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# Dementia in Thailand: Current situation

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### **Background**

Thailand has been an ageing society with older persons constituting more than 10 % of the population since 2002. One of the important chronic diseases of ageing population is dementia. Dementia is a syndrome that can be caused by a number of progressive disorders. The syndrome affects memory, thinking, behavior and the ability to perform everyday activities. The report by World Health Organization has shown that dementia mainly affects older people, although there is a growing awareness of cases found in the age before 65. For the age of 65, the likelihood of developing dementia roughly doubles every five years.

In Thailand, studies showed that the prevalence of dementia is 1.8-10.2% in the age group 55 years and above (Senanarong V., et al, 2001). Health Systems Research Institute of Thailand surveyed 21,960 people with people aged over 60 years in 2008-2009. The findings showed that 12.4% of people aged over 60 years have dementia and 9.8% being male while 15.1% are female. According to the latest population census surveyed in 2010 by the Office of National Statistics reports that the ageing population accounted for 12% of the whole population, and it is expected that the number will increase to 17% by 2020. It is estimated that there are as huge number as at least 300,000 people who have been diagnosed as having dementia across the nation. This critical situation developed burden of care among family member and healthcare professional. Weerasuk M. et al. (2010) surveyed 88 dementia caregivers attending "Caregiver Day" in Bangkok by using Caregiver Burden Inventory. It founded that

dependency in basic activities of daily living correlated with higher caregiver burden and the top three caregiver's needs were caregiver education and training, telephone line provided for caregiver consultation and special system in a hospital provided for dementia patients to have rapid access to see a doctor. Additionally, there were a few special services for elderly with dementia. There are still lack of preventive strategies and special unit for healthcare professional. Therefore, improvement and establishing an appropriate health care system for elderly with dementia in Thailand are needed. Understanding situation of dementia care of Thai elderly with cognitive impairment will assist the formation of public health policy and response to the needs of social welfare for the demented elderly.

This report aims to introduce the review process and its background. This is a preliminary analysis of important baseline information of factors related to cognitive impairment of Thai elders, screening methods and dementia management particularly non-pharmacology management. This review conducted during January to February 2013.

## Objectives

The specific aims of the project are: 1) analyze the factors related to cognitive impairment of Thai elders 2) cognitive status screening 3) dementia management and 4) model of care for dementia of Thai elderly.

## Methods

The methods used to analyze the current situation of dementia in Thailand were situational analysis, which included an integrative literature review and other strategies;

1) Document review; Initial searches in PubMed and Scopus were conducted using the subject words dementia combined with factors, cognitive screening, management and model of care. These two databases were chosen because they are representative of the Thai literature published on this topic and have been used in prior reviews of key words individuals with dementia. Based on this initial search, 25 studies were examined. Five articles were excluded from further review. The remaining 18 articles were reviewed with attention to the following inclusion criteria: (a) the study presented original empirical research, (b) the sample, or at least a subset of the sample, consisted of participants who were diagnosed

with dementia. (c) studies published in national and international journals in the last 12 years (from 2000 to 2012) written in Thai and English which conducted in Thailand.

The guiding question of this review was : What evidence is available regarding factor related to cognitive impairment, cognitive screening, dementia management and model of dementia care?

2) In-depth interview; A group of healthcare staff at Memory clinic, Neurological hospital, Chiang Mai province included registered nurse, physician, occupational therapist, nutritional therapist and psychiatrist were interviewed by using semi-structured questionnaire. The questionnaire consisted of general topic, cognitive screening method and other activities of each healthcare professional and

3) Observation; Counseling activity for caregiver of dementia in neurological hospital elderly was observed.

The results generated by the analysis of studies included in the review will be presented narratively.

## Results

In total, 20 articles were found in the electronic databases. Some were repeated in the databases or did not meet the criteria. Therefore in the end 15 articles searched online were included for this systematic review on the current situation of dementia in Thailand.

### 1. Factor related to cognitive impairment of Thai elderly

One studies, conducted in 2001 (Senanarong, V. et al, 2001) examined the association of risk factors for dementia and cognitive status in an urban population-based Thai elderly. The researcher team reported that risk factors for impaired cognitive status in Thai elderly included physical and biochemical factors. Systolic blood pressure (BP), diastolic BP, serum cholesterol, SCOT, GGT, serum albumin, haemoglobin, MCHC, neutrophil counts and weight were statistically significant factors that were associated with cognitive status. Both systolic and diastolic BP were high in the higher cognitive status group. Serum albumin, serum cholesterol levels and body weight were also higher in the high cognitive status group.

After 11 years later, the researcher team conducted the DDP study (The Dementia and Disability Project in Thai Elderly) again. One thousand nine hundreds and ninety-nine elders were screened at primary care unit, Siriraj hospital, Bangkok. In this study, a linear regression adjusting for covariates showed that only gait and balance and triglycerides were significantly associated with activities of daily living. Sixty three percent of the Thai cohort has at least one chronic disease as a comorbidity of dementia. Moreover, vascular risk factors contributed to small vessel diseases and dementia. In this study, 38.6% of Thai elders who had MRIs have moderate to severe white matter lesions. These findings indicated the high prevalence of small vessel diseases on the study. Other finding of the study reaffirms that Thai elderly population has highest allele frequency of ApoE 3 gene, which is consistence with previous study (Senanarong, V. et al, 2005) The frequency of ApoE4 gene is 22.85% in this study.

Additionally, one study was examined the prevalence of and risk factors predicting cognitive impairment among elders in southern Thailand. The results of this study showed that a lack of formal education, female gender, depression, and physical inactivity were found to be significant predictors of cognitive impairment. The results suggested that elders with risk factors should be assessed for cognitive impairment (Taboonpong S. et al, 2008)

Those studies demonstrated an association between nutritional status and cognitive status in Thai elderly. The important findings will be useful for healthcare professional to revise care planning for individuals with cognitive impairment by focusing in prevention strategy. Depression, and deficits in activities of daily living and educational activities should be addressed and corrected to improve elders' cognitive abilities.

## 2. Cognitive status screening

There are several instruments for screening cognitive status such as;

- 1) Thai Mini Mental State Examination (TMSE)
- 2) Chula Mental Test (CMT)
- 3) Neuropsychiatric Inventory Questionnaire (NPI-Q)
- 4) Clinical dementia rating scale (CDR)
- 5) Allen's cognitive level test

**Thai Mini Mental State Examination** is the most commonly used instrument for screening cognitive function in Thai elders. TMSE was modified from MMSE by Geriatric Institute, Ministry of Public Health during 2002. It provides measures of orientation, registration (immediate memory), short-term memory (but not long-term memory) as well as language functioning. The cut-off score below 17-22 out of a possible 30 points will be used to indicate cognitive impairment in those who can write and read on it. The cut-off score below 14 out of a possible 23 points will be used in those who has less education. However, one study show that using backward score number 4 instead 7 is sensitivity of 77% and specificity of 57% (Muangpaisan, Intalapaporn & Assantachai, 2010)

**Chula Mental Test (CMT)** is a 13 item cognitive impairment screening assessment of cognitive function of illiterate, older adults with reading and writing difficulties. The summation score of CMT, representing each subject's cognitive function, range from 1 to 19. Total CMT scores of: 0-4 indicates severe cognitive impairment; 5-9 represents moderate cognitive impairment; 10-14 implies mild cognitive impairment; and, 15-19 are indicative of normal cognitive function (Kiatlaekakul, Taboonpong & Suttharangsee, 2007)

**Neuropsychiatric Inventory Questionnaire (NPI-Q)** is a 13 item behavior screening assessment. This test has been used to measure behavioral distinctions associated with frontotemporal dementia and AD; measure behavioral correlates of cerebral blood flow in AD; and identify the link between behavioral disturbance in dementia and body mass index such as delusion, hallucination, agitation, depression, anxiety, apathy, euphoria, disinhibition, irritability, motor disturbance, night time behaviors and eating behavior (Senanarong V., 2005; 2013)

**Clinical dementia rating scale (CDR)** is a five-point scale in which CDR-0 connotes no cognitive impairment, and then the remaining four points are for various stages of dementia: CDR-0.5 = very mild dementia, CDR-1 = mild, CDR-2 = moderate, CDR-3 = severe. There are six domains that are used to construct the overall CDR table are each scored individually. The six domains are: Memory, Orientation, Judgment and Problemsolving, Community Affairs, Home and Hobbies, and Personal Care (Senanarong V. 2013)

**Clock drawing test (CDT)** is a cognitive test with a number of scoring variations, most of which are fairly easy and simple to perform and assess. The results of three studies (Jitapunkul et al, 2000; Kanchanatawan, 2006; Satukijchai & Senanarong, 2013) showed high sensitivity and specificity of the test for detecting memory problem in dementia. This test is a simple method that can be used as a part of neurological test or as a screening tool for Alzheimer's and other types of dementia.

The elderly undergoing testing is asked to; draw a clock, put in all the numbers and set the hands at ten past eleven.

Scoring system for Clock Drawing test (CDT)

There are a number of scoring systems for this test. The Alzheimer's disease cooperative scoring system is based on a score of five points.

- 1 point for the clock circle
- 1 point for all the numbers being in the correct order
- 1 point for the numbers being in the proper special order
- 1 point for the two hands of the clock
- 1 point for the correct time.

**Allen's cognitive level test** is the test that occupational therapist has been used for screening cognitive function of dementia patient during observation in memory clinic. There are six levels ranging from Coma (0.8) to "Normal" (6.0). Each level has three components: attention, motor control, and verbal Performance. However, this test will use more time to assess the cognitive function.

### 3. Non-pharmacological management for dementia elderly

Only three articles show the effect of non-pharmacological strategies;

#### **Memory training program**

One study (Wicheantong EU., 2000) was Quasi-experimental designs, conducted in forty elderly who lived in residential home. The experimental group involved in the memory training program for 12 sessions with 60-90 minute session each day. There were memory tests before/ after the experiment in both sample groups and 15 days after the experiment in the experimental group. The memory scores of the experimental group after

participating in the memory training program were higher than those of the control group.

The memory training program can help the elderly with mild dementia for improved memory. From observing the activities of health care team at memory clinic, this program still used for improving memory of the dementia elderly.

#### **Home-based exercise**

One study, conducted in Thai culture was randomised control trial (Karuncharennpanit, 2011). Exercise program included an educational session, home visits and telephone calls. The outcome measures were physical function, psychological health, cognition and quality of life. After finished the home-based program, muscle strength, physical function performance tests and Activities of Daily Living showed significant differences ( $p < 0.001$ ) for all variables between the intervention and control group over time. For the psychological health, cognition and quality of life sections, only Mini Mental Status Examinations showed significant improvement in the intervention group, whereas a decline ( $p < 0.05$ ) was found in the control group. Further, a positive trend in Quality of Life-Alzheimer's Disease rated by carers and the potential change in scores between pre-and post-tests for the Neuropsychiatric Inventory and the Thai Geriatric Depression Scale were found in the intervention group. For this group of assessments, a negative trend was found in the control group. However, the QOL-AD, rated by people with dementia themselves, showed a decline in the intervention group.

Therefore, home-based exercise program should be implemented as part of dementia care to slow the deterioration seen among people with dementia and to help maintain independence, thus delaying caregiver burden.

#### **Musical training**

Musical training had been introduced by occupational therapists and music therapists to improve physical and mental abilities in the rehabilitation environment. One RCT study aimed to examine the effectiveness of a musical training program on reaction times in the Thai elderly individuals. Healthy elderly individuals of both sexes with no musical

background were randomly divided into one control group (n ¼ 30) and one experimental group (n ¼ 30). The control group did not receive the musical training program, but the experimental group received the musical training program for 7 weeks (20 minutes per week). Reaction times of the participants' dominant index were measured during the first and seventh week. The experimental group had significantly faster visual and auditory reaction times than the control group in the seventh week. The musical training program promoted health accessibility and leisure participation for the Thai elderly individuals by improving their visual and auditory reaction time.

This study offers accessibility of musical training as a brain-plasticity-based program for the aging population who should do more to exercise their potential abilities and to keep healthy. Therefore, it will be useful for those who has cognitive change.

### Other strategies

There are various strategies for improving cognitive function of Thai elderly recommended by the experts from Thai geriatrics institute. Clinical practice Guideline for Dementia care was announced in 2008 (Neurological Institute of Thailand, 2008). Cognitive improvement program, emotional oriented program, stimulation oriented program behavior oriented program and caregiver oriented program are evidence-based program for maintaining health of dementia elderly and caregivers.

## 4. Model of care for Thai elderly with dementia

There is no article focus on developing the model of dementia care in Thai elderly group. However, memory clinic is the best service for cognitive enhancement. There is only one of clinical practice guideline for dementia management, developed by Ministry of Public Health in 2008. Moreover, there is one non-government organization; The Alzheimer Foundation of Thailand that provide information for dementia care.

However, family is the best supporting group for caring dementia. "Caregiver network" is a support group for helping family and caregiver who take care dementia (<http://www.azthai.org>)

## Conclusion

From the preliminary analysis, it can be concluded that in the future health care professionals will have to take into account of the importance of prevention, establishing groups members who can prevent cognitive impairment in the community, and develop facilitation program for the family members of dementia.

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