

**EFFECTIVENESS OF LANGUAGE ENRICHED  
SOCIALIZATION EXERCISE ON GLOBAL  
FUNCTIONING AMONG ELDERLY WITH  
MILD COGNITIVE IMPAIRMENT AT  
SELECTED OLD AGE HOME,  
ERODE, 2011.**

DISSERTATION SUBMITTED TO  
**THE TAMIL NADU DR.M.G.R.MEDICAL UNIVERSITY**  
**CHENNAI.**  
IN PARTIAL FULFILMENT OF REQUIREMENT FOR THE DEGREE OF  
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# CHAPTER – I

## INTRODUCTION

### BACKGROUND OF THE STUDY

Cognitive vitality is essential to quality of life and survival in old age. With normal aging, cognitive changes such as slowed speed of processing are common, but there is substantial inter individual variability, and cognitive decline is clearly not inevitable. Maintaining cognitive health in late life has important implications for overall well-being and independence, health services utilization and costs, long-term institutional care, and caregiver burden, as well as personal and societal resources.

There has been a truly remarkable demographic transition that has dramatically increased the numbers and percentage of adults living until over the age of 65 years throughout the world. This New longevity shows no signs of abating, creates major challenges for the society. There is a clear need to optimize cognitive and emotional functioning in this aging population.

Mild Cognitive Impairment is an intermediate stage between the expected cognitive decline of normal aging and the more pronounced decline of dementia where individuals experience cognitive deficits that are greater than expected for their age but do not fulfill the diagnostic criteria for dementia. It involves problems with memory, language, thinking and judgment that are greater than typical age-related changes. (Winblad B et al.,2010).<sup>83</sup>

**The Center for Gerontology** defines Mild Cognitive Impairment as a condition characterized by significant cognitive impairment in the absence of dementia. It primarily affects memory and causes subtle changes in daily functioning

Significant cognitive decline is very common in the elderly population. Individuals with cognitive decline are at much greater risk for having dementing disorders. Evidences have indicated that cognitive function begins to decline from the age of 50 years and accelerates after age of 65 years.

**World Health Organization (2009)**<sup>89</sup> reported that the older population is growing throughout the world and by 2020, it is estimated that the elderly will exceed 1 billion and 700 million of them will be in the developing countries. It also stated that the number of persons aged 60 years and older will increase two-fold to 1.2 billion people by 2025. This finding has important healthcare and caregiver implications as the prevalence of cognitive impairment is positively related to advancing age.

**The World Population of Aging (2009)**<sup>92</sup> estimated that by the year 2050, the number of older persons is expected to be more than 3/4<sup>th</sup> from 600 million to almost 2 billion.

According to **The World Fact Book of Central Intelligence Agency (2011)**<sup>103</sup> as of July 12, 2011 the life expectancy at birth in India is 66.8 years.

According to **2001 Census**<sup>87</sup> the elderly population in Tamilnadu were forty four lakhs seventy six thousand four hundred and eighty one(44,76,481).

**The Aging, Demographics And Memory Study (ADAMS)** in United States (2008) conducted a longitudinal study from July 2001 to March 2005 with 1770 individuals aged 71 years and older , showed that 5.4 million people (22.2%) had Mild Cognitive Impairment without dementia , which is approximately 4.4 million people by this reckoning. It was also found to be associated with increased risk for disability, increased health care cost, and progression to dementia.

**National Institute on Aging, USA (2010)**<sup>88</sup> along with Mayo's clinic found that 12 percent of 70- to 89-year-olds have Mild Cognitive Impairment. The prevalence of Mild Cognitive Impairment increased with age, affecting 9 percent of those 70 to 79 years old and nearly 18 percent of those 80 to 89 years old. The prevalence of Mild Cognitive Impairment also varied according to years of education, ranging from 25 percent in those with up to eight years of education, 14 percent in those with nine to 12 years, 9 percent in those with 13 to 16 years, and 8.5 percent in those with greater than 16 years.

**Statistics Canada (2009)**<sup>93</sup> reports that in Canada persons aged 65 years and older represent the fastest growing population, with an 11.5% increase in prevalence between 2001 and 2006 and dementia and cognitive impairment not meeting the criteria for dementia are estimated to affect 8% and 16.8% of Canadians aged 65 years and older, respectively.

**Das SK et al (2007)**<sup>34</sup> conducted a cross-sectional study among an urban population in kolkatta, India comprising individuals who were non demented and non depressed aged 50 and older and estimated that the overall prevalence of Mild Cognitive Impairment was 14.89%. Prevalence of the amnestic Mild Cognitive Impairment was 6.04% and that of the multiple domain Mild Cognitive Impairment was 8.85%. The amnestic type was more common among men and the multiple domain type among women with advancement of age. Rates differed considerably with educational attainment. Hypertension and diabetes mellitus were the major risk factors for both types of Mild Cognitive Impairment.

According to Institute of community health, Voluntary Health Services, Chennai the prevalence of Mild Cognitive Impairment was considerably higher upto 23.5% among elderly individuals in Chennai.( **Jotheeshwaran, A et al.,2010**).<sup>48</sup>

There is both popular and scientific interest in keeping the brain young and avoiding cognitive impairment through increasing ‘cognitive reserve’ by staying physically and mentally active. Older adults may be able to enhance their cognitive health status through certain health behaviors such as language enrichment and enhanced socialization.

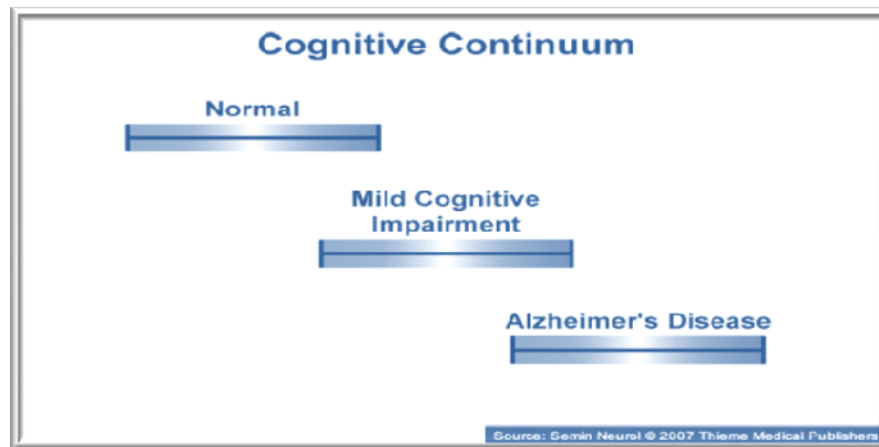
## **NEED FOR THE STUDY**

The increasing number of the older people has imposed a huge health impact on the society, as longer survival is also accompanied by the greater decline in health and different domains of function. The WHO estimates that by the year 2020, 70% of the world’s population aged 60 years and above will live in developing countries, with 14.2% located in the Indian subcontinent<sup>92</sup>

Mild Cognitive Impairment is a less-than-benign diagnosis because it is associated with an elevated risk of incidence of Alzheimer’s disease and more rapid cognitive decline. The rate of conversion from Mild Cognitive Impairment to Alzheimer’s disease is 10% -12% per year. **(Burke D., 2009).**<sup>86</sup> Neuropathologically Mild Cognitive Impairment appears to be a transitional state of evolving Alzheimer’s disease. As a result of the growing global Alzheimer’s epidemic, Mild Cognitive Impairment needs to receive increasing attention as the first clinical presentation of Alzheimer’s and a potentially pivotal opportunity for intervention.

**National Institute on Aging**<sup>97</sup> and Alzheimer’s Association diagnostic guidelines and criteria recognize Mild Cognitive Impairment as a critical stage in the Alzheimer’s continuum.





**Fig.1: Cognitive continuum from normal aging through Mild Cognitive Impairment to Alzheimer's disease.**

**The Center of Disease Control and Prevention, USA (2010)**<sup>102</sup> through the healthy brain initiative examined the current state of knowledge regarding the promotion and protection of cognitive health. This National Public Health Roadmap to maintaining cognitive health recognized current social trends and other factors that affect cognitive health from a public health standpoint. The factors identified were an aging population which is increasing and the potential risk of loss of cognitive functioning as people age, increasing societal burden & a continued lack of awareness among the public.

**Willis GL et a.,(2008)**<sup>81</sup> conducted a study to assess the set of complex tasks of daily living that involved global cognitive processes and higher order executive functions among older adults using the Everyday Problems Test for the Cognitively Challenged Elderly (EPCCE). The results showed that 45% of the EPCCE tasks were solved with significant differences in scores by disease severity and in particular to executive functions.

**The life table cohort of Americans** aged 55 and over from the Health and Retirement Study (HRS) showed that white race, male sex, smoking and higher education shorten the duration of life with cognitive impairment

**Pandav R et al., (2003)**<sup>57</sup> conducted a cross-national epidemiological study to evaluate the relationship between blood pressure and cognitive impairment in elderly populations in India and the United States using standardized cognitive screening and blood pressure measurements. 4810 subjects who were 55 years and older, of whom 595 were 75 years and older, from India, and 636 subjects who were 75 years and older from USA were examined and the investigators concluded that for every 10 mm Hg increase in systolic blood pressure there was a 10% reduction and with every 10 mm Hg increase in diastolic blood pressure there was a 13% reduction in cognitive impairment.

**Gutierrez Perez .C et al., (2009)**<sup>43</sup> reported a high frequency of cognitive dysfunction before stroke among older people in their comparative study between patients with early phase after stroke and healthy controls. Cognitive status before stroke-onset was investigated using Cognitive Impairment Questionnaire. The results showed that cognitive impairments were present in 96% of older patients after stroke onset using the battery of neuropsychological tests but in only 9% of controls. It was also found that 76% exhibited reduced executive function and 75% reduced psychomotor tempo. Cognitive dysfunction was present in 52% before stroke onset without any impact on the frequency of impairment in the various cognitive areas in early phase after stroke.

The investigator during the clinical postings at Omayal Achi Community Health Centre and Southern Railway Hospital had assessed and cared for clients with Mild Cognitive Impairment and found that the associated impairments in memory and activities of daily living significantly lowered their cognitive and non cognitive functioning. The investigator observed that there is lack of non pharmacological measures to enhance the cognitive functioning. The investigator also felt that when the people at risk for developing dementia are identified earlier we can intervene in the disease process and earlier detection will be the best level of intervention for psychiatric nurses to prevent continuing damage to the brain

therefore more effective therapies are continually developed for clients such as memory and language enrichment.

## **STATEMENT OF THE PROBLEM**

A pre-experimental study to assess the effectiveness of language enriched socialization exercise on global functioning among elderly with Mild Cognitive Impairment in a selected old age home, Erode.

## **OBJECTIVES OF THE STUDY**

1. To assess the pre test level and post test of global functioning among elderly with Mild Cognitive Impairment
2. To assess the effectiveness of language enriched socialization exercise on the level of global functioning among elderly with Mild Cognitive Impairment
3. To associate the mean differed global functioning score among elderly with Mild Cognitive Impairment with their selected demographic variables.

## **OPERATIONAL DEFINITIONS**

### **Effectiveness**

It refers to the outcome of language enriched socialization exercise on global functioning of elderly with Mild Cognitive Impairment which was measured by using a revised scale of mental status examination and an observation checklist devised by the investigator.

### **Language Enriched Socialization Exercise**

It refers to the specific exercise programme structured by the investigator modified from language enriched exercises for Alzheimer's disease by Desert South West Fitness Inc, USA to improve the global functioning of the elderly with Mild Cognitive Impairment. It includes,

### **I. Activities to improve non-cognitive functioning.**

- 1.Walking
- 2.Dance
- 3.Flexibility exercises
- 4.Volunteer activities

### **II. Activities to improve cognitive functioning.**

- 1.Proverb completion and interpretation
- 2.Picture description
3. Object description.
4. Story recall and quiz
5. Category fluency -naming quiz.
- 6.Similarities
- 7.Sentence completion
- 8.Word association

### **Global Functioning**

It refers to the level of cognitive functioning and non-cognitive functioning such as physical functioning and social functioning of the elderly with Mild Cognitive Impairment which was measured by a revised scale of mental status examination and an observation checklist devised by the investigator.

### **Elderly with Mild Cognitive Impairment**

It refers to elderly, aged 55 years and above and were residing at little sisters of the poor, Home for the aged, Erode who scored less than 20 in Montreal Cognitive Assessment and between 20-24 in Mini Mental Status Examination and also diagnosed as having Mild Cognitive Impairment by a psychiatrist.

### **ASSUMPTIONS**

1. Elderly with Mild Cognitive Impairment may have impairment in global functioning.

2. Provision of structured and regular “language enriched socialization exercise” may enhance global functioning among elderly with Mild Cognitive Impairment.

## **NULL HYPOTHESES**

**NH<sub>1</sub>:** There is no significant difference between pre and post test level of global functioning among elderly Mild Cognitive Impairment at  $p < 0.05$ .

**NH<sub>2</sub>:** There is no significant association of the mean differed global functioning score with the selected demographic variables of the elderly with Mild Cognitive Impairment at  $p < 0.05$ .

## **DELIMITATION**

The study was delimited to a period of 4 weeks.

## **CONCEPTUAL FRAMEWORK**

A conceptual framework or model is made of concepts, which are the mental images of the phenomenon. A conceptual framework provides guidelines to proceed the study and to obtain the objectives of the study based on the theory. It is the schematic representation of the activities, steps and action of the study. A conceptual framework is used in the research to outline the possible course of action or to present a preferred approach to an idea or thought.

In view of explaining the concepts of the study, the investigator has adopted **Hildegard E Peplau’s interpersonal relationships model** to conceptualize the research.

Hildegard E Peplau’s interpersonal relationships model is based on psychodynamic nursing, which applies principles of human relations to problems that arise at all levels of human experience.<sup>23</sup>

The four phases of interpersonal relationship are Orientation phase, Identification phase, Exploitation phase and Resolution phase. During these phases, the investigator assumes various roles such as teacher, Resource person, counselor, leader, technical expert & guide.

The phases are conceptualized as follows:

In the **Orientation phase**, the participants express a felt need. The investigator conducts the mental health screening. The investigator and the participants then collaboratively clarify and define the existing problem. In this phase the investigator collects the demographic variables and assesses the pre test level of global functioning of the elderly with Mild Cognitive Impairment by using revised scale of mental status examination and an observation checklist.

In the **Identification phase**, the investigator and the participants set the goal mutually. To meet the goal of enhancing global functioning, the investigator introduces a language enriched socialization exercise and the participants understand the intervention and responds by having an interdependent or dependent relationship with the investigator. The investigator assumes the roles such as teacher, resource person, and guide.

In the **Exploitation phase**, the investigator and the participants actively participate in language enriched socialization exercise. The investigator conducts sessions for cognitive stimulation, demonstrates physical exercise and encourages socialization. The investigator assumes the roles such as guide, counselor, leader and technical expert.

The **Resolution phase** is aimed at successful achievement of the goal. In this study the enhancement in the level of global functioning after the intervention is assessed by the investigator by using revised scale of mental status examination and an observation checklist. The positive outcome of enhanced level of global functioning will be further enhanced by inculcation of regular, structured language

enriched socialization exercise and the negative outcome is retention of pre intervention level of global functioning which would be further reinforced.

The nurse investigator believes that the positive outcome will lead to the attainment of a behavioural modification through the provision of regular, structured language enriched socialization in future which will improve the optimal improvement in global functioning among elderly with Mild Cognitive Impairment in the research setting.





## **OUTLINE OF THE STUDY**

- CHAPTER I** : Deals with the background of the study, need for the study, statement of the problem, objectives, operational definitions, null hypotheses, assumptions, delimitations and conceptual frame work.
- CHAPTER II** : Focuses on review of literature related to the present study.
- CHAPTER III** : Enumerates the methodology of the study and plan for data analysis.
- CHAPTER IV** : Presents the data analysis and data interpretation.
- CHAPTER V** : Deals with the discussion of the study
- CHAPTER VI** : Gives the summary, conclusion, implications, recommendations and limitations of the study.

The study report ends with selected Bibliography and Appendices.

## CHAPTER – II

### REVIEW OF LITERATURE

The review of literature is an extensive systematic selection of potential sources of previous works, facts and findings with reference to the problem under study.

This chapter deals with related literature review which includes a written state of existing knowledge on the research problem. The review of literature includes a broad comprehensive, in depth systematic and critical review of scholarly publications, unpublished scholarly print materials, personal communication on the study topic.

An extensive review of literature was done by the investigator to lay a broad foundation for the study. The literature search has been classified into various sections as follows:

**Section A:** Literature related to impairment in global functioning among elderly with Mild Cognitive Impairment.

**Section B:** Literature related to effectiveness of physical exercises on cognitive and non cognitive functioning in Mild Cognitive Impairment.

**Section C:** Literature related to effectiveness of memory, language and cognitive stimulation exercises on cognitive and non cognitive functioning in Mild Cognitive Impairment.

**Section A: Literature related to impairment in global functioning among elderly with Mild Cognitive Impairment.**

**Pernecky, R., et al., (2011)**<sup>59</sup> conducted a cross-sectional study among 45 elderly Mild Cognitive Impairment patients and 30 age-matched cognitively unimpaired controls at Germany to assess the Complex activities of daily living in

Mild Cognitive Impairment by using Alzheimer's disease Assessment scale, cognitive subscale (ADAS-cog) for the assessment of cognitive functions, Alzheimer's disease Cooperative Study scale for Activities of Daily Living in Mild Cognitive Impairment (ADCS-MCI-ADL) for the assessment of impairments of complex ADL. The study concluded that Impairment in Activities of Daily Living was present in Mild Cognitive Impairment.

**Van der Linde, R., et al., (2010)**<sup>76</sup> conducted a two-phase longitudinal study to assess the behavioural and psychological symptoms among the older population without dementia and their relationship with domains and severity of health and cognitive impairment at England and Wales. A subsample of 1781 participants without a study diagnosis of Mild Cognitive Impairment was included based on the Mini-Mental State Examination and criteria for subtypes of Mild Cognitive Impairment. The results highlighted that behavioural and psychological symptoms were prevalent in the cognitively impaired older population and subjective memory complaints were the strongest independent predictor of reported symptoms.

**Weniger, G., et al., (2011)**<sup>80</sup> conducted a true experimental study to assess egocentric and allocentric memory as by virtual reality among 29 patients with amnesic Mild Cognitive Impairment. using neuropsychological investigation and MRI volumetry. Results indicated that amnesic Mild Cognitive Impairment patients had significantly reduced size of the hippocampus bilaterally and the right-sided precuneus and inferior parietal cortex. The study concluded that amnesic Mild Cognitive Impairment patients were severely impaired in learning the virtual park and the virtual maze.

**Gold, DR.,et al.,(2011)**<sup>42</sup> examined the instrumental activities of daily living in Mild Cognitive Impairment. A review of questionnaire- based assessments of instrumental activities of daily living indicated that individuals with multiple domain Mild Cognitive Impairment were more impaired on instrumental activities

of daily living than those with single domain Mild Cognitive Impairment, mild instrumental activities of daily living changes can be predictive of future cognitive decline and the ability to manage finances may be among the earliest changes in Mild Cognitive Impairment and a strong predictor of conversion to dementia.

**Hall, JR., et al., (2011)<sup>44</sup>** stated in an article on performance on a measure of category fluency in cognitively impaired elderly that the performance on tasks of language fluency differed between normal and cognitively impaired elderly across specific time intervals. The investigation on semantic fluency across 15-second intervals in an animal naming task using retrospective chart review in 97 elderly with Mild Cognitive Impairment and 45 cognitively intact elderly revealed that the normal controls produced significantly more exemplars than the cognitively impaired elderly.

**Srinivasan., et al., (2010)<sup>68</sup>** conducted a descriptive study to assess the prevalence of health related disability in 356 elderly residents in Bangaluru, using the international classification of functioning Disability and Health (ICF). The findings revealed that disablement was associated with age above 75 years and impairment in cognitive and sensory function. The study concluded that restriction in participation in activities of daily living was more influenced by increasing age and impairment cognitive functions and not current health status.

**Subramanyam, AA., et al., (2009)<sup>69</sup>** reported in an article that prevalence of Mild Cognitive Impairment varied from 3% to as high as 59% with a conversion rate to dementia from 8% to 15%. The importance of exploring disease modifying drugs, management of risk factors like hypertension and diabetes mellitus coupled with non- Pharmacological approaches like exercises and social networking were emphasized as the necessity for coordinating the efforts to improve detection and management of Mild Cognitive Impairment.

**Wadley, VG., et al., (2009)<sup>79</sup>** conducted a comparative study to evaluate the impairment in driving performance between 46 participants with Mild Cognitive Impairment and 59 cognitively normal controls. The findings revealed that participants with Mild cognitive impairment demonstrated significantly lower performance than controls on ratings of global and discrete driving maneuvers.

**Banerjee, TK., et al., (2008)<sup>29</sup>** conducted a prospective study to analyze the group of patients with Mild Cognitive Impairment. Annual assessment of cognitive function was undertaken among 21 elderly individuals with memory complaints. The study found that Mild Cognitive Impairment remained static or converted to dementia or reverted to normality and there was also transition from one subtype of Mild Cognitive Impairment. to another.

**Lonie, JA., et al.,(2010)<sup>54</sup>** conducted a prospective cohort study for 4 years among 44 individuals with amnesic Mild Cognitive Impairment to investigate the measures that best predicts the fate of people with amnesic Mild Cognitive Impairment. The findings revealed that 41% of participants had progressed to dementia with a mean annual conversion rate of 11%.

**Tales, A., et al.,(2005)<sup>70</sup>** conducted a comparative study to examine the status of visual attention-related processing among 13 patients with Mild Cognitive Impairment and 20 healthy older adults. The findings revealed that patients with Mild cognitive impairment exhibited a significant detriment in Visual search performance when compared to the older adult controls.

**Abraham Varghese.,(2008)<sup>26</sup>** conducted a survey to investigate the prevalence, psychosocial and risk factors of various dementing disorders in Kochi , India. 1934 elderly aged 65 years and above were screened using mini-mental status examination and the findings revealed that the prevalence of dementia was 33.6 percent and 7% of the cases were due to causes such as infection, tumour,

trauma & a family history of dementia and history of hypertension were the risk factors identified for dementing disorders.

### **Section B: Literature related to effectiveness of physical exercises on cognitive and non cognitive functioning in Mild Cognitive Impairment**

**Geda, et al., (2011)**<sup>41</sup> conducted a meta analyses of prospective studies and documented that there was a significantly reduced risk of Mild Cognitive Impairment and dementia associated with midlife exercises. Randomized control trials among patients with Mild Cognitive Impairment documented better cognitive scores after six to twelve months of exercise compared with sedentary controls. One year of aerobic exercise in a large randomized controlled trials of elderly was associated with larger hippocampal volumes and better spatial memory.

**Ahlskog, JE., (2011)**<sup>27</sup> reported in an article that there was an exercise related protection from dopaminergic neurotoxins, mediated by brain neurotrophic factors and neuroplasticity. Similarly exercise consistently improved cognition and linked to enhanced neuroplasticity and increased neurotrophic factor expression whereas immobilization had the opposite effect.

**Smith, JC., et al.,(2011)**<sup>66</sup> conducted an experimental study to assess the effectiveness of physical activity on semantic memory activation among 52 patients with amnesic Mild Cognitive Impairment at Ireland using event-related functional magnetic resonance imaging during fame discrimination. The findings revealed that significantly greater semantic memory activation occurred in the left caudate of high versus low physical activity patients as the P value was 0.03, suggesting physical activity may enhance memory-related caudate activation in amnesic Mild Cognitive Impairment.

**Van Uffelen, JG., et al.,(2009)**<sup>78</sup> conducted a study to assess the feasibility and effectiveness of a walking program on aerobic fitness of a 1-yr, twice-weekly, group-based moderate-intensity walking program (MI-WP, n = 77) compared with

a low-intensity activity program (LI-AP, n = 75) for community-dwelling older adults with Mild Cognitive Impairment in Netherlands. The aerobic fitness was assessed using percentage of heart-rate reserve and the Borg scale. The findings supported the proposal that regular moderate-intensity walking improves aerobic fitness in adults with Mild Cognitive Impairment.

**Scherder, EJ., et al., (2005)<sup>64</sup>** had conducted a study to determine the effect of physical activity on cognitive functioning and executive functions using a neuropsychological test battery among 43 frail, advanced elderly with Mild Cognitive Impairment. This study also compared the effectiveness of two types of interventions, with varying intensities: walking and hand/face exercises. All subjects received individual treatment for 30 minutes a day, three times a week, for a period of six weeks. The results showed significant improvement in tasks appealing to executive functions was observed in both the walking group and the hand/face group compared to the control group.

**Liu Ambrose, T., et al.,(2010)<sup>52</sup>** conducted a single-blinded randomized controlled trial of aerobic exercise training among 70 older adults with sub-cortical ischaemic vascular cognitive impairment. Aerobic based exercise training lasted for 6 months and participants were followed for an additional six months after the cessation of exercise training. The study concluded that Aerobic based exercise training may be of specific benefit in delaying the progression of cognitive decline among seniors with vascular cognitive impairment by reducing key vascular risk factors associated with metabolic syndrome.

**Archer, T., et al., (2010)<sup>28</sup>** reported in an article on physical exercise alleviates debilities of normal aging and Alzheimer's disease, that neurodegenerative and pathophysiologic progressions that constitute amnesic Mild Cognitive Impairment have shown the existence of several putative mechanisms and physical exercise harnesses implicit and inherent biologic characteristics amenable to the putative interventional influences under clinical, institutional or

laboratory conditions. He also stated that variety of scheduled physical exercise caused brain vascular angiogenesis and subtle changes at molecular, neuronal, vascular and epigenetic levels which caused notable consequences at functional expression.

**Rochester, L., et al., (2009)**<sup>61</sup> conducted an experimental study to determine the feasibility and effectiveness of auditory cues to improve gait in Mild Cognitive Impairment. 9 participants aged 74 years with Mild Cognitive Impairment walked with and without auditory cues using two different strategies: Cue with temporal instruction to "step in time to the beat," and Cue with spatiotemporal instruction to "take a big step in time to the beat." Gait was assessed and walking speed, stride amplitude, step frequency, and variability of step and double limb support time were measured. Data analysis revealed that the cue that focused attention on both temporal and spatial parameters of gait significantly improved single and dual-task walking speed and stride amplitude. This study provided an evidence for the potential of cueing to improve gait in Mild Cognitive Impairment.

**Varela, S., et al., (2011)**<sup>96</sup> evaluated the effect of different intensities of aerobic exercise on elderly people with Mild Cognitive Impairment in a randomized trial among 48 patients at residential care homes for elderly. The patients were randomized in three groups. Group A performed aerobic exercise at 40% of heart rate reserve, group B did the same at 60% and group C carried out recreational activities for a duration of three months. Cognitive level and functional ability were assessed by means of Mini Mental Status Examination and the Timed Up and Go test before and after the intervention. The results showed significant improvements in both cognitive level and functional ability irrespective of the intensities of the exercise.



**Section C: Literature related to effectiveness of memory, language and cognitive stimulation exercises on cognitive and non cognitive functioning in Mild Cognitive Impairment.**

**Kurz, AF., et al., (2011)**<sup>50</sup> conducted a systematic review of randomized controlled trials to reveal the clinical significance of cognition- focused interventions for cognitively impaired older adults. Meta analytic strategies were used to calculate the effect size. The gains on general cognitive ability were in comparable with those of current antidementia drug treatments. Convincing evidence of clinical significance was obtained from single trials in terms of delay of cognitive decline, improvement in activities of daily living, or enhanced attainment of personally relevant goals.

**Gates, N., et al., (2010)**<sup>39</sup> critically reviewed the clinical researches that had evaluated different forms of cognitive exercises on protection against cognitive decline in elderly with Mild Cognitive Impairment. The article revealed that complex mental activity and multidomain cognitive training had the potential to improve cognitive function in healthy older adults and slow decline in affected individuals.

**Logsdon, RG., et al.,(2009)**<sup>53</sup> reported in an article that elderly with Mild Cognitive Impairment can significantly benefit from an exercise program specifically designed to address their cognitive needs, such as The Resources and Activities for life long independence (RALLI) program. RALLI used behavioural principles and exercises were broken into small steps, sequenced and linked with clues to help participants remember them, Memory-aids easy-to-follow instructions were given to enhance training and compensate for memory loss.

**Hopper, T., et a.,l(2010)**<sup>47</sup> conducted an experimental study to assess the effects of spaced – retrieval training on learning and retention of new and previously known face-name associations among 32 individuals with mild

dementia, The study found that previously known associations were learned significantly faster than new associations.

**Troyer, AK., et al.,(2010)**<sup>74</sup> conducted a randomized controlled trial to evaluate the effectiveness of a multidisciplinary group-based intervention programme which included memory training and life style education in changing everyday memory behaviour among 44 individuals with amnesic Mild Cognitive Impairment. The study concluded that the individuals with Mild Cognitive Impairment can acquire and maintain knowledge about memory strategies and can change their everyday memory behaviour by putting this knowledge into practice.

**Belleville, S., et al.,(2006)**<sup>31</sup> conducted a true experimental study to assess the efficiency of cognitive training on episodic memory among 28 individuals with Mild Cognitive Impairment and 17 healthy older adults. The intervention consisted of teaching episodic memory strategies such as list recall, face – name association and text memory. The results of the analysis revealed that the provision of cognitive training improved the performance of individuals with Mild Cognitive Impairment on episodic memory.

**Savorani, G., et al., (2004)**<sup>63</sup> conducted a study to assess the global efficacy of the "new identity" reality orientation therapy (ROT) among 34 outpatients, 13 men and 21 women, with the age range 67-88 years with mild dementia and Mild Cognitive Impairment in a geriatric day hospital at Italy. After 20 sessions of formal and complementary activities, a comprehensive improvement of cognition, language, memory and affective functions was observed. The findings revealed that the semantic fluency improved with high statistically significant difference and the immediate recall, free or cued, appeared more sensible to stimulation than the delayed one.

**Li, H., et al., (2010)**<sup>90</sup> done a meta analysis of 17 clinical studies of cognitive intervention for Mild Cognitive Impairment. The results demonstrated

that after training, patients with Mild Cognitive Impairment improved significantly both in overall functioning and overall self ratings. The analysis revealed that patients with Mild Cognitive Impairment obtained moderate benefits in language, self rated anxiety and functional ability and received mild benefits in episodic memory, visuo- spatial ability, attention, processing speed, self rated memory problem, quality of life and activities of daily living.

**Barnes, et al., (2009)**<sup>30</sup> performed a randomized controlled trial of intensive, computer based cognitive training in 47 subjects with Mild Cognitive Impairment using Repeatable Battery for Assessment of Neuropathological Status. The findings revealed that the scores improved 0.36 standard deviations in the intervention group compared with 0.03 standard deviation in the control group. The authors concluded that intensive computer based mental activity was feasible in subjects with Mild Cognitive Impairment.

## CHAPTER – III

### RESEARCH METHODOLOGY

This chapter consists of research approach, research design, variables, setting of the study, population of the study, sample size, sampling technique, criteria for selection of samples, description of tool, procedure for data collection and plan for data analysis.

#### RESEARCH APPROACH

Quantitative Research Approach was adapted to accomplish the aim of the study.

#### RESEARCH DESIGN

The research design undertaken for this study was a Pre experimental one group pretest and post test design. Based on **Polit & Hungler(2011)**<sup>19</sup> the framework for the study was done as

Group	O <sub>1</sub>	X	O <sub>2</sub>
	Pretest	Intervention	Post Test
Elderly with Mild Cognitive Impairment.	Assessment of the pretest level of global functioning among elderly with Mild Cognitive Impairment.	Language enriched socialization exercise among elderly with Mild Cognitive Impairment.	Assessment of post test level of global functioning among elderly with Mild Cognitive Impairment.

## **VARIABLES**

### **Independent Variable**

The independent variable in this study was Language enriched socialization exercise.

### **Dependent Variable**

The dependent variable in this study was Global functioning of elderly with Mild Cognitive Impairment.

### **Extraneous Variables**

The extraneous variables were Age, Gender, Educational status, Marital status, Previous Occupation, Religion, Type of family, Frequency of visit by Support system, Number of languages known, Type of recreational activities, Duration of recreational activities, Duration of religious activities, Dietary pattern, previous history of stroke, Associated illness.

## **SETTING OF THE STUDY**

The setting of the study was 'Little sisters of the poor', Home for the aged at Dhindal, Erode which had 243 inmates and 42 elderly with Mild Cognitive Impairment. It is a nongovernmental organization which provides residential care to elderly people.

## **POPULATION**

The study population comprised of all men and women aged 55 years and above, having Mild Cognitive Impairment residing at 'Little sisters of the poor', Home for the aged, Dhindal, Erode.

## **SAMPLES**

It included men and women aged 55 years and above having Mild Cognitive Impairment who fulfilled the sample selection criteria.

## **SAMPLE SIZE**

A total of 40 elderly with Mild Cognitive Impairment were selected for the study.

## **CRITERIA FOR SAMPLE SELECTION**

### **Inclusive Criteria**

1. Elderly with Mild Cognitive Impairment
2. Men and women who can understand Tamil and / or English.
3. Elderly with Mild Cognitive Impairment who are willing to participate in the study.

### **Exclusive Criteria**

1. Elderly with Mild Cognitive Impairment who are differently abled.
2. Elderly with Mild Cognitive Impairment with a co- morbid major physical illness.
3. Elderly with Mild Cognitive Impairment with chronic psychiatric illness.

## **SAMPLING TECHNIQUE**

Non-probability purposive sampling technique was used to select the samples who fulfilled the sample selection criteria.

## **DEVELOPMENT AND DESCRIPTION OF THE TOOL**

After an extensive review of standardized tools such as Mental status examination, Mini mental status examination, Wechsler memory scale, Activities of daily living scales, and with the investigator's professional experience a revised scale of mental status examination and an observation checklist were devised to assess the level of global functioning. The tool consisted of the following sections;

**Section A:**

Data collection tool to collect the demographic variables of elderly with Mild Cognitive Impairment such as Age, Gender, Educational status, Marital status, Previous Occupation, Religion, Type of family, Frequency of visit by Support system, Number of languages known, Type of recreational activities, Duration of recreational activities, Duration of religious activities, Dietary pattern, previous history of stroke, Associated illness.

**Section B:**

Data collection tool to assess the global functioning includes 2 parts,

**Part I: Assessment of cognitive functioning**

Cognitive functioning was assessed by a revised scale of mental status examination devised by the investigator. It included various components such as memory, attention and concentration, orientation, judgement, abstractibility and language measured as Fair, Very good, Good and Impaired level of functioning.

**Part II: Assessment of non- cognitive functioning**

Non-cognitive functioning was assessed by an observation checklist devised by the investigator. It included 2 components namely physical functioning and social functioning.

**SCORING KEY**

The revised scale of mental status examination to assess the cognitive functioning consisted of 6 components such as memory, orientation, attention and concentration, judgement, abstractibility and language measured as fair, very good, good and impaired level of functioning and scored 4, 3, 2 & 1 respectively.

The maximum cognitive functioning score was 24 and minimum score was 6. The level of cognitive functioning was categorized as follows

- 24-18(>75%) - Adequate cognitive functioning
- 12-17(50%-75%) - Moderately adequate cognitive functioning
- 6-11(<50%) - Inadequate cognitive functioning

The observation checklist to assess the non cognitive functioning consisted of 2 components namely physical functioning and social functioning. For every desirable activity present in each component a score of 1 was given otherwise a score of 0 was given.

The maximum non cognitive functioning score was 12 and minimum score was 0. The level of non cognitive functioning was categorized as follows

- 12-9(>75%) - Adequate non cognitive functioning
- 8-6(50%-75%) - Moderately adequate non cognitive functioning
- 0-5(<50%) - Inadequate non cognitive functioning

The maximum global functioning score was 36 and the minimum score was 6.

The over all global functioning score was categorized as follows

Score	Percentage	Level of global functioning
36-27	>75%	Adequate
18-26	50%-75%	Moderately adequate
6-17	<50%	Inadequate

### **Section C: Intervention Tool**

**Language enriched socialization exercise** consisted of 2parts:

**Part I.** Activities to improve non-cognitive functioning included Walking for in the immediate surroundings for 10 minutes, Flexibility exercises such as flexion and extension of extremities for 10 minutes, Dance with rhythmic and gentle steps for 5 minutes and Volunteer activities such as reading newspaper for others, serving at food kitchen, helping in activities of daily living of other inmates.

**Part II.** Activities to improve cognitive functioning included language and memory stimulation activities given for 45 minutes for a group comprising of ten



participants. The activities consisted of Proverb completion and interpretation, Picture description, Object description, Story recall and quiz, Category fluency naming quiz, Similarities and differences, Sentence completion and Word association.

## **CONTENT VALIDITY**

The content validity of the data collection tool and intervention tool was ascertained by opinion of the following field of expertise.

Psychiatric nursing specialists	-3
Psychiatrists(Clinical)	-1
Psychiatrists(Academic)	-1
Clinical psychologist	-1

The modifications were made in the tool for the assessment of cognitive functioning as per the suggestions of the experts and the data collection tool and the intervention tool were finalized.

## **ETHICAL CONSIDERATIONS**

### **1. BENEFICENCE &NONMALEFICENCE**

The study benefitted the study participants by preventing further cognitive decline and conversion of Mild Cognitive Impairment to Dementia.

Study participants were protected from harm and discomfort of performing the language enriched socialization exercise by obtaining physical fitness exercise to incorporate activities to improve non cognitive functioning. Informed written consent was obtained from the participants.

### **2. RESPECT FOR HUMAN DIGNITY**

The elderly with Mild Cognitive Impairment were given full freedom to decide on whether to participate in the study or not. The nature of the study was explained to each participant in detail.

### **3. JUSTICE**

Samples were selected using non probability purposive sampling who fulfilled the sample selection criteria. The language enriched socialization exercise was taught to every elderly with Mild Cognitive Impairment in the study setting at the end of the data collection.

### **PILOT STUDY**

#### **Pilot Study Setting**

The pilot study was conducted in Karanam Ketkathey Old age home, Dignity foundation, Palavakkam, Chennai.

#### **Sample Size**

The sample consisted of 6 elderly with Mild Cognitive Impairment who fulfilled the sample selection criteria.

#### **Sampling Technique**

Non probability purposive sampling technique was adapted to select the samples.

#### **Pilot Study Procedure**

The pilot study was conducted in the month of June 2011, for a period of 14 days. Formal permission was obtained from the Principal, Omayal Achi College of Nursing, the ethical clearance was obtained from the International Centre for Collaborative Research and written permission was sought from the Director, Karanam Ketkathey, Old age home, Dignity foundation, Palavakkam, Chennai for conducting the pilot study.

Self introduction about the investigator and information regarding the nature of the study was explained to the Director and the Psychiatric social worker, Karanam Ketkathey, Old age home to gain co-operation in the procedure of data collection.

A brief explanation was given about the intervention and purpose of the study to the participants and the family members of the elderly with Mild Cognitive Impairment who fulfilled the inclusive criteria & the signed consent was obtained. Pretest was done on 08/06/11. Participants were made to sit comfortably in a well ventilated room with adequate lighting. On an individual basis demographic variables were collected by a structured interview schedule and the pretest level of global functioning was measured using the revised scale of mental status examination for cognitive functioning and the observation checklist for assessing the sub components of non cognitive functioning namely physical functioning and social functioning.

The intervention was given from 09/06/11 to 20/06/11 for all the 6 participants in a group. The activities to improve non cognitive functioning such as walking, flexibility exercise, dance and volunteer activities were provided at the beginning of the sessions followed by activities to improve cognitive functioning such as Proverb completion and interpretation, Picture description, Object description, Story recall and quiz, Category fluency naming quiz, Finding Similarities and Differences, Sentence completion, and Word association focusing each activity in a day. Post test was done on 21/06/11. Privacy was maintained during the process of data collection. Confidentiality was maintained through out the study by assigning identification numbers to each participant and ID numbers were attached to the actual data. Access to participants' information was restricted only to the investigator and the psychiatric social worker.

During the pilot study the investigator felt that it would be beneficial for the elderly with Mild Cognitive Impairment in improving recent memory if the activities to improve cognitive functioning are structured as one activity per two days with continuous reinforcement in subsequent days. Hence the duration of intervention tool was changed from 12 days to 16 days with continuous reinforcement of the completed activities in subsequent days.

## **RELIABILITY OF THE TOOL**

Reliability denotes the degree of consistency of the tool. The reliability of the data collection tool was ascertained by inter rater method. The reliability score 'r' obtained was 0.99 by using Karl Pearson correlation coefficient method. The 'r' value indicated a highly positive correlation. Hence the tool was found to be highly reliable to proceed with the main study.

## **PROCEDURE FOR DATA COLLECTION**

The main study was conducted after obtaining formal permission from the Principal of Omayal Achi College of Nursing and Department of Psychiatric Nursing, ethical committee clearance from International Centre for Collaborative Research (ICCR) and authorities of 'Little Sisters For The Poor', Home for the aged, Erode for conducting the study. Confidentiality was maintained throughout the study by assigning identification numbers to each participant and ID numbers were attached to the actual data. Access to participants' information was restricted only to the investigator and the consultant physician.

A mental health screening was done for 123 elderly inmates using Mini Mental Status Examination and Montreal cognitive assessment. The elderly who scored less than 20 in Montreal Cognitive Assessment and between 20-24 in Mini Mental Status Examination were further diagnosed by the Psychiatrist and were selected for the study. 42 elderly were diagnosed as having Mild Cognitive Impairment. Using non probability purposive sampling technique 40 elderly with Mild Cognitive Impairment were selected. Physical fitness certificate was obtained for the study participants from the consultant physician, Little Sisters of the Poor, Home for the aged, Erode to incorporate activities to improve non cognitive functioning such as walking, dancing, flexibility exercises, and volunteer activities.

After giving a brief introduction about the study and obtaining the consent, participants were made to sit comfortably in a well ventilated room with adequate lighting. On an individual basis demographic variables were collected by a structured interview schedule and the pretest level of global functioning was measured using the revised scale of mental status examination for cognitive functioning and the observation checklist for assessing the sub components of non cognitive functioning namely physical functioning and social functioning.

The scheduled intervention was administered for 16 days. The participants were divided into four groups and each group comprised of ten participants. The activities to improve non cognitive functioning were administered in the beginning of the sessions. Participatory observation approach was followed throughout the intervention. The investigator guided the participants to walk in the immediate surroundings for ten minutes, demonstrated flexibility exercises and encouraged active participation by the participants for ten minutes, guided and lead the participants to dance with rhythmic and gentle movements for five minutes. The investigator encouraged the participants to read newspapers for others and to do other volunteer activities. These activities were given on a daily basis.

The activities to improve cognitive functioning were provided for a duration of 45 minutes for each group comprising of ten participants. The activities included were Proverb completion and interpretation, Picture description, Object description, Story recall and quiz, Category fluency naming quiz, Finding Similarities and Differences, Sentence completion, and Word association. A single activity was focused for 2 days and was continuously reinforced during the subsequent days at the beginning of the session.

Through participatory observation approach the investigator introduced the sessions, demonstrated the activities, lead and guided the participants. Throughout the session each participant was focused and encouraged by the investigator to actively participate in the sessions.

After the scheduled intervention period of 16 days, the post test level of global functioning was assessed similar to pretest. Participants were thanked and an informal oral feedback was obtained from the participants.

## **PLAN FOR DATA ANALYSIS**

### **Descriptive Statistics**

1. Frequency and percentage distribution was used to analyse the demographic variables of elderly with Mild Cognitive Impairment.
2. Mean and standard deviation was used to assess the pretest and post test level of global functioning among elderly with Mild Cognitive Impairment

### **Inferential Statistics**

1. Paired 't' test was used to compare the pre and post test level of global functioning among elderly with Mild Cognitive Impairment.
2. One way ANOVA and unpaired 't' test was used to associate the mean differed global functioning score with the selected demographic variables of elderly with Mild Cognitive Impairment.

## CHAPTER – IV

### DATA ANALYSIS AND INTERPRETATION

This chapter deals with analysis and interpretation of data collected from 40 elderly with Mild Cognitive Impairment. The data was organized, tabulated & analyzed according to the objectives. The findings based on descriptive and inferential statistical analysis are presented under the following sections

#### ORGANIZATION OF DATA

**Section A:** Description of demographic variables of the elderly with Mild Cognitive Impairment.

**Section B:** Assessment of the pretest and post test level of global functioning among elderly with Mild Cognitive Impairment.

**Section C:** Comparison of the pretest and post test level of global functioning among elderly with Mild Cognitive Impairment.

**Section D:** Association of mean differed global functioning score with selected demographic variables of elderly with Mild Cognitive Impairment.

**SECTION A: DESCRIPTION OF DEMOGRAPHIC VARIABLES OF THE  
ELDERLY WITH MILD COGNITIVE IMPAIRMENT**

**Table 1(a) : Frequency and percentage distribution of elderly with Mild  
Cognitive Impairment based on selected demographic variables  
such as age, gender and educational status**

**n = 40**

<b>S.No</b>	<b>Demographic Variables</b>	<b>No.</b>	<b>%</b>
<b>1</b>	<b>Age in years</b>		
	55 – 59	2	5
	60 – 64	6	15
	65 – 69	11	27.5
	70 – 74	15	37.5
	>=75	6	15
<b>2</b>	<b>Gender</b>		
	Male	16	40
	Female	24	60
<b>3</b>	<b>Educational Status</b>		
	Non-literate	12	30
	Primary	6	15
	Middle	2	5
	High School	8	20
	Higher Secondary	8	20
	Graduate and above	4	10

Table 1(a) depicts the frequency and percentage distribution of elderly with Mild Cognitive Impairment based on selected demographic variables such as age, gender and educational status.

Majority of elderly with Mild Cognitive Impairment, 15(37.5%) were in the age group of 70-74 years, 24(60%) were females and 12(30%) were non-literates.



**Table 1(b): Frequency and percentage distribution of elderly with Mild Cognitive Impairment based on selected demographic variables such as marital status, previous occupation and religion.**

n = 40

S.No.	Demographic Variables	No.	%
<b>1</b>	<b>Marital Status</b>		
	Married	20	50
	Unmarried	0	0
	Widowed	20	50
	Divorced	0	0
	Separated	0	0
<b>2</b>	<b>Previous Occupation</b>		
	Skilled	7	17.5
	Semi skilled	8	20
	Unskilled	10	25
	Retired	0	0
	Nil	15	37.5
<b>3</b>	<b>Religion</b>		
	Hindu	20	50
	Christian	20	50
	Muslim	0	0
	Others	0	0

Table 1(a) depicts the frequency and percentage distribution of elderly with Mild Cognitive Impairment based on selected demographic variables such as marital status, previous occupation and religion.

With regard to marital status 20(50%) of the elderly with Mild Cognitive Impairment were married, 15(37.5%) had no previous occupation, 20(50%) belonged to Hindu religion and 20(50%) were Christians.

**Table 1(c): Frequency and percentage distribution of elderly with Mild Cognitive Impairment based on selected demographic variables such as type of family, frequency of visit by support system and number of languages known.**

n = 40

<b>S.No.</b>	<b>Demographic Variables</b>	<b>No.</b>	<b>%</b>
<b>1</b>	<b>Type of Family</b>		
	Nuclear	16	40
	Joint	24	60
	Extended	0	0
	Single	0	0
<b>2</b>	<b>Frequency of visit by support system</b>		
	Once in a week	0	0
	Once in 2 weeks	0	0
	Once in a month	21	52.5
	Variable	5	12.5
	No support system available	14	35
<b>3</b>	<b>Number of languages known</b>		
	One	28	70
	Two	11	27.5
	More than two	1	2.5

Table 1(c) reveals the frequency and percentage distribution of elderly with Mild Cognitive Impairment based on selected demographic variables such as type of family, frequency of visit by support system and number of languages known.

Considering the selected demographic variables 24(60%) belonged to joint family, 21(52.5%) were visited by their support system once in a month and 28(70%) knew only one language.

**Table 1(d): Frequency and percentage distribution of elderly with Mild Cognitive Impairment based on selected demographic variables such as recreational activities, duration of recreational activities and duration of religious activities.**

n = 40

<b>S.No.</b>	<b>Demographic Variables</b>	<b>No.</b>	<b>%</b>
<b>1</b>	<b>Recreational Activities</b>		
	Hearing music	0	0
	Watching TV	19	47.5
	Reading books	13	32.5
	Dancing	0	0
	Others	0	0
	Nil	8	20
<b>2</b>	<b>Time for recreational activities</b>		
	<15 mts	2	5
	15 - 30 mts	15	37.5
	30 - 45 mts	7	17.5
	45 - 60 mts	7	17.5
	>60 mts	0	0
	Nil	9	22.5
<b>3</b>	<b>Time for religious activities</b>		
	Nil	11	27.5
	<15 mts	8	20
	15 - 30 mts	7	17.5
	30 - 45 mts	3	7.5
	45 - 60 mts	10	25
	>60 mts	1	2.5

Table 1(d) reveals the frequency and percentage distribution of elderly with Mild Cognitive Impairment based on selected demographic variables such as recreational activities, time for recreational activities and time for religious activities.

With regard to recreational activities 19(47.5%) watched TV as a recreational activity, 15(37.5%) allotted 15-30 minutes for recreational activities and 11(27.5%) did not engage in religious activities.

**Table 1(e): Frequency and percentage distribution of elderly with Mild Cognitive Impairment based on selected demographic variables such as dietary pattern, previous history of stroke and associated illness.**

n = 40

<b>S.No.</b>	<b>Demographic Variables</b>	<b>No.</b>	<b>%</b>
<b>1</b>	<b>Dietary Pattern</b>		
	Vegetarian	0	0
	Non vegetarian	40	100
<b>2</b>	<b>Previous H/O Stroke</b>		
	Present	0	0
	Absent	40	100
<b>3</b>	<b>Associated Illness</b>		
	HT	8	20
	DM	6	15
	Thyroid Disorders	1	2.5
	Others	0	0
	Nil	25	62.5

Table 1(e) portrays the frequency and percentage distribution of elderly with Mild Cognitive Impairment based on selected demographic variables such as dietary pattern, previous history of stroke and associated illness.

Considering the dietary pattern all 40(100%) were non vegetarians, none of them had previous history of stroke and 25(62.5%) had no associated illnesses.

**SECTION B: ASSESSMENT OF THE PRE AND POST TEST LEVEL OF GLOBAL FUNCTIONING SCORE AMONG ELDERLY WITH MILD COGNITIVE IMPAIRMENT.**

**Table 2 : Frequency and Percentage distribution of pretest level of global functioning on different components among elderly with Mild Cognitive Impairment**

n = 40

Global Functioning Components	Inadequate (<50%)				Moderately Adequate (50 – 75%)				Adequate (>75%)			
	Pretest		Post Test		Pretest		Post Test		Pretest		Post Test	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
<b>Cognitive Functioning</b>	35	87.5	0	0	5	12.5	0	0	0	0	40	100.0
<b>Non Cognitive Functioning</b>												
Physical Functioning	20	50.0	1	2.5	20	50.0	22	55.0	0	0	17	42.5
Social Functioning	27	67.5	0	0	13	32.5	21	52.5	0	0	19	47.5

Table 2 depicts the frequency and percentage distribution of pretest and post test level of global functioning on different components among elderly with Mild Cognitive Impairment.

With respect to cognitive functioning, in the pre test 35(87.5%) had inadequate functioning, 5(12.5%) had moderately adequate functioning and none of them had adequate functioning where as in the post test all 40(100%) had adequate level of cognitive functioning.

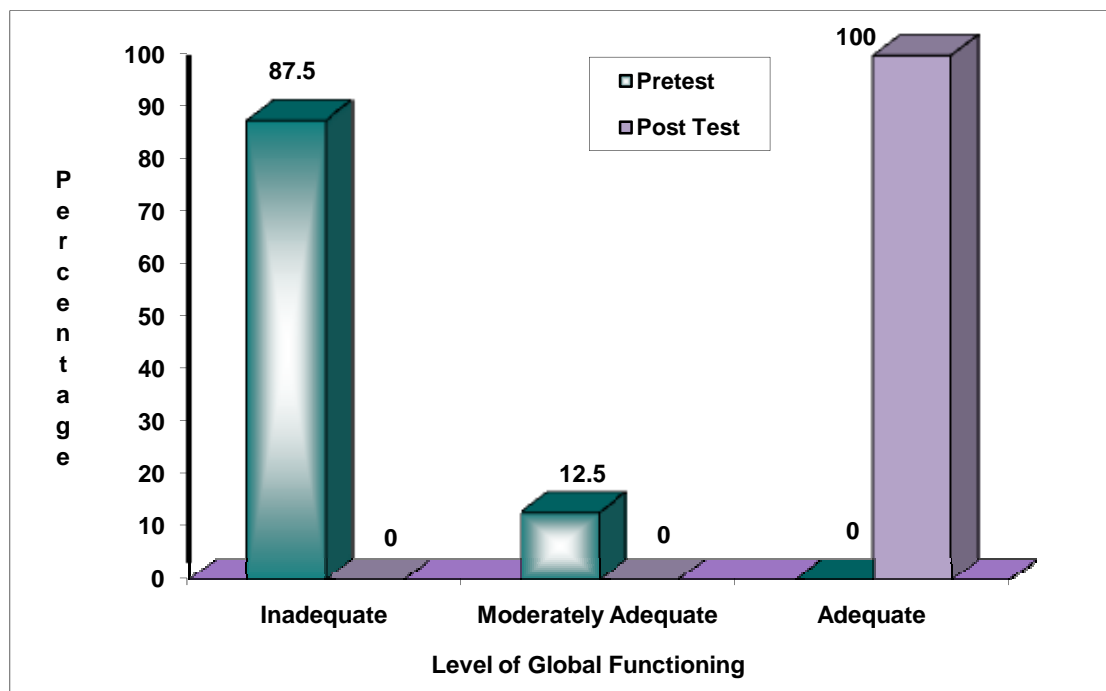
When considering the non cognitive functioning, in the pre test 20(50%) had inadequate physical functioning, 20(50%) had moderately adequate physical functioning and 27(67.5%) had inadequate social functioning, 13(32.5%) had moderately adequate social functioning where as in the post test 17(42.5%) had adequate physical functioning, 22(55%) had moderately adequate physical functioning and 1(2.5%) had remained in inadequate physical functioning and 19

(47.5%) had adequate social functioning, 21(52.5%) had moderately adequate social functioning.

The present study revealed that the improvement in the level of cognitive functioning was significantly higher than the improvement in the level of non cognitive functioning after the administration of the intervention for a period of 16 days. Hence, the investigator felt that the improvement in non cognitive functioning such as physical functioning and social functioning may be best observed after administering the intervention for a longer duration than the present study.

## OVERALL PRETEST AND POSTTEST LEVEL OF GLOBAL FUNCTIONING AMONG ELDERLY WITH MILD COGNITIVE IMPAIRMENT

n = 40



**Fig.3: Percentage distribution of overall pretest and posttest level of global functioning among elderly with mild cognitive impairment**

Fig.2 illustrates the percentage distribution of overall pretest and posttest level of global functioning among elderly with mild cognitive impairment.

In the pretest majority 35(87.5%) of elderly with Mild Cognitive Impairment had inadequate level of global functioning, 5(12.5%) moderately adequate level of global functioning.

In the post test 40 (100%) of elderly with Mild Cognitive Impairment had adequate level of global functioning.



**SECTION C: COMPARISON OF THE PRE AND POST TEST LEVEL OF GLOBAL FUNCTIONING SCORE AMONG ELDERLY WITH MILD COGNITIVE IMPAIRMENT.**

**Table 3 : Comparison of pretest and post test level of global functioning score among elderly with Mild Cognitive Impairment.**

n = 40

<b>Global functioning</b>	<b>Mean</b>	<b>Mean improvement score</b>	<b>SD</b>	<b>Paired 't' Value</b>
Pretest	14.40	18.65	2.69	58.770*** (S)
Post test	33.05		1.55	

\*\*\* p<0.001, S- Significant

Table 3 reveals the effectiveness of language enriched socialization exercise on global functioning by comparing the pretest and post test mean global functioning score among elderly with Mild Cognitive Impairment.

The overall mean improvement for global functioning was 18.65 with a standard deviation of 1.14. The calculated 't' value was 58.770 which showed a high statistical significance at p<0.001 level. Hence, there was a significant improvement in overall global functioning among elderly with Mild Cognitive Impairment after the administration of language enriched socialization exercise.

**SECTION D: ASSOCIATION OF MEAN IMPROVEMENT OF GLOBAL FUNCTIONING SCORE WITH SELECTED DEMOGRAPHIC VARIABLES OF ELDERLY WITH MILD COGNITIVE IMPAIRMENT.**

**Table 4 : Association of mean differed global functioning score of elderly with Mild Cognitive Impairment with their selected demographic variables such as previous occupation and duration of recreational activities.**

n = 40

Demographic Variables	Pretest		Post Test		Mean Diff		ANOVA (F) Value
	Mean	S.D	Mean	S.D	Mean	S.D	
<b>Previous Occupation</b>							F = 3.286* (S)
Skilled	17.28	2.49	34.00	0.00	16.71	2.49	
Semi skilled	14.25	1.75	33.00	1.07	18.75	1.39	
Unskilled	13.30	1.49	32.70	1.49	19.40	1.95	
Retired	-	-	-	-	-	-	
Nil	13.87	3.02	32.87	2.03	19.00	1.65	
<b>Time for recreational activities</b>							F = 2.923* (S)
<15 mts	14.00	4.24	34.00	1.41	20.00	2.83	
15 - 30 mts	14.33	2.02	33.20	0.86	18.87	1.68	
30 – 45 mts	15.57	1.72	33.14	1.46	17.57	1.13	
45 - 60 mts	16.00	3.21	33.28	1.70	17.28	2.56	
>60 mts	-	-	-	-	-	-	
Nil	12.44	2.83	32.33	2.34	19.89	1.69	

\*p<0.05, S- Significant

Table 4 illustrates the association of mean differed global functioning score of elderly with Mild Cognitive Impairment with their selected demographic variables such as previous occupation and duration of recreational activities.

The one way ANOVA revealed that there was a low significant association of mean differed global functioning score with previous occupation of the elderly with Mild Cognitive Impairment and the duration for recreational activities at  $p < 0.05$  level.

The present study revealed that the previous occupation involving linguistic tasks played a vital role in improving the global functioning. The investigator felt that the higher the duration spent for recreational activities is found to be a significant factor in providing cognitive stimulation to the elderly with Mild Cognitive Impairment.

## CHAPTER – V

### DISCUSSION

This chapter deals with the discussion of the findings of the statistical analysis based on the objectives and hypotheses of the study.

**The first objective was to assess the pre test level of global functioning among elderly with Mild Cognitive Impairment.**

Findings of pre intervention analysis revealed that 35(87.5%) had inadequate global functioning, 5(12.5%) had moderately adequate global functioning. When considering the non cognitive functioning 20(50%) had inadequate physical functioning, 20(50%) had moderately adequate physical functioning and 27(67.5%) had inadequate social functioning, 13(32.5%) had moderately adequate social functioning.

This was consistent with the findings of a prospective evaluative study conducted by **Dkonkwo, OC., et al., (2010)**<sup>35</sup> in USA to find out the decline in everyday functioning of patients with Mild Cognitive Impairment. Participants were 164 healthy controls, 258 Mild Cognitive Impairment patients, and 103 patients with Alzheimer's disease, enrolled in the Alzheimer's disease neuroimaging initiative. Participants underwent neuroimaging studies and completed upto six biannual Functional Activities Questionnaire(FAQ) assessments. It was found that rate of decline in FAQ among Mild Cognitive Impairment patients was higher than that of controls. Patients with Mild Cognitive Impairment who converted to mild Alzheimer's disease declined faster than those who remained stable.

**The second objective was to assess the effectiveness of language enriched socialization exercise on the level of global functioning among elderly with Mild Cognitive Impairment.**

The findings revealed the effectiveness of language enriched socialization exercise on global functioning by comparing the pretest and post test mean global functioning score among elderly with Mild Cognitive Impairment.

The overall mean improvement for global functioning was 18.65 with a standard deviation of 1.14. The calculated 't' value was 58.770 which showed a high statistical significance at  $p < 0.001$  level. Hence, there was a significant improvement in overall global functioning among elderly with Mild Cognitive Impairment after the administration of language enriched socialization exercise.

Hence the null hypothesis **NH<sub>1</sub>** stated earlier that “there is no significant difference between pre and post intervention level of global functioning among elderly with Mild Cognitive Impairment at  $p < 0.05$ ” was **rejected**.

The findings were consistent with several studies conducted to assess the effectiveness of cognitive training and physical activities in enhancing cognitive functioning and non cognitive functioning of patients with Mild Cognitive Impairment.

**Unverzagt, FW., et al., (2008)<sup>75</sup> reported** a similar finding in a paper presentation during the Indiana Alzheimer's disease Center's symposium on Mild Cognitive Impairment on April 19, 2008. In the presentation the author communicated the results of Advanced Cognitive Training for Independent and Vital Elderly (ACTIVE) study which was a multicenter, randomized, controlled clinical trial that has been examining the long term effectiveness of cognitive training on enhancing mental activities such as memory, reasoning and attention and preserving activities of daily living in healthy older adults and those with Mild Cognitive Impairment. ACTIVE had shown positive effects on cognitive training at

5 years post intervention for basic mental activities, health related quality of life, and improved ability to perform instrumental activities of daily living.

**The third objective was to associate the mean differed global functioning score among elderly with Mild Cognitive Impairment with their selected demographic variables.**

The one way ANOVA revealed that there was a low significant association of mean differed global functioning score with previous occupation of the elderly with Mild Cognitive Impairment and with the duration for recreational activities at  $p < 0.05$  level.

The present study revealed that the previous occupation involving linguistic tasks played a vital role in improving the global functioning. The investigator felt that the higher duration spent for recreational activities is found to be a significant factor in providing cognitive stimulation to the elderly with Mild Cognitive Impairment. The involvement in recreational activities may increase cognitive reserve by offering long term potentiation induced neuroprotection.

The other demographic variables were not found to be statistically significant.

Hence the null hypothesis  $\text{NH}_2$  stated earlier that “there is no significant association of the mean differed global functioning score with the selected demographic variables of the elderly with Mild Cognitive Impairment at  $p < 0.005$ ” was **rejected** for previous occupation and duration for recreational activities and **accepted** for other demographic variables such as Age, Gender, Educational status, Marital status, Religion, Type of family, Frequency of visit by Support system, Number of languages known, Type of recreational activities, Duration of religious activities, Dietary pattern, previous history of stroke and Associated illness.

The above findings were consistent with the prospective evaluative study conducted by **Wilson, RS., et al.,(2007)**<sup>82</sup> among 700 elderly to assess the association of frequent cognitive activity with risk of developing mild cognitive impairment & rate of cognitive decline. The findings revealed that a cognitively inactive person was 2.6 times more likely to develop mild cognitive impairment and Alzheimer's disease than a cognitively active person. The study concluded that frequent cognitive activity was associated with less rapid decline in cognitive function.

## **CHAPTER – VI**

### **SUMMARY, CONCLUSION, IMPLICATIONS, RECOMMENDATIONS AND LIMITATIONS**

This chapter presents the summary, conclusion, implications, recommendations and limitations of the study based on the objectives selected.

#### **SUMMARY**

##### **The objectives of the study were**

1. To assess the pre test and post test level of global functioning among elderly with Mild Cognitive Impairment
2. To assess the effectiveness of language enriched socialization exercise on the level of global functioning among elderly with Mild Cognitive Impairment
3. To associate the mean differed global functioning score among elderly with Mild Cognitive Impairment with their selected demographic variables.

##### **The study was based on the assumptions that**

1. Elderly with Mild Cognitive Impairment may have impairment in global functioning.
2. Provision of structured and regular “language enriched socialization exercise” may enhance global functioning among elderly with Mild Cognitive Impairment.

##### **The null hypotheses formulated were**

**NH<sub>1</sub>:** There is no significant difference between pre and post intervention level of global functioning among elderly with at  $p < 0.05$ .

**NH<sub>2</sub>:** There is no significant association of the mean differed global functioning score with the selected demographic variables of the elderly with Mild Cognitive Impairment at  $p < 0.05$ .



The review of literature was derived from primary and secondary sources, along with professional experience and expert's guidance from the field of mental health nursing which provided a strong foundation for the selection of problem. It also strengthened the ideas for conceptual framework, aided to design the methodology and develop the tool for data collection.

In view of explaining and relating various aspects of the study, the investigator had adopted Hildegard Peplau's Interpersonal theory to conceptualize the research.

The researcher adapted quantitative research approach and the design used was pre experimental one group pretest post test design to assess the effectiveness of language enriched socialization exercise on the level of global functioning among elderly with Mild Cognitive Impairment. The study was conducted in the 'Little sisters of the poor', home for the aged, erode among 40 elderly with Mild Cognitive Impairment who fulfilled the inclusive criteria of the study selected using non probability purposive sampling technique.

The tool consisted of the following 3 sections:

**Section A:**

Data collection tool to collect the demographic variables of elderly with Mild Cognitive Impairment such as Age, Gender, Educational status, Marital status, Previous occupation, Religion, Type of family, Frequency of visit by Support system, Number of languages known, Type of recreational activities, Duration of recreational activities, Duration of religious activities, Dietary pattern, previous history of stroke, Associated illness.

**Section B:**

Data collection tool to assess the global functioning includes 2 parts:

**Part I: Assessment of cognitive functioning**

Cognitive functioning was assessed by a revised scale of mental status examination devised by the investigator. It included various components such as memory, attention and concentration, orientation, judgement, abstractibility and language measured as Fair, Very good, Good and Impaired level of functioning.

**Part II: Assessment of non- cognitive functioning**

Non-cognitive functioning was assessed by an observation checklist devised by the investigator. It included 2 components namely physical functioning and social functioning.

**Section C: Intervention Tool**

**Language enriched socialization exercise** consisted of 2 parts:

**Part I.** Activities to improve non-cognitive functioning such as Walking for in the immediate surroundings for 10 minutes, Flexibility exercises such as flexion and extension of extremities for 10 minutes, Dance with rhythmic and gentle steps for 5 minutes and Volunteer activities such as reading newspaper for others, serving at food kitchen, helping in activities of daily living of other inmates.

**Part II.** Activities to improve cognitive functioning included language and memory stimulation activities given for 45 minutes for a group comprising of ten participants. The activities consisted of Proverb completion and interpretation, Picture description, Object description, Story recall and quiz, Category fluency naming quiz, Similarities and differences, Sentence completion and Word association.

The Medical and Nursing experts validated the tool. The pilot study was conducted at Karanam Ketkathey, Old age home, Chennai and it was found practicable and feasible to proceed with the main study. The reliability of the tool was ascertained by inter rater method, which yielded  $r = 0.98$  by using Karl Pearson

correlation coefficient method. The findings showed that the tool was found to be highly reliable to proceed with the main study.

The ethical aspect of research was maintained throughout the study by obtaining ethical clearance certificate from the International Centre for Collaborative Research (ICCR), formal permission from the respective authorities and consent from the participants. Privacy and confidentiality was maintained throughout the data collection period and collected data was used only for the research purpose.

The main study was conducted for a period of 4 weeks. Data collection was done among elderly with Mild Cognitive Impairment before and after the intervention using revised scale of mental status examination and an observation checklist devised by the investigator.

### **Major findings of the study**

The data collected was analyzed using descriptive and inferential statistics. Interpretation and discussion were done based on the objectives of the study, null hypotheses, conceptual framework and research studies from literature review.

The analysis revealed that in the pretest the mean global functioning score was 14.40 and the SD was 2.69 whereas in the post test the mean global functioning score was 33.05 and the SD was 1.55.

The comparison of the pretest and post test mean global functioning score among elderly with Mild Cognitive Impairment reveals the effectiveness of language enriched socialization exercise on global functioning.

The overall mean improvement for global functioning was 18.65 with a standard deviation of 1.14. The calculated 't' value was 58.770 which showed a high statistical significance at  $p < 0.001$  level. Hence, there was a significant

improvement in overall global functioning among elderly with Mild Cognitive Impairment after the administration of language enriched socialization exercise.

Hence statistically the language enriched socialization exercise has a beneficial effect on stimulating cognitive and non cognitive functioning among elderly with Mild Cognitive Impairment.

## **CONCLUSION**

The present study assessed the effectiveness of the language enriched socialization exercise on global functioning among elderly with Mild Cognitive Impairment. The findings of data analysis revealed that language enriched socialization exercise can be administered to enhance the global functioning of the elderly with Mild Cognitive Impairment.

## **IMPLICATIONS**

The investigator had drawn the following implications from the study which was vital concern for nursing practice, nursing education, nursing administration and nursing research.

### **Nursing Education**

The incorporation of language enriched socialization exercise into the curriculum of geriatric psychiatry and preventive psychiatry can prevent innumerable victims of senility from transforming into victims of Mild Cognitive Impairment and Alzheimer's disease.

The knowledge of rate of conversion from Mild Cognitive Impairment into Alzheimers disease and ways to curtail it can provide a insight into preventive aspects of psychiatric nursing in the students.

### **Nursing Practice**

The psychiatric nurses play a significant role in prevention and care of senile disorders such as Mild Cognitive Impairment and dementia. This can be done by

- Creating a climate for change of community and/or care givers attitude and disseminating awareness & promoting a positive attitude that healthy aging without cognitive impairment is possible.
- Inculcation of language enriched socialization exercise or components of it in everyday practice in geriatric wards to preserve the existing cognitive reserve.
- Providing regular and structured language enriched activities and cognitive stimulation for elderly individuals, clients with Mild Cognitive Impairment and dementia to enhance cognitive functioning.
- Encouraging physical activities and volunteer activities within the feasibility and socialization to enhance non cognitive functioning.

### **Nursing Administration**

Being a stakeholder of health care delivery system the nurse administrator involves in qualitatively designing the care of special groups such as elderly clients, clients with Mild Cognitive Impairment, clients with a history of stroke, elderly undergoing hormone replacement therapy.

The psychiatric nurse administrator can inculcate language enriched socialization exercise or components of it in every day practice in geriatric wards to preserve the cognitive reserve.

### **Nursing Research**

The dissemination of the effectiveness of language enriched socialization exercise on enhancing the cognitive functioning and non cognitive functioning of elderly with Mild Cognitive Impairment can help the psychiatric nurse researcher in further extensive researches having components of language enriched socialization exercise as independent variables.

## RECOMMENDATIONS

The investigator recommends the provision of structured and regular language enriched socialization exercise for elderly with Mild Cognitive Impairment in “Little sisters for the poor”, Home for the aged, Erode.

The investigator recommends Alzheimer’s and Related Disorders Society of India (ARDSI) and Alzheimer’s Disease International(ADI) to adapt the provision of structured and regular language enriched socialization exercise for elderly with dementia and Mild Cognitive Impairment in their current and future endeavours.

The investigator recommends the curriculum revision and the inclusion of language enriched socialization exercise under preventive psychiatry in UG and PG nursing programmes.

The investigator recommends the Omayal Achi Community Health Centre(OACHC), Arakkambakkam to administer language enriched socialization exercise for elderly during chronic care outpatient checkups and in wellness clinics to preserve the existing cognitive reserve and to prevent further decline in cognitive functioning.

The investigator recommends the following for future research

- The study can be replicated in various settings such as dementia day care centres and geriatric homes.
- A similar study can be done among clients with vascular dementia and alzheimer’s disease.
- A longitudinal study can be done among individuals with cognitive impairments to accurately measure the progression in cognitive functioning.
- Language enriched exercises alone may be taken as an independent variable and cognitive functioning as a dependent variable.

## **LIMITATIONS**

1. The investigator was interested in conducting the research among clients with dementia. Due to limited availability of samples the study population was changed to elderly with Mild Cognitive Impairment.
2. Limited nurse done and Indian studies on various aspects of language enrichment and socialization on cognitive and non cognitive functioning among elderly with Mild Cognitive Impairment
3. The other extraneous variables affecting cognitive functioning such as hormone replacement therapy, drug intake were not included in the present study.
4. The investigator found it difficult to conduct the mental health screening in limited duration during the data collection period.

**APPENDIX – C**  
**LETTER SEEKING EXPERT’S OPINION FOR**  
**CONTENT VALIDITY**

From:

**Ms.M.Jothimani,**  
M.Sc (N) II year,  
Omayal Achi College of Nursing,  
Puzhal, Chennai – 600 066.

To

Respected Madam/ Sir,

**Sub:** Requisition for expert opinion on suggestion for content validity of the data collection tool and intervention tool on “language enriched socialization exercise”

This is to bring to your kind notice that I am a student studying M.Sc(Nursing) II year at Omayal Achi college of Nursing , Puzhal, Chennai -66 , affiliated to Dr.MGR.Medical University, Tamil Nadu.

I am planning to conduct **“A pre-experimental study to assess the effectiveness of language enriched socialization exercise on global functioning among elderly with Mild Cognitive Impairment at selected old age home, Erode.”**

Herewith I am sending the

1. Intervention tool
2. Revised scale of Mental status examination to assess the cognitive functioning of elderly with Mild Cognitive Impairment.
3. Observational checklist to assess the non cognitive functioning of elderly with Mild Cognitive Impairment.

Kindly validate the tool and render your expert opinion in this regard. I am thankful to you for spending your valuable time for the validation of this tool. It will be very kind of you to return it undersigned at the earliest.

Thanking you,

Yours Sincerely,

**(M. JOTHIMANI)**

**Enclosures:**

1. Statement and objectives of the study
2. Intervention tool-Language enriched socialization exercise
3. Revised scale of Mental status examination and Observational checklist
4. Content validity Certificate



## **LIST OF EXPERTS FOR CONTENT VALIDITY**

### **MEDICAL EXPERTS:**

- 1. Dr. Sathianathan, M.B.B.S, DPM,**  
Director,  
Institute of Mental Health,  
Chennai.
- 2. Dr.Hemalatha.P, M.B.B.S, DPM,**  
Consultant Psychiatrist,  
Southern Railway Hospitals,  
Perambur,  
Chennai, 600000Tamil Nadu.
- 3.Ms.R.Kannamma, M.A (Psychology), M.Phil.,**  
Clinical Psychologist,  
Southern Railway Hospitals,  
Perambur,  
Chennai, 600000Tamil Nadu.

### **MENTAL HEALTH NURSING EXPERTS:**

- 1. Mrs.G.Neelakshi, M.Sc.(N),**  
Head of the Department, Mental Health Nursing Department,  
Sri Ramachandra College of Nursing,  
Chennai.
- 2. Mrs.V.Sujatha, M.Sc.(N),**  
Professor, Mental Health Nursing Department,  
Sri Ramachandra College of Nursing,  
Chennai.
- 3. Mr.D.Elakkuvana Baskara Raj, MSN, M.Phil, PGDHM, R.N, R.P,**  
Head of the Department, Mental Health Nursing Department,  
Padmashree Institute of Nursing,  
Bangalore.

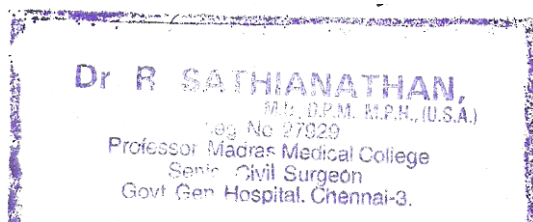
## CERTIFICATE FOR CONTENT VALIDITY

This is to certify that the tool developed by **Ms.M.JOTHIMANI**, M. Sc. (Nursing) II Year student of Omayal Achi College of Nursing for her study **“A PRE-EXPERIMENTAL STUDY TO ASSESS THE EFFETIVENESS OF LANGUAGE ENRICHED SOCIALIZATION EXERCISE ON GLOBAL FUNCTIONING AMONG ELDERLY WITH MILD COGNITIVE IMPAIRMENT AT SELECTED OLD AGE HOME, ERODE”** is validated by the undersigned and she can proceed with this tool to conduct the main study.

Signature:

  
14/09/2011

Seal:



## CERTIFICATE FOR CONTENT VALIDITY

This is to certify that the tool developed by **Ms.M.JOTHIMANI**, M. Sc. (Nursing) II Year student of Omayal Achi College of Nursing for her study **“A PRE-EXPERIMENTAL STUDY TO ASSESS THE EFFETIVENESS OF LANGUAGE ENRICHED SOCIALIZATION EXERCISE ON GLOBAL FUNCTIONING AMONG ELDERLY WITH MILD COGNITIVE IMPAIRMENT AT SELECTED OLD AGE HOME, ERODE”** is validated by the undersigned and she can proceed with this tool to conduct the main study.

Signature:



Seal:

Department of Psychiatry,  
Southern Railway Hd Qrs Hospital,  
PERAMBUR, MADRAS-600 023

## CERTIFICATE FOR CONTENT VALIDITY

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Signature: 

Seal: Department of Psychiatry,  
Southern Railway Hd. Qrs. Hospital,  
PERAMBUR, MADRAS-600 023

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Signature:

*(G. Neelakrishnan)*

Seal:

SRI RAMACHANDRA COLLEGE OF NURSING  
Sri Ramachandra University  
Porur, Chennai - 600 116

## CERTIFICATE FOR CONTENT VALIDITY

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Signature:

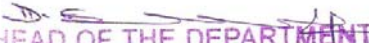
*V. Sujatha*  
20/06/14  
(V. SUJATHA)

Seal: SRI RAMACHANDRA COLLEGE OF NURSING  
Sri Ramachandra University  
Porur, Chennai - 600 116

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Signature:

  
**HEAD OF THE DEPARTMENT**  
Mental Health Nursing  
Padmashree Institute of Nursing  
Bangalore-560 060  
**D.ELAKKUVANA BHASKARA RAJ**  
MSN,M.Phil,PGDHM,RN.RP  
Head of the Department  
Psychiatric Nursing

Seal:

**APPENDIX – D**

**CERTIFICATE OF ACHIEVEMENT OF LANGUAGE  
ENRICHED EXERCISE FOR ALZHEIMER'S DISEASE**

**Certificate of Achievement**

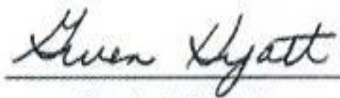
**JOTHIMANI MARIAPPAN**

Has Successfully Completed

**Language-Enriched Exercise for Clients with Alzheimer's Disease**

Correspondence Course

Contact Hours - 9.0 CEC's/CEU's



Gwen Hyatt, President

April 24, 2011

**DSW  FITNESS**  
CENTER FOR CONTINUING EDUCATION







## PPENDIX – G

### INFORMED CONSENT REQUISITION FORM

Good Morning!

I am Ms.M.Jothimani, studying M.Sc. (Nursing) at Omayal Achi College of Nursing, Puzhal, Chennai. As a part of fulfillment of the programme, I am conducting **“A pre- experimental study to assess the effectiveness of language enriched socialization exercise on global functioning among elderly with mild cognitive impairment at selected old age home”**.

I have prepared a language enriched socialization exercise schedule to improve the cognitive functioning and non cognitive functioning of the elderly with Mild Cognitive Impairment. All the data collected will be kept confidential and be used for my study purpose only. I kindly request to extent your co-operation and willingness to participate in the study by giving your written consent.

Thanking you,

Signature of the Investigator  
(Ms.M.Jothimani)

## INFORMED CONSENT FORM

I understand that I am being asked to participate in a research study conducted by **Ms.M.Jothimani**, M.Sc(N) student of Omayal Achi College of Nursing. This research study will evaluate **“Effectiveness of language enriched socialization exercise on global functioning among elderly with mild cognitive impairment in a selected old age home”**.

If I agree to participate in the study, I will be interviewed. The interview may be recorded and will take place in privacy. No identifying information will be included when the interview is transcribed. I understand that there are no risks associated with this study.

I realize that the knowledge gained from this study may help either me or other people in the future. I realize that my participation in this study is entirely voluntary, and I may withdraw from the study at any time I wish. If I decide to discontinue my participation in this study, I will continue to be treated in the usual and customary fashion.

I understand that all study data will be kept confidential. However, this information may be used in nursing publication or presentations. If I need to, I can contact **Ms.M.Jothimani**, M.Sc.(N) student of Omayal Achi College of Nursing, 45 Ambattur road, Puzhal, Chennai any time during the study.

The study has been explained to me. I have read and understood this consent form, all of my question have been answered, and I agree to participate. I understand that I will be given a copy of this signed consent form.

-----  
Signature of Participant

-----  
Date:

-----  
Signature of Investigator

-----  
Date:

**“ÁÂĵ ũ ĩ°ç !°ÁçÄçÂ÷ ,øæÃç, !°ý“É-66.  
Óý «ÈçÁçò ò òÀó¼ ÀÈÁõ**

“ÁÂĵ ũ ĩ°ç !°ÁçÄçÂ÷ ,øÖÃçÄçý °ĵ÷Àçø !°øÁç.M.Şfĵ¼çÁ½ç,  
ÓÐçç“Ä þÃñ¼ĵ ñĭ Áĵ¼Áç ç¼ðÐõ þó¼ ñöÁçø ±ý“É ÀĭŞ, ũ, Ş, ðĭ ĭ, ĭñ¼“¼  
çĵ ý ²üŪĭĵ, çŞËý.

þó¼ ñÃĵĵ°çÄçý äÄõ ®ŞÃĭ ÄçðËø °çŞ¼÷Ş þøÄð¼çø ñ ũÇ  
Ó¼çŞÃĵ÷, Ççý °çó¼çĭĵ ¼çÈ“Éò àñĭõ !ÁĵÆçĭ!°Èç× Áçĭó¼ “Ōĭ, ç“½ó¼  
ÁÈðÄÄçü°ç ÁüŪõ ñ¼üÄÄçü°çÄçý ¼çÈ“Éĭ , ĭ¼ÈçÁ¼ĵĵ.

þó¼ ñöxĭ çĵ ý òŌĭ ĭ, ĭñ¼ĵ «¼“Éò ĭ¼ĵ¼÷ð ñ ũÇ Şç÷Ó, “ÃÃĵ¼Äçø  
ÀĭŞ, ũ, ŞÃñĭõ ±ýÄ“¼ çĵ «ÈçŞÁý. ±ýÈç¼õ ç¼ðÐõ Şç÷Ó, “ÃÃĵ¼ø «“ÉðÐõ  
Ä¼ç× !°öÄðÄđĭ ÀĵÐ, ĵĭ, ðÄĭõ ±ýÄ“¼ çĵ «ÈçŞÁý. ±ý“Éð ÄüÈçÄ Ş°, Äçð¼ ÍÄ  
¼, Áø, ũ «“ÉðÐõ !ÁÇçÄç¼ð¼ĵÁø ñöx ŞÁüĭĵüÇðÄĭõ ±ýÄ“¼ çĵ «ÈçŞÁý.

þó¼ ñöÁçý äÄÄĵ, ±Èĭ ±ó¼ Áĵ¼çðÕø þø“Ä ±ýÄ“¼ «ÈçóÐ ĭ, ĭñŞ¼ý.

±¼ç÷, ĵÄð¼çø þó¼ ñöÁçý ÓË×, ũ ±ÈĭŞ, ĵ «øÄÐ ÀçÈ Àĭ, ŪĭŞ, ĵ ÁÄýÁĭð  
±ýÄ“¼ çĵ «ÈçŞÁý.

çĵ ±ÄÄçý/ÁĵŌ“¼Ä , ð¼ĵÄð¼çý !ÄÄÄçŞÄĵ «øÄÐ ÄüŪÜð¼Äçý  
!ÄÄÄçŞÄĵ ñöÁçø Àĭ ĭ, ĵüÇÄçø“Ä ±ýÄ“¼Ōõ, Ş¼“Äðð¼ĵ çĵ ñöÁçÄçŌóÐ  
ÄçÄ, çĭĵ, ĵüÇ×õ ±Èĭ Óø ñç“Á ñĭ ±ýÄ“¼Ōõ «ÈçŞÁý. «üÁĵ ñöÁçÄçŌóÐ  
ÄçÄ, çĭ ĭ, ĵüŪõÄð¼ð¼çŌõ ±ðŞÄĵÐõ ÀçÈ“Äõ ŞÄĵÄŞÄ ç¼ð¼ðÄĭŞÁý ±ýÄ“¼  
«ÈçŞÁý.

±ý“Éð ÄüÈçÄ «“Éð ¼, Áø, Ūõ þÃ, °çÄÄĵ, ÀĵÐ, ĵĭ, ðÄĭõ ±ýÄ“¼ «ÈçŞÁý.  
Ş¼“ÄðÄĭõŞÄĵ ñöÁçý ÓË×, ũ !°ÁçÄçÂ÷ °ĵ÷ó¼ Äð¼çÄç“¼, ÇçŌõ,  
Ōð¼Äĭĵ, ÇçŌõ !ÁÇçÄç¼ Óø ñöÁ¼õ «Ççĭ, çŞËý. Ş¼“ÄðÄĭõŞÄĵ ±ðŞÄĵÐ  
ŞÃñĭÁĵĵĵ ñöÁçø Àĭĭĭ, ĵüÇ ñöÁ¼õ «Ççĭ, çŞËý.

þó 3/4 -ö Áç"Éô ÀüÈçÂ °ó§3/4,í,"Çò 1/4ÇçxÁîò3/4çì 1,1ùÇ -"ÁÂ1ù -í°ç  
 1°ÁçÄçÂ÷ ,øæÄç, ÒÆÄçø ÓÐçç"Ä þÄñ1/4jõ -ñÍ ÀÂçÖõ Á11/2Áç  
 1°øÁç.M.Şf13/4çÁ1/2ç"Â ±ôŞÀjÐ §ÄñÍÁjÉjÖõ 13/41/4÷Ò 1,1ùÇÄjõ ±ýÄ"3/4  
 «ÈçŞÁý (13/41/4÷Ò ±ñ: 7502418558).

þó 3/4 -ö Áç"É ÀüÈçÂ ÓØ Áççì,Óõ ±Éì «Ççì,ôÀðÊÖì,çÈÐ. «3/4"É çjý  
 ÓüÈçÖÁj, ÒÄçóÐì,1ñÍ -öÁçø Áìì,1ùÇ °õÁ3/4õ «Ççì,çŞÉý.

Àìì,1ùÀÄÄçý ",1ÁjôÀõ

§3/43/4ç:

-Äjõï°çÁjÇÄçý ",1ÁjôÀõ

§3/43/4ç:

**APPENDIX-H**  
**DATA COLLECTION TOOL**  
**SECTION – A**  
**DEMOGRAPHIC VARIABLES**

1. AGE IN YEARS

- a. 55-59

- b. 60-64
- c. 65-69
- d. 70-74
- e.  $\geq 75$

## 2. GENDER

- a. Male
- b. Female

## 3. EDUCATIONAL STATUS

- a. Non-literate
- b. Primary
- c. Middle
- d. High school
- e. Higher secondary
- f. Graduate and above

## 4. MARITAL STATUS

- a. married
- b. Unmarried
- c. Widowed
- d. Divorced
- e. Separated

## 5. PREVIOUS OCCUPATION

- a. Skilled
- b. Semiskilled
- c. Unskilled
- d. Retired
- e. Nil

## 6. RELIGION

- a. Hindu
- b. Christian
- c. Muslim
- d. Others

7. TYPE OF FAMILY

- a. Nuclear
- b. Joint
- c. Extended
- d. Single

8. FREQUENCY OF VISIT BY SUPPORT SYSTEM

- a. Once in a week
- b. Once in two weeks
- c. Once in a month
- d. Variable
- e. .No support system available

9. NUMBER OF LANGUAGES KNOWN

- a. One
- b. Two
- c. More than two

10. TYPE OF RECREATIONAL ACTIVITIES

- a. Hearing music
- b. Watching TV
- c. Reading books
- d. Dancing
- e. Others
- f. Nil



**11. DURATION OF RECREATIONAL ACTIVITIES**

- a. < 15 minutes
- b. 15-30 minutes
- c. 30-45 minutes
- d. 45-60 minutes
- e. >60 minutes
- f. Nil

**12. DURATION OF RELIGIOUS ACTIVITIES**

- a. Nil
- b. < 15 minutes
- c. 15-30 minutes
- d. 30-45 minutes
- e. 45-60 minutes
- f. >60 minutes

**13. DIETARY PATTERN**

- a. Vegetarian
- b. Non vegetarian

**14. PREVIOUS HISTORY OF STROKE**

- a. Present
- b. Absent

**15. ASSOCIATED ILLNESS**

- a. Hypertension
- b. Diabetes Mellitus
- c. Thyroid disorders
- d. Others
- e. Nil

**SECTION- B**  
**ASSESSMENT OF GLOBAL FUNCTIONING**  
**PART-I :REVISED SCALE OF MENTAL STATUS EXAMINATION**  
**TO ASSESS THE COGNITIVE FUNCTIONING**

S.No.	CIMPONENTS OF COGNITIVE FUNCTIONING	LEVEL OF COGNITIVE FUNTIONING			
		FAIR (4)	VERY GOOD (3)	GOOD (2)	IMPAIRED (1)
1	<u>MEMORY</u>				

	<p>i. Ability to recall the story told</p> <p>ii. Ability to name 10 items of given category in one minute.</p> <p>iii. Ability to retrieve memories associated with a given familiar name.</p>	Able to complete all the 3 tasks.	Able to complete 2 out of 3 tasks.	Able to complete 1 out of 3 tasks.	Unable to complete all the 3 tasks.
2.	<p><b><u>ORIENTATION</u></b> Oriented to time(date and time of the interview),place (place of the interview held) and persons (interviewer)</p>	Oriented to time, place and persons.	Oriented to any two of time, place and persons	Oriented to any one of time, place and persons	Not oriented to time, place and persons
3.	<p><b><u>ATTENTION AND CONCENTRATION</u></b></p> <p><b>i. LITERATES</b> Ability to do and say substractions of 3 from 40 in reverse order.</p> <p><b>ii..NON LITERATES</b> Ability to say 7 days of a week forward and backwards.</p>	Completes in 60 seconds	Completes in 60-120 seconds	Completes in > 120 seconds	Do not complete the task.
	<p><b>ii..NON LITERATES</b> Ability to say 7 days of a week forward and backwards.</p>	Says forward and backward in 30 seconds	Says forward and backward in 30-60 seconds	Says forward and backward in 60-120 seconds	Do not complete the task.
4.	<p><b><u>JUDGEMENT</u></b> Ability to fulfill criteria for personal ,social and test judgement.</p> <p><b>Personal.</b> Tells the personal future plan.</p> <p><b>Social.</b> Offers a socially accepted response to a given situation.</p> <p><b>Test.</b> Ability to give a solution to a test situation(fire/ letter problem)</p>	Intact/ Normal Personal, social & Test judgement.	Intact/ Normal judgement in any two of Personal, social & Test situations.	Intact/ Normal judgement in any one of Personal, social & Test situations.	Not Intact/ Abnormal Personal, social & Test judgement.
5.	<p><b><u>ABSTRACTIBILITY</u></b> Ability to find out and tell the</p> <p>i. Similarities between objects</p> <p>ii. Differences between objects</p> <p>iii. Meaning of the</p>	Able to find out and tell the Similarities and Differences between objects & Meaning of the	Able to find out and tell any two of the Similarities and Differences between objects &	Able to find out and tell any one of the Similarities and Differences between objects & Meaning of the proverb given.	Unable to complete any of these tasks.

6.	proverb given.  <b>LANGUAGE</b> Ability to i. Describe a picture shown, ii. Name and describe the object shown & iii. complete the sentence properly and meaningfully.	proverb given.  Able to do all the three tasks of Picture description, Object naming and description & Sentence completion.	Meaning of the proverb given.  Able to do any two of the three tasks of Picture description ,Object naming and description & Sentence completion	Able to do any one of the three tasks of Picture description, Object naming and description & Sentence completion	Unable to complete any of these tasks.
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### Scoring Key:

The maximum cognitive functioning score was 24 and minimum score was

6. The level of cognitive functioning was categorized as follows

- 24-18(>75%) - Adequate cognitive functioning
- 12-17(50%-75%) - Moderately adequate cognitive functioning
- 6-11(<50%) - Inadequate cognitive functioning

## PART II

### OBSERVATION CHECKLIST TO ASSESS THE NON-COGNITIVE FUNCTIONING

S.NO	DIMENSION	YES (1)	NO (0)

I.	<b><u>PHYSICAL FUNTIONING</u></b>		
1	The individual walks without assistance.		
2	The individual performs his / her grooming without assistance.		
3	The individual performs his / her bathing without assistance.		
4	The individual performs his / her brushing without assistance.		
5	The individual eats without assistance.		
6	The individual performs toileting without assistance		
7	The individual voluntarily helps others in physical activities.		
8	The individual actively involves in voluntary activities (serving food, reading news paper)		
II.	<b><u>SOCIAL FUNCTIONING</u></b>		
1	The individual indulges in any hobby		
2	The individual participates in group[ meetings conducted at old age home		
3	The individual participates in prayer.		
4	The individual participates in community affairs.		

**Scoring Key:**

The maximum non cognitive functioning score was 12 and minimum score was 0. The level of non cognitive functioning was categorized as follows

- |              |   |   |
|--------------|---|---|
| 12-9(>75%)   | - | Adequate non cognitive functioning            |
| 8-6(50%-75%) | - | Moderately adequate non cognitive functioning |
| 0-5(<50%)    | - | Inadequate non cognitive functioning          |

The maximum global functioning score was 36 and the minimum score was 6.

The over all global functioning score was categorized as follows

<b>Score</b>	<b>Percentage</b>	<b>Level of global functioning</b>
36-27	>75%	Adequate
18-26	50%-75%	Moderately adequate
6-17	<50%	Inadequate

## **APPENDIX – J**

### **CODING FOR DEMOGRAPHIC VARIABLES**

**Demographic Variable**

**Code No.**

**1. AGE IN YEARS**

a. 55-59

1

b. 60-64	2
c. 65-69	3
d. 70-74	4
e. $\geq 75$	5

## **2. GENDER**

a. Male	1
b. Female	2

## **3. EDUCATIONAL STATUS**

a. Non-literate	1
b. Primary	2
c. Middle	3
d. High school	4
e. Higher secondary	5
f. Graduate and above	6

## **4. MARITAL STATUS**

a. Married	1
b. Unmarried	2
c. Widowed	3
d. Divorced	4
e. Separated	5

## **5. PREVIOUS OCCUPATION**

a. Skilled	1
b. Semiskilled	2
c. Unskilled	3
d. Retired	4
e. Nil	5



**6. RELIGION**

a. Hindu	1
b. Christian	2
c. Muslim	3
d. Others	4

**7. TYPE OF FAMILY**

a. Nuclear	1
b. Joint	2
c. Extended	3
d. Single	4

**8. FREQUENCY OF VISIT BY SUPPORT SYSTEM**

a. Once in a week	1
b. Once in two weeks	2
c. Once in a month	3
d. Variable	4
e. .No support system available	5

**9. NUMBER OF LANGUAGES KNOWN**

a. One	1
b. Two	2
c. More than two	3

**10. TYPE OF RECREATIONAL ACTIVITIES**

a. Hearing music	1
b. Watching TV	2
c. Reading books	3
d. Dancing	4
e. Others	5
f. Nil	6

**11. DURATION OF RECREATIONAL ACTIVITIES**

a. < 15 minutes	1
b. 15-30 minutes	2
c. 30-45 minutes	3
d. 45-60 minutes	4
e.>60 minutes	5
f. Nil	6

**12. DURATION OF RELIGIOUS ACTIVITIES**

a. Nil	1
b. < 15 minutes	2
c. 15-30 minutes	3
d. 30-45 minutes	4
e.45-60 minutes	5
f.>60 minutes	6

**13. DIETARY PATTERN**

a. Vegetarian	1
b. Non vegetarian	2

**14. PREVIOUS HISTORY OF STROKE**

a. Present	1
b. Absent	2

**15.ASSOCIATED ILLNESS**

f. Hypertension	1
g. Diabetes Mellitus	2
h. Thyroid disorders	3
i. Others	4
j. Nil	5

**APPENDIX – K**

**BLUE PRINT**

<b>S.No.</b>	<b>Topic</b>	<b>Item</b>	<b>No. of items</b>	<b>Percentage</b>
1.	Revised scale of Mental status examination	1	3	10
	Cognitive functioning	2	3	10
	Memory	3	3	10
	Attention & Concentration	4	3	10
	Judgement	5	3	10
	Orientation	6	3	10
	Abstractibility			
	Language			
2.	Observation checklist			
	Non cognitive functioning			
	Physical functioning	1-8	8	26.67
	Social functioning	9-12	4	13.33
<b>TOTAL</b>			<b>30</b>	<b>100.00</b>

## **APPENDIX – L**

### **INTERVENTION TOOL**

#### **LANGUAGE ENRICHED SOCIALIZATION EXERCISE**

The intervention includes two parts:

Part I. Activities to improve non-cognitive functioning

Part II. Activities to improve cognitive functioning

## **Part I. Activities to improve non-cognitive functioning**

### **1.Walking**

The investigator guides the participants to walk in the immediate neighbourhood for ten minutes. This activity is provided at the beginning of the exercise session.

### **2 Flexibility exercises**

Flexibility exercises are followed by walking. The investigator demonstrates and asks the participants to flex and extend the upper and the lower extremities, to stand on the toes. Flexibility exercises are given for ten minutes.

### **3.Dance**

The investigator guides and leads the participants to dance with rhythmic and gentle movements with the provision of music for five minutes.

### **4.Volunteer activities**

The investigator encourages the participants to read newspapers for others at the beginning of the language and memory stimulation activities & to serve at food kitchen during lunch.

## **Part II .Activities to improve cognitive functioning**

These include language and memory stimulation activities given for 45 minutes for a group comprising of ten participants.

### **1.Proverb completion and interpretation**

The investigator reads beginnings of proverbs to see if participants know the ending. If not the investigator gives the ending and meaning of the proverb & asks the participants to repeat it.

## **2. Picture Description**

The investigator presents the pictures and asks the participants to describe the picture without prompting, except for general questions such as “Is there anything else you can see in the picture?”. After the participant has finished with the spontaneous description, the investigator asks questions that require focusing attention to details, drawing inferences from clues in the picture.

## **3. Object Description.**

The investigator presents an object such as a lemon, pencil or toothbrush and asks the participants to describe it. Depending on what is omitted from the spontaneous response, the investigator asks the following prompt questions to elicit additional information: What is its shape? What is its color? What is it made of? What is it used for? Where can you obtain it? The objective is to see whether, over time, the client produces a more complete description of the object without use of the prompt questions.

## **4. Story Recall and Quiz**

The investigator reads a brief story containing six to seven facts and asks the participants to retell the story immediately after hearing it. The investigator then rereads story, posing a question about each fact after it is stated, pausing for the participants to answer if able, then giving the correct answer. The investigator then repeats all six or seven questions and solicits the participants answers, giving the correct one if they fail to answer correctly. The participants are then asked to retell the story . When five out of six questions are answered correctly and the participants spontaneously recalls four major facts about the story. A new story is introduced at the following session.

### **5. Category fluency naming quiz.**

The investigator encourages the participants to name as many items such as names of animals, flowers as they can in 60 seconds. The investigator appreciates the efforts of the participants and adds additional names of the items.

### **6. Similarities and Differences**

The investigator presents pairs of words belonging to the same superordinate category such as banana and orange, pen and pencil and asks the participants to name the category. Specifically they are asked what the two words in each pair of items have in common-how are they alike? If the participants name an attribute or function, the investigator corrects them telling the correct category name and asking the participants to repeat it.

The investigator presents pairs of words belonging to different categories such as table and chair, man and tree and asks the participants to differentiate. If the participants name an attribute or function, the investigator corrects them telling the correct category name and asking the participants to repeat it.

### **7. Sentence completion**

The investigator presents a series of sentence stems such as “If I had one crore, I would....and asks the participants to complete the sentence in their own words. If required the investigator offers her own responses and engage the participants in dialogue.

### **8. Word association**

The investigator provides an emotionally provocative or a familiar word such as freedom fighting, Indian constitution and encourages the participants to think of and share related thoughts and memories.

## **ADMINISTRATION OF THE TOOL**

The investigator guided the participants to walk in the immediate surroundings for ten minutes, demonstrated flexibility exercises and encouraged active participation by the participants for ten minutes, guided and lead the participants to dance with rhythmic and gentle movements for five minutes. The investigator encouraged the participants to read newspapers for others and to do other volunteer activities. These activities were given on a daily basis.

The activities to improve cognitive functioning were provided for a duration of 45 minutes for each group comprising of ten participants. These activities included were Proverb completion and interpretation, Picture description, Object description, Story recall and quiz, Category fluency naming quiz, Finding Similarities and Differences, Sentence completion, and Word association. A single activity was focused for 2 days and was continuously reinforced during the subsequent days at the beginning of the session.

**rpe:jpf:Fk: jpwidj: J}z:Lk: nkhopr: nrwpT kpFe:j xUq:fpize:j**

**clw:gapw:rp**

**kw:Wk: kdq:gapw:rp**

**gFjp I**



**clw:ipwidj: J}z:Lk: gapw:rpfs:****1. eilg:gapw:rp**

jq;fsJ Rw;Wg;GWj;jpy; Fiwe;jJ 10 epkplq;fs; iffis ed;whf tPrp elf;fTk;.

**2. jirg:gapw:rp**

fPo;fhZk; thpirapy; jirg:gapw:rpfisr; nra;aTk;.

- epd;w ,lj;jpNyNa gpd;dq;fhy;fs; njhilapy; gLkhW Ntfkhf elf;fTk;.
- ,uz;L Fjpfhy;fisAk; jiuapypUe;J cah;j;jp> fhy;tpuy;fis kl;Lk; jiuapy; Cd;wp le;J tpdhbf; epw;fTk;> gpd;G ,ay;G epiyf;Fj; jpUk;gTk;.
- ,U iffisAk; le;J Kiw ePl;b kl;fTk;.
- ifK;bfis ,Wf %bf;nfhz;L ,IJGwkhfTk;> tyJGwkhfTk; jyh le;J Kiw Row;wTk;.
- fOj;jpid Nkw;GwkhfTk; fPo;GwkhfTk; le;J Kiw ePl;b kl;fTk;.
- fOj;jpid Kbe;jtiu ,IJGwkhfTk;> tyJGwkhfTk; jyh le;J Kiw jpUg;gTk;.
- ,Lg;ig kl;Lk; ,IJGwkhfTk;> tyJGwkhfTk; jyh le;J Kiw Rw;wTk;.

**3. eldg: gapw:rp**

gapw:rpahsiug; gpd;gw;wp eld mirTfis le;J epkplq;fs; nra;aTk;. XNu eld mirTfis 8 Row;rpfs; tiu nra;ayhk;.

**4. jd:dhh:tj: njhz:L Mw:Wiy:**

jq;fshy; ,ad;wtiu gpwUf;F cjTf. fPo;f;fhz;git cjhuzj; jd;dhh;tj; njhz;LfshFk;.

- gpwUf;F czT ghpkhWjy;
- gpwUf;F nra;jpj;jhs; gbj;Jf; fhL;Ljy;
- mLj;jthpd; md;whlj; Njitfis (gy;Jyf;Fjy;> czT cz;Zjy; kw;Wk; gy) G+h;j;jp nra;tjpy; cjTjy;.

**gFjp II****kdi:ipwid J}z:Lk: gapw:rpfs:****1. gonkhopapd: nghUs: mwpjy:**

nfhLf;fg;gLk; gonkhopapd; nghUs; \$wTk;.

m. gonkhop : kpd;Dtnjy;yhk; nghd;dy;y.

nghUs; : kpd;DtJ Nghy; Njhw;wkspf;Fk; midj;Jg; nghUl;fSk; jq;fkhfp tplhJ.

mJNghy ahiauAk; ntspj;Njhw;wj;ij itj;J vil Nghlf;\$lhJ.

M. gonkhop : le;jpy; tisahjJ lk;gjpy; tisahJ





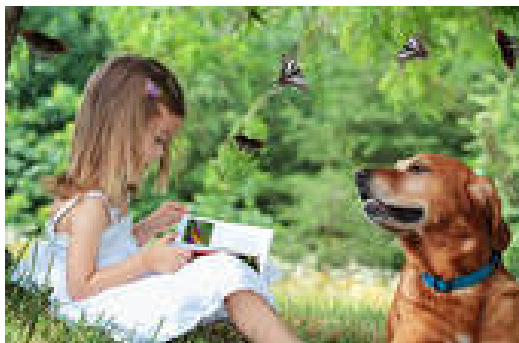
tpsf;fk; : ,g;glj;jpy; xU jha;g;gwit jd; FQ;RfSf;F czT+l;bf; nfhz;bUf;fpwJ. ,g;glj;jpy; fhzg;gLtJ ikdh ,dj;ijr; Nrh;e;j gwitahFk;. ,g;gwit ePyk; kw;Wk; ntz;ik fye;j epwj;jpy; fhzg;gLfpwJ. myFfs; rpwpajhfTk;> ePyk; kw;Wk; fUik fye;j epwj;jpYk; fhzg;gLfpwJ. kuf;Fr;rpfs; Md ,f;\$L kuf;fpis gphpAk; ,lj;jpy; mikf;fg;gl;Ls;sJ. jha;g; gwitAld; ehd;F FQ;Rfs; cs;sd.

.. nfhLf;fg;gl;l glk; : eLf;flypy; fg;gy; nry;Yk; glk;



tpsf;fk; : ,g;glj;jpy; XuLf;Ff; fg;gy; eLf;flypy; nrd;W nfhz;bUf;fpwJ. ,jpy; le;J ntz;ikepwj;jpyhd gha;kuq;fs; Vw;wg;;gl;Ls;sd. fly; mlh; ePyepwj;jpYk; thdk; ntsph; ePyepwj;jpYk;;; fhzg;gLfpd;wd.

<. nfhLf;fg;gl;l glk; : xU rpWkp Gj;jfj;ij gbf;Fk; fhI;rp



tpsf;fk; : ,g;glj;jpy; ehd;F taJ kjpf;fj;jf;f xU rpWkp; xU Gj;jf;ijg; gbj;Jf;  
 nfhz;bUf;fpwhs;. mts;; ntz;ik epwj;jpy; cilazpe;Js;shs;;. mts; mUfpy; xUeha;  
 mkh;e;Js;sJ. mth;fs; ,UtUk; Njhl;l;j;jpy; mkh;e;Js;sdh;.

### 3. nghUs; tpthpi;iv;

fhz;gpf;fg;gLk; nghUis tpthpf;fTk;.

m. nghUs; : vYkpr;rk; gok;

tptuk; : ,g;nghUspd; ngah; vYkpr;rk;gok; MFk;. ,jd; epwk; kQ;rs;. ,J vYkpr;ir  
 kuj;jpypUe;J fpilf;fpwJ. ,jd; tpis;r;ry; Fsph;fhyq;fspy; mjpfkhFk;. rikaypy; ,jid  
 KOg;gokhf CWfhahfNth> rhwpid rhjk; nra;aNth gad;gLj;jyhk;. ,jpy; tpi;lkpd; rp rj;J  
 cs;sJ.

M. nghUs; : gy;Jyf;fp

tpguk; : ,g;nghUspd; ngah; gy;Jyf;fp MFk;. ,J gy; Jyf;Ftjw;Fg; gad;gLfpwJ. ,J ifg;gb  
 kw;Wk; gy;Nja;f;Fk; gFjpia cs;slf;fpaJ. ,J gy;NtW tajpdh;f;F Vw;wthW gy;NtW  
 msTfspy; fpilf;Fk;. msTfSf;Fk; mjpy; cs;s trjpfSf;Fk; Vw;wthW ,jd; tpiy mikAk;.

,. nghUs; : Ngdh

tpguk; : ,g;nghUspd; ngah; Ngdh MFk;. ,J gy;NtW ,urhadg; nghUs;fisg; gad;gLj;jp  
 tbtikf;fg;gLfpwJ. ,J vOJtjw;fhfg; gad;gLj;jg;gLfpwJ. tpjtpjkhd tbtq;fspYk;>  
 tpj;jpahrkhd epwq;fspy; fpilf;Fk;. ,jd; tpiy juj;ijg; nghWj;Jk; jPh;khdpf;fg;gLfpwJ.

gy;NtW epWtdq;fs; Ngdh jahhpg;gpy; <LgLfpd;wd. mjpfg;gbahf gad;gLj;jg;gLk; epwq;fs; ePyk;> rptg;G kw;Wk; gr;ir MFk;.

<. nghUs; : ehw;fhyp

tpguk; : ,g;ngHUsPd; ngah; ehw;fhyp MFk;. ,J mkh;tjw;fhf cgNahfg;gLj;jg;gLfpwJ. ehd;F fhy;fisf; nfhz;bUg;gjhy; ehw;fhyp vd fhuzg; ngaiuf; nfhz;bUf;fpwJ. nghJthf ehw;fhypfs; kuj;jhNyh> ,Uk;ghNyh nra;ag;gLfpd;wd.

#### **4.fijapid epidT\$h;iy;**

\$wg;gLk; fijapid ftdpj;J gpd;G Nfl;fg;gLk; tpdhf;fSf;F tpilaspf;fTk;.

m. njd; nrd;idiar; Nrh;e;j Njd;nkhop Xh; mYtyfj;jpy; Ntiy nra;J te;jhs;. mts; xU ehs; efu fhty; epiyaj;jpw;F nrd;W jhd; tPjpapy; nrd;w ,uT jhf;fg;gl;INjhL gjpide;J &ghiaAk; gwp nfhLj;jjhfg; Gfhh; nra;jhs;. mtSf;F ehd;F Foe;ijfs; tPI;L thlif ghf;fpNahL mth;fs; ,uz;L ehl;fshf cz;zTk; ,y;iy. mjpfhhpfs; me;jg; ngz;zpw;fhf ,uf;fg;gl;L rpwpJ gzk; nfhLj;J cjtp nra;jhh;fs;.

tpdh : fijapy; tUk; ngz;zpd; ngah; vd;d?

tpil : ,f;fijapy; tUk; ngz;zpd; ngah; Njd;nkhop.

tpdh : Njd;nkhop ve;j Ciur; Nrh;e;jth;?

tpil : Njd;nkhop njd; nrd;idia Nrh;e;jth;.

tpdh : Njd;nkhop vjw;fhf efufhty; epiyak; nrd;whs;?

tpil: jhd; nrd;w ,uT jhf;fg;gl;lijAk;> gjpide;J &ghia gwpnfhLj;jijAk;> Gfhh; nra;tjw;fhf Njd;nkhop efu fhty; epiyak; nrd;whs;.

tpdh : Njd;nkhopf;F vj;jid Foe;ijfs; cs;sdh;?

tpil : Njd;nkhopf;F ehd;F Foe;ijfs; cs;sdh;.

tpdh : gzj;iig; gwpnfhLj;jjhy; Njd;nkhopf;F Neh;e;jJ vd;d?

tpil : Njd;nkhop tPI;L thlif nfhLf;f KbahjNjhL> mtSk;> mts; ehd;F Foe;ijfSk; ,uz;L ehl;fshf cz;zTk; ,y;iy.

M. [yjPgk; vd;w ,e;jpa fg;gy; jpq;fs;fpoik khiy fd;dpahFkhhpF;F mUfpy; xU ghiwapy; NkhjpaJ fLikaHd Gay; fhhpUSk; ,Ue;Jk; glFfs; jf;iffisg; Nghy; flypy; miyfopf;fg;gl;l NghjpYk; 18 ngz;fis cs;spl;l 60 gpuahzpf; vy;NyhUk; kPI;fg;gl;L kWehs; fhiy Xh; ,e;jpa ePuhtpf; fg;gypy; fiuf;Ff; nfhz;L tug;gl;lhh;fs;.

tpdh : ,f;fijapy; tUk; fg;gypd; ngah; vd;d?

tpil : ,f;fijapy; tUk; fg;gypd; ngah; [yjPgk;.  
 tpdh : [yjPgk; ve;j ehl;bidr; Nrh;e;j fg;gy;?  
 tpil : [yjPgk; ,e;jpahitr; Nrh;e;j fg;gy;.  
 tpdh : [yjPgj;jpw;F fd;dpahFkhpapy; epfo;e;jJ vd;d?  
 tpil : [yjPgk; fd;dpahFkhp;F mUfpy; xU ghiwapy; NkhjpaJ.  
 tpdh : [yjPgk; vd;W xU ghiwapy; NkhjpaJ?  
 tpil : xU jpq;fs;fpoik khiyapy; xU ghiwapy; NkhjpaJ.  
 tpdh : [yjPgj;jpy; gazk; nra;j nkhj;j gpuahzpf; vj;jid Ngh;?  
 tpil : [yjPgj;jpy; gazk; nra;j nkhj;j gpuahzpf; 60 Ngh;.  
 tpdh : ghiwapy; Nkhjpa gpwF [yjPgj;jpd; gpuahzpf; vt;thW fiuf;F nfhz;L  
 nry;yg;gl;ldh;?  
 tpil : [yjPgj;jpd; gpuahzpf; midtUk; xU ,e;jpa ePuhtpf; fg;gypy; fiuf;F; nfhz;L  
 tug;gl;lhh;fs;.

### **5.nfhLf;fg;gl;l gphptpd; ngah;fis epidT\$h;iy;**

nfhLf;fg;gl;l gphptpd; ngah;fis jq;fshy; ,ad;w tiu epidT \$h;e;J \$wTk;.  
 m. **tpyq;Ffs;** : rpq;fk;> Gyp> fub> rpWj;ij> Fuq;F> ahid> ePh;ahid> Fjpiu>  
 thpf;Fjpiu> khd;> fhz;lhkpUfk;> xl;lfk;> xl;lfr;rptpq;fp> ehpa> Xeha;> Kay;> ML>  
 khL> vUik> G+id> eha; kw;Wk; gy.  
 M. **G+f;fs;** : ky;ypif> Ky;iy> Nuh[h> [hjpk;yp> fdfhk;guk;> nrt;te;jp> R+hpahe;jp>  
 Nlypah> rk;gq;fp> rhke;jp> ,Uthl;rp> nrz;gfk;> kNdhUQ;rpjk;> jhkiu> my;yp kw;Wk;  
 gy.

### **6.xw;Wik kw;Wk; Ntw;Wik mwpjy;**

xw;Wikg;gLj;Jf.

#### **❖ thiog;gok; kw;Wk; MuQ;R**

,it ,uz;Lk; gotifapidr; Nrh;e;jit MFk;.

Ntw;Wikg;gLj;Jf.

#### **○ kdpjd; kw;Wk; kuk;**

kdpjd; MwwpT gil;j NgRk; jpwDila caphp Mthd;. Mdhy; kuk; MwwpT ,y;yhj  
 NgRk; jpwdw;wjhFk;.

xw;Wikg;gLj;Jf.

❖ **Ngdh kw;Wk; ngdhpy;**

,it ,uz;Lk; vOJtjw;fhfg; gad;gLj;jg;gLk; nghUl;fs; MFk;.

Ntw;Wikg;gLj;Jf

• **Nkir kw;Wk; ehw;fhyp**

Nkir nghUl;fis itg;gjw;Fk;> ehw;fhyp mkh;tjw;Fk; gad;gLfpwJ.

**7.thf;fpaj;ij epug;Giy;**

fPo;f;fhZk; thf;fpaq;fis nghUSs;s tifapy; epug;gTk;

m. vdf;F vjph;ghuhj tpjkhf xU Nfhh &gha; fpilj;jhy; \_\_\_\_\_

M. tajhdth;fs; nghJthf \_\_\_\_\_

,. jw;NghJ murpay; vd;gJ \_\_\_\_\_

<. jw;NghJ tprhak; \_\_\_\_\_

gpd;Fwpg;G : thf;fpaj;ij nghUSs;s tifapy; epug;Gk; midj;J tpilfSk; Vw;GilajhFk;.

**8. njlh;Gld; fw;wy;**

fPo;fhZk; thh;j;ijfs; cq;fSf;F vjid epidT+l;Lfpd;wd.

m. Rje;jpug; Nghuhl;lk;

M. kd;duhl;rp

,. ,e;jpa murpayikg;G

<. Njrg;gpjh

gpd;Fwpg;G : fw;gid my;yhj cz;ik epfo;Tfis cs;slf;fpa tpilfs; Vw;GilajhFk;.