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Comprehensive Aphasia Test (Cant-CAT) for
Speakers with Aphasia in Hong Kong: a Pilot
Investigation

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August 27, 2021

The adaptation of the Cantonese version of Comprehensive Aphasia Test (Cant-CAT) for speakers with aphasia in Hong Kong: A pilot investigation

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Three keywords

Comprehensive Aphasia Test (CAT)

Cantonese

assessment and diagnostics

aphasia

Introduction

The Comprehensive Aphasia Test (CAT; Swinburn, Porter, & Howard, 2004) is an extensive standardized and formal battery designed to evaluate linguistic and cognitive impairments as well as psychosocial deficits among people with aphasia (PWA). It has been widely used by clinicians in western countries to estimate the impact of aphasia on PWA's quality of life and to monitor the treatment recovery and outcome overtime (Howard et al., 2010). A recent report by Fyndanis et al. (2017) summarized that CAT had been adapted into 15 languages, including the Indo-European languages of Basque, Catalan, Croatian, Cypriot Greek, French, (Standard Modern) Greek, Hungarian, Norwegian, Serbian, Spanish, Swedish, Turkish, Danish (Swinburn, Porter & Howard, 2014), Dutch (Visch-Brink, Vandenborre, de Smet, & Mariën, 2014), and the Semitic language of Arabic (Abou El-Ella et al., 2013). At present, there are no reports of any formal adaptation of CAT into any Asian languages.

The Cantonese version of the Western Aphasia Battery (CAB; Yiu, 1992) has been the most popular aphasia battery in Hong Kong since the 1990s. It was only until very recently that other assessment tools in Cantonese become clinically available (see Kong, 2017). The aim of this study was to explore the development and adaptation of a Cantonese version of CAT (i.e., Cant-CAT) for Chinese PWA speakers in Hong Kong. Specifically, modifications of test items involved careful considerations of the unique linguistic properties (e.g., word length, sentence structure) and psychometric variables (e.g., frequency, imageability, regularity) of Cantonese as well as appropriate Chinese culture.

Methods and preliminary results

The adaptation process was divided into two phases. In Phase 1, original test items in each CAT subtest were translated into Chinese and modified with careful control of the psycholinguistic variables specific to Cantonese (see examples in Table 1). Each item that was inappropriate for the Cantonese-speaking PWA in Hong Kong was replaced by up to three proposed possible alternatives.

Phase 2 (now in progress) involves piloting the preliminary version of Cant-CAT (i.e., with new items proposed in Phase 1) among eight healthy middle-aged (45-65 years) native Cantonese speakers in Hong Kong. These control results will be analyzed to determine if further changes of test items are needed; the best alternative for each replacement item will also be selected to be adopted to the final Cant-CAT, which will then be administered in nine (including three mild, three moderate, and three severe) native Cantonese-speaking PWA. The concurrent validity will be established by correlating subtest scores of PWAs' Cant-CAT and CAB. In addition, the inter- and intra-rater reliability will be estimated.

Conclusion

It is expected that the final deliverables of this investigation will lead to three important implications. First, a new and more comprehensive formal assessment of aphasia will become available for clinicians who work with Cantonese-speaking PWA. Second, with further validation, the Cant-CAT can provide clinicians with a comprehensive profile useful for diagnosing aphasia and treatment planning in PWA. Finally, this investigation can offer directions for future CAT adaptation in other Asian languages, such as Mandarin Chinese.

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Table 1 Examples of psychometric variables controlled in original CAT and proposed changes to Cant-CAT

Subtests	Controlled variables	Remarks	Proposed solution (with examples in Chinese)
#7: Comprehension of spoken word	Should include 1 semantic distractor, 1 phonological distractor, and 1 unrelated distractor	Most of the phonological distractors needed to be replaced, based on the translated targets in Cantonese	e.g. in item #1 Target stimuli: ‘ship 船 /syn/’ Original phonological distractor: ‘lip 嘴唇 /tsey sen/’ Proposed change: ‘lip’ → ‘fountain 泉 /ts ^h yn /’ to be phonologically similar to the target in Cantonese
#12: Repetition of words	- Imageability - Frequency - Syllable length (1 vs. 3)	Considered imageability, frequency and syllable length of the words chosen	e.g. in item # 4 Target stimuli: ‘crucifix’ (3 syllable) ‘耶穌受難像’ 5 syllables in Cantonese Proposed change: ‘crucifix’ → ‘GuanYin’ ‘觀音像’ (3 syllables) to control the word length within 3 syllables
#14: Repetition of nonwords	- Nonwords with increasing length and complexity	/	- Nonwords were substituted by six pairs of two to three real Chinese characters, which contain no meaning when combined. e.g. ‘中把’
#20: Reading words	- Frequency - Syllable length - Regularity (GPC) in monosyllabic words	Considered Cantonese word frequency, syllable length, regularity (OPC) in monosyllabic word in adaptation	e.g. in item #7 Target stimuli ‘hand’ is a regular English word, but its Cantonese translation is an irregular Chinese word ‘手’ Proposed change: ‘hand’ → ‘stop 停’ (regular word)