A Normative Study On The National University Health System Aphasia Screening Test (NUHS-AST) for Malay Speaking Aphasics

Siti Khairiyah MD JAMIL, Susan RICKARD LIOW, Emily GUO & Nur Aisyah ABD NASSER
National University of Singapore, National University Health System

SUMMARY

Based on the cognitive neuropsychological model of the Malay language, the National University Health System Aphasia Screening Test (NUHS-AST) was developed to assess all modalities of language processing (understanding, speaking, reading and writing) across ten subtests. Performance of neurologically-intact adults aged 40 – 60 years old who are Malay-English bilinguals (N=10) was recorded and tabulated. Neurologically-intact adults performed near ceiling on the test. The NUHS-AST Malay version demonstrates how the use of cognitive neuropsychological approaches as a framework for a culturally and linguistically appropriate screen can assist clinicians to identify the breakdown of any processes to facilitate differential intervention.

INTRODUCTION

Aphasia is a neurological disorder that results from damage to the areas of the brain that control language and affects 30% to 38% of patients who experienced a stroke. (Dicky et al., 2010).

• Early intervention can lead to improved neural reorganization and better functional abilities (Teasell, Bittenso, Salt & Bayona, 2005). Therefore, early and accurate assessment of language impairments is imperative in maximizing the benefits of rehabilitation.

• Screeners have been developed to allow for fast and easy screening of patients suspected of having aphasia and may be in need of in-depth assessment. Four screeners are summarized in Figure 1.

• They enable identification of a language deficit in a patient after a stroke and are useful for patients who are not able to sit for long sessions of assessments.

• Another benefit for screeners is that they provide a baseline measure of the patient’s abilities and allow the tracking of progress over time (Kostalova et al., 2008).

METHOD

Participants
• 30 healthy Singaporeans who can read and write Malay were recruited for this normative study.

Materials - Language Background Questionnaire
• Adapted Language Background Questionnaire (Lim, Lincoln, Chan, Rickard Liow & Onslow, 2007) was used to determine the demographic, language dominance and literacy profile of participants.

Materials - NUHS-AST Malay Version
• The NUHS-AST Malay Version (Figure 2) consists of 10 subtests that examines competency in language comprehension and expression, as well as reading and writing. Figures 3, 4 and 5 are sample stimuli.

RESULTS

Table 1, Summary of four aphasia screeners

<table>
<thead>
<tr>
<th>Screener</th>
<th>Sub Tests</th>
<th>Norms?</th>
<th>Appropriate for local use?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frenchay Aphasia Screening Test (Bartolucci, Whal &amp; Prasin, 2003)</td>
<td>Comprehension, Auditory expression, Reading, Writing,</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>British Aphasia Screening Test (Thompson, et al., 2010)</td>
<td>Auditory Comprehension, Repetition, Reading, Writing, Comprehension</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Northwestern Aphasia Screening Test (Dipczynski &amp; Jacobson, 2005)</td>
<td>Naming, Automatic speech, Repetition, Auditory comprehension, Object recognition, Following verbal instructions, Writing/spelling to dictation</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Screening Test (Davinson, et al., 2001)</td>
<td>Semantics, phonology, syntax</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

Receptive Language | Expressive Language


Fig. 2. List of subtests in the NUHS-AST, categorized by receptive and expressive aspects of language.

Table 2, Neurologically intact participants performed near ceiling on the test. Figures 6 and 7 depict the profile of maximum and minimum scores for Time Trials 1, 2 and 3 respectively.

Table 3, Profile for maximum and minimum scores for Time Trial 1

Table 4, Profile for maximum and minimum scores for Time Trial 2

DISCUSSION

• The NUHS-AST will enable clinicians to identify the breakdown of any language processing pathways. The normative data showed that neurologically healthy participants achieved near-perfect scores in all Time Trials.

• The use of a cognitive neuropsychological approach as a framework can assist clinicians in providing specific and targeted early intervention of patients in the early stages of recovery from stroke.

• It is also a culturally and linguistically appropriate screen to detect aphasia for use on the local population.

• The normative data mined from the study establishes baseline for evaluation to help target intervention to specific areas of deficit. It will also provide a simple illustrated feedback and a systematic method to track progress over time.

• Future research could look into increasing the sample size of the study. Normative data could also be mined from normal healthy participants aged 60 and above so that the tool can be used for patients within this age range as well.

REFERENCES