Bilingual Persons with Mild Dementia - Spectrum of Cognitive Linguistic Functions

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Abstract

Cognitive linguistics (CL) refers to the school of linguistics that understands language creation, learning, and usage as best explained by reference to human cognition in general. With increase in age human cognition improves, which can be measured through tasks based on cognitive-linguistics. The tasks include attention and concentration, orientation, memory, organization etc. But these skills reduce their efficiency with advanced age. That is, younger population perform better as compared to older. And a disorder of elderly called dementia is a debilitating condition causing progressive deterioration in cognition, personality and communication skills. If healthy elderly perform less efficient in cognitive linguistic skills, then disordered population will perform still. Hence there is an immediate need to study the cognitive-linguistic performance in healthy elderly as compared to dementia.

The aim of the present study is to qualify the cognitive-linguistic performance in persons with dementia as compared to healthy elderly. Considered for the study were 20 (10 monolingual and 10 bilingual) healthy elderly and age matched persons with dementia. Monolingual persons had Kannada as their mother tongue/first language and bilinguals had English as their second language. Cognitive linguistic Assessment Protocol (CLAP) (Kamath, 2001, Rajasudhakar, 2005) was administered for both the groups. The performance of healthy elderly as against to dementia is been discussed along with the performance of monolinguals versus bilinguals.
**Key words:** dementia, bilingualism, language, cognition.

**Introduction**

Communication is a manifestation of cognition. The linguistic representations for objects are part of long-term lexical memory and must be retrieved and brought to consciousness. Thus, the simple act of object naming requires perception, access to long term memory, association, recognition, lexical retrieval, decision-making, motor planning, and self-monitoring.

The cognitive-linguistic skills may be affected in people with closed head injury, cerebrovascular accidents and in cerebral neuropathogenesis. These deficits emerge as dynamic and pervasive, ranging from subtle to severe. Treatment of cognitive-linguistic deficits is a dynamic process that begins with assessment of patient’s information processing skills, their ability for quantifying specific deficits and observation and recording of response behaviours (Ross-Swain, 1992).

Neurogenic communication disorders in adults encompass a variety of specific abnormalities all caused by nervous system pathology. These disorders include Aphasia, Right hemisphere damage, traumatic brain injury, dementia, dysarthria etc. Neurogenic communication disorders are an important consequence of nervous system abnormality. Their features, severity and outcome reflect the location, magnitude and nature of the abnormality. Aim of the present study is to primarily focus on Dementia and its effect.

**Dementia**

Dementia is the progressive decline in cognitive function due to damage or disease in the body beyond what might be expected from normal aging. Dementia is a non-specific illness syndrome (set of symptoms) in which affected areas of cognition may be memory, attention, language, and problem solving. According to American Psychiatric Association (2000), the clinical feature necessary for diagnosis of dementia are multiple deficits manifested by memory impairment and one or more of the cognitive disturbances such as aphasia, apraxia, agnosia or disturbance in executive functioning. Higher mental functions are affected first in the process. However in the later stages of the condition, affected persons may be disoriented in time (not knowing what day of the week, day of the month, or even what year it is), in place (not knowing where they are), and in person (not knowing who they are or others around them).

The early stage of dementia lasts from two to four years. The symptoms found during this stage include difficulty in handling finances, memory problems, concentration problems, difficulty with complex tasks, forgetting the location of objects and decreased awareness of recent events (Bayles, 1991). The first obvious symptom of dementia is a problem with episodic memory. Working memory also affected early in the progression of the disease, and is manifested by decreased efficiency of encoding and retrieval of information. Individuals have difficulty sustaining attention (Perry, Watson & Hodges, 2000; Backman, Small and Fratiglioni, 2001) and span memory is modestly attenuated in some individuals though not all.

**Communicative Impairments in Dementia**
Of growing interest to speech language pathologists and neuropsychologists is the communicative impairment present in individuals with dementia. A consensus exists that persons with mild to moderate dementia show relatively preserved phonologic, syntactic and lexical knowledge while semantic and pragmatic knowledge are markedly impaired (Appell, Kertesz & Fisman, 1982; Bayles, 1982; Emery & Emery, 1983; Murdoch, Chenery, Wilks & Boyle, 1987).

Communication abilities in bilingual demented patients and the pattern of language decline for first language(L1) and second language(L2) L1 and L2 in dementia are issues rarely mentioned in the dementia literature. It is a well known fact that, in persons with dementia, the ability to maintain fluency in more than one language decreases. It is well known, however, the ability to maintain fluency in more than one language decreases with aging (Hyltenstam & Obler, 1989). With advancing age, people may tend to retreat to a single language, regardless of a life-long history of bilingualism. Moreover, older bilinguals may experience increased difficulties handling two languages due to the effects of cross-language interference. These effects in aging bilingual persons can be further exacerbated in those who develop dementia.

**Behavioral Characteristics of Dementia**

The behavioral and cognitive slowing that characterizes normal aging is exaggerated in dementia. Birren and Botwinick (1951) reported an early attempt to document slowing in dementia, in which they showed patients with senile psychosis to be slower in writing than age-matched healthy older persons. Miller (1974) investigated the nature of response slowing in persons with dementia. He showed that the persons with dementia were slower in simple tasks which required participants to move the small objects. The studies which have employed standardized “intelligence test” agree that dementia patients show lower mean IQ scores than groups of age matched control subjects (review by Miller, 1977).

Selective attention within the visual modality has been studied with digit (Lewis & Kupke, 1977) or letter (Talland & Schwad, 1964) cancellation tasks. Using digit cancellation task, Allender and Kasniak (1985) found moderately demented patients to be impaired relative to age and education matched healthy control subjects.

Eslinger and Benton (1983) investigated spatial and nonspatial visual perceptual abilities in a group of 40 older dementia patients (mixed etiology) and an age-matched healthy control subjects. The dementia patients as a group were significantly impaired on both of these tasks.

Stoarandt, Botwinick, Danziger, Berg, and Hughes (1984) found mild Alzheimer’s dementia patients to make significantly more errors than age-matched healthy control subjects on a geometric design copy task. Further it was found that as the disease progressed there were greater number of errors in copying the geometric design.

Beatty et al., in the year 1994 administered a standard neuropsychological tests and individualized measures of patients’ skilled behaviours. For patients who remained skilled at games, performance was compared with that of normal controls in direct competition. For the patient-trombonist, raters compared premorbid and postmorbid recordings of his play.
Findings indicate that a broad range of complex cognitive abilities may be preserved in patients with dementia of the Alzheimer type who cannot perform simpler actions.

Ballard, Patel, Oyebode, and Wilcock (1996) assessed 124 patients with different types of dementia with a standardized battery which included the Geriatric Mental State Schedule, the History and Aetiology Schedule, the Secondary Dementia Schedule and the CAMCOG. There were no significant differences in the cognitive abilities between these groups.

Laurin et al., (2001) explored the association between physical activity and the risk of cognitive impairment and dementia. Compared with no exercise, physical activity was associated with lower risks of cognitive impairment, Alzheimer disease, and dementia of any type. Significant trends for increased protection with greater physical activity were observed. High levels of physical activity were associated with reduced risks of cognitive impairment.

**Aim of This Study**

Present study aimed at assessing cognitive skills in monolingual and bilingual persons with dementia. The study was also interested in looking for performance in bilinguals versus monolinguals.

**Method**

**Sample:**
There were 80 participants: 20 persons with diagnosis of mild dementia (10 monolinguals and 10 bilinguals) and 60 healthy elderly (30 monolinguals and 30 bilinguals). The dementia group comprised of persons suffering with mild cognitive impairment as measured by the Mini-Mental Status Examination (MMSE: Folstein et al., 1975).

A diagnosis of probable dementia was made according to DSM IV criteria. Each patient attended a geriatric clinic at National Institute of Mental Health and Neurosciences (NIMHANS) where they underwent thorough medical screening in order to rule out any other treatable pathology that could explain their impairment. This included neuropsychological assessment, laboratory blood testing and Computerized Tomography (CT) scanning of the head. In addition, the following criteria were fulfilled for the participants from dementia group.

- The age range of the participants should be between 65-85 years.
- All participants should have a minimum of 12 years of formal education.
- All of them should have Kannada as their first language (L1).
- English as their second language (L2) was required criteria for bilinguals.
- All the clinical population must be diagnosed by neurologists/ psychiatrists/ neurosurgeon or geriatric specialist.
- At least 12 yrs of formal education.
- Vision and hearing acuity corrected to normal / near normal limits.
- A Score of “1” (mild) should be obtained from Clinical dementia rating scale (Hughes, Berg, Danziger, Coben, & Martin, 1982).
A score of “3” and above was to be obtained in International Second Language Proficiency Rating Scales by Wylie (2006) to categorize the participants as monolinguals vs. bilinguals.

Healthy elderly participants were not suffering from any neurological or psychological illness likely to impair performance and were not complaining of memory or other cognitive difficulties. A score of 25 and above in MMSE and in “0” Clinical dementia rating was required for healthy elderly group.

Table 1 shows the demographic and neurological details of patient participants. Table 2 shows the mean age, years of education, and handedness of all the participants, and duration of illness for persons with dementia. There were no significant differences in the distribution of males and females (p > 0.05). Also the participants in the dementia group exhibited similar cognitive decline despite having different types of dementia.

Table 1. Demographic and neurological details of patient participants.

<table>
<thead>
<tr>
<th>Sl no.</th>
<th>Age/sex</th>
<th>CD R score</th>
<th>Monolingual/ bilingual</th>
<th>Diagnosis of dementia</th>
<th>Neuroimaging result</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>67/f</td>
<td>1</td>
<td>M</td>
<td>Mild AD</td>
<td>Bilateral medial temporal atrophy</td>
</tr>
<tr>
<td>2</td>
<td>72/f</td>
<td>1</td>
<td>M</td>
<td>Mild AD</td>
<td>Diffuse central atrophy</td>
</tr>
<tr>
<td>3</td>
<td>69/f</td>
<td>1</td>
<td>M</td>
<td>Mild Frontotemporal</td>
<td>Left frontotemporal atrophy</td>
</tr>
<tr>
<td>4</td>
<td>68/m</td>
<td>1</td>
<td>M</td>
<td>Mild Frontotemporal</td>
<td>Bilateral frontotemporal lobe atrophy</td>
</tr>
<tr>
<td>5</td>
<td>86/f</td>
<td>1</td>
<td>M</td>
<td>Mild AD</td>
<td>Bilateral medial temporal atrophy</td>
</tr>
<tr>
<td>6</td>
<td>68/m</td>
<td>1</td>
<td>M</td>
<td>Mild AD</td>
<td>Diffuse brain atrophy</td>
</tr>
<tr>
<td>7</td>
<td>66/m</td>
<td>1</td>
<td>M</td>
<td>Mild AD</td>
<td>Bilateral subcortical infarcts</td>
</tr>
<tr>
<td>8</td>
<td>71/m</td>
<td>1</td>
<td>M</td>
<td>Mild vascular</td>
<td>Multiple cerebral infarcts</td>
</tr>
<tr>
<td>9</td>
<td>69/m</td>
<td>1</td>
<td>M</td>
<td>Mild frontotemporal</td>
<td>Left frontotemporal atrophy</td>
</tr>
<tr>
<td>10</td>
<td>75/m</td>
<td>1</td>
<td>M</td>
<td>Mild AD</td>
<td>Bilateral medial temporal atrophy</td>
</tr>
<tr>
<td>11</td>
<td>67/f</td>
<td>1</td>
<td>B</td>
<td>Mild AD</td>
<td>Bilateral medial temporal atrophy</td>
</tr>
<tr>
<td>12</td>
<td>72/f</td>
<td>1</td>
<td>B</td>
<td>Mild AD</td>
<td>Diffuse central atrophy</td>
</tr>
<tr>
<td>13</td>
<td>69/f</td>
<td>1</td>
<td>B</td>
<td>Mild</td>
<td>Left frontotemporal atrophy</td>
</tr>
</tbody>
</table>
Table 2. Age, years of education, and handedness of all the participants, and duration of illness for persons with dementia

<table>
<thead>
<tr>
<th>Age</th>
<th>Healthy elderly N= 60</th>
<th>Participants with dementia N= 20</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>Age</td>
<td>72.6yrs</td>
<td>6.39792</td>
</tr>
<tr>
<td>Years of education</td>
<td>12.8yrs</td>
<td>1.68655</td>
</tr>
<tr>
<td>Duration of illness (in months)</td>
<td>--</td>
<td>7.7months</td>
</tr>
<tr>
<td>Handedness</td>
<td>right</td>
<td>right</td>
</tr>
</tbody>
</table>

Material:

Included in the study are two test protocols for assessing cognitive linguistic skills in elderly population. These tests include Addenbrooke’s Cognitive Examination Revised (ACE-R, Krishnan & Lokesh, 2010) and Cognitive linguistic assessment protocol (CLAP, Kamath, 2001 & Rajasudhakar, 2005). Clinical Dementia Rating scale (Hughes et al., 1985) was used to measure the cognitive status of the participants.

Description of CLAP

CLAP is a test which assesses the cognitive and linguistic abilities in young and elderly. It was developed at All India Institute of Speech and Hearing, Manasagangothri, Mysore, as a part fulfilment of master’s degree by Kamath in 2001 which was further modified by...
Rajasudhakar in 2005. He developed the normative data for young and elder adults. It is the unpublished master dissertation submitted to University of Mysore. This test consists of domains such as attention, perception & discrimination, memory, problem solving and organization.

**Procedure:**

Four groups were considered for the study. Two clinical groups consisting of persons with dementia (10 monolingual and 10 bilingual) focused on mild stage and were recruited from National Institute of Mental Health and Neuroscience, Bangalore, India and Nightingales Medical trust, Bangalore, India. These clinical groups were compared with two groups of 60 healthy elderly (30 monolingual and 30 bilingual) matched for gender, age and education. All patients were subjected to a clinical and radiological (CT or MRI or SPECT). Patients were classified into demented and non-demented groups, according to DSM-IV criteria (APA, 1994).

A non-invasive method was used for the study. All the participants were interviewed and the general history was taken. The participants were made to sit in front of the examiner. Interview was basically questioning and answers type. General history included the demographic details of the participants, education history, language history, medical history & present health status and any other associated problems. Participants were expected to answer how much they are able to. Since the testing would take nearly one and half to two hours, all the participants were provided breaks in between the data collection considering their age. For the clinical group frequent breaks were provided as they were unable to cooperate for long duration. Followed by the general history, a written consent was taken from all the participants regarding the willingness for the participation in the study. Language proficiency was measured using International Second Language Proficiency Rating Scales by Wylie (2006). Based on the scale participants were categorized into monolingual and bilingual i.e., a score of 3 and above shows vocational to native like proficiency for speaking, reading, listening and writing. Hence a cut off score of 3 and above (in both Kannada and English) in all the four categories was used for considering the participants as bilinguals.

The clinical groups and healthy elderly groups were studied for CLAP.

**Results and Discussion**

The results of ACE-R for both monolingual and bilingual group of dementia are depicted in graph 1 and graph 2. As it is seen from both the graphs the scores in all the domains of ACE-R were almost similar for individuals within the group (monolingual and bilingual). That is they exhibited similar cognitive decline and hence they were grouped together.
As seen from Table 3, two way MANOVA was administered to see the main effect of group, category and interaction between the two, in APDVAT (Attention, Perception and Discrimination for Visual and Auditory in Total), MEST (and Semantic memory total), PST (Total for Problem solving), ORT (Total for organization) and CLAPT (Cognitive linguistic assessment protocol total). Main effect of group is significant in all five parameters or dependent variables at p<0.01. The effect of category is significant in all dependent variables except PST at 5% level. There was significant interaction between group and category in PST, ORT and CLAPT at p< 0.05.

Table 3: Two way MANOVA of group, category and interaction between group and category

<table>
<thead>
<tr>
<th>Parameters</th>
<th>F(1,76)</th>
<th>Sig.</th>
</tr>
</thead>
</table>

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Deepa M.S. and Shyamala K. Chengappa, Ph.D.
Bilingual Persons with Mild Dementia - Spectrum of Cognitive Linguistic Functions
Patients with mild dementia were compared with healthy elderly to examine which linguistic function deteriorates first in dementia. Although the actual difference in the mean scores were typically small, many of the differences between mild dementia group and healthy elderly reached statistical significance. Particularly items measuring abstract naming, fluency, understanding of complex structures and verbal amnesia and conceptual processes were impaired in mild dementia. Thus the diffuse language impairment associated with dementia could not be found in healthy aging. CLAP consisted of items of several language dimensions such as attention, perception & discrimination, memory, problem solving and organization and these check for diffuse language disturbances in dementia.

Table 4: Result of ANOVA for monolingual vs. bilingual healthy elderly

<table>
<thead>
<tr>
<th>Parameters</th>
<th>F(1,58)</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>APDVAT</td>
<td>15.976</td>
<td>.000</td>
</tr>
<tr>
<td>MEST</td>
<td>4.515</td>
<td>.038</td>
</tr>
<tr>
<td>PST</td>
<td>70.554</td>
<td>.000</td>
</tr>
<tr>
<td>ORT</td>
<td>13.689</td>
<td>.000</td>
</tr>
<tr>
<td>CLAPT</td>
<td>2.624</td>
<td>.111</td>
</tr>
</tbody>
</table>

One way ANOVA was performed to find out the effect of category (monolingual vs bilingual) in normal for APDVAT, MEST, PST, ORT and CLAPT. As seen from table 4 the effect of category was significant for all the dependent variables. There was significant difference for the parameters, APDVAT, MEST, PST, and ORT but except for CLAPT at p<0.001 level.
Table 5: Result of ANOVA for monolingual vs bilingual persons with dementia

<table>
<thead>
<tr>
<th>Category</th>
<th>Parameters</th>
<th>F(1,58)</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>APDVAT</td>
<td>2.098</td>
<td>.165</td>
</tr>
<tr>
<td></td>
<td>MEST</td>
<td>2.951</td>
<td>.103</td>
</tr>
<tr>
<td></td>
<td>PST</td>
<td>20.188</td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td>ORT</td>
<td>234.747</td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td>CLAPT</td>
<td>71.138</td>
<td>.000</td>
</tr>
</tbody>
</table>

(APDVAT = Attention, Perception and Discrimination for Visual and Auditory in Total, MEST = Episodic and Semantic memory total, PST = Total for Problem solving, ORT = Total for organization, CLAPT = Cognitive linguistic assessment protocol total)

Table 5 shows the results of ANOVA administered to check for the category effect (monolingual vs. bilingual) in dementia for APDVAT, MEST, PST, ORT and CLAPT. There is significant difference between the category for PST, ORT and CLAPT at *p* < 0.001. But APDVAT and MEST did not show any category effect.

The results from CLAP reveal that overall; bilingual’s performance was better compared to that of monolinguals. Linguistic memory is affected from the milder stage of dementia and it worsens as the disease progresses. The findings are in agreement with Morris (1996) and Perry, Watson, & Hodges (2000) who found that the difficulty in focused attention, forgetting the location of objects and the memory problems decreases the working memory capacity.

Organization skills decline from the early stage of the disease. Since individuals face difficulty in working memory, they perform very poor in organization tasks. The decreased sustained attention, leads to the lower performance in them. Organization skills require solving of complex tasks, hence concentration problems found in these individuals hinders their performance. This is agreement with Bayles (1991). Also the behavioral slowing and the fatigue are also common features which attribute to the poor performance.

Table 6: Result of ANOVA for monolingual persons with dementia vs monolingual healthy elderly

<table>
<thead>
<tr>
<th>Parameters</th>
<th>F(1,58)</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>APDVAT</td>
<td>97.935</td>
<td>.000</td>
</tr>
<tr>
<td>MEST</td>
<td>38.506</td>
<td>.000</td>
</tr>
<tr>
<td>PST</td>
<td>675.281</td>
<td>.000</td>
</tr>
<tr>
<td>ORT</td>
<td>237.129</td>
<td>.000</td>
</tr>
<tr>
<td>CLAPT</td>
<td>404.661</td>
<td>.000</td>
</tr>
</tbody>
</table>

(APDVAT = Attention, Perception and Discrimination for Visual and Auditory in Total, MEST = Episodic and Semantic memory total, PST = Total for Problem solving, ORT = Total for organization, CLAPT = Cognitive linguistic assessment protocol total)
Table 6 shows the results of ANOVA administered to see the effect of group (normal and dementia) for monolinguals for APDVAT, MEST, PST, ORT and CLAPT. There was highly significant group effect for all the parameters at p<0.001.

Results from CLAP indicate that patient participants were slower and inaccurate in performing attention, perception and discrimination tasks. It is very clear that they exhibit visual-perceptual deficits which can be referred to as visual agnosia in the clinical literature after the observation of clinical patients with dementia (Ernst, Dalby & Dalby, 1970). The incorrect performance in the visual subset of this domain would attribute to the visual recognition problems. Even though the clinical population was provided bigger letters and longer duration, their performance was inaccurate and incorrect. Thus the disease related changes, places these elderly at a perceptual disadvantages.

Problem solving skills were found to be better than other tasks in CLAP. This could be that tasks involved in this domain are easier compared to other domains of the test. Problem solving domain involved fluency of language as the responses for the task. Since fluency of language is preserved till moderate stage of the disease, the scores were better in this domain. However in the later stage even problem solving is equally affected like other domains of the test. A less complete or elaborate mental representation would thus be available to higher cognitive process such as problem solving skills. Beyond a certain point, a mental representation may be so degraded that it no longer activates the appropriate concept.

Table 7: Mann Whitney test results for monolingual persons with dementia vs monolingual healthy elderly

<table>
<thead>
<tr>
<th>Parameters</th>
<th>APDVAT</th>
<th>MEST</th>
<th>PST</th>
<th>ORT</th>
<th>CLAPT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Z</td>
<td>-4.683</td>
<td>-4.589</td>
<td>-4.737</td>
<td>-4.699</td>
<td>-4.692</td>
</tr>
<tr>
<td>Asymp. Sig. (2-tailed)</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
</tr>
</tbody>
</table>

(APDVAT = Attention, Perception and Discrimination for Visual and Auditory in Total, MEST = Episodic and Semantic memory total, PST = Total for Problem solving, ORT = Total for organization, CLAPT = Cognitive linguistic assessment protocol total)

In order to cross check the results obtained in table 6, Mann Whitney test was administered between groups and it was found that there exist significantly high group effect for all the dependent variables at p<0.001. And hence the results shown in table 7 did not differ from each other.

Table 8: Result of ANOVA for monolingual persons with dementia vs monolingual healthy elderly.

<table>
<thead>
<tr>
<th>Category</th>
<th>Parameters</th>
<th>F(1,58)</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>APDVAT</td>
<td>423.969</td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td>MEST</td>
<td>52.940</td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td>PST</td>
<td>338.486</td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td>ORT</td>
<td>492.796</td>
<td>.000</td>
</tr>
</tbody>
</table>
One way ANOVA was administered to check the effect of group for bilinguals (normal vs dementia) for APDAVT, MEST, PST, ORT and CLAPT. As seen from table 8 there was significant effect of group for all the five parameters at p<0.001.

**Table 9:** Mann Whitney test results for bilingual persons with dementia vs bilingual healthy elderly.

<table>
<thead>
<tr>
<th></th>
<th>APDAVT</th>
<th>MEST</th>
<th>PST</th>
<th>ORT</th>
<th>CLAPT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Z</td>
<td>-4.863</td>
<td>-4.489</td>
<td>-4.780</td>
<td>-4.738</td>
<td>-4.698</td>
</tr>
<tr>
<td>Asymp. Sig. (2-tailed)</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
</tr>
</tbody>
</table>

Although the groups could be differentiated very well, the results were reanalyzed in order to check the effect of dementia. Mann Whitney test was administered between groups and it was found that there exist significantly high group effect for all the dependent variables at p<0.001. As seen from table 9 the results did not differ from each other.

Overall bilinguals performed better as compared to monolinguals in both the tests and across the test domains. Results from the present study shows that bilinguals perform better in all the domains of cognitive linguistic tasks as compared to monolinguals. This might be because that bilingual have two choices to come out with the response. Aging has been associated with increased interference between two languages. Alteration or code switching between languages occurs commonly amongst bilinguals (Skiba, 1997).

Whereas monolinguals have single language in use and hence if they are unable to use a particular word for a context the answer would be nil or no other choice. But bilinguals can code switch and complete that particular task. In the present study, researchers were not interested in studying the performance in a particular language, but performance as a whole in cognitive linguistic task. So the response either from native language (L1) or the second language (L2) was taken as appropriate. Hence bilinguals performed better as compared to monolinguals. This was true for the normal group because normal aging also shows up decline in the language abilities (Craik & Bialystok, 2006).

The result differentiates the healthy elderly from the demented patients. The greatest diagnostic value is laid on tasks measuring grammatical structures, abstract phrases, fluency and verbal memory. Impairment in these language abilities can be interpreted to a great extent to be caused by intellectual and amnestic disorder.
Conclusion

Language impairment was assessed in 20 (10 monolingual and 10 bilingual) patients with mild dementia and 60 healthy elderly (30 monolingual and 30 bilingual). The investigation included the Cognitive linguistic assessment protocol (Rajasudhakar, 2005). Statistical analysis with multivariate procedures used in this study indicated that the language functions in healthy elderly could be distinguished from the changes in mild dementia. The deterioration in cognitive linguistic functions found in mild dementia can be attributed to a great extent to general intellectual impairment and to memory disorders on the basis of the task complexity. The basic language functions seemed to preserve quite intact in mild dementia. However, the actual differences in mean scores were typically small which leaves the clinical significance of the results open to further investigation.

The most interesting results in this study concern the differentiation between monolingual and bilingual dementia. Clear differences could not be found in all the parameters besides the general cognitive linguistic impairment in both.

Degenerative changes in central nervous system seem to affect especially the complex forms of language without disturbances in the symbolic aspects of language and the disorders lie primarily in the cognitive aspects of language.

Bilinguals performed better as compared to the monolinguals in both the tests and across the cognitive domains of the tests. Bilinguals had an advantage of two choices to come out with the response unlike monolinguals, who had single language choice.

The study enlightens the clinicians working with elderly in various clinical set-ups. Age associated changes in sensory processes necessitate that modifications in illumination, size of the visual stimuli, and complexity of visual presentation be considered when working with the older adult. Reduction in attention capacity with aging implies that task complexity be carefully considered in clinical interactions with older individuals.

Deficits in perception and attention in persons with dementia must be taken into account in any attempt to assess other aspects of cognition and communication. Longitudinal studies in this domain will enlighten the nature of deficits in these individuals. Since the study considered very few persons with dementia, studies with larger group of individuals will strengthen the generalization of the findings.

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References


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