the age distribution and economic well-being of a culture as opposed to its level of industrialization.

Although modernization theory and intergenerational conflict perspectives hold some appeal, their focus on macroeconomic factors and population structure disregards cultural differences in values and belief systems. Research on culture-specific factors has long focused on the contrast between Asian and Western cultures (for a review see Giles, Fortman, Honeycutt, & Ota, 2003) and was guided by the notion that Asian societies are influenced by cultural values that promote a veneration of older generations and positive attitudes towards aging (Davis, 1983; Ho, 1994; Sher, 1984, see Sung, 2001 for a review). Specifically, this includes Confucianism, Taoism, Shintoism, and the Chinese tradition of Buddhism, which are all thought to emphasize filial piety, humility towards elders, and ancestor worship (Karasawa et al., 2011; Miller, 2003; Sung, 2001; Yao, 2000). Western societies, in contrast, are thought to be obsessed with youth and subject to endemic ageism since older adults can no longer live up to standards of youthfulness and productivity (e.g., Davis, 1983; Palmore, 1975).

Moreover, Asian and Western societies were found to differ in modes of construing the self (Markus & Kitayama, 1991, 1998). Specifically, individuals in the West tend to hold independent self-construals and define themselves as separate from others on the basis of internal attributes such as traits, preferences, and personal values. Individuals in Asia, in contrast, are characterized by interdependent construals that emphasize their relationships with others as well as social roles and norms (Markus & Kitayama, 1991, 1998, 2010). As a result, views of aging in Western cultures may be more affected by age-related decrements in cognitive skills and physical abilities whereas Asian cultures may be more likely to emphasize social roles and interpersonal functioning which are relatively spared from age-related declines (Charles & Carstensen, 2010; Karasawa, et al., 2011).

In summary, existing theoretical frameworks of cross-cultural differences in aging attitudes have proposed a variety of underlying mechanisms ranging from macroeconomic forces and population structure to culture-specific value systems and forms of self construal. These perspectives differ in their predictions for expected patterns of aging attitudes between Asian as compared to Western countries. If value systems and self-construal play a primary role, one would expect to find broad differences between Asian and Western cultures with relatively little variation among specific cultures within a given category. In contrast, theoretical perspectives focused on industrialization, economic trends, and population structure would predict differences among specific Asian and Western cultures based on levels of industrialization and population structure. Japan, for instance, with its high levels of industrialization and population aging (Elmelech, 2005), should be characterized by more negative aging attitudes than rural areas of Mainland China where industrialization is more recent and less widespread (Cheung & Kwan, 2009). With these considerations in mind, we now review the literature on cross-cultural differences in aging attitudes with a particular emphasis on Asian/Western contrasts.

Empirical Evidence for Cross-Cultural Differences in Aging Attitudes

Perceptions and Evaluations of Aging and Older Adults

While there is a wealth of research examining aging attitudes within individual cultures, cross-cultural research is comparatively rare and findings are inconsistent. Some studies suggest that views of aging are more positive in Asia as compared to the West. Tan and colleagues (Tan, Zhang, & Fan, 2004), for example, found that, relative to international standards, Chinese students reported comparatively positive attitudes towards the elderly. Also, perceptions of personal growth showed age-related increments among Japanese, but not U.S. respondents (Karasawa, et al., 2011). Consistent patterns also emerged for mass media portrayals of aging. Television advertisements in South Korea were found to depict older adults more

positively than in the U.S. (Lee, Kim, & Han, 2006), and Taiwanese television dramas portrayed older adults as high in mental and physical functioning as well as authority (Lien, Zhang, & Hummert, 2009).

Other studies, however, suggest the opposite pattern of East-west differences. In one of the first cross-cultural studies on aging attitudes, Arnhoff and colleagues (1964) reported that the endorsement of aging stereotypes was lower in the U.S. than in Japan. More recently, Sharps, Price-Sharps, and Hanson (1998) used an open-ended adjective generation paradigm to compare perceptions of older adults among younger respondents in Thailand and the U.S. They found that responses were more negative in Thailand. Also using an open-ended measure, Zhou (2007) examined student samples in the U.S. and Mainland China and found that Chinese students described older adults more negatively than their U.S. counterparts. Further, Holtzman and Akiyama (1985) found that portrayals of older adults on children's television were more positive and more frequent in the U.S. as compared to Japan. Convergent evidence comes from research on the affective side of aging attitudes. Yun and Lachman (2006) found that anxiety about aging, fear of old people, and psychological concerns about losses were higher in South Korea compared to the U.S.

Finally, some studies suggest that attitudes towards aging are relatively similar across cultural contexts. Boduroglu, Yoon, Luo, and Park (2006) recruited younger and older respondents in the U.S. and Mainland China and asked them to provide open ended descriptions of typical young and old adults. Across both cultures and regardless of their own age, respondents reported age-associated declines in physical and mental functioning but relative stability in social and emotional domains. Similarly, Ryan, Jin, and Anas (2009) examined beliefs about memory aging in Canada and South Korea and found little evidence of cultural differences. Also consistent with these findings, Chappell (2003) found that older adults' experience of their own aging was similar in Mainland China and Canada.

Taken together, research involving pairwise comparisons between individual cultures does not allow for any clear conclusions about broad differences between Asian and Western attitudes towards aging. To some extent the observed discrepancies might be explained by methodological inconsistencies in assessment methods, and sample characteristic. In particular, East-west differences in aging attitudes appear to be domain specific: A recent literature review examined cross-cultural differences in lay people's definitions of health aging (Hung, Kempen, & De Vries, 2010) and found that whereas physical functioning was mentioned as a criterion of healthy aging regardless of culture, social and mental functioning were selectively mentioned in Western samples (see also Molzahn, Kalfoss, Makaroff, & Skevington, 2011). Thus, cross-cultural studies on aging attitudes may show divergent patterns depending on which domains of functioning are assessed.

Such methodological concerns are best addressed by assessing multiple aspects of aging attitudes in demographically similar samples across multiple cultures, but, to date, only a few studies live up to this standard. Harwood and colleagues (2001, 1996) used trait rating scales to examine perceptions of young, middle-aged, and older adults in cultures around the Pacific Rim. Across age groups, they found more

favorable perceptions of age-related changes in generosity, wisdom, and vitality among Western as compared to Asian cultures. In the most comprehensive cross-cultural comparison to date, Löckenhoff et al. (2009) asked college students in 26 cultures to report their perceptions of age-related changes in physical, cognitive, and socioemotional functioning and to rate societal views of aging within their culture. Targeted East-west comparisons found that respondents from Asian countries reported more favorable societal views of aging, but less favorable age trajectories for wisdom. Thus, even large-scale multi-cultural studies with high methodological standards do not necessarily yield consistent results, although there appears to be convergent evidence that Asian cultures are more likely to expect age-related decrements in wisdom.

Behavior Towards Older Adults

Given the inconsistencies and methodological concerns in cross-cultural research on cognitive and affective aspects of aging attitudes, some researchers have turned to examine differences in behavioral intentions and norms as well as actual behaviors. In particular, this line of research has focused on intergenerational communication patterns and filial piety.

Communication

There is a broad body of evidence suggesting that younger adults find it more difficult to communicate with older adults than with their own age peers (for a review see Williams & Nussbaum, 2001). Specifically, although younger adults aim to be respectful and polite during intergenerational conversations, they often perceive older adults as non-accommodating (e.g., complaining, patronizing, and likely to digress) and they respond with avoidant strategies (e.g., avoiding certain topics or ending the conversation; Williams & Nussbaum, 2001; Williams et al., 1997).

Growing evidence suggests that although similar deficits in intergenerational communication are seen across cultures, these problems are more pronounced in Asian contexts. Williams and colleagues (1997) compared young adults' beliefs about intergenerational communications in five Asian cultures (Mainland China, Korea, Japan, Hong Kong, and the Philippines) and four Western cultures (U.S., New Zealand, Australia, and Canada). Although there was considerable cross-cultural variation, respondents from the East generally described intergenerational communication as less positive and pleasant. Building on this work, later studies examined perceptions of both intergenerational and peer communication among young adults in the U.S. as compared to Taiwan (Giles, Liang, Noels, & McCann, 2001), Japan, and Thailand (McCann, Ota, Giles, & Caraker, 2003). Consistently, perceived problems in intergenerational communication were less pronounced in the U.S. (although see McCann, Cargile, Giles, & Bui, 2004). Further, while

Canadian younger adults reported that storytelling ability increased with age, respondents in Mainland China and Korea did not endorse this notion (Ryan, Jin, Anas, & Luh, 2004). In one of the most systematic studies to date, Giles and colleagues (2003) examined younger adults' perceptions of intergenerational and peer communications in three Western (U.S., Canada, and New Zealand) and three Asian cultures (the Phillipines, South Korea, and Japan). Again, perceptions were more positive in the West.

In summary, the research record on cross-cultural differences in intergenerational communication is fairly consistent and suggests that younger adults in Asian cultures find it more difficult to converse with older adults than their Western counterparts. So far, these findings are limited to self-reports and samples of younger respondents. Thus, future research should include the perspectives of older adults and begin to analyze cross-cultural differences in actual conversation patterns. Future research should also explore possible mechanisms behind such effects, including, for example, the tendency towards indirect and high-context communication styles in Asian countries (Gudykunst et al., 1996) which could impose a higher cognitive load for older speakers and thus impede communication.

Filial Piety

Filial piety refers to the moral obligations, perceived commitments, and behavioral intentions of adult children towards their aging parents (Sung, 1998). It can thus be considered a sub-component of aging-related attitudes that is specific to familial relationships (Laidlaw, Wang, Coelho, & Power, 2010). Although filial values are a human universal (Jones, et al., 2011), it has been argued that they are more salient in interdependent Asian cultures (Pyke, 1999; Pyke & Bengtson, 1996). Confucian philosophy in particular considers filial piety or *xiao* as a core virtue (Sung, 1998). Specific conceptualizations and manifestations of filial piety may also differ across cultures (Jones, Lee, & Zhang, 2011; Sung, 1998), but there appears to be cross-cultural agreement that it includes the subcomponents of respect, moral responsibility, and the provision of care (Jones, Zhang, & Meleis, 2003; Jones et al., 2011).

In general, empirical evidence is consistent with the idea that *attitudes* towards filial piety, particularly the subcomponent of care, are more pronounced in Asian cultures. Lee and Sung (1997) examined caregiving motivations in the U.S. and South Korea and found that self-reported filial responsibility was significantly lower in the U.S. Also, Sung (2004) compared elder respect among Korean and U.S. students and found that the U.S. sample was as likely to mention acquiescence and linguistic adjustments as forms of elder respect, but about half as likely to mention care and other forms of respect. Even within U.S. samples, Asian Americans report higher levels of filial values than Caucasian Americans suggesting that – to some extent – cultural differences persist after emigration to a different cultural context (Jones, et al., 2011; Youn, et al., 1999). Cross-cultural differences in younger adults' attitudes towards filial piety are matched by older adults' expectations. Laidlaw and

colleagues (2010), for example, compared Scottish older adults with older Mainland Chinese and U.K. residents of Chinese origin and found that expectations for filial piety were significantly lower among the Scottish group than in the two ethnic Chinese groups (Cheung & Kwan, 2009).

Nevertheless, there are some studies that contradict this pattern. Elmelech (2005) examined attitudes towards family obligations and found that compared to a U.S. sample, Japanese respondents were less likely to agree that children should make sacrifices to support their parents. Similarly, Anngela-Cole and Hilton (2009) found that Caucasian Americans felt greater obligation towards their parents and had more positive attitudes towards caregiving than Japanese Americans. Further, in a sample of caregivers, Asian Americans were less likely to refer to filial values than their U.S. counterparts (Arnsberger, Chang, & Mensendiek, 2009).

More importantly, greater endorsement of attitudes towards filial piety does not necessarily translate into *concrete behaviors*, particularly in the provision of tangible care. Although there is some evidence that rates of family caregiving, time invested in care, and percentages of older persons co-residing with relatives are higher in Asian as compared to Western cultures (Kendig, Hashimoto, & Coppard, 1992; Myers, 1992; Tomita et al., 2010), some Asian countries, such as Hong Kong, report very high institutionalization rates among their older residents (Woo, Ho, Yu, & Lau, 2000). In fact, a recent study examining perceptions of and expectations about filial behaviors in a sample of older Hong Kong Chinese found that perceived attention during sickness or distress showed the highest discrepancy with expectations (Cheng & Chan, 2006). Furthermore, high filial values may sometimes have negative implications for caregiving contexts. In particular, it has been suggested that high cultural expectations for the provision of care lead to increased caregiver stress and burden (Youn, et al., 1999; Ho, Friedland, Rappolt, & Noh, 2003; Choi-Kwon et al., 2009; Chun, Knight, & Youn, 2007; Knight et al., 2002; Lai, 2010; Liu & Kendig, 2001). Also, there may be a trade-off between receiving care and maintaining authority for older adults. Pyke (1999), for example, found that older adults in collectivistic families were expected to respond with deference to the provision of care, and failure to do so resulted in reduced future care and strained family relationships.

Evidence for Theoretical Mechanisms

While the research record on East-west differences in aging attitudes and their behavioral manifestations is equivocal, research on the underlying mechanisms of cross-cultural differences is even scarcer. However, what limited evidence there is appears to favor the role of modernization and intergroup conflict over unique Asian values.

Consistent with intergroup-conflict perspectives, there is preliminary evidence that the recent economic recession has led to a proliferation of negative aging stereotypes and age-based discrimination (Binstock, 2010; Campbell, 2009; Swanton,

2009). Also, in Löckenhoff et al.'s (2009) comparison of 26 countries, East-west differences in aging perceptions were fully explained by age differences in population structure. Specifically, higher rates of older adults in the population were associated with less positive societal views of aging. In contrast, cultural differences in value systems (i.e., collectivist vs. individualist) could not explain any of the observed effects. Further evidence against the notion that Asian values promote positive aging attitudes comes from a qualitative study examining associations between cultural values and attitudes towards aging among Mainland Chinese and U.S. students (Zhou, 2007). Although Chinese respondents showed the expected focus on interdependence, they reported more *negative* views of aging and older adults than their individualistic U.S. counterparts.

With regard to filial piety, mounting evidence suggests that industrialization levels, not cultural values, are a key determinant of commitment to aging parents. In Japan and Taiwan, changes in filial values have been documented over multiple decades (Hsu, Lew-Ting, & Wu, 2001; Ogawa, 1992). In parallel with progressive industrialization and population aging, support for parental care and attitudes towards co-residence with aging parents have declined substantially. Moreover, in a fine-grained analysis of six Chinese cities, Cheung and Kwan (2009) found that indicators of modernization were negatively associated with filial commitment and financial support for parents. Consistent with revised forms of modernization theory (Inglehart & Norris, 2003), however, this effect was buffered by high levels of education. Also, industrialization does not necessarily diminish filial values, but may change how they are expressed. Sung (1995) examined changes in filial piety in response to South Korea's increasing industrialization and found that while commitment to filial piety remains high, its expression has changed due to physical separation and shows a shift from authority/respect to mutual support and reciprocal care. In many ways, these findings echo typical expressions of filial values in the West (Sung, 1994) and map well onto historical changes in Western societies which have undergone a similar transformation in filial values in parallel with industrialization processes in the nineteenth and early twentieth century (Aboderin, 2004).

Conclusions

In summary, the empirical record for East-west differences in aging attitudes is full of gaps and what little evidence there is paints an inconsistent picture. Findings on cognitive and affective components of aging attitudes are mixed with some studies suggesting more favorable attitudes in Eastern as compared to Western countries and others suggesting the absence of cross-cultural differences or even the reverse pattern. With regard to behavioral manifestations of aging attitudes, there is consistent evidence that younger adults in Asian cultures find it more difficult to converse with older adults than their Western counterparts. However, these findings are limited by an almost exclusive reliance on self-reports among

younger adults. Finally, research on cross-cultural differences in caregiving and filial piety tentatively suggests that filial values may be more pronounced in Asian cultures, but the empirical evidence is equivocal and suggests that attitudes towards filial piety do not necessarily translate into concrete behaviors.

To some extent, discrepancies in the research record may be explained by the underlying mechanisms of cross-cultural differences. Mounting evidence suggests that population structure, levels of industrialization, and economic trends have a substantial influence on aging attitudes (Binstock, 2010; Cheung & Kwan, 2009; Löckenhoff, et al., 2009). Thus, East-west differences in aging attitudes may differ depending on sample characteristics (students vs. community dwelling), location (rural vs. urban), as well as societal and economic trends at the moment of data collection. Also, aging attitudes are multi-dimensional in nature and the direction of East-west contrasts may depend on which specific aspect is assessed.

Importantly, existing discrepancies and limitations in the research record should not discourage further research on the role of culture in aging attitudes. However, the time has come to relinquish the futile search for broad East-west differences and to abandon pairwise comparisons among individual cultures assuming that they are somehow prototypical for “the East” or “the West”. Instead, the recent literature offers examples of promising methodological paradigms that can help to elucidate the mechanisms behind cultural differences in aging attitudes, evaluate practical implications, and – hopefully – pave the way for interventions.

One approach involves the establishment of large international research networks to develop multi-dimensional assessments of aging attitudes that are translated and validated across a wide range of cultures. Existing networks such as the World Health Organization Quality of Life network (Molzahn, et al., 2011), or the Adolescent Personality Profiles of Cultures Project (De Fruyt et al., 2009; Löckenhoff, et al., 2009) have illustrated the benefits of nested analyses integrating person-level characteristics of individual respondents (e.g., age, gender, health status) with indicators at the culture-level (e.g., population structure, value systems). Future research should expand these efforts to a larger number of cultures, particularly with regard to South American and African cultures which are currently under-represented (Löckenhoff, et al., 2009; Molzahn, et al., 2011).

A second promising approach, would follow the example of Cheung and Kwan (2009) and examine variations in aging attitudes within a given society. While Cheung and Kwan focused on the role of geographic location, future studies might include temporal variations, specific subcultures, and respondents from multiple age groups. Across paradigms, researchers should also aim to assess relevant covariates including not only respondents’ demographic characteristics but also characteristics of the surrounding community and the socioeconomic climate at the time of assessment.

Ultimately, a better understanding of the mechanisms that drive cultural differences in aging attitudes can inform our responses to world-wide trends in population aging (U.N., 2001). As population pyramids morph into rectangles, maintaining health and successful functioning into late life is instrumental in preserving limited societal resources. In this regard, attitudes towards aging affect not only older adults’

expectations for themselves but also opportunity structures in the surrounding society (Pasupathi & Löckenhoff, 2002). Thus, the way a given society views its oldest members can become critical for the fate of society as a whole.

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Chapter 20

Successful Aging in Asia: A Concerted Effort of the State, the Family, and the Individual

Sheung-Tak Cheng, Lydia W. Li, Jean Woo, Iris Chi, and Helene H. Fung

As said at the beginning of the book (Chap. 1), the concept of successful aging has not taken root in Asia. Unlike elsewhere, the concept remains largely within the realm of professional discourse. This book represents the first attempt to bring together a diverse and burgeoning literature in this region that speaks to the issues of successful aging.

The contemporary discourse on successful aging is dominated by Rowe and Kahn's model developed about two decades ago (Rowe & Kahn, 1987, 1997). Within the youth-oriented culture of the U.S., this model conjures images of older adults who defy the physiological effects of aging and who are filled with vitality

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and mental agility. Magazines, popular books, and cosmetic and fitness industries respond with messages and regimes to “fight aging,” “stop aging now,” “look forever young.” The successful aging discourse appears to have thrived as well on the American ethos of agency, control, and optimism. Thus, individuals are believed to control their developmental trajectories through intentional actions, such as by improving health literacy and regulating their lifestyles. Through conscious self-regulation of attitudes and health behaviors, individuals have much to aspire to in terms of a healthy and gratifying late adulthood.

This anti-aging optimism is probably not “the kind” of successful aging that Asia will espouse. Asian philosophies emphasize harmony, self-acceptance, and fate determinism (Bond et al., 2004; Hochsmann, 2004). Thus, one does not necessarily attempt to fight decline and diseases, but to live with them in peace: Like water that flows down a stream, one should let go and follow the flow. In fact, Liang and Luo (2012) even questioned whether the achievement-oriented paradigm of successful aging is relevant for Asians. Perhaps the relative dearth of research in the region to identify specific criteria for successful aging reflects a lack of enthusiasm to regard successful agers as having achieved certain specific outcomes (such as lack of disabilities, ability to walk half a mile, a certain score on a cognitive test).

Having said the above, few would question the value of staying well physically and mentally. Certain conceptions of wellness appear to be rather universal, although expectations and pathways to realize them may vary across cultures. Thus, although the notion of successful aging is not as well-developed here as in the West, the basic dimensions that define aging well are probably the same. Nevertheless, one needs to have an open mindset when approaching the question of successful aging in Asia. Importantly, where Western models led by Rowe and Kahn (1987, 1997) have placed avoiding disease and disease-related disability as the most essential criteria, Asian concepts will likely be more broad-minded, encompassing various aspects in a balanced fashion and seeing successful aging as relevant for people with or without health problems.

Against this background, authors of this volume have discussed a broad array of research concerning ways to optimize physical and psychological health as well as social contacts and integration in the Asian context. Authors also discussed macro-environmental factors, such as income disparities, rural/urban divide, and policy measures that may hinder or facilitate successful aging. Additionally, authors have highlighted culturally specific issues, such as the traditional reliance on the family for support and emotion regulation strategies that diverge from Western patterns. For instance, while aging is associated with more attention toward and better memory of information that is meaningful to the individual, Americans do so by focusing on positive information and Chinese do so by focusing on both positive and negative information. Thus, this volume represents an extraordinary collection of essays related to successful aging within the sociocultural context of Asia. Together, they inform key issues that affect the aging experience of individuals in Asian countries and how these issues might differ from those of the Western world.

In the following, we like to highlight a theme that cuts across countries and that, we believe, will have significant implications for the future of successful aging in

this region—the emerging interplay among the State, the family, and the individual in determining aging trajectories. Then, we will conclude with a few observations for future directions for research and policy actions.

State, Family, and Individual

Cultural norms and relationships are heavily shaped by Confucianism in Asian countries in a manner that the family system serves as the primary institution for old age support and filial piety is highly valued. Coresidence with adult children was the normative and ideal arrangement for older adults to receive old age support in the Asian context (Chap. 7). But as industrialization and modernization prevail, institutions other than families such as non-immediate kinships, friendships, social security system, and social service system were shown to play an increasingly important role in older people's well being. For example, among older adults lacking support from adult children, relationship with children was shown to be replaced by other relationships such as those with siblings, friends, and neighbors in Singapore (Chap. 9). Among older Japanese adults, support networks were found not to be limited primarily to family-based network and were broadened to include friends, neighbors, and acquaintances (Chap. 8).

Among older adults living alone in Singapore, support from spouses and/or children was found to be of great importance and the support exchange patterns between aging parents and non-cohabitating children were different from that between parents and cohabitating children. For instance, monetary support was more common among non-cohabitating children, whereas mutual support exchange, especially instrumental support, was more common among cohabitating children in both Singapore and China. Besides living arrangements, caregiving for older adults was also influenced by the cultural context. For example, provision of personal care to older recipients was also subject to the gendered perspective of labor division; that is, older adults were shown to prefer receiving personal care from children or children-in-law of the same gender in China.

Given the traditional cultural emphasis on the family to take care of their older members in this region, state intervention related to old age support has usually been preserved for those without family support or whose families cannot provide for them. But changes in social and economic contexts such as delaying marriage, reducing fertility, increasing female labor participation, migration of youth to cities, as well as longer lives itself have increased the stress on families to meet their traditional role. Family values are also changing in that priorities of allocating family resources have shifted to the younger generation. Moreover, widening income inequality particularly in emerging economies such as China has seriously hampered some sectors of the population to care for their elderly relatives.

The State is thus called upon to meet the needs of older persons who are growing rapidly in these nations. Such calls do not just come from the general public, but from older people themselves. While Asian older adults treasure quality interactions

and support from family members, especially those from children, many are now becoming reluctant to be dependent on children. The governments of these nations vary greatly in how they respond to the challenge of a graying society. But all are faced with the tension of balancing the role of the State, the family, and individuals in ensuring a good quality of life in old age.

Among nations in this region, Japan stands out in terms of state involvement. Through its national long-term care insurance program, the State has committed itself to care for older persons who are frail and dependent. It has also developed a comprehensive approach to promote successful aging, including institutionalizing policies to support older persons to continue employment, engage in life-long learning, and remain socially active. In a way, Japan recognizes that a long-term strategy to meet the challenge of population aging is to redefine old age—from unproductive and dependent to productive and active (Crampton, 2009). Other nations in the region tend to emphasize more the responsibility of the family in old age care and the individual's responsibility in preparing for old age. For example, Singapore has mandatory saving programs for income support in old age and has instituted policies to encourage and enforce family obligations. Singapore has also begun to push for an active aging agenda, including raising retirement age and providing incentives for companies to hire older workers. Most nations in the region, such as China and South Korea, are only beginning to recognize and respond to changes in social structure and social ties on which older persons rely for successful aging. When institutionalized programs to protect financial and medical care security in old age are not adequately developed, socioeconomically disadvantaged groups are likely to lack a promising path to successful aging. The high poverty rate of Korean elders and health disparities across gender, socioeconomic status and place of residence in China are evidence of unequal opportunities to age successfully.

Having enough financial protection and health-care access is important as even successful agers do not maintain their levels of functioning all the time. The reality is that most people move up and down the benchmark of successful aging. For instance, people's functioning would be compromised when illnesses strike or when going through stressful episodes such as bereavement. Rowe and Kahn (1997) also recognized this problem and noted the importance of resilience, framed as "the rapidity and completeness with which people recover from such [stressful] episodes and return to meeting the criteria of success" (p. 439). However, if ever this was meant to assume that the primary responsibility to recover from adversities and sustain high functioning level lied with the individual, this would have been a mistake and one that Kahn himself later admitted to be one of the unintended consequences of the concept of successful aging (Kahn, 2003). In developing countries, this simplistic "individual agency" perspective simply will not fly under the present circumstances. The individual's capacity will continue to be limited without "the social structural opportunities necessary for realizing [individual] success" (Riley, 1998, p. 151).

Although, as we have seen, individuals can employ adaptive strategies, some of which are shaped by cultural norms and values, to enhance successful aging. Indeed, some of the nations in the region have achieved the longest longevities

worldwide even with minimum state involvement in social security. But it would be a mistake to ignore the barriers to successful aging and quality of life at the system or macro level. Considering the vast cost savings returned for every dollar spent on prevention and wellness, more State involvement in promoting successful aging seems unavoidable as the economies in the region become wealthier. Policy reforms will be needed but changes will tend to be slow as long-standing social and political ideologies are not easily broken. It is therefore a concern whether politics can react quickly enough to the challenges given the pace of aging in these Asian countries and the small window of opportunity to address them before it is too late.

The Madrid International Plan of Action on Ageing (Cheng, Chan, & Phillips, 2008; United Nations, 2002) suggests that policies should move in three directions, namely (a) offering social participation and enabling development and participation, (b) optimizing health and well-being, and (c) providing supportive environments for aging in place. However, Riley (Riley, Kahn, & Foner, 1994; Riley & Riley, 2000) has long argued that social structures respond all too slowly to the changing needs of people. Social structures often lag behind individual aspirations for development (i.e., structural lag) and meaningful structures for participation in various life spheres are often lacking. As a result, social roles are structured and segregated by age, and older people are forced into leisure despite the fact that many wish to remain engaged in productive capacities. The problem of structural lag is very true for Asian countries.

The degree to which nations in this region respond to the Madrid plan vary (Cheng et al., 2008). As mentioned earlier, some Asian nations have taken steps to increase labor force participation of older persons, including raising retirement age and revising laws to oblige or provide incentives to companies to hire older workers. However, it should be kept in mind that such policies may create tension between generations as well as forcing older adults with health problems to continue employment, thus requiring a careful approach to implement. There have been policies and programs, especially in Japan, to promote volunteering, later life learning, and participation in social activities and intergenerational interactions. Being active helps to optimize health, but health care access is critical to health maintenance, especially in developing countries. Unfortunately, many older adults in Asian nations do not have adequate access to health care, due to various reasons including lack of health insurance, being far from health facilities, low health literacy, and poverty. Issues of aging in place have not been given enough attention in Asian nations. Japan is relatively advanced in the region to develop housing, transportation and other policies to support older Japanese age in their own communities. Singapore's approach is to encourage multiple generations to coreside or live within proximity, and to support families to care for older members.

Looking ahead, we envisage that the governments in this region will play a more active role in promoting a successful aging agenda. But each of these nations would have to find their own way to balance the responsibility of the State, the family and the individual. While it is necessary for the State to devote more public resources to ensure basic security and opportunities for social participation for older persons, it is

also important that the State succeeds in motivating individuals to take responsibility to achieve successful aging (e.g., saving money, maintaining healthy lifestyle, and keeping socially connected). After all, it is individuals' behavior and attitude that improve the chance for aging successfully. As well, given the cultural norm and value regarding intergenerational relationships in this region, it is necessary for the State to support adult children to integrate their elderly relatives into the family life and fulfill their filial obligation. Private and voluntary sectors should be encouraged to join force to initiate and deliver services to older adults, as they usually are more innovative and flexible than the State to meet the needs of specific populations. When there are concerted efforts of individuals, families, communities and the State, it is more likely to realize successful aging at both the individual and population levels.

Future Directions for Research and Policy Actions

Before closing, we like to discuss several pressing areas for future research and policy directions. First, in view of the need to move policy agendas beyond individual and family self-reliance, future studies may like to directly contrast the effects of individual, family, and social factors on successful aging in Asia. Such research may need to adopt an ecological approach (Bronfenbrenner, 1977) in order to illustrate the relative roles of factors at the individual, family and State levels as well as their dynamic interactions. It may also be fruitful to assess how individuals adjust to personal aging under contexts that facilitate or hamper positive aging development.

Another interesting area for future research is about whether there are indeed cultural values, beliefs and practices that facilitate or hamper successful aging in Asia. Although cultural values such as collectivism may cut across many aging phenomena, the review conducted by Löckenhoff and colleagues (Chap. 19) suggests that there are no consistent cultural differences in attitudes toward aging or older adults. In fact, population structure, levels of industrialization, and economic trends may have stronger influences than cultural values on aging attitudes. If this is true, then aging in Asia would be converging with the trends in the more developed Western nations. More research is needed to disentangle the effects of various macro-level factors on the experience of aging in Asia.

In the area of health and mental health, research has examined the relationships among diet, physical activity, and health, with an emphasis on cultural variations, and demonstrated the universal benefits of healthy lifestyle in promoting physical and mental health, in terms of non-communicable diseases including dementia. However, more randomized controlled trials to ascertain the effects of culturally relevant foods and physical activity on physical and mental health are needed. Also needed are studies on promotional strategies effective in sustaining long-term behavioral lifestyle changes. Other than environmental factors that support the practice of healthy behaviors (such as by providing more parks), the role of the

family and peers in enhancing adherence to healthy lifestyles should be investigated (Lam & Cheng, 2013). Moreover, data on chronic disease burden and accompanying cost estimates should be actively pursued for the sake of informing policy decisions for promoting healthy lifestyle.

To further promote a healthy lifestyle, there is an urgent need to raise health literacy regarding physiological changes relating to aging (which is inevitable), its relationship with chronic diseases, and the need for self-management as an integral part of chronic disease managements. There needs to be a move away from the concept of reliance on doctors and medicines for all health problems relating to aging. Development of supportive infrastructure by the State would be key to facilitating these efforts.

In addition, a broader framework of aging well needs to be emphasized, along the lines of the World Health Organization's Age-Friendly Cities movement (World Health Organization, 2007). Research has been extensively focused on personal factors impacting on aging well. In comparison, data regarding the impact of environmental factors such as home and neighborhood environment, open spaces, air pollution, climacteric stress are sparse. There are suggestions that the magnitude of the contributions of environmental factors to aging well may be similar to those of personal factors (Chau, Wong, & Woo, 2013; Woo, Chan, Leung, & Wong, 2010). Given the rapid rate of urbanization in this region, how the physical, built and social environment influences the chances for aging successfully should be an important topic.

Lastly, there is a need for larger, longitudinal and controlled studies in the region. With perhaps the sole exception of Japan, investment in research, especially studies in gerontology, has not caught up with economic development in the region. Longitudinal studies are needed to disentangle developmental from cohort effects, and experimental studies are needed to ascertain causality. In particular, data from cohort sequential studies of elderly cohorts born in different decades may provide information regarding environmental impacts during periods of upheaval such as famine, wars, natural catastrophies, financial upheavals, and the influence of increasing prosperity in different countries. Trends in indicators of aging well may also be determined, based on which more accurate predictions of health and social care needs may be made. Currently, due to limited research support, studies in the region are often based on small, convenience samples. Such samples might be subject to self-selection bias; that is, older adults participating in research studies might have better well-being and functioning to begin with. This could create bias in research findings and prevent researchers from appreciating fully the challenges of aging and the effectiveness of the different strategies to enhance health and mental health. Looking ahead, more advocacy and political lobbying to increase funding for gerontological research are needed. Moreover, given the interdisciplinary nature of the field of gerontology, more interdisciplinary collaboration is necessary in order to advance the field in Asia (e.g., Cheng, Lum, Lam, & Fung, 2013). Such collaborations may hopefully benefit from an increasing number of cross-disciplinary gerontological research centers based in universities.

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