

Poster Handout:

**MEASURING QUALITY OF LIFE:  
RELATIONSHIP BETWEEN A GENERIC HEALTH ECONOMICS MEASURE  
& AN APHASIA-SPECIFIC MEASURE**

---



- Aura Kagan | The Aphasia Institute
  - Nina Simmons-Mackie | Southeastern Louisiana University
  - Charles Victor | Institute for Clinical Evaluative Sciences
  - David Whitehurst | Simon Fraser University
  - Jeffrey Hoch | University of Toronto & St. Michael's Hospital
- 

References

Brooks, R. (1996). EuroQol: the current state of play. *Health policy*, 37(1), 53-72.

Kagan, A., Simmons-Mackie, N., Victor, J. C., Carling-Rowland, A., Hoch, J., Huijbregts, M., Streiner, D., & Mok, A. (2011). *Assessment for Living with Aphasia (ALA)*. Toronto, ON: Aphasia Institute.

Simmons-Mackie, N. Kagan, A., Victor, C., Carling-Rowland, A., Mok, A., Hoch, J.S., Huijbregts, M. Streiner, D.L. (2014). The Assessment for Living with Aphasia: Reliability and construct validity. *International journal of speech-language pathology*, 16(1), 82-94.

Bowen, A., Hesketh, A., Patchick, E., Young, A., Davies, L., Vail, A., ..., ACT NoW investigators. (2012). Clinical effectiveness, cost-effectiveness and service users' perceptions of early, well-resourced communication therapy following a stroke: a randomised controlled trial (the ACT NoW Study). *Health technology assessment*, 16(26), 1-160.

Latimer, N.R., Dixon, S., & Palmer, R. (2013). Cost-utility of self-managed computer therapy for people with aphasia. *International journal of technology assessment in health care*, 29(04), 402-409.

Palmer, R., Enderby, P., Cooper, C., Latimer, N., Julious, S., Paterson, G., ... Hughes, H. (2012). Computer Therapy Compared With Usual Care For People With Long-Standing Aphasia Poststroke: A Pilot Randomized Controlled Trial. *Stroke*, 43(7), 1904-1911.

Whitehurst, D. G., Latimer, N. R., Kagan, A., Palmer, R., Simmons-Mackie, N., & Hoch, J. S. (2015). Preference-based health-related quality of life in the context of aphasia: a research synthesis. *Aphasiology*, 29(7), 763-780.

## Comparison of EQ-5D, a generic health-related quality of life (HRQoL) instrument, and Assessment for Living with Aphasia (ALA), a condition-specific QoL instrument

	EQ-5D (Brooks, 1996)	Assessment for Living with Aphasia (ALA) (Kagan <i>et al.</i> 2011)
<b>Overview</b>	<ul style="list-style-type: none"> <li>• Generic preference-based tool; measures health-related quality of life (HRQoL)</li> <li>• Used across a variety of conditions</li> <li>• Validated, well-established, self-report tool</li> </ul>	<ul style="list-style-type: none"> <li>• Condition-specific tool; measures quality of life (QoL) with people with aphasia</li> <li>• Used specifically with the condition of aphasia</li> <li>• Validated, reliable, communicatively accessible</li> </ul>
<b>Description</b>	<ul style="list-style-type: none"> <li>• 5 dimensions (1 question per dimension): <ul style="list-style-type: none"> <li>▪ Mobility</li> <li>▪ Self-Care</li> <li>▪ Activities</li> <li>▪ Pain / Discomfort</li> <li>▪ Anxiety / Depression</li> </ul> </li> <li>• Provides a 5-digit profile and a single index score that estimates the value of an individual's health state</li> <li>• Takes 2-3 minutes to complete</li> </ul>	<ul style="list-style-type: none"> <li>• 45 questions, around conceptual domains: <ul style="list-style-type: none"> <li>▪ Aphasia severity</li> <li>▪ Environment</li> <li>▪ Participation</li> <li>▪ Personal</li> <li>▪ Life with aphasia</li> </ul> </li> <li>• Produces a single value describing overall quality of life of respondent</li> <li>• Takes 30-60 minutes to complete</li> </ul>
<b>Economic evaluation?</b>	<p style="text-align: center;">✓</p> <ul style="list-style-type: none"> <li>• Suitable for use within a cost-utility framework</li> <li>• Enables health benefits to be compared across clinical conditions</li> </ul>	<p style="text-align: center;">X</p> <ul style="list-style-type: none"> <li>• Does not provide a health state valuation; not suitable for use in cost-utility analysis</li> <li>• Condition-specific nature of the ALA does not permit comparisons with other health problems. Limits application for wider policy considerations.</li> </ul>
<b>Informs treatment planning?</b>	<p style="text-align: center;">X</p> <ul style="list-style-type: none"> <li>• Not designed to provide clinical information for treatment planning</li> </ul>	<p style="text-align: center;">✓</p> <ul style="list-style-type: none"> <li>• Has clinical and research uses – with enough clinical information for treatment planning</li> </ul>
<b>Communicatively accessible?</b>	<p style="text-align: center;">X</p> <ul style="list-style-type: none"> <li>• Does not include questions specific to communication</li> <li>• May not be suitable for individuals with language barriers</li> <li>• Application in aphasia studies has been limited (Whitehurst <i>et al.</i> 2015)</li> </ul>	<p style="text-align: center;">✓</p> <ul style="list-style-type: none"> <li>• Communicatively accessible</li> <li>• Can be used with severe to mild aphasia</li> </ul>

# MEASURING QUALITY OF LIFE: RELATIONSHIP BETWEEN A GENERIC HEALTH ECONOMICS MEASURE & AN APHASIA-SPECIFIC MEASURE

• Aura Kagan | The Aphasia Institute  
 • Nina Simmons-Mackie | Southeastern Louisiana University  
 • Charles Victor | Institute for Clinical Evaluative Sciences  
 • David Whitehurst | Simon Fraser University  
 • Jeffrey Hoch | University of Toronto & St. Michael's Hospital

American Speech-Language Hearing Association Convention 2015

## INTRODUCTION

- Limited health care resources pressure decision-makers to make wise resource allocation choices. Cost utility analysis (CUA) is often done to aid decisions, evaluating the impact of treatment on quality of life (QoL) and health service use.
- QoL instruments include condition-specific tools, such as the Assessment for Living with Aphasia (ALA) (specific to QoL in aphasia), as well as generic tools that measure health-related quality of life (HRQoL) across a wide range of clinical contexts (e.g., the EQ-5D). Generic tools allow for comparison across health conditions (a prerequisite for allocating resources between competing demands) and are widely-used in health economics. Generic tools, such as the EQ-5D, are not communicatively accessible and have not been validated for use in aphasia.
- Whitehurst et al. (2014) found a lack of conceptual or empirical research validating HRQoL tools for use with aphasia, concluding an accessible, generic preference-based HRQoL instrument is likely needed for persons with communication disorders.
- Irrespective of issues of accessibility, the lack of descriptive richness of generic tools makes them less useful in clinical aphasia applications. To solve the dilemma of whether to administer a generic versus condition-specific tool, researchers have suggested "crosswalking":
  - administering two tools on the same population to determine their relationship;
  - then, statistically establishing a crosswalk from one to the other.

## AIMS

- To create a reliable 'aphasia-friendly' version of the EQ-5D to allow participation of individuals across aphasia severity levels.
- To determine if the ALA correlates with the EQ-5D, and which components, items or conceptual domains map most highly with the EQ-5D – in order to create a "crosswalk" between the EQ-5D and the ALA, or components thereof.

## METHODS

### PARTICIPANTS

50 individuals with aphasia who had been attending a community aphasia program for  $\geq 6$  months.

### DEMOGRAPHICS

Age, mean (SD)	62.6 (16.8)
Female, n (%)	17 (33.3)
English as a first language, n (%)	45 (91.8)
Time since stroke in years, mean (SD)	7.1 (5.7)
BDAE Severity, mean (SD)	3.0 (1.2)

- A pictographic version of the EQ-5D was developed, using the same principles and style used to construct the original ALA. The pictographic EQ-5D was administered on two occasions, two weeks apart.
- Intraclass correlation coefficients (ICCs) were calculated across the two administrations to evaluate reliability of the pictographic EQ-5D. Reliability of the ALA has been established.
- Pearson's correlation was used to determine the association between the ALA, each of the ALA domains, and the EQ-5D score, after the first administration of the EQ-5D.
- Non-parametric Spearman's correlation was used to further examine the association between each ALA item and the EQ-5D score due to the small range of values possible for each item.
- A "heat-map" was developed, using absolute Spearman's correlation, to visualize the range of correlation strengths between the EQ-5D and individual ALA questions.
- All statistical analyses were conducted using SAS v9.3 (Cary, NC); a p-value  $< 0.05$  was used to indicate statistical significance.

## EQ-5D

### Pictographic Version

#### Mobility

- I have no problems in walking about
- I have some problems in walking about
- I am confined to bed

#### Self-Care

- For example:
- I have no problems with self-care
  - I have some problems washing or dressing myself
  - I am unable to wash or dress myself

#### Usual Activities

- For example:
- I have no problems with performing my usual activities
  - I have some problems with performing my usual activities
  - I am unable to perform my usual activities

#### Pain/ Discomfort

- I have no pain or discomfort
- I have moderate pain or discomfort
- I have extreme pain or discomfort

#### Anxiety/ Depression

- I am not anxious or depressed
- I am moderately anxious or depressed
- I am extremely anxious or depressed

## ASSESSMENT FOR LIVING WITH APHASIA (ALA)

### Abbreviated Content

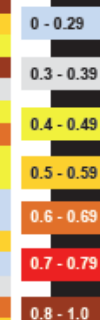
Domain	Q#	Key content of question
Participation	1	Knowledge of aphasia
	2	Talking
	3	Understanding
Aphasia	4	Reading
	5	Writing
	6	Aphasia overall
	7	* # of places you go in a week
	8	Getting out to the places you want to go
	9	* # of days of week that you get out
Participation	10	Getting out the number of days you want
	11	Doing what you want at home
	12	Doing what you want regarding work or volunteering
	13	Doing what you want regarding finances & money
	14	Doing what you want regarding leisure and recreation
	15	Doing what you want regarding learning new things
	16	Getting around as much as you want (transport)
	17	Performing your roles and responsibilities as you want
	18	Your relationship with (name of key person)
	19	Having a conversation with (name of key person)
	20	* # of people you talk to in a week
	21	As many relationships and friends as you want
	22	Joining in simple conversations
	23	Joining in complicated conversations
	24	Joining in conversations at home
	25	Joining in conversations in the community
	Environment	26
27		* # of things (key person) does to help you communicate
28		* Getting help from others to communicate at home
29		* Getting help from others in the community
Personal	30	Others feel comfortable talking to you at home
	31	Others feel comfortable talking to you in the community
	32	Others know you are competent (people at home)
	33	Others know you are competent (people in the community)
	34	In charge of your life (autonomy)
	35	Confident
	36	Respected
	37	Accepted
	38	Lonely
39	Depressed	
Moving on with life	40	Frustrated
	41	Angry
	42	Think good things about yourself
	43	Have things you enjoy or look forward to
	44	Life in the future
	45	Which one is you? (pictograph of moving on with life)

\* Item that provided contextual information but not included in the total ALA score

## "HEAT-MAP" OF EQ-5D

Mapped onto individual ALA Questions

Absolute Spearman's Correlation | r |



## CORRELATION OF ALA WITH EQ-5D

ALA Domain	Correlation with EQ-5D
Total	-0.56 (p<0.001)
Aphasia	-0.55 (p<0.001)
Participation	-0.65 (p<0.001)
Environment	-0.29 (p=0.052)
Personal	-0.52 (p<0.001)
Moving on with life	-0.40 (p=0.007)

## RESULTS

- Reliability of the pictographic EQ-5D was high with an ICC(2,1) = 0.85.
- The ALA total score, and most of its components, correlated moderately well and statistically significantly to the EQ-5D, with a correlation of -0.56 (p<0.001).
- The EQ-5D correlated most highly with the participation domain of the ALA (Pearson's  $r = -0.65$ , p<0.001).
- The EQ-5D did not significantly correlate with the ALA's environment domain (Pearson's  $r = -0.29$ , p = 0.052).
- When correlated with individual items, the associations ranged dramatically, with Spearman's correlations ranging from -0.17 to -0.89.
- When interpreting the heat-map correlating the EQ-5D with individual ALA questions, several ALA items displayed moderate to strong correlation with the EQ-5D. Additionally, ALA Questions 7, 9 & 27 – used to create context with persons with aphasia on subsequent questions, but not included in the total ALA score – yielded values that actually correlated highly with the EQ-5D. These questions referred to a person's typical week – places one would go, number of days one would go out; and number of things key conversation partners would do to help the persons with aphasia communicate. Thus, these ALA questions may have broader uses than originally planned.

## CONCLUSIONS

- The newly developed pictographic version of the EQ-5D was highly reliable.
- We have encouraging findings about the feasibility of doing a "crosswalk" between the EQ-5D and components of the ALA. The moderate correlation between the ALA and EQ-5D and strong correlation between a number of key items from the ALA and the EQ-5D supports crosswalk potential, if the crosswalk is based on a reduced version or components of the ALA (such as the participation domain).
- In order to assess aphasia treatments within the accepted economic evaluation framework (e.g., for policy and funding decisions), there is a need to identify methods that allow for the estimation of generic health status. This study demonstrates the potential for crosswalk mapping from the ALA to the EQ-5D.

### References

Bates, P. (1982). *Standardized Assessment of Aphasia*. (2nd ed.).  
 Hoge, A., Simmons-Mackie, N., Victor, C., Whitehurst, D., Hoch, J., Fugère, M., & Mackie, N. (2011). Assessment of Living with Aphasia (ALA). *Stroke*, 42, 1033-1038.  
 Simmons-Mackie, N., Hoge, A., Victor, C., Whitehurst, D., Hoch, J., & Fugère, M. (2014). The Assessment of Living with Aphasia: Reliability and construct validity. *International Journal of Speech-Language Pathology*, 16(1), 52-64.  
 Whitehurst, D., Hoge, A., Victor, C., & Mackie, N. (2014). ACTA: Aphasia Communication Test. *International Journal of Speech-Language Pathology*, 16(1), 52-64.  
 Whitehurst, D., Hoge, A., & Victor, C. (2014). Crosswalk of health-related quality of life for people with aphasia. *International Journal of Stroke Assessment in Healthcare*, 20(5), 411-418.  
 Whitehurst, D., Hoge, A., Victor, C., Mackie, N., & Hoch, J. (2015). Computer Therapy Group's Aphasia Assessment: A Review of the Literature. *International Journal of Speech-Language Pathology*, 17(1), 1-10.  
 Whitehurst, D. G., Lomas, H. P., Hoge, A., Mackie, N., Simmons-Mackie, N., & Hoch, J. E. (2014). Psychometric evaluation of quality of life in the context of aphasia: a research synthesis. *Psychology of Women Quarterly*, 38(1), 1-10.