Predictors of subjective cognitive complaint in post-acute older adult stroke patients

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PII: S0003-9993(13)00237-2
DOI: 10.1016/j.apmr.2013.02.026
Reference: YAPMR 55390

To appear in: ARCHIVES OF PHYSICAL MEDICINE AND REHABILITATION

Received Date: 13 November 2012
Revised Date: 10 February 2013
Accepted Date: 12 February 2013

Please cite this article as: Lamb F, Anderson J, Saling M, Dewey H, Predictors of subjective cognitive complaint in post-acute older adult stroke patients, ARCHIVES OF PHYSICAL MEDICINE AND REHABILITATION (2013), doi: 10.1016/j.apmr.2013.02.026.

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Running title: Cognitive complaints after ischaemic stroke

Title: Predictors of subjective cognitive complaint in post-acute older adult stroke patients

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Previous presentation of this material: None

Financial support: None

Conflict of Interest: None

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Reprints not available.
Title: Predictors of subjective cognitive complaint in post-acute older adult stroke patients

ABSTRACT

Objective: To investigate the impact of objective cognitive impairment, negative affect and fatigue on cognitive complaints in a sample of post-acute (Mean = 6.64 months, SD = 1.32) ischaemic stroke patients.

Design: Cross-sectional study.

Setting: Specialised stroke units at major metropolitan hospitals.

Participants: Twenty-five first-ever post-acute ischaemic stroke patients aged between 50-85 years-old, with relatively good neurological recovery (NIHSS ≤ 7). Participants were excluded from the study if there was a documented history of psychiatric illness, neurological disease, dementia, or a moderate or severe aphasia.

Interventions: Not applicable.

Main outcome measures: Cognitive complaint as measured by the A-B Neuropsychological Assessment Schedule.

Results: Ninety percent of patients reported some level of cognitive difficulty in everyday life. Fatigue, cognitive slowing, memory difficulties, and poor concentration were the most frequently reported complaints. Over half of all participants had significant impairment in at least one cognitive domain following their stroke. A standard multiple regression was performed to evaluate the relative impacts of negative affect, fatigue, and objective cognitive functioning on subjective cognitive complaints. This model accounted for 61% of the variance of total subjective cognitive complaints ($R = 0.78$, $F(3,21) = 10.96$, $p < 0.001$), with
depression being the only variable to make a significant independent contribution to the prediction of subjective cognitive complaints.

**Conclusion:** Cognitive complaints are reported by almost all patients following a stroke. Although 50% of participants had objective evidence of a cognitive impairment, neither objective cognitive impairment nor fatigue predicted cognitive complaint independently of negative affect. Clinicians who receive reports of cognitive complaint in the post-acute period after stroke should be alert to the possibility of psychological distress in their patient.

**Key Words:** Stroke, cognitive complaint, cognitive symptom, fatigue, negative affect, rehabilitation.

**Abbreviations:** NIHSS = National Institute of Health Stroke Scale. ABNAS = A-B Neuropsychological Assessment Schedule. RBANS = Repeatable Battery for the Assessment of Neuropsychological Status. MFI = Multidimensional Fatigue Inventory. HADS = Hospital Anxiety and Depression Scale.
Stroke is the most common cause of long-term adult disability in developed countries [1-3]. Neuropsychological deficits are a significant factor in long-term disability as they contribute to reduced functional outcome for at least 5 years after stroke [4]. Subjective cognitive complaint is a prominent component of chronic stroke management with studies reporting high frequencies (50-90%) of cognitive complaint in the subacute as well as chronic period after stroke [4-7]. Despite the high frequency of cognitive complaint after stroke and the importance of post stroke cognitive impairment to long-term functional outcome, the factors contributing to cognitive complaint after stroke are not well understood. Cognitive complaint has received relatively little attention in the stroke literature, despite subjective complaint being an essential clinical tool for identifying individuals at risk of cognitive impairment post stroke.

Mental slowness, impaired memory, and poor concentration are the most commonly reported cognitive complaints.[5-6, 8] While early research suggested that subjective cognitive complaints did reflect underlying neurocognitive impairments, [9-11] it has been difficult to establish an empirical relationship between cognitive complaints and objectively measured cognitive function in stroke patients.[5,7] Rather, some studies have suggested that psychological factors contribute to subjective cognitive complaint in the chronic period after stroke. [5,7,12-14]

In one of the first studies to address this issue in stroke patients, subjective complaints of absentmindedness and memory difficulties were not associated with a range of objective cognitive performances in a sample of subarachnoid haemorrhage patients. [7] Contrary to expectations, cognitive complaints were associated with psychological variables such as satisfaction with social support and pessimistic life orientation. Duits and colleagues [5] also
found no significant differences on any of the neuropsychological measures they used between community-dwelling stroke patients with and without cognitive complaints, instead cognitive complaint was significantly associated with self-reported emotional difficulties. More recently, Passier et al. [12] found that depressive symptoms were the strongest predictor of cognitive complaints in subarachnoid haemorrhage patients. Aben et al. [13] also showed that stroke patients with and without memory complaints did not differ in memory functioning, but those with a complaint were more likely to have higher depression and neuroticism scores, and lower memory self-efficacy. Together these findings suggest that cognitive complaints are not necessarily symptomatic of an underlying neurocognitive change [14-15], but might represent an expression of other psychological issues.

Fatigue is one of the most common difficulties experienced by stroke patients. It affects up to 68% of patients in the first 12 months post-stroke, and can continue to be an issue for many years following the initial event.[16-19] Fatigue has also been related to cognitive complaint post stroke, with daytime sleepiness and fatigue found to be significantly associated with memory complaints in patients with subarachnoid haemorrhage.[19] Stroke patients also commonly report that fatigue impacts upon their cognitive functioning.[18]

Although previous studies have examined whether separate relationships exist between cognitive complaint and cognitive impairment, fatigue and psychological factors, to date no study has simultaneously examined the relationship between these variables and subjective complaint, to determine if each of these factors contribute independently to cognitive complaint. Given the overlap in symptoms between cognitive impairment, fatigue and depression (e.g. increased sleepiness, loss of energy, impaired concentration, reduced memory function), it is possible that previous findings of univariate relationships between these
variables and cognitive complaint have been at least partially an artefact of the methodology of previous studies. The aim of the current study was to investigate neuropsychological factors that influence subjective cognitive complaints in a sample of ischaemic stroke patients. Specifically, it was expected that negative affect and fatigue would both independently predict subjective cognitive complaint. We did not expect a significant independent relationship between objective cognitive performance and subjective complaint.

METHOD

Participants

All participants received acute inpatient care through specialised stroke units at one of three major metropolitan hospitals in Victoria, Australia between November 2007 and August 2008. Patients were approached to participate in the study if they were aged between 50-85 years-old, and had experienced their first-ever documented ischaemic stroke. In order to control for factors known to affect cognitive functioning, participants were excluded from the study if there was a documented history of either psychiatric illness, including alcohol or drug abuse, neurological disease, or dementia. Participants were also excluded from the study if they had a moderate or severe aphasia as measured by the language item on the National Institute of Health Stroke Scale (NIHSS), or did not speak sufficient English to undertake neuropsychological assessment.
Materials

Subjective cognitive complaints were measured with the A-B Neuropsychological Assessment Schedule (ABNAS).[20] The ABNAS requires participants to rate a series of statements regarding the presence of cognitive difficulties over the preceding four weeks. The number of questions per domain differed therefore the total score could range from 0 to 15 for complaints of fatigue or slowing, 0-12 for memory and concentration, and 0-9 for motor-coordination and language. Total cognitive complaint score ranged from 0 to 72, with higher scores indicating a greater level of complaint. The ABNAS has high internal consistency (Cronbach’s alpha = 0.95) and good construct validity (r = 0.63).[21-22]

Cognitive functioning was assessed using the Repeatable Battery for the Assessment of Neuropsychological Status (RBANS).[23] An age-scaled score (Mean = 100, SD = 15) was derived for immediate and delayed memory functioning, visuospatial abilities, attention, and language skills, as well as a total cognitive functioning score. As recommended by Lezak and colleagues significant cognitive impairment was defined as an aged-scaled score greater than 2 standard deviations from the mean.[24] The RBANS has been demonstrated to have adequate construct, convergent, and discriminant validity in stroke patients, and has been utilised in acute and subacute settings.[25-27]

Severity of neurological impairment was assessed using the NIHSS. Fatigue was measured using the Multidimensional Fatigue Inventory (MFI), a 20 item questionnaire covering general, mental, and physical fatigue, along with reduced motivation, and reduced activity level.[28] Scores for each subscale ranged from 4 to 20, with the authors recommending the
use of the General Fatigue subscale if a single measure of fatigue is required. Internal consistency is good across most subscales (Cronbach’s alpha > 0.80) with adequate construct validity.[27] Previous studies have utilised a General Fatigue cut-off score of ≥12 to indicate clinically pathological fatigue. [17,29] The Hospital Anxiety and Depression Scale (HADS) was used to assess current symptoms of depression and anxiety. As recommended by the authors, scores 11 and above were considered indicative of clinically significant symptoms of depression or anxiety. Scores between 8 and 10 indicate borderline symptoms, and scores 7 and below indicated an absence of depression or anxiety.[30]

**Procedure**

Potential participants were identified by reviewing stroke admissions at each hospital for the previous 6 months. Clinical radiological reports of CT and MRI scans were reviewed to confirm that the participant had not experienced a haemorrhage and to note the location of the stroke, if this had been reported. Potential participants were then sent a letter that outlined the study aims and protocol, and invited them to participate. Additional recruitment was undertaken by reviewing current stroke admissions and approaching eligible participants in person. Patient’s who were interested in participating in the study were provided with the letter of invitation and were told they would be contacted in approximately 3 months to organise an assessment. All participants were then contacted by telephone at least 3 months after their stroke to organise an individual assessment. Participants provided written informed consent before completing the questionnaires in the following order: ABNAS, MFI, and HADS. Most participants completed these without assistance, but in a few cases the questionnaires were read aloud by the researcher due to a participant’s lack of confidence in
providing a written response and/or reading the size 12 font of the questionnaires. Cognitive assessment followed, and was conducted according to the instructions provided in the test manual. Following cognitive assessment the full NIHSS was administered by one of the authors (F.L) who had completed the required online certification (http://nihss-english.trainingcampus.net/uas/modules/trees/windex.aspx). All assessments took approximately 60-90 minutes to complete. This study was approved by the Human Research Ethics committees at each relevant institution.

Statistical Analysis

Initial data screening revealed that although no variable required transformation, the distribution of most variables had long tails therefore medians were considered the most appropriate representation of central tendency. Pearson’s correlations were utilised to examine the relationship between subjective cognitive complaints and objective cognitive functioning, affect, and fatigue. No corrections were made for multiple correlations as study power was low and we wished to maximise the possibility of identifying significant relationships. T-tests were performed to examine the impact of gender and side of stroke on the dependent and independent variables. Standard multiple regression was utilised to identify the best predictors of subjective cognitive complaints.

RESULTS
Seventy-five stroke patients meeting the inclusion and exclusion criteria were invited to participate in the study. Thirty-five declined to participate and a further 14 either passed away (n = 3), had subsequent strokes (n = 2), developed psychological illness (n = 1), or were unable to be contacted at the time of the assessment (n = 9). One participant was excluded due to greater than 50% missing data, resulting in a final sample of 25 first-ever ischaemic stroke patients, with a mean age of 67 years (SD = 10, range 50-85 years), 64% of whom were male. Assessments took place 3-9 months post-stroke (Mean = 6.64, SD = 1.32). At the time of the assessment all participants were experiencing only mild or no neurological difficulties as a result of their stroke and were residing in their own homes. Further details of the sample can be found in Table 1.

The median complaint score for each cognitive domain is presented in Table 2. Only two participants denied any cognitive difficulty, with the median level of complaint being 16 (range = 0-48). Using a cut-off score of >15, proposed by Aldenkamp et al., 52% of the sample were considered to have a “high” level of complaint.[31] The most frequently reported complaints were related to fatigue, cognitive slowing, memory difficulties, and poor concentration.

Fifty-six percent of participants had evidence of a significant cognitive impairment (score > 2 SD below age adjusted norms) in at least one cognitive domain following their stroke. As can
been seen in Table 3, impairments in the visuospatial and immediate memory domains were experienced by at least 20% of the current sample.

Based on the criteria set out by Zigmond and Snaith [30], 20% of the current sample displayed some symptoms of anxiety (score > 7), with 28% reporting borderline to clinically significant levels of depressive symptomatology (11 < scores > 8). Pathological levels of general fatigue (MFI General Fatigue score > 12) were reported by 48% of participants. The influence of gender and side of stroke was examined for depression, general fatigue, overall cognitive functioning, and total cognitive complaints. Neither gender nor side of stroke influenced depression ($t(23) = 0.21, p = 0.84; t(20) = 0.37, p = 0.72$), fatigue ($t(23) = -1.02, p = 0.32; t(20) = 0.92, p = 0.37$), cognitive functioning ($t(23) = -0.49, p = 0.63; t(20) = -1.28, p = 0.21$), or total subjective cognitive complaints ($t(23) = 0.65, p = 0.52; t(20) = 0.46, p = 0.65$).

To evaluate the relative impacts of negative affect, fatigue, and objective cognitive functioning on subjective cognitive complaints, a standard multiple regression was performed. Depression was selected as the best measure of negative affect as it displayed the strongest correlation with total cognitive complaints. The model accounted for 61% of the variance of total subjective cognitive complaints ($R = 0.78, F(3,21) = 10.96, p < 0.001$). Table 4 displays the unstandardised regression coefficients ($B$), the standardised regression coefficient ($\beta$), and semipartial correlations ($sr_{i}^{2}$) and significance for the regression analyses. As can be seen in Table 4 depression was the only variable to make a significant independent contribution to the prediction of subjective cognitive complaints. This analysis was repeated with memory.
complaints as the dependent variable, given that this domain has a very high level of subjective salience, and has received most attention in the subjective cognitive complaint literature. The model accounted for 45% of the variance in subjective memory complaints ($R = 0.67$, $F(3,21) = 5.64$, $p = 0.005$). As can be seen in Table 4, depression was the only variable to approach significance. It is worth noting that depressive symptoms were significantly correlated with general fatigue ($r = 0.51$, $p = 0.01$). The correlation between objective cognitive functioning and depressive symptoms failed to reach significance ($r = -0.33$, $p = 0.11$).

**DISCUSSION**

In line with our expectations as well as previous research, the current study found that lowered mood independently predicted cognitive complaint whereas objective cognitive performance did not independently predict complaint. [5,6,12,13] Unexpectedly, however, in the current study elevated levels of fatigue were not associated with more severe subjective cognitive complaints, independent of the effect of depression.

The finding that negative affect independently predicted cognitive complaint is consistent with past research that has demonstrated a relationship between negative affect and cognitive complaint. [5,7,12,13] Interestingly, despite previous research [13] finding a significant relationship between negative affect and specific memory complaint, this relationship was not significant in the current study, although a strong trend in the expected direction existed.
(p=.055) between these variables. A frequent explanation for the relationship between lowered mood and subjective cognitive complaints focuses on the potential of negative affect to cause subjective evaluations of cognitive functioning.[32,33-34]. This explanation is supported by studies showing that successful treatment of depression does decrease subjective memory complaints.[35-36] It is also possible, however, that negative affect is a reaction to perceived cognitive deficits rather than being a direct cause of subjective complaint.[34] Although this study cannot address the question of whether a causal relationship exists between negative affect and cognitive complaint it did reveal that the relationship between negative affect and complaint is not restricted to individuals with pathological levels of depression. Only one of our participants had pathological levels of depression (HADS depression score ≥11), which indicates that even mild to moderate levels of negative affect is associated with self-evaluations of cognitive dysfunction.

The finding that objective cognitive performance did not predict subjective complaint independently of depression was also consistent with previous literature, which has failed to find a relationship between these variables [5,7]. Although the current study used a general cognitive screening tool to assess cognition, this tool incorporates measures of attention, memory, visuospatial function and language and is designed to identify clinically relevant cognitive impairment across a range of domains of function. It was considered appropriate to use such a measure of general cognition, rather than focusing on only one or two domains of function because there is typically not an isomorphic relationship between cognitive complaint and domain of cognitive dysfunction. To illustrate, individuals complaining of memory impairment may in fact have a deficit in the attention system. The decision to use a general cognitive measure was supported by the finding that the participants did indeed have a varied set of complaints (see Table 2).
The finding that fatigue did not independently predict cognitive complaint was unexpected, as a relationship between fatigue and cognitive complaint has been demonstrated previously [19]. Consideration of the relationship between fatigue and depression provides a possible explanation for this unexpected finding, however. In their assessment of fatigue after stroke, Ingles et al. [18] found that depression accounted for over half of the variance in fatigue impact ratings. Fatigue is a common symptom of depression, and it is possible that the previously reported [19] relationship between fatigue and cognitive complaint is a product of their shared relationship with depression. This explanation is partially supported by the current study, which found a moderate correlation between negative affect and general fatigue. Others have similarly shown a relationship between negative affect and general fatigue, with a univariate regression analysis demonstrating that depression significantly predicts fatigue in first-ever stroke patients [16]. The relationship between negative affect and fatigue requires further investigation, however, as some authors have observed that depression is not a clear predictor of post-stroke fatigue when other factors such as physical disability and dependency are included in statistical models.[16,18,37]

Despite the fact that our stroke participants had experienced a good neurological recovery, over half the sample had evidence of impaired performance in at least one cognitive domain. This rate of cognitive impairment is consistent with that reported in larger samples of first-ever stroke patients.[38] Our finding is also consistent with the observation that the incidence of reported cognitive difficulties is higher than the incidence of objective cognitive impairments in first-ever stroke patients: almost all participants in the current study reported cognitive symptoms, but only half the group had an objective cognitive impairment.
Study limitations

The current study has a number of limitations that need to be taken into consideration. An estimation of premorbid intellectual function was not included in the current study and it was presumed that participant’s cognitive impairments were due to their stroke. Although it is possible that the current sample contained participants with pre-existing cognitive weaknesses, it seems unlikely that this would have significantly impacted on the results. We defined ‘impairment’ as performances >2 standard deviations below population normative means. On average less than 5% of the standardisation sample of the RBANS had performances more than 2 standard deviations below the population mean [23]. There is no reason to believe that our sample was over-represented in the 5% of the general population who would have performed more than 2 standard deviations below the mean premorbidly. Rather, the significant (>2SD) impairment demonstrated by more than 50% of the participants in this study most likely reflects stroke-related impairment. Conversely, it is also possible that the sample contained some premorbidly high-functioning participants who experienced deterioration in cognitive performance, reflected in justifiable cognitive complaints, which were not identified on objective cognitive assessment. Given that at least 60% of our participants had less than 12 years education, however, it seems unlikely that a substantial number of premorbidly high-functioning individuals existed in our sample to systematically influence the results in this way. Nevertheless, it remains possible that some individuals who experienced subtle objective changes in cognition were not identified as demonstrating impairment in the current sample because of the limited sensitivity of the RBANS to subtle changes. Given that more than 50% of the sample demonstrated significant cognitive impairment (>2 SD below the mean) however, it seems unlikely that any individuals with
real, but undetected subtle changes in cognition would have significantly biased the results. To address these issues, futures studies would benefit from more rigorous assessment of premorbid function and a lengthier neuropsychological test battery.

A further limitation is that the study had a relatively small sample; this limits the power of the regression analysis to identify real relationships with small effect sizes. The limited sample size does not affect the primary message of the paper, however. That is, although the current study may not have identified a small independent association between fatigue and cognitive complaint that existed, it does not alter the principal finding that lowered mood has a larger independent association with cognitive complaint than fatigue. Nevertheless, it is important to be aware that fatigue may indeed have a small independent relationship with cognitive complaint that was not identified in the current study.

**Conclusions**

While post-stroke cognitive impairment has received considerable attention in the literature, few studies have addressed patient perceptions of cognitive difficulties after stroke, particularly in the post-acute period. This study is the first to conduct a systematic examination of objective cognitive impairment, negative affect and fatigue as predictors of subjective cognitive complaints in ischaemic stroke patients 3-9 months after stroke. The study revealed that objective cognitive impairment did not independently predict complaint in the post-acute period after ischaemic stroke. Rather, the contribution of objective impairment to cognitive complaint appeared to be overshadowed by negative affect. The fact that a relationship between negative affect and cognitive complaint was evident in the current,
relatively small sample indicates that the strength of the relationship between these variables may be substantial in the post-acute period. Contrary to expectations we found that fatigue did not have a significant independent effect on subjective cognitive complaints, although a small independent effect may have existed and was not identified.

This study highlights the clinical importance of identifying cognitive complaints and addressing factors contributing to it in the rehabilitation management of individuals post-stroke. Individual patients may benefit from either psychological intervention aimed at improving their mood, or by modifying the negative beliefs directly. Although subjective cognitive complaints may not necessarily indicate actual cognitive impairment in stroke patients as a group, they should alert the clinician to the possibility of psychological distress in their patient.
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Table 1 *Demographic and Stroke Characteristics*

<table>
<thead>
<tr>
<th></th>
<th>Total Sample</th>
<th>n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n = 25*</td>
<td></td>
</tr>
<tr>
<td></td>
<td>n (%)</td>
<td></td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6-8 years</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>9-11 years</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>≥12 years</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Location of stroke</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cortical</td>
<td>15 (60%)</td>
<td></td>
</tr>
<tr>
<td>Sub-cortical</td>
<td>9 (36%)</td>
<td></td>
</tr>
<tr>
<td>Left</td>
<td>10 (40%)</td>
<td></td>
</tr>
<tr>
<td>Right</td>
<td>12 (48%)</td>
<td></td>
</tr>
<tr>
<td>NIHSS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>8 (32%)</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>6 (24%)</td>
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</tr>
<tr>
<td>2</td>
<td>3 (12%)</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>4 (16%)</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>3 (12%)</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>1 (4%)</td>
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</table>

*Complete data on education was missing for education (n = 5) and location of stroke (n = 3)*
Table 2 *Cognitive Complaint Scores for Each Domain*

<table>
<thead>
<tr>
<th>Complaint Domain</th>
<th>Median (Range)</th>
<th>No. without complaint</th>
</tr>
</thead>
<tbody>
<tr>
<td>Memory</td>
<td>2 (0 - 11)</td>
<td>7</td>
</tr>
<tr>
<td>Concentration</td>
<td>3 (0 - 7)</td>
<td>8</td>
</tr>
<tr>
<td>Language</td>
<td>1 (0 - 7)</td>
<td>9</td>
</tr>
<tr>
<td>Motor coordination</td>
<td>0 (0 - 4)</td>
<td>13</td>
</tr>
<tr>
<td>Slowing</td>
<td>4 (0 - 13)</td>
<td>6</td>
</tr>
<tr>
<td>Fatigue</td>
<td>4 (0 - 12)</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>16 (0 - 48)</td>
<td>2</td>
</tr>
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</table>
Table 3 Age Adjusted Mean Scores and Number of Participants with Impaired Scores (>2 SD) on the Repeatable Battery for the Assessment of Neuropsychological Status

<table>
<thead>
<tr>
<th>Index</th>
<th>M (SD)</th>
<th>Impairments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Immediate Memory</td>
<td>85.08 (15.278)</td>
<td>5 (20%)</td>
</tr>
<tr>
<td>Visuospatial</td>
<td>80.56 (13.40)</td>
<td>6 (24%)</td>
</tr>
<tr>
<td>Language</td>
<td>92.40 (11.39)</td>
<td>1 (4%)</td>
</tr>
<tr>
<td>Attention</td>
<td>88.92 (21.26)</td>
<td>4 (16%)</td>
</tr>
<tr>
<td>Delayed Memory</td>
<td>91.16 (13.95)</td>
<td>3 (12%)</td>
</tr>
<tr>
<td>Total</td>
<td>83.56 (11.77)</td>
<td>3 (12%)</td>
</tr>
</tbody>
</table>
Table 4 *Standard Regression Coefficients for Depression, General Fatigue, and Cognitive Functioning on Total Subjective Cognitive Complaints and Memory Complaints*

<table>
<thead>
<tr>
<th></th>
<th>B</th>
<th>Std. Er.</th>
<th>β</th>
<th>sr₁²</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Cognitive Complaints</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MFI – General</td>
<td>1.00</td>
<td>0.65</td>
<td>0.27</td>
<td>0.21</td>
<td>0.135</td>
</tr>
<tr>
<td>HADS – Depression</td>
<td>2.41</td>
<td>0.79</td>
<td>0.55</td>
<td>0.42</td>
<td>0.006</td>
</tr>
<tr>
<td>RBANS - Total</td>
<td>-0.25</td>
<td>0.19</td>
<td>-0.20</td>
<td>-0.18</td>
<td>0.211</td>
</tr>
<tr>
<td><strong>Memory Complaints</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MFI – General</td>
<td>0.16</td>
<td>0.15</td>
<td>0.22</td>
<td>0.17</td>
<td>0.296</td>
</tr>
<tr>
<td>HADS – Depression</td>
<td>0.38</td>
<td>0.18</td>
<td>0.43</td>
<td>0.33</td>
<td>0.055</td>
</tr>
<tr>
<td>RBANS - Total</td>
<td>-0.06</td>
<td>0.05</td>
<td>-0.25</td>
<td>-0.22</td>
<td>0.195</td>
</tr>
</tbody>
</table>
Author/s:
Lamb, F; Anderson, J; Saling, M; Dewey, H

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2013-09-01

Citation:
Lamb, F; Anderson, J; Saling, M; Dewey, H, Predictors of Subjective Cognitive Complaint in Postacute Older Adult Stroke Patients, ARCHIVES OF PHYSICAL MEDICINE AND REHABILITATION, 2013, 94 (9), pp. 1747 - 1752 (6)

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