Chapter 1

The aging brain and mind: cultural and anthropological perspectives

Kua Ee Heok

Introduction

Population aging in the twenty-first century is the preeminent demographic phenomenon in Asia. In countries like Japan and Singapore, low fertility rate and better health care are factors explaining the graying of the population. Demographic aging is however becoming a pan-Asian phenomenon with fertility rates falling and health care improving across the globe including the most populous nations, China and India.

The perception of old age differs in different societies and cultures. Nonetheless, it is influenced to a large extent by retirement legislation. When people retired at 55 years, those who were 56 years of age were considered old. Today with the retirement ages ranging from 60 to 65, the 56-year-olds are no longer considered senior citizens.

In population statistics, elderly people are often classified as a single demographic group; but even within the same country or community they are not homogenous. Besides differences in health and social needs, there is also the cultural divide. Policy makers are aware that in a few years, the majority of "baby-boomers" will reach retirement age – they will be the "new-old." In Asia, there are apparent differences between the present elderly population and the "new-old" in perception of old age – the former are more steeped in tradition and culture and the latter less influenced by traditional values. Compared to their aged parents, the "new-old" are better educated and have grown up in an era of economic progress.

Cultural beliefs and aging

Aspirations of old age in the Asian community are influenced by cultural beliefs. For more than a thousand years, Chinese families have worshipped in their homes three deities who personify longevity, happiness, and wealth. They represent their aspirations – to live to a

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ripe old age, have sufficient finances, and enjoy good health. Many communities around the world also harbor similar aspirations. Embedded in the Asian tradition of filial piety is the expectation that children should take care of their aged parents and provide financial, social, and emotional support. Such tradition is still present in many agrarian communities but with the rapid global economic changes and the movement of the young working population from rural to urban industrialized communities, and across national boundaries, the care of the elderly is becoming a problem that is rapidly achieving critical proportions. In the cities, the fragmentation of the extended family has an impact on the elderly at home.

In many cultures, the notions of health and old age are entrenched in customs and religious beliefs. Since ancient times, spirituality and health are closely associated. The art of healing and the role of the priest are linked. In Asian countries, with advances in modern medicine, the doctor has a lead role in health care; however, among the elderly, traditional healers and priests are still consulted first [1]. In traditional Chinese medicine, the therapeutic alliance between the patient and the healer hinges on the shared cultural belief of "yin–yang," a bipolarity that is opposite and complementary. When this homeostasis is disrupted, illness may result, and a prescription of herbs is necessary to restore the balance of the "yin" and "yang." In a community study of illness behavior in Singapore, it was found that about 25.3% of elderly people took traditional medicine to prevent ill health and during illness [2].

For many centuries, Chinese and Koreans have believed there is an association between longevity and the consumption of ginkgo biloba. In some Chinese cuisines, the ginkgo nut is an essential ingredient in the recipe not just for the taste or flavor but also its medicinal value. In recent years, ginkgo biloba extract has been sold in traditional medicine shops and pharmacies to prevent memory impairment. There are many other varieties of herbs, which are often brewed and consumed as health supplements by elderly people.

In Chinese culture, exercise is emphasized as a method to restore the "yin–yang" equilibrium in old age. "Tai-chi" is a popular martial art exercise among elderly people in many Asian countries – it is a lifestyle habit for preservation and restoration of physical and mental health. Such practice is also observed in other countries like India, Japan, and Korea, where elderly people are often seen in parks or gardens, performing the graceful exercises.

Life satisfaction

Life satisfaction is a subjective perception of one's overall assessment of life quality and general well-being from comparing one's aspiration to actual life achievement and condition. It implies a perspective of past, present, and future life condition. The major determinants of life satisfaction include education, occupation, marital status, health, income, support from primary groups (family and friends), and participation in social and leisure activities. Life satisfaction is multifactorial and varies with individuals. There are also differences between gender, age groups, social class, and ethnicity.

In a survey in 2004 of elderly Chinese in Singapore [3], factors associated with life satisfaction were explored including reasons for

satisfaction. Of the 2325 respondents, 1646 (70.8%) expressed overall satisfaction as being "excellent or good" and 679 (29.2%) as " fair or poor." Elderly individuals with "excellent or good" life satisfaction were married; lived with their families; and were more likely to exercise, read the daily papers, attend the church or temple regularly, look after their grandchildren, and visit community centers or clubs. About 42% stated the main reason for satisfaction was physical comfort, e.g., owning a house, television, refrigerator, radio, washing machine, etc. The second and third reasons were good health and family relationships.

Another study of elderly Chinese conducted ten years earlier [4] showed that 72% felt satisfied and in this group the main reasons were good family relationship (41%), physical comfort (29%), and good health (23%). There is thus an important change in the ranking of life satisfaction after a mere ten-year period. In the 1994 study, the participating elderly were mainly immigrants with low income and dependent on their families to take care of them. In the 2004 study, the participating elderly were second-generation Chinese who were more financially secure and lived in better homes.

The association between spirituality and life satisfaction is observed in the Asian elderly, who regularly visit the temple, mosque, or church. The connection between spirituality and health is complex. It could be that those who attend religious services experience lower levels of anxiety or depression and they also benefit from the social support systems that religious places, churches, temples, and mosques offer. In general most religious beliefs tend to disapprove risky behavior like excessive drinking or smoking, and religious teachings may improve people's ability to cope with stress in late life.

Mood and cognitive decline

A review of the prevalence of depression in late life [5] indicated that the rates were higher for European and American than Asian countries. A possible explanation of the lower prevalence in Singapore and Japan is the sociocultural influence on the perception of elderly people. The emphasis on respect for the elderly and family support may be crucial in elevating the status of old people and minimizing stress in old age. It is undeniable that care and respect of elderly people are values common in most communities, but the practice and expression of such values may vary with ethnicity.

In the Singapore study [6], many of the elderly tended to congregate daily along the common corridors of their flats. They were bonded by clanship ties and a common worry of the depressed Chinese elderly concerning family relationships.

Cultural perception of illness, societal attitude towards the elderly, and family support may explain health-seeking behavior. Most of the elderly in Singapore live in high-rise public housing estates and they prefer to consult traditional healers, who are popular with the elderly not only because of the accessibility of their service but also because they share the same sociocultural beliefs about illness and health. The constellation of symptoms is explained to the patient as due to an excess of "ying" or "yang." A powerful therapeutic factor is the rapport between the patient and the healer, who is able to explain the symptoms using the

sociocultural belief system the patient is familiar with. To the elderly Chinese, depressive symptoms like poor appetite, lethargy, or poor sleep are interpreted as due to a "weakness of mental energy." The traditional healer understands the ethos of the subculture and consulting one also avoids the stigma of being labeled a "mental patient," as would happen when they see the doctor in the psychiatric clinic [7].

In the Japanese or Chinese vocabulary, the term "dementia" implies "stupidity" or "mindlessness" – it is humiliating to elderly people. Consequently, many elderly people are reluctant to seek medical consultation because of the stigma. Recently there have been attempts by the Japanese and Chinese medical communities to agree on a more appropriate word.

Assessment of memory impairment in late life at the primary care clinic has been difficult because of limitations in the assessment instruments available. Many existing clinical memory tests lack adequate normative data, reliability, and validity. A brief questionnaire is needed to screen for cognitive change among elderly people in the community, clinic, and hospital. Currently, there are a few of these instruments, including the Mini-Mental State Examination or MMSE [8] and Kahn's Short Portable Mental Status Questionnaire or MSQ [9]. The validity of these tests is doubtful in a different cultural setting where literacy is low.

We have constructed a screening questionnaire called the Elderly Cognitive Assessment Questionnaire or ECAQ [10] for the detection of dementia by the primary care doctor or nurse. The ECAQ assesses two aspects of cognitive function, memory and orientation/information, and has a maximum score of 10 points. The questionnaire can be completed in 10 minutes and is not significantly biased towards educational attainment. The ECAQ is now used by many primary care doctors in Singapore, Malaysia, and Indonesia.

Caring for the frail elderly

There is a growing concern about caring for an increasing number of frail elderly in Asia. This concern is not only because of an increasing number of the elderly but also a diminishing number of carers. Traditionally, carers are the women in the family. The present dilemma emanates partly because of the social transformation in the Asian family. Young couples in the cities prefer to live away from their parents because of the constraint of space in high-rise apartments. Women are better educated now and prefer to go out to work rather than to remain at home. Another factor contributing to the diminishing number of carers is the decrease in the family size – most families today have only one or two children.

Caring for dementia patients is taxing – physically and mentally. A study in Singapore showed that about 56% of family caregivers had symptoms of anxiety and depression related to the stress of caring [11].

Many carers have to work fewer hours, take unpaid leave, or stop working altogether. Family members who have positive feelings towards the patient will be more willing to accept their caregiving role. In Asian countries, the caregivers rely more on family support than on formal geriatric services. Although there are only a few old people's homes or day centers, families may not be eager to use these services because to send an elderly relative to these centers implies a failure of responsibility.

However, with the change in the family structure, many carers may have to turn to the community services.

Policy makers are increasingly aware of the fact that family caregiving is not cost-free. Most retirees do not have pensions and are financially dependent on their children. Caring for the frail elderly in Asia will in all likelihood continue to rest with the family for many years to come. Caregivers may need to seek help outside the home. Support networks typically have the family as the core but should also include friends, neighbours, and home help. Community and governmental support is necessary to alleviate the burden of the family.

Future challenges

The exponential increase in the number of elderly people – the "new-old" – will pose tremendous challenges to health and social services in the near future. In developing and developed countries, the economic impact is sometimes viewed with gloom. This cohort of elderly are better educated than the previous generation and capable of making a strong contribution to society years beyond their official retirement. They should therefore be viewed as a valuable resource – an asset that can benefit the larger community. Their skills and talents should be recognized for gainful employment or voluntarism. The retirement age could increase beyond 65 years if their health permits. Because life expectancy has increased, the majority of the "new-old" workers will not be retiring as early as expected – if there is no pension scheme, it is doubtful whether they have enough money after retirement to enjoy the autumn years. Working in retirement, an oxymoron, may in fact be a reality.

Because of the changes taking place in family structure, more Asian elderly may be living alone in future and cannot expect much support from close relatives. Caring for the elderly with dementia at home will therefore pose many problems. Some of the issues affecting the quality of life of the dementia patient have been identified in a recent Asian seminar; these include inadequate human and financial resources, lack of training for formal caregivers, and lack of support for informal carers [12]. While the Chinese elderly may well continue to worship the three deities for longevity, happiness, and health, it is only the former that they may be assured of, in the years to come.

References

1. Kua EH, Tan CH. Traditional Chinese medicine in psychiatric practice in Singapore. *Int Psychiatry* 2005; **8**: 7–9.
2. Ng TP, Tan CH, Kua EH. The use of Chinese herbal medicines and their correlates in Chinese older adults: the Singapore Chinese Longitudinal Aging Study. *Age Ageing* 2004; **33**: 135–42.
3. Kua EH, Ng TP, Goh LG. *Long Lives*. Singapore, Armour Publishing, 2004.
4. Kua EH. *Ageing and Old Age*. Singapore, Singapore University Press, 1994.
5. Beekman ATF, Copeland JRM, Prince MJ. Review of community prevalence of depression in later life. *Br J Psychiatry* 1999; **174**: 304–6.
6. Kua EH. A community study of mental disorders in elderly Singaporean Chinese using the GMS-AGECAT package. *Aust N Z J Psychiatry* 1992; **26**: 502–6.

7. Kua EH. The depressive elderly Chinese living in the community: a five-year follow-up study. *Int J Geriatr Psychiatry* 1993; **8**: 427–30.
8. Folstein MF, Folstein SE, McHugh PR. Mini-Mental State. A practical method of grading the cognitive state of patients for the clinician. *J Psychiatr Res* 1975; **12**: 189–98.
9. Kahn RL, Goldfarb AL, Pollark M, Peck A. Brief objective measures for the determination of mental status in the aged. *Am J Psychiatry* 1960; **117**: 326–9.
10. Kua EH, Ko SM. A questionnaire to screen for cognitive impairment among elderly people in developing countries. *Acta Psychiatr Scand* 1992; **85**: 119–22.
11. Kua EH, Tan SL. Stress of caregivers of dementia patients in the Singapore Chinese family. *Int J Geriatr Psychiatry* 1997; **12**: 466–9.
12. Chiu E, Chiu H. Dementia in Asia. *Int Psychogeriatr* 2005; **17**: 1–2.

Chapter 2

Mild cognitive impairment: current concepts and cross-cultural issues

Seethalakshmi Ramanathan and
Ennapadam S. Krishnamoorthy

Introduction

Increasing longevity has heightened the need to understand the cure and importantly, prevention of disorders linked to aging. The concept of cognitive impairment can be traced back to 2200 BC in the writings of Ptahhotep. Kral [1,2] in 1958 drew attention to the clinical significance of age-related changes in memory. He differentiated between the benign nature of senescent forgetfulness (BSF) and the "amnestic syndrome." Since then numerous definitions have been developed to describe cognitive changes associated with aging. A National Institute of Mental Health work group [3] proposed the concept of age-associated memory impairment (AAMI); these criteria were subsequently revised [4] leading to the concepts of age-consistent memory impairment (ACMI) and late-life forgetfulness (LLF). In 1994, an International Psychogeriatric Association (IPA) task force in collaboration with the World Health Organization (WHO) proposed the concept of age-associated cognitive decline (AACD) [5]. This identifies persons with subjectively and objectively evidenced cognitive decline that is not impairing enough to warrant the diagnosis of dementia and specifies the cognitive domains of memory and learning, attention, and concentration; thinking, language, and visuospatial functioning. Cognitive impairment no dementia (CIND) [6] was defined as a state characterized by lower cognitive performance than would be expected given the age and educational attainment of the person.

The modern concept of "MCI"

Mild cognitive impairment (MCI) primarily identifies an individual with a deteriorating cognitive functioning that is not severe enough to warrant the diagnosis of dementia. It has

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been defined as a Clinical Dementia Rating (Scale) (CDR) stage of 0.5 [7] or Global Deterioration Score (GDS) of 3 [8]. The CDR 0.5 is also compatible with a diagnosis of mild dementia and has largely been criticized for being too inclusive. Proponents for CDR argue that in subjects with MCI, most of the decline is accounted for by memory deficits with minimal functional deficits; their mean CDR sum of boxes is 1.5. Against this, patients with very mild Alzheimer's disease (AD) have a mean CDR sum of boxes score of 3.3, indicating impairment in functional domains as well. This however fails to take into account the considerable heterogeneity in the presentation of MCI. The GDS 3 on the other hand states "subtle cognitive impairment in executive functioning that affects complex occupational and social activities," thereby including other cognitive elements too. However, both GDS and CDR remain severity scales rather than clinically useful definitions [8]. Petersen and colleagues further operationalized these criteria [9]

1. Memory complaint
2. Normal activities of daily living
3. Normal general cognitive function
4. Abnormal memory for age
5. Undemented

However, all the above criteria account for clinical and informant information. A third neuropsychological dimension was added by the European Consortium Task-force in the "MCI Syndrome" [10]

1. Cognitive complaint emanating from the patient and/or his/her family,
2. The subject and/or informant report of a decline in cognitive functioning relative to previous abilities during the past year,
3. Cognitive disorders evidenced by clinical evaluation: impairment in memory and/or another cognitive domain,
4. Cognitive impairment does not have major repercussions on daily life. However, the subject may report difficulties concerning complex day-to-day activities,
5. No dementia.

The European Consortium and other researchers [11] have also identified MCI as a heterogeneous condition with varied presentations, etiologies, and prognoses and have recognized the need to further subclassify MCI on clinical and etiopathogenic grounds.

The clinical classification of MCI:

1. Amnestic (a-MCI) [12]
   Memory complaint usually corroborated by an informant
   Objective memory impairment for age
   Essentially preserved general cognitive function
   Largely intact functional activities
   Not demented
2. Multiple domain (md-MCI)
   Amnestic
   Non-amnestic
3. Single non-amnestic domain.

The etiopathogenic classification of MCI:

1. Neurodegenerative disease – pre-Alzheimer's disease MCI, Lewy body dementia, frontotemporal dementia, and focal atrophy

2. Cognitive disorders corresponding to vascular lesions – vascular pre-dementia MCI. (Vascular MCI/CIND has been identified as mild cognitive disorders that occur after stroke and may progress to more severe cognitive dysfunction.)
3. Mixed dementia
4. Dysphoric or dysthymic disorders – anxiety or depressive syndrome.

A simple algorithm for a complete diagnosis of MCI has been proposed as in Figure 2.1 [12,13].

Epidemiology of MCI

Memory complaints are a common feature among the elderly, with prevalence rates ranging from 25% to over 50%. Prevalence rates of MCI vary depending on the criteria used for

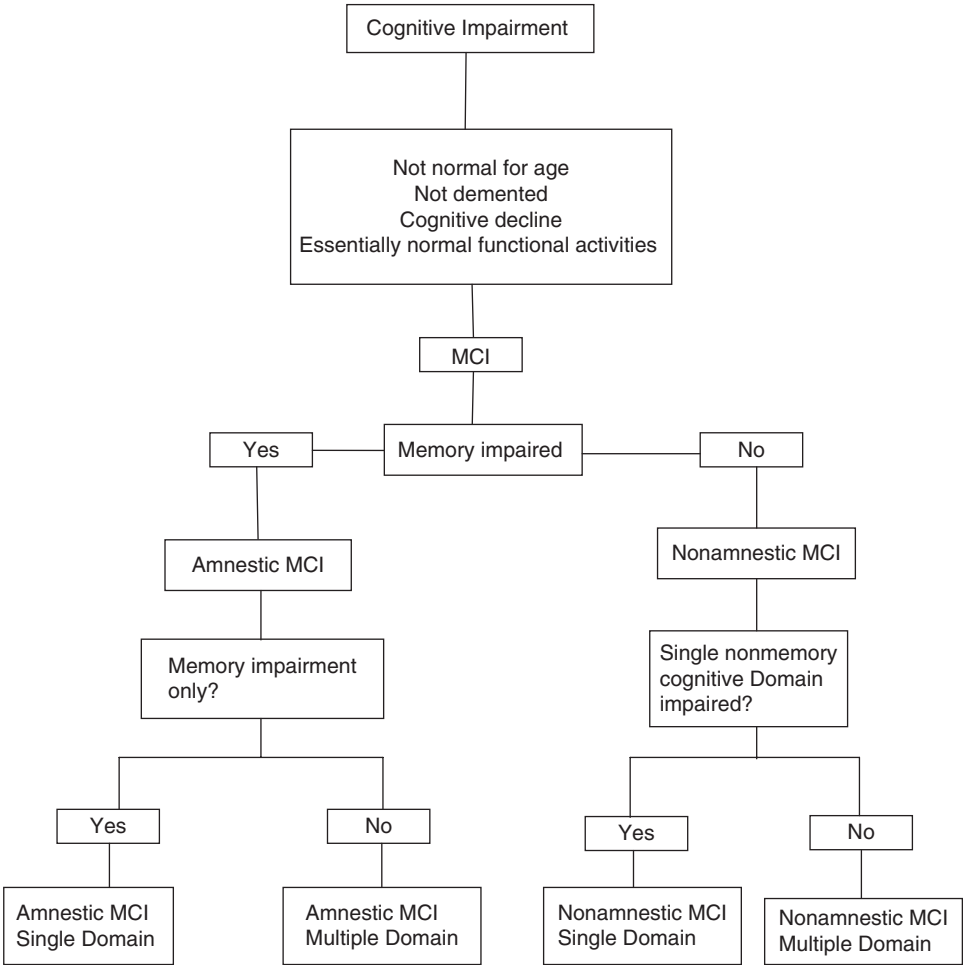

Figure 2.1 Algorithm for complete diagnosis for MCI. From Petersen [12,13].

defining MCI. Age-associated memory impairment and CIND are more broad in their categorization and have higher prevalence rates of nearly 20% [14,15] and 16·8% [16] respectively, while Petersen's criterion is narrow and rigid and has a prevalence of 3% [9]. Among the different types of MCI, a multicenter population study [17] found that the multiple cognitive deficits type (16%) was more prevalent as compared to the amnestic type (6%). Higher prevalence of md-MCI as compared to a-MCI has been confirmed by subsequent studies [18].

Clinical features, diagnosis, and prognosis of MCI

Mild cognitive impairment is characterized by impairment in cognitive domains that is intermediary between normal aging and dementia. While a-MCI is characterized by problems with memory, individuals with md-MCI are additionally impaired in other cognitive domains like activities of daily living and judgment. In the single non-memory MCI, there is mild impairment in executive function or visuospatial impairment other than memory. Individuals with MCI have subtle impairments in the conceptual knowledge of finance, cash transactions, bank statement management, and bill payment, and in overall financial capacity [19]. Mild cognitive impairment has been associated with impairment in motor coordination and balance leading to an increased risk of falling with subsequent soft-tissue injuries and fractures [20,21]. Cognitively impaired elderly without dementia have a greater mortality risk, hazard ratio of 1.7, as compared with cognitively unimpaired elderly [22]. Besides cognitive impairment, MCI has been consistently associated with behavioral problems similar to dementia. Apostolova and Cummings [23] conducted a meta-analysis of these symptoms and concluded that "neuropsychiatric symptoms in MCI are very common, occurring in 35–75% of patients." They noted that apathy, anxiety, depression, irritability, and agitation were among the most common behavioral symptoms while euphoria, hallucinations, disinhibition, and aberrant motor behavior were the least common. Additionally, the meta-analysis [24] also revealed that these neuropsychiatric symptoms were closely related to deterioration in cognition.

Neuropsychological tests and neuroimaging in MCI

Since the introduction of the neuropsychological dimension in the definition, a number of neuropsychological tests [25] have been identified as being useful in the detection of the early cognitive changes associated with MCI. In a longitudinal follow-up study, which has hence been confirmed [26], it was found that measures of memory, particularly delayed recall (with semantic cues), discriminated most accurately between subjects who subsequently developed AD (also identified as a predictor of conversion) and subjects who remained non-demented. Individuals with MCI have impairments in task-switching capacities that improve with practice [27], have impaired identification of "famous faces" [28], and have impaired facial emotion recognition [29–31]; all of which are intermediate between normal controls and AD. The Mini-Mental State Examination (MMSE) remains an excellent bedside screening test for cognitive