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A survey of selected representations of the stroke and aphasia quality of life scale-39 items

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A SURVEY OF SELECTED PICTURE REPRESENTATIONS OF THE STROKE AND
APHASIA QUALITY OF LIFE SCALE-39 ITEMS

A Thesis

Submitted to the Graduate Faculty of the
Louisiana State University and
Agricultural and Mechanical College
In partial fulfillment of the
Requirements for the degree of
Master of Arts

in

The Department of Communication Sciences and Disorders

by
Dara Lynn Elizabeth Deroche
B.S., Southeastern Louisiana University, 2009
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ABSTRACT

This research was designed to gain information that could be used in the future to improve quality of life measures for people with aphasia. Aphasia is a language disorder resulting from stroke or traumatic brain injury. People with aphasia exhibit difficulty producing and understanding verbal and written language. Existing quality of life measures, while valid and reliable for those with mild to moderate aphasia, are often unable to be used for those with severe aphasia. The written text is too complex for them to comprehend. Other studies have been done supporting the idea that pictures aid in the comprehension of written text. This study was intended to determine if a set of pictures from the *Life Interests and Values (LIV; Haley, 2010)* Cards are a good representation of the text questions from the Stroke and Aphasia Quality of Life Scale-39 (*SAQOL-39; Hilari, 2003*). A healthy older adult population rated the relationship of 31 picture and text combinations using a 5-point Likert Scale as well as offered suggestions to modify the pictures resulting in a closer relationship between the picture and text.

The project's objective was to determine if pictures could be used to reflect text, as judged by an older adult population without neurologic disorders. It was necessary to conduct this study with healthy older adults to ensure that an unaffected individual perceives a strong symmetrical relationship between the text and pictures before attempting to use this research with individuals with aphasia.

Results indicated a high agreement rate ($\geq 60\%$) for 18 of the 31 text and picture combinations. Seven of the 18 items were judged symmetrical (ratings 4 & 5 $\geq 60\%$). Nine of the 18 items were judged not symmetrical. On two of the 18 items, $\geq 60\%$ of participants agreed the picture "somewhat" represented the text. The remaining 13 survey items demonstrated a low agreement rate ($< 60\%$); therefore no relationship could be determined on these items.

INTRODUCTION

Clinicians and researchers in the field of speech-language pathology have demonstrated increased interest in understanding the effect aphasia treatment has on an individual's life participation. The World Health Organization (WHO) defines Quality of Life (QOL) as an "individual's perceptions of their position in life in the context of the culture and value systems where they live and in relation to their goals, expectations, standards, and concerns" (1996, p.354). This increased interest has been driven, in part, by the emphasis that the American Speech-Language-Hearing Association (ASHA) Scope of Practice in Speech-Language Pathology placed on the outcome of treatments received by individuals with communication disorders when it wrote, "The overall objective of speech-language pathology services is to optimize individuals' ability to communicate and/or swallow in natural environments, and thus improve their quality of life" (2001, p.3). However, it is difficult for speech language pathologists to determine what effect treatment has on their clients' QOL, in part because so few valid measures of QOL for individuals with communication disorders exist.

As the interest in measuring QOL in people with aphasia (PWA) began to grow, so did the quest to find an adequate measure. Williams and colleagues (1999) developed the *Stroke Specific Quality of Life Scale* (SS-QOL) for stroke survivors. However, they did not include PWA in their study. In 2001, Hilari and Byng modified the SS-QOL to make it more accessible to PWA. Their research culminated in the *Stroke and Aphasia Quality of Life Scale* (SAQOL). The SAQOL consisted of 53 interviewer-administered self-report items that addressed trouble understanding speech, difficulty making decisions, and the impact of language problems on family and social interactions. Preliminary analysis of the test revealed that 14 of the 53 test items did not contribute to measuring an individual's QOL. They removed those items and

called their final version the *Stroke and Aphasia Quality of Life Scale-39 item version (SAQOL-39)*; Hilari, 2003).

In 2004, Paul and colleagues (2004) presented the *American Speech-Language-Hearing Association Quality of Communication Life Scale (ASHA QCL)*. The investigators developed the ASHA QCL to assess various aspects of communication and determine the impact of a communication disorder on an individual's participation in life activities. The standardization sample included individuals with aphasia (fluent and non-fluent), cognitive-communication disorders related to right-sided cerebrovascular accident, and dysarthria, with severity levels ranging from mild to moderate. The developers used simple questions and line drawings associated with a 5-point equal-appearing Likert scale in an attempt to include individuals with more severe language disorders. With the exception of these two assessments, no other valid or reliable QOL assessments exist for individuals with aphasia.

Although the *SAQOL-39* and other QOL measures may provide an adequate representation of an individual's QOL, according to Hilari and Byng (2009), those who live with severe aphasia are often unable to report on their quality of life due to the complex language demands often embedded in questions. They stressed that researchers must focus their efforts on designing QOL instruments that include individuals with more severe aphasia. One way to do that might be to use simple line drawings or photographs to enhance the text questions.

Research has demonstrated that pictures increase reading comprehension (Dietz, Hux, McKelvey, Beukelman, & Weissling, 2009). In order to discover if a particular set of pictures (those from the *L/V* cards) will aid in the reading comprehension of people with severe aphasia, the relationship between those pictures and the text (from the *SAQOL-39*) must first be determined by healthy older adults without neurological disease. It is necessary to conduct this

study with healthy older adults to ensure that an unaffected individual perceives a strong symmetrical relationship between the text and pictures before attempting to use this research with individuals with aphasia.

This paper aims to answer the question: What is the association between questions from the *SAQOL-39* and pictures from the *L/V* cards as judged by older people without neurologic disorders?

LITERATURE REVIEW

Quality of Life and the International Classification of Functioning in Aphasia

Threats (2005) described the partnership between QOL and the WHO's International Classification of Functioning, Disability, and Health (ICF; 2001). The ICF is a classification system that was developed so that clinicians and researchers could categorize and document environmental influences on the full range of human functioning. This system for classifying disability is divided into Body Structure and Function, Activities and Participation, Personal Factors, and Environmental Factors (Threats, 2005). However, the ICF does not include QOL. A study by Cieza and Stucki (2005) examined six different QOL measures and compared them to the ICF. Researchers found 91 instances where the QOL measures overlapped with the ICF categories and only 12 items in the QOL measures that could not be mapped into the ICF classifications (as cited in Threats, 2005, p. 4). The contributing factor to this high percentage of overlap is the design of the ICF, which was developed to encompass all the behaviors of people that may influence quality of life, such as physical and psychological functions of body systems, learning and applying knowledge, general tasks and demands, communication, mobility, self-care, domestic life, interpersonal interactions and relationships, community, social, and civic life, and the physical, social, and attitudinal environment in which people conduct their lives (Threats, 2005).

It is important to note that although there is a substantial amount of overlap, the ICF and QOL have variations and possible dissociations (Threats, 2005). In fact, Simmons-Mackie and Kagan (2007) state that QOL is not captured in the current ICF framework despite the ICF support for further research to establish a link between the two. The major factor that discriminates ICF from QOL is that the ICF was designed for use with observable behaviors that

may affect function, health status, and independence. In contrast, QOL measures are subjective and rely on the report of PWA (Threats, 2005). Threats (2005) states, “What persons say about their quality of life is, by definition, true” (p. 5). However, it is important to remember that just because a PWA (or any other) cannot “say” anything about their QOL does not mean that it is not important to them. It most likely means that researchers have not yet discovered a valid way to obtain the information. This demonstrates the need for research and survey development that will afford people with severe aphasia, if at all possible, the opportunity to report on their QOL.

Stroke Quality of Life Measures

The *Stroke Impact Scale (SIS)* (Duncan et al., 1999) was developed as a self-report QOL instrument for individuals post-stroke. The *SIS* addresses eight domains: strength, hand function, activities of daily living (ADL)/instrumental activities of daily living (IADL), mobility, communication, emotion, memory and thinking, and participation. Duncan and colleagues (1999) evaluated the *SIS* for reliability, validity, and sensitivity to change.

Ninety-one individuals with mild to moderate stroke participated in the study. Participants completed the *SIS* at one month, three months, and six months post-stroke. To test for internal consistency and test-retest reliability, 25 individuals repeated the *SIS* one week after the three- and six-month administrations. Discriminant validity was determined by comparing mean scores across groups from the six month *Modified Rankin Scale (MRS)* (Rankin, 1957) scores. The test’s criterion validity was assessed by comparing scores from the eight *SIS* domains to existing stroke measures and then comparing the differences across *MRS* levels. To evaluate the *SIS* domains responsiveness to change over time, researchers used mixed model software (SAS-MIXED).

SIS test-retest reliability for seven of the eight domains meets the requirement to assess the same patient over time with Cronbach coefficients ranging from 0.83 to 0.90. Discriminant validity of the test was excellent as six of the eight domains were significantly different ($p < 0.02$ to $p < 0.0001$) across *MRS* levels. *SIS* domains showed good criterion validity and excellent coherence with established measures with correlation coefficients ranging from 0.82 to 0.84. Severity and time post-stroke were noted to effect responsiveness to change for each domain. In moderate stroke, the instrument was determined to be sensitive to change between the three- and six- month test administrations. This research indicates that the *SIS* is a valid, reliable measure that is sensitive to change over time. However, this study only included people with minor and moderate strokes and focused little attention on communication as a factor of QOL.

Buck and colleagues (2000) conducted a study that evaluated assessments used to measure QOL after stroke. The study's purpose was to (1) identify the various assortment of assessments used to measure QOL after stroke, (2) identify any stroke-specific assessments, and (3) determine the strengths and weaknesses of the assessments identified (Buck et al., 2000). Their literature search revealed 15 generic assessments and seven stroke-specific assessments used in QOL research after stroke. From this pool, nine of the 15 generic QOL assessments appeared in a single study and/or addressed one domain on QOL. They went on to systematically evaluate the remaining six assessments which included the *Sickness Impact Profile (SIP)*; Bergner et. al., 1981), *Nottingham Health Profile (NHP)*; Hunt et al., 1980), *MOS 36-Item Short Form Health Survey (SF-36)*; Ware & Sherbourne, 1992), *EuroQol* (The EuroQol Group, 1990), *London Handicap Scale (LHS)*; Harwood et al., 1994), and *Health Utilities Index (HUI)*; Feeny et al., 1996; Buck et al., 2000).

Although Buck et al. (2000) identified a number of generic QOL assessments that have been used with individuals who have had a stroke, researchers caution that these assessments lack responsiveness to change and do not reflect the concerns of individuals who had a stroke. A close look at stroke-specific QOL measures revealed that only the *FAI* has been used in multiple studies, but is not comprehensive enough because its original purpose was to measure only premorbid lifestyle activities. Moreover, people with cognitive and language problems are often unable to report to such questions (Buck et al., 2000; Hilari & Byng., 2009). Researchers concluded that none of the instruments identified in the study adequately address all areas of QOL for individuals who have had a stroke.

Although these measures provide information regarding stroke survivor's QOL, these studies did not incorporate PWA. Therefore, little is known about the value of these instruments for measuring QOL in PWA.

Aphasia Quality of Life Measures

The *ASHA QCL* user manual reports the instrument's validity and reliability results from a study conducted during its development. The study was conducted by administering a field test version of the *ASHA QCL* to 86 participants with communication disorders. Participants had a primary communication disorder of non-fluent aphasia (47%), fluent aphasia (24%), cognitive communication impairment (16%), or dysarthria (13%) with severities rating from mild to severe. The test was made up of 19 items across three domains (Socialization/Activities, Confidence/Self-Concept, and Roles and Responsibilities). Each item contained a rating scale that consisted of a 10 cm vertical line containing universal icons, such as stick figures with smiles and frowns at the top and bottom of the scale. Test items were written using

grammatically clear and direct language to enable individuals with significant language impairments to complete the test (Paul et al., 2004).

Participants completed the QCL field test by reading each test item and marking on or pointing to a location on the scale. A clinician remained with the participant during field test administration so the clinician could answer any questions and provide any assistance necessary. Participants also completed the *Affect Balance Scale* (*ABS*; Bradburn, 1969), an existing measure of well-being. After participants completed the *ASHA QCL* and *ABS*, they completed an optional post-test interview to judge the degree of importance of particular test items. The interview consisted of the clinician reviewing certain test items and asking the participant to rate the item's importance (Paul et al., 2004).

The QCL field test results were compared to the *ABS* results. Correlation between the total score on the *ABS* and total score on the *ASHA QCL* was low (0.09) and not statistically significant. Correlation between the *ABS* and field test item on general well-being was moderate (0.33) and statistically significant. Item by item correlations of the field test did not support grouping items into domains (Socialization/Activities, Confidence/Self-Concept, and Roles and Responsibilities) because items did not load into these categories. For this reason, items were not categorized by domains in the final revisions of the *ASHA QCL*. Intra-rater reliability coefficients varied greatly, ranging from 0.09 to 0.96 with a mean correlation of 0.63 (low considering .9 and above is considered acceptable). The large difference may be a result of the small number of participants (5) who responded to one of the field test items regarding communication needs of their job/school (Paul et al., 2004). Researchers concluded that the *ASHA QCL* is a valid measure of quality of communication life as a separate but related part of overall QOL (Paul et al., 2004).

Results suggest that the *ASHA QCL* only measures the quality of an individual's "communication life." It is not a measure of the quality of a broader range of areas having to do with an individual's well-being, such as vision, physical and general health, social activities and networks, and emotional and spiritual health. To date, there have been no published peer reviewed journal articles that further examine the psychometric properties of the *ASHA QCL*.

Hilari et al. (2003) examined the *SAQOL-39* for acceptability, reliability and validity in a cross-sectional, interview-based study with 83 participants who had aphasia resulting from stroke. Originally, 95 PWA met the study's inclusion criteria and agreed to participate. However, 12 participants were excluded from the study because they were unable to self-report on the questionnaires. The 83 participants who took part in the study were at least one year post-stroke with no known history of severe cognitive decline prior to the stroke. Participant's aphasia severity was classified using the *Frenchay Aphasia Screening Test (FAST)*; Enderby, 1987). Fifty-four percent of participant's were classified as "mild," 35% as "moderate," and 11% as "severe" (Hilari et al., 2003).

Participants in the study completed the *SAQOL*, *General Health Questionnaire (GHQ-12)*; Goldberg, 1972), *Raven's Colored Progressive Matrices (RCPM)*; Raven et. al., 1995), *Frenchay Activities Index (FAI)*; Wade et. al., 1985), and *MOS Social Support Survey (SSS)*; Sherbourne, 1991). The *ASHA Functional Assessment of Communication Skills for Adults (ASHA-FACS)*; Frattali, 1995) was also completed. In addition, participants rated their current quality of life compared to pre-stroke using a 5-point rating scale (1 = a lot worse than before the stroke, 5 = better than before the stroke) (Hilari et al., 2003).

Results indicated that the *SAQOL-39* demonstrated acceptability through minimal missing data and floor/ceiling effects and only four skewed items. It showed good internal

consistency, test-retest reliability for scale ($\alpha = 0.93$; ICC = 0.98) and subscale scores ($\alpha = 0.74$ to 0.94; ICC = 0.89 to 0.98; Hilari et al., 2003). Within-scale analyses revealed acceptable inter-correlations between SAQOL-39 subscale scores ($r = 0.10$ to 0.47) and correlations between subscale and total scores ($r = 0.38$ to 0.58). Moreover, comparisons with external criteria revealed that results provided good support for known groups, convergent, and discriminant validity. The physical communication and energy subscales showed good convergent and discriminant validity. The psychosocial subdomain showed good discriminant and adequate convergent validity with only one correlation lower than predicted (Hilari et al., 2003).

The literature demonstrates that the SAQOL-39 is a valid measure for stroke survivors and most PWA, which does not place a significant burden on the respondent (Hilari et al., 2003). However, 12 participants were eliminated from the study due to their severe aphasia, and thus their need for proxy respondent. Although the SAQOL-39 demonstrated adequate psychometric properties, the sample on which it was validated excluded individuals who were unable to self-report on their QOL. Therefore, this study should be expanded to include people with a wider range of aphasia severity, who can, nevertheless, self-report.

As a result of learning that some individuals with severe aphasia required proxy respondents to complete the *SAQOL-39*, Hilari, Owens, and Farrelly (2007) conducted a study to explore the level of agreement between PWA and their proxies. Fifty PWA and their 50 proxy respondents participated in the study. Participants presented with a range of aphasia severities, but all scored greater than 7/15 on the receptive subtests of the FAST, which is the cutoff score for self-completion of the *SAQOL-39*. Spouses, partners, children, other family members, or friends served as proxies for the PWA.

PWA completed the *SAQOL-39* in an interview format with an experienced SLP. The 50 proxy participants completed the *SAQOL-39* by telephone interview and were asked to respond as they thought their partner with aphasia might answer (Hilari et al., 2007). Results indicated that the difference between self-reported scores from PWA and their proxies were significantly different for the overall *SAQOL-39* in three of its four domains (communication $t = 3.4, p \leq 0.001$; physical $t = 2.9, p \leq 0.001$; and psychosocial $t = 3.0, p \leq 0.001$), and while the standard deviations were large, the effect sizes were small to medium. Results of intra-class correlation coefficient revealed excellent agreement between the two groups for the overall scale and the physical domain (0.8), good for the psychosocial and communication domain (0.7), and moderate for the energy domain (0.5) (Hilari et al., 2007).

Researchers determined that PWA characteristics (sex, time post-onset, and number of comorbid conditions) and proxy characteristics (age, sex, relationship with PWA) had no effect on the level of agreement on the *SAQOL-39*. There was no significant correlation between the severity of receptive aphasia and the level of agreement overall *SAQOL-39* mean, the physical domain, and the psychosocial domain. The correlation approached significance for the communication domain ($r = 0.3, p = 0.057$) and was significantly correlated with agreement for the energy domain ($r = 0.3, p = 0.3$; Hilari et al., 2007).

Findings suggested that proxy respondents provided valuable information regarding the QOL of PWA who had such severe deficits that they were unable to self-report on the *SAQOL-39*. But, Hilari et al. (2007) point out that “proxy scores may not necessarily be a good indicator of the self-report scores at the individual level” (p. 1074). Health-related QOL is highly subjective; therefore, self-report remains more valid than any proxy report (Hilari et al., 2007).

Hilari and Byng (2009) conducted a study using the 12 PWA who required proxy respondents in the Hilari (2003) study. The purpose of the study was to increase understanding of proxy evaluations and to compare the findings of this study to other studies, such as the Hilari et al. (2007) study, where proxies were used to report QOL in persons with mild and moderate aphasia and the Hilari (2003) study, where participants provided a self-report of QOL.

Proxy reported scores on the *SAQOL-39* for the persons with severe aphasia were compared with the self-reported scores from the Hilari (2003) study and the proxy-reported score for persons with mild and moderate aphasia in the Hilari et al. (2007) study using a one way ANOVA. Results showed that scores on the *SAQOL-39* for persons with severe aphasia were significantly lower than those reported in the Hilari (2003) and Hilari et al. (2007) studies in the overall mean and means of the physical and communication sub-domains. QOL scores for the people with severe aphasia were shown to be severely compromised when compared to their counterparts with mild and moderate aphasia. These findings seem to suggest that the people with severe aphasia rate their QOL considerably worse than those with mild and moderate aphasia. Hilari and Byng (2009) advise that the interpretation be viewed cautiously since there are no self-report data on people with severe aphasia. It could be argued that the differences they found resulted from proxy-rating rather than self-report from persons with severe aphasia (Hilari et al., 2007).

The research concerning PWA responding to QOL measures indicates that those with severe aphasia were often excluded due to their inability to independently participate. When people with severe aphasia were included, as in the ASHA QCL, researchers determined that the assessment only measured the communication aspect of QOL. Research further demonstrates that no proxy respondent can completely and accurately depict an individual with severe

aphasia's QOL. This is largely due to the fact that QOL is heavily dependent on the individual's perceptions regarding their own life situation. One way to allow people with severe aphasia to independently respond to a QOL assessment would be to supplement the text with pictures that reflect the same meaning.

Pictures and Visual Aids for People with Aphasia

Dietz and colleagues (2009) investigated which type of photographic support (high-context photographs, low-context photographs, or no photographs) is most beneficial to increase reading comprehension in PWA. The investigators measured reading comprehension response accuracy, response times, and the participants' perceptions of visuographic support helpfulness using a five point Likert scale (Dietz et al., 2009).

Seven people with Broca's aphasia due to a left sided cerebrovascular accident served as participants in the study. Participants were all right-handed, medically stable, at least three months post-stroke, had a negative history for psychotic episodes and substance abuse. The participants were required to have had at least a high school education, but no more than four years of college. They were native speakers of American English, and demonstrated adequate vision and hearing to complete the task required of the study (Dietz et al., 2009).

To assess reading comprehension narrative passages were developed based on selected photographs and then evaluated to ensure equivalency based on total number of words, mean words per sentence, mean characters per word, Flesch Reading Ease, and Flesch-Kincaid Grade Level (Flesch, 1984). Narrative passages were paired with either (1) a high-context photograph which depicted people interacting with each other or a relation between people and objects, (2) a low-context photograph which portrayed a single image of a person or object on a plain background, or (3) no photograph (Dietz, 2009).

To ensure task comprehension, participants received auditory and written instructions along with augmented input as needed from the examiner. Participants were then presented with a reading passage paired with one of the three visuographic support conditions, without time constraints. Participants pointed or verbalized responses to a series of verbally delivered comprehension questions. After each set of comprehension questions were completed, the participants were asked to answer two questions to indicate their perceptions regarding the helpfulness of the pictures and the ease of the tasks (Dietz et al., 2009).

Researchers found that the greatest number of accurate responses occurred for the high-context photograph condition, followed by the low-context photograph condition, and last for the no photograph condition. Researchers were cautious about the interpretation of their results because, although a statistically significant difference existed among the three conditions, these changes were modest (Dietz et al., 2009).

Investigators noted faster response times to comprehension questions when presented with narratives but no visuographic support. Researchers theorize that this may be the case because participants understood less of the written text alone, and as a result did not spend time considering responses to the questions. Findings suggest that the presence or absence of visuographic support impacted the participants' understanding of the reading passage (Dietz et al., 2009).

A 5-point Likert scale was used to determine participants' perceptions of the helpfulness of the supports. Scores of 1, 2, or 3 were categorized as neutral or negative reviews and scores of 4 or 5 were interpreted as positive appraisals. In the high-context condition, all participants judged the images to be helpful, in the low-context condition, five of the seven participants reported the images to be helpful, and in the text only condition, five of the seven participants

reported that pictures would have been helpful to them. Results for the rating of the ease of the task showed that six of seven participants rated the high-context task to be easy. Five of the six participants reported that the low-context task was easy. Regarding the narrative with no visuographic support, four of the seven participants believed the task was easy (Dietz et al., 2009).

Overall, the three main findings reported by Dietz et al. (2009) support the use of visuographic supports, such as photographic images representing interaction between people and relationships between people and objects to increase comprehension for PWA.

Haley, Jenkins, Hadden, Womack, Hall, and Schweiker (2005) conducted a study to gain an understanding of (1) the participants' valued life activities and priorities and (2) the participants' current and previous activity participation patterns. It is difficult for PWA to effectively communicate this information through a questionnaire that was written using complex language. Therefore, Haley et al. (2005) sought a more functional approach to elicit information about the life activities of PWA.

The *Activity Card Sort* (ACS; Baum & Edwards, 2001) was selected for this study because of its high consistency with the study's goals and priorities. The ACS is based on the task of sorting using cards with picture and word combinations. The front of each 5" x 7" card contains a single word or phrase and corresponding color photograph. The photographs depict older adults taking part in a specific activity. The cards are divided into three categories: (1) instrumental activities of daily living (e.g., driving, paying bills, caring for a pet), (2) leisure activities (e.g., walking, camping, bowling, letter writing, bird watching, flower arranging), (3) social activities (e.g., traveling, visiting with friends, family gatherings; Haley et al., 2005).

An essential condition of the study was to use PWA as the informants, rather than a proxy rater. Eight PWA with a range of aphasia severity and profiles participated in the study. Participants were asked to sort the cards into four categories, “do now,” “do less,” “given up,” and “done previously.” After the client sorted all of the cards, they were asked to select the five activities that are most important to them. Clinicians used a multi-modal approach during assessment administration. An ongoing, interactive conversation between the clinician and client took place. Information transaction was acknowledged and confirmed by the clinician (Haley et al., 2005).

Researchers found that within a relatively short period of time, the test administrators were able to gain a great deal of qualitative information about each PWA. The most challenging factor involved in the ACS administration was the use of the four response categories (“do now,” “do less,” “given up,” and “done previously”). The unspecific, verbally defined categories were confusing for the PWA. Another limitation of the ACS was the selected pictures. While it was reported that participants interpreted the cards fairly accurately, the pictures were noted to be visually distracting and contain unnecessary, and even misleading, details (Haley et al., 2005).

Researchers concluded that the ACS was an effective assessment tool that met the goals of gaining a great deal of information regarding each person’s interests, involvement, and priorities over a range of leisure, social, and instrumental daily activities. Although the ACS was not created with PWA in mind, the assessment tool allowed all eight people, spanning a range of aphasia severities and profiles, to participate. As a result of the preceding findings, researchers determined that more comprehensive modifications to the ACS will result in substantial improvement to the card sorting system (Haley et al., 2005).

The results of the previous study by Haley et al. (2005) led researchers, Helm-Estabrooks, Haley, and Womack (2007), to develop a binary-choice card sorting system. The cards represent key concepts with a picture from one of six categories: (1) everyday activities such as doing laundry, (2) social activities such as entertaining friends, (3) recreational activities with high physical demands such as hiking, (4) recreational activities with low physical demands such as listening to music (5) relationship issues such as arguing with a family member, and (6) feelings such as sadness. The 5” x 8” cards contain black and white, artist rendered line drawings that were shown to be unambiguous for people with and without aphasia. No writing appears with the photograph, but key concepts appear in print on the back of each card (Helm-Estabrooks et al., 2007).

Helm-Estabrooks et al. (2007) described the project they conducted using the “self-determination” card sorting task with people who experienced strokes resulting in right hemiplegia and severely restricted verbal and written communication skills. Participants were asked to sort cards into categories: I have never done this/have done this; still do this/ no longer do this; would like to do this/ do not want to do this. Once the sorting was completed, the clinician engaged in a dialogue with the participants using the cards as a guide to address how the participants’ choices and concerns could be addressed. Through this dialogue, together the clinician and participant developed a plan for accomplishing the set goals. A close family member of each participant was asked to complete a questionnaire that closely reflected the “self-determination” card sorting system in order to assess agreement between the person with aphasia and someone close to them. These questionnaires were later used to weigh perceptions between the person with aphasia and someone close to them, as well as to provide support for

plans to improve the person with aphasia's QOL through self-determined changes (Helm-Estabrooks et al., 2007).

Outcomes were documented through a diary of changes in activity levels and types kept by family members. Researchers reported that outcomes were easy to document as well as changes in moods and feelings using the card sorting system (Helm-Estabrooks et al., 2007).

A commercial version of the "self-determination" card sorting task was later made available, referred to as the *Life Interests and Values* cards (*L/V* cards; Haley, et al., 2010).

Relationship between Pictures and Text

Golden (1990) explored the relationships between pictures and text in children's story books. She noted that the way a reader understands the text can be influenced by the relationship that exists between the picture and text. In Schallert's work (as cited in Golden, 1990, p. 104), it was noted that children were able to comprehend the story better when presented with illustrations that conveyed the same central information appearing in the text. Furthermore, Rohwer and Harris (as cited in Golden, 1990, p. 104) determined that comprehension of the overall message is supported in circumstances where the picture and text convey the same meaning more so than when a picture or text is presented alone. Golden (1990) suggests that although pictures and text serve to facilitate the overall meaning and "serve as anchors for each other" they are also capable of changing each other's meaning because they communicate so differently.

Arguably, there are five types of relationships that may exist between pictures and text: (1) the picture and text are symmetrical and reflect the same meaning. In this type of relationship, the picture serves to offer repetitive or recurring information to the text. The reader is able to easily comprehend the text without the aid of the picture, but the picture serves to

reinforce the literal meaning of the text. (2) The picture is needed to clarify the message in vague text. In this type of connection between picture and text, it is necessary to look at the picture in order to understand the text. The reader is not able to fully understand the meaning of the text without consulting the picture for clarification. It is argued by some researchers that this type of relationship places a much greater burden on the reader because the task of switching back and forth between picture and text, which provide different yet related information, is very demanding. (3) The picture helps to enrich the text. In this picture-text relationship, the fundamental message is expressed through the text, but the pictures extend and elaborate the text by explaining detailed information. The pictures aim to provide implied meaning for the text. (4) The text carries the primary message and the picture simply highlights selected aspects. In this type of relationship, information about the narrative meaning is expressed primarily through the text. The picture serves only to reflect a single element or event described in the text. (5) The picture carries the primary message and the text exists only to highlight selected aspects. This relationship is the inverse of the previous. The meaning is carried through illustrations rather than text. The picture serves to convey the bulk of the narrative meaning and the text simply highlights selected aspects. The text may often consist of verses that are simple and nonsensical, therefore, the pictures are essential in understanding the meaning (Golden, 1990).

From Golden's examination into the existing relationships between text and pictures it can be concluded that "meaning is generated through the interdependent relationship between word and picture" (Golden, 1990).

Purpose of the Study

The current study's purpose was to answer the question: What is the association between questions from the *SAQOL-39* and pictures from the *L/V* cards as judged by older people without neurologic disorders?

METHODS

This study was designed as a Phase I (Robey, 2004) within-group study to determine the relationship between pictures taken from the *L/V* cards and individual assessment questions that make up the *SAQOL-39* scale as judged by a sample population of older adults. The Louisiana State University (LSU) Institutional Review Board for the protection of human subjects approved this study proposal prior to enrollment of subjects and data collection. Informed consent was obtained from all participants prior to data collection.

Participants

Flyers and brochures were distributed to local public places including: churches, senior communities, volunteer centers, speech and hearing clinics, and other community organizations. During recruitment, the primary investigator (PI) contacted volunteers who had agreed to participate in the study. Participants involved in this study met the following criteria: (1) between 65 and 85 years of age, (2) native monolingual speaker of English, (3) report a negative history of or evidence of stroke, neurologic or neurodegenerative disease, and/or traumatic brain injury, (4) judged to have adequate vision as determined by the Rosenbaum Pocket Vision Screener (Rosenbaum, 1982), (5) and demonstrate at least a 5th grade reading level (the *SAQOL-39* is written at the 5th grade reading level, as determined by the Flesch-Kincaid Readability Index) as determined by the *Dynamic Indicators of Basic Early Literacy Skills (6th Ed.; Good & Kaminski, 2007)*.

Twenty individuals who are residents of southeast Louisiana served as participants in the study. Participants were between 65 and 82 years of age (mean age 73.3). The group was comprised of 15 females and five males, 19 Caucasian and one African-American. All participants passed the inclusion criteria screening. Two participants' surveys were excluded

from the results due to their inability to comprehend the task. Participant characteristics are summarized in Table 1.

Table 1. Participant Characteristics

Participant Number	Age in Years	Sex	Race
P01	80	F	Caucasian
P02	80	M	Caucasian
P03	82	F	Caucasian
P04	74	M	Caucasian
P05	72	F	Caucasian
P06*	70	M	Caucasian
P07	70	F	Caucasian
P08	78	F	African-American
P09*	77	F	Caucasian
P10	82	M	Caucasian
P11	78	F	Caucasian
P12	78	F	Caucasian
P13	65	F	Caucasian
P14	72	F	Caucasian
P15	67	F	Caucasian
P16	75	F	Caucasian
P17	65	F	Caucasian
P18	66	F	Caucasian
P19	68	F	Caucasian
P20	67	M	Caucasian
N = 20			

*Excluded from data analysis

The PI met with each volunteer and conducted a screening to determine eligibility for the study. If participants were deemed eligible, the PI verbally explained the project while presenting the outline of the process in the consent form

Materials

The survey was comprised of 31 items of text that were extracted verbatim from the *SAQOL-39* and paired with 31 pictures from the *L/V* cards. Two additional items were included in the survey: (1) One duplicate item to test for intra-rater reliability and (2) one training item from the *SAQOL-39* to familiarize the participant with the question and response format as well

as to ensure the participant understood the task of the survey. Eight items from the *SAQOL-39* were excluded from the survey; the *L/V* cards did not contain images with any relationship to the excluded items. Items were presented so that only one text statement and one picture appeared together on a single page. The participant was asked to rate how closely the picture matched the text by selecting a number from 1 to 5 (1 = “does not match at all” and 5 = “matches exactly”) on a 5-point Likert Scale provided on each page. Participants were allowed to respond verbally, mark, or point to the answer option of their choice. Beneath the rating scale a “Comments” section was provided for the participant to describe, verbally or in writing, what changes could be made to the picture so that it might better match the text.

Procedures

The administration of this survey took place at the participants’ homes or a site of participants choosing. Participants were asked to complete the survey with the guidance of a second-year SLP graduate clinician.

The clinician instructed each participant with the following script,

“I would like you to look at the picture and then carefully read the statement. When you are finished viewing the picture and the statement, I want you to tell me if you think that the picture is a good representation of the statement, and if not, how to improve it so that it closer matches the statement. Take as much time as you need to consider your answer. Let’s do one for practice”

To ensure that the participants understood how to complete the survey, the clinician administered the training item by stating,

“Does this picture represent this statement?”

If you feel that the picture matches the statement exactly and should not change, you would choose the number 5. If you feel that the picture matches the statement mostly but could be improved, you would choose the number 4. If you feel that the picture matches the statement somewhat but needs some improvement, you would chose the number 3. If you feel that the picture hardly matches the statement and needs a lot of improvement, you would choose the number 2. If you feel that the picture does not match the statement at all and should be changed completely, you would choose the number 1.”

If any participants gave a rating response of 1, 2, 3, or 4 the clinician asked them to provide their comments on how to improve the picture so that it better matched the text by stating,

“After you select a number please tell me what would make this picture better match or represent this text in the ‘comments’ section provided.”

If the participant completed the training item and did not ask the clinician for further guidance, then the remainder of the survey was administered following the same format as the training item administration. If the participant asked the clinician for further guidance, the clinician re-explained the instructions to the participant. If the participant attempted to respond to the QOL statement, the clinician redirected the participant to the desired task.

Data Analysis

Responses to individual survey items were entered into a database. Frequency tables for respondents’ ratings to each survey question were constructed using SPSS. Participants’ comments regarding each stimulus item were obtained from response forms and grouped into appropriate categories to be reported as descriptive data. Categories were created based upon key words used by the participants.

Participants' intra-rater reliability was determined by having them complete a duplicate survey item. Each respondent rated the same item twice. The total percentage of agreement between response 1 and response 2 was calculated. The total percentage of agreement was calculated by dividing the total number of agreements ($n = 14$) by the total number of opportunities for agreement ($n = 20$) and multiplying by 100.

To check for accuracy of data entry, dual-entry method was used in recording data into the data base. A second graduate student in the LSU Department of Communication Sciences and Disorders entered twenty percent ($n = 132$) of the survey responses into a database. The total percentage of agreement was calculated by dividing the total number of agreements ($n = 132$) by the total number of opportunities for agreement ($n = 132$) and multiplying by 100.

RESULTS

Experimental Question

What is the association between pictures from the *L/V* cards and questions from the *SAQOL-39* as judged by older people without neurologic disorders?

The relationship between picture and text was judged “symmetrical” if the % Response for ‘Rating 4’ and % Response for ‘Rating 5’ was greater than 60%. The relationship between picture and text was judged “not symmetrical” if the % Response for ‘Rating 1’ and % Response for ‘Rating 2’ was greater than 60%. The relationship between picture and text was judged “not specified” if there was not a large majority of ratings in any specific category. Results are summarized in Table 2.

Table 2. Frequency Distribution for Survey Question/Picture Representation Ratings

Question	Items Rated as Symmetrical ($5+6 \geq 60\%$)										Total
	1		2		3		4		5		
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	
4	1	5.6	2	11.1	2	11.1	2	11.1	11	61.1	72.2
8	0	0.0	2	11.1	3	16.7	6	33.3	7	38.9	72.2
14	2	11.1	1	5.6	4	22.2	5	27.8	6	33.3	61.1
15	0	0.0	0	0.0	1	5.6	2	11.1	15	83.3	94.4
17	1	5.6	2	11.1	3	16.7	6	33.3	6	33.3	66.6
20	0	0.0	3	16.7	4	22.2	3	16.7	8	44.4	61.1
30	2	11.1	0	0.0	2	11.1	2	11.1	12	66.7	77.8

n = 18

Question	Items Rated as Not Symmetrical ($1+2 \geq 60\%$)										Total
	1		2		3		4		5		
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	
1	7	38.9	6	33.3	1	11.1	1	11.1	3	16.7	72.2
3*	2	11.1	4	22.2	6	33.3	5	27.8	1	5.6	61.1
5	12	66.6	3	16.7	1	5.6	1	5.6	1	5.6	72.2
6	9	50.0	2	11.1	3	16.7	3	16.7	1	5.6	61.1
11*	1	5.6	0	0.0	8	44.4	3	16.7	6	33.3	61.1
19	9	50.0	4	22.2	2	11.1	2	11.1	1	5.6	72.2
21	15	83.3	2	11.1	0	0.0	1	5.6	0	0.0	94.4

(table 2 continued)

24	10	55.6	4	22.2	0	0.0	1	5.6	3	16.7	77.8
25	11	61.1	2	11.1	3	16.7	1	5.6	1	5.6	72.2
29	8	44.4	5	27.8	0	0	4	22.2	1	5.6	72.2
31	12	66.7	1	5.6	1	5.6	2	11.1	2	11.1	72.3

$n = 18$

* Item demonstrated high agreement that the picture somewhat ($3+4 \geq 60\%$) represented the text.

Items with Little to No Agreement among Ratings											
	1		2		3		4		5		
<u>Question</u>	<u><i>n</i></u>	<u>%</u>	<u><i>n</i></u>	<u>%</u>	<u><i>n</i></u>	<u>%</u>	<u><i>n</i></u>	<u>%</u>	<u><i>n</i></u>	<u>%</u>	
2	4	22.2	4	22.2	2	11.1	3	16.7	5	27.8	
7	3	16.7	3	16.7	4	22.2	6	33.3	2	11.1	
9	6	33.3	2	11.1	7	38.9	2	11.1	1	5.6	
10	5	27.8	2	11.1	4	22.2	5	27.8	2	11.1	
12	6	33.3	2	11.1	0	0	1	5.6	9	50.0	
13	5	27.8	4	22.2	3	16.7	4	22.2	2	11.1	
16	5	27.8	1	5.6	5	27.8	2	11.1	5	27.8	
18	5	27.8	4	22.2	2	11.1	3	16.7	4	22.2	
22	1	5.6	4	22.2	5	27.8	5	27.8	0	0.0	
23	3	16.7	1	5.6	4	22.2	2	11.1	8	44.4	
26	2	11.1	3	16.7	6	33.3	3	16.7	4	22.2	
27	4	22.2	6	33.3	5	27.8	3	16.7	0	0.0	
28	8	44.4	0	0.0	5	27.8	3	16.7	2	11.1	

$n = 18$

Results of the study indicate a high agreement rate ($\geq 60\%$) for 18 of the 31 text and picture combinations appearing in the survey. Seven of the 18 items were judged symmetrical (ratings 4 & 5 $\geq 60\%$). Nine of the 18 items were judged not symmetrical. On two of the 18 items, $\geq 60\%$ of participants agreed the picture “somewhat” represented the text. The remaining 13 survey items demonstrated a low agreement rate ($< 60\%$); therefore, no relationship could be determined on these items.

After individuals rated the pictures and text, they were asked for suggestions on how to better represent the text with a picture. The comments provided by the participants to create a more symmetrical text-picture relationship were recorded and categorized accordingly. Only

three questions (15, 20, and 30) received no comments at all. These three questions were in the symmetrical group. In fact, question 15 received the highest ratings of all the pictures.

Categories were created based upon key words used by participants. It appears that participants were very aware of facial expression mismatch of pictures to text, based on comments about changing facial expression in 17 of the 31 questions. Results are summarized in Table 3.

Table 3. Participant Comments

Question	Comment(s)	<i>n</i>	No Comment <i>n</i>
1	Facial expression should be confused/frustrated	3	11
	Should be disorganized/messy	4	
2	Facial expressions should be confused/frustrated	7	11
3	Should provide a place to sit/rest	4	9
	Should look tired/hunched over	2	
	Should have a cane/walker for man	3	
4	Should have a blank text bubble above the man's head	2	16
5	Facial expression of children and grandparent should be confused/frustrated	11	7
6	Facial expressions should be confused/frustrated	11	7
7	Facial expressions should be confused/frustrated	2	16
8	Facial expressions should be more upset	1	17
9	Facial expressions should be confused/frustrated	1	10
	The man in the wheelchair should not be participating	7	
10	Tools/Materials should be disorganized	3	12
	The project/work should be left undone	3	
11	Should show people bending too	3	14
	Remove the man in the wheelchair from the picture	1	
12	Facial expression should be confused/frustrated	6	11
13	People should open the door and look for friends, but no one is there	2	14
	People should look out of the window with sad facial expressions	1	
	Decorate home in seasonal décor to indicate "occasionally"	1	
14	Facial expression should be sadder	1	16
	Show "future" with a series of pictures in a thought bubble	1	
15			18
16	Facial expression should be confused/frustrated	1	10
	Should not write so much/have two pages written	5	
	Should not be looking at the woman's picture	2	

17	Should be writing words, not drawing a figure	7	11
18	Should show him change from happy to sad in a series of pictures	1	17
19	Facial expression should be look more tired	4	9
	Body/posture should be lying down/slumped over	5	
20			18
21	Should have places to rest/people sitting	5	11
	Facial expressions should look more tired	2	
22	Facial expression should be unsure/uncertain	5	13
23	Should have things going on around her	2	16
24	Facial expressions/body language should be confused/frustrated	7	11
25	Facial expressions/body language should be confused/frustrated	4	12
	Should isolate the older woman	2	
26	Should look more tired/worn out	2	15
	Show a series of pictures (morning, afternoon, and night) of man resting	1	
27	Should provide a cane/walker to pull up on	5	9
	Should be pushing up on chair	4	
28	Facial expressions should be sad	1	14
	Should be home sitting on sofa looking bored	1	
	Should make it look difficult for them to get around	1	
	Should be outside restaurant looking in	1	
29	Should look more tired/slow	7	10
	Should have them resting on a bench	1	
30			18
31	Man should ride in scooter/cart	2	11
	Man should have a walker/cane	2	
	Man should lean against the wall	3	

Note: Comments were categorized as “No Comment” if the comment section was left blank or the participant commented but failed to offer a suggestion to alter the relationship between the text and the picture.

Reliability

Participants’ intra-rater reliability was accounted for by including a duplicate survey item ($n = 1$). The total percentage of agreement among ratings of a duplicated test item was calculated by obtaining the ratings from the first appearing duplicate item and the second appearing duplicate item and verifying concordance. The total agreement for intra-rater reliability of the participants was 70% (ideal intra-rater reliability = 90%).

Dual-entry method was used in recording data into the data base. A second graduate student entered twenty percent ($n = 132$) of the survey responses into a database. The total percentage of agreement was calculated by dividing the total number of agreements by the total number of opportunities for agreement and multiplying by 100. The two people had 100% agreement on data entry.

DISCUSSION

The purpose of this study was to determine the relationship between pictures from the *L/V* cards and text from the *SAQOL-39* as judged by a population of healthy older adults without neurological damage. QOL testing for adults with severe communicative disorders cannot proceed before investigating with healthy older adults to determine if an unaffected individual without language deficits could perceive strong symmetrical relationships between pictures and text. My results indicated raters agreed that approximately 23% of the pictures “mostly” or “exactly” matched the text. Participants agreed that 35% of the pictures “hardly” or “not at all” matched the text. In the remaining 42% of items, agreement could not be determined either because the ratings were dispersed across the ratings scale, or occurred in the somewhat category. Taking the ratings a step further, I classified participant responses as “symmetrical,” according to Golden (1990), or “not symmetrical.”

These preliminary results indicate that the pictures I chose, designed to measure quality of life, are not as representative of the *SAQOL-39* text as I had hoped. What I know about QOL is that it has different meanings to different people. The mismatch between text and pictures in this case, although both were designed to measure aspects of quality of life, may support that notion; The *SAQOL-39* asked questions framed in how much difficulty a person had completing a task. The *L/V* cards were developed to encourage participants to identify life activities in which they could or would like to participate. The *L/V* cards presented a more positive concept by creating cards that depicted people smiling and enjoying activities.

One benefit to the study came from the participants’ comments which were analyzed qualitatively. By identifying key words I was able to classify components that led participants to rate pictures as they did. Participants gave numerous suggestions for how to improve the pictures to better match the text. From the analysis, I determined three frequently occurring themes; the

suggestion that appeared most often was that individuals' facial expressions should change to look more "sad" and/or "confused." Secondly, participants commented that the individuals' body postures should be changed to convey tiredness/fatigue. Lastly, participants suggested objects and/or people should be added/removed/arranged differently in the picture. I expect taking their recommendations would improve the agreement ratings of picture and text if I were to test these same items at a later date. These findings provide a foundation for future research in this area.

Results indicate that the selected pictures from the *LIV Cards* are not appropriate for the respective *SAQL-39* text. I had hoped to find a symmetrical relationship by combining these two instruments that already have established validity and reliability; however, it appears that this is not the case. The implication of these results is if healthy individuals without neurologic damage cannot agree that these picture and text combinations match, then I would doubt that they would be appropriate for individuals with severe language deficits. Therefore, further research should be done in this area.

Limitations and Future Research

This was a preliminary study that, in hindsight, had several limitations. Participants' ratings did not conform necessarily to the rating scale units that were developed. For example, some participants indicated they could not rate an item high (4 or 5) because of a single attribute of the picture, while others were able to rate the picture based on the representation as a whole. The differences noted in the participants' interpretations of the rating scale may account for the low rate of agreement between participants. In the future, a more specific rating scale may be warranted. For example, the examiner might explain that if one element of the picture should change, the participant should rate the relationship "4-matches mostly", if two to three elements

in the picture should change, the participant should rate “3-matches somewhat,” if four to five elements in the picture should change, the participant should rate “2-hardly matches,” if six or more elements in the picture should change, the participant should rate “1-does not match at all.”

Another limitation to this study is that two individuals’ ratings were removed from the analysis because they were unable to grasp the purpose of the study even after repeated demonstration. We questioned their cognitive abilities, but did not include cognitive status in our inclusion criterion. In the future we would screen for cognitive status. Along those same lines, some participants tried to answer the *SAQOL-39* question rather than rating the relationship between the picture and text, even after repeated demonstration. This could indicate that they had some rigidity of thinking or difficulty shifting sets, or it may be due to the instructions and training they were given. The instructions may have been too difficult for them to comprehend. We may have gotten better results if we had reduced the length and complexity of the instructions. The training may have been too short for participants to master the task. We may have yielded better results if we had included more than one training item to ensure generalization of the skill.

Due to limited resources, this study was carried out on a small sample of predominately Caucasian healthy older adults who all reside within a small radius of southeast Louisiana. Future research should be expanded to include a more representative population of the United States. Individuals from multiple ethnicities and various locations around the country should be recruited in future studies in order to gain more meaningful results.

Hopefully, as research develops in this area of study and investigators discover stronger results regarding picture and text relationships in QOL assessments, the target population will

progressively expand to include individuals who have had a stroke, individuals with aphasia, and, finally, individuals with severe aphasia.

SUMMARY

Though our results were not as robust as we had hoped, we indeed gained some evidence regarding certain text and picture relationships. For instance, we glimpsed some new direction of how to construct text and picture relationships that are more symmetrical in nature.

Research in the area of combining pictures with text from QOL measures is not yet a focus in speech pathology. Though no startling findings came out of this study, we have, nevertheless begun a journey down a path that has heretofore been skirted around, but not yet directly approached. We are optimistic about where future research in this particular area of interest might lead and what will be discovered.

REFERENCES

- American Speech-Language-Hearing Association.(2007). *Scope of practice in speech language pathology*. [Scope of Practice]. Available from www.asha.org/policy.
- Baum, C. M., & Edwards, D. (2001). *Activity card sort*. St. Louis, MO: Washington University School of Medicine.
- Bergner, M., Bobbitt R. A., Carter, W. B., & Gilson, B. S. (1981) The Sickness Impact Profile: Development and final revision of a health status measure. *Medical Care*, 19, 787-805.
- Buck, D., Jacoby, A., Massey, A., Ford, G. (2000). Evaluation of measures used to assess quality of life after stroke. *Stroke*, 31, 2004-2010.
- Dietz, A., Hux, K., McKelvey, M., Beukelman, D., & Weissling, K. (2009). Reading comprehension by people with chronic aphasia: A comparison of three levels of visuographic contextual support. *Aphasiology*, 23, 1053-1064.
- Duncan, P. W., Wallace, D., Lai, S. M., Johnson, D., Embretson, S., Laster, L. J. (1999). The Stroke Impact Scale Version 2.0: Evaluation of reliability, validity, and sensitivity to change. *Stroke*, 30, 2131-2140.
- Enderby, P., Wood, V., Wade, D. (1987). *Frenchay Aphasia Screening Test*. Windsor: NFER-Nelson.
- EuroQol Group, The. (1990). EuroQol: A new facility for the measurement of health related quality of life. *Health Policy*, 16, 199-208.
- Feeny, D. H., Torrance, G. W., & Furlong, W. J. (1996). Health Utilities Index. In B. Spilker, *Quality of Life and Pharmacoeconomics in Clinical Trials*. Philadelphia, PA: Lippincott-Raven.
- Flesch, R. (1948). A new readability yardstick. *Journal of Applied Psychology*, 32,221-233.
- Frattali, C. M., Thompson, C. K., Holland, A. L., Wohl, C. B., & Ferketic, M. M. (1995). *Functional Assessment of Communication Skills for Adults*. Rockville, MD: American Speech, Language, and Hearing Association.
- Goldberg, D. P. (1972). *The Detection of Psychiatric Illness by Questionnaire*. London, UK: Oxford University Press.
- Golden, J. M. (1990). *The narrative symbol in childhood literature: Explorations in the construction of text*. New York: Mouton de Gruyter.
- Good, R. H., & Kaminski, R. A. (Eds.). (2007). *Dynamic Indicators of Basic Early Literacy Skills* (6th Ed.). Eugene, OR: Institute for the Development of Educational Achievement.

- Harwood, R. H., Gompertz, P., & Ebrahim, S. (1994). Handicap one year after a stroke: Validity of a new scale. *Journal of Neurology, Neurosurgery, and Psychiatry*, 57, 825-829.
- Haley, K., Jenkins, K., Hadden, C., Womack, J., Hall, J., & Schweiker, C. (2005). Sorting pictures to assess participation in life activities. *Perspectives on Neurophysiology and Neurogenic Speech and Language Disorders*, October, 11-15.
- Haley, K. L., Womack, J. L., Helm-Estabrooks, N., Caignon, D., McCulloch, K. L. (2010). The Life Interests and Values Cards. *Manual*. Chapel Hill: University of North Carolina.
- Helm-Estabrooks, N., Haley, K. L., & Womack, J. (2007). A pictorial, binary-sorting system allowing “self-determination” despite aphasia. *Brain and Language*, 103, 201-202.
- Hilari, K. (2003). The Stroke and Aphasia Quality of Life Scale-39 item version. *Manual*. London: City University.
- Hilari, K., & Byng, S. (2001) Measuring quality of life in PWA: the Stroke Specific Quality of Life Scale. *International Journal of Language and Communication Disorders*, 36, 86-91.
- Hilari, K., & Byng, S. (2009). Health-related quality of life in people with severe aphasia. *International Journal of Communication Disorders*, 44, 193-205.
- Hilari, K., Byng, S., Lamping, D. L., & Smith, S. C. (2003). Stroke and Aphasia Quality of Life Scale-39 (SAQOL-39): Evaluation of acceptability, reliability, and validity. *Stroke*, 34, 1944-1950.
- Hilari, K., Owen, S., & Farrelly, S. J. (2007). Proxy and self-report agreement on the Stroke and Aphasia Quality of Life scale (SAQOL-39). *Journal of Neurology, Neurosurgery and Psychiatry*, 78, 1072-1075.
- Hunt, S. M., McKenna, S. P., McEwen, J., Backett, E. M., Williams, J., & Papp E. (1980). A quantitative approach to perceived health status: a validation study. *Journal of Epidemiology and Community Health*, 34, 281-286.
- Paul, D. R., Frattali, C. M., Holland, A. L., Thompson, C. K., Caperton, C. J., & Slater, S. C. (2004). The American Speech-Language-Hearing Association Quality of Communication Life Scale (QCL): *Manual*. Rockville, MD: American Speech-Language-Hearing Association.
- Raven, J. C., Court J. H., & Raven J. (1995). *Coloured Progressive Matrices*. Oxford, UK: Oxford Psychologists Press.
- Rosenbaum, J. (1982). *Rosenbaum Vision Pocket Screener*. Quincy, MA: Grass Instruments Company.

- Sherbourne, C. D., & Stewart, A. L. (1991). The MOS Social Support Survey. *Social Science and Medicine*, 32, 705–714.
- Simmons-Mackie, & N., Kagan, A., (2007). Application of the ICF in aphasia. *Seminars in Speech and Language*, 28, 244-253.
- Streiner, D. L., & Norman, G. R., (1995). *Health measurement scales. A practical measurement guide to their development and use* (2nd Ed.). New York, NY: Oxford University Press.
- Threats, T. T. (2005). ICF and QOL: A partnership. *Perspectives on Neurophysiology and Neurogenic Speech and Language Disorders*, 15, 4-6.
- Wade, D. T., Legh-Smith, J., & Langton Hewer R. (1985). Social activities after stroke: Measurement and natural history using the Frenchay Activities Index. *International Rehabilitation Medicine*, 7, 176 –181.
- Ware, J. E., & Sherbourne, C. D. (1992). The MOS 36-Item Short Form Health Survey (SF-36) I: conceptual framework and item selection. *Medical Care*, 30, 473-483.
- Williams, L. S., Weinberger, M., Harris, L. E., Clark, D. O., & Biller, H. (1999). Development of a stroke-specific quality of life scale. *Stroke*, 30, 1362-1369.
- World Health Organization. (2001). International Classification of Functioning, Disability, and Health (ICF). Geneva, Switzerland: Author.
- World Health Organization Quality of Life Group. (1995). What quality of life? *World Health Forum*, 17, 354-356.

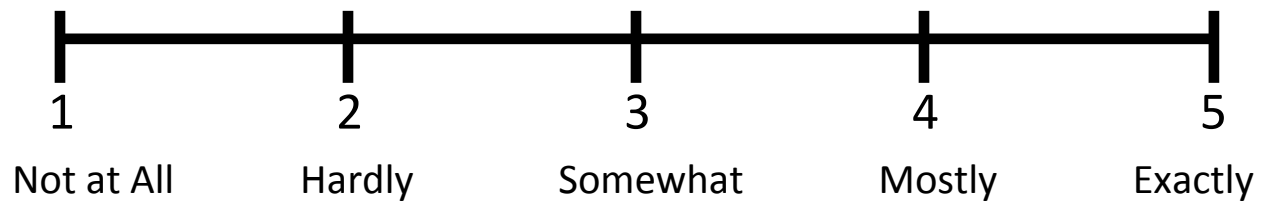
APPENDIX A: ALPHABETISMS AND ACRONYMS

ABS	Affect Balance Scale
ACS	Activity Card Sort
ASHA	American Speech-Language-Hearing Association
ASHA FACS	American Speech-Language-Hearing Association Functional Assessment of Communication Skills for Adults
ASHA QCL	American Speech-Language-Hearing Association Quality of Communication Life Scale
DIBELS	Dynamic Indicators of Basic Early Literacy Skills
FAI	Frenchay Activities Index
FAST	Frenchay Aphasia Screening Test
HUI	Health Utilities Index
ICF	International Classification of Functioning
L!V	Life Interests and Values Cards
LHS	London Handicap Scale
MRS	Modified Rankin Scale
NHP	Nottingham Health Profile
PI	primary investigator
PWA	people with aphasia
QOL	quality of life
RCMP	Raven's Colored Progressive Matrices
SAQOL-39	Stroke and Aphasia Quality of Life Scale-39
SDCST	"self-determination" card sorting task
SF-36	MOS 36-Item Short Form Health Survey
SIP	Sickness Impact Profile
SIS	Stroke Impact Scale
SSS	Social Support Survey
WHO	World Health Organization

APPENDIX B: SAMPLE SURVEY ITEMS

Did you feel withdrawn from other people?

LIV Card FE9

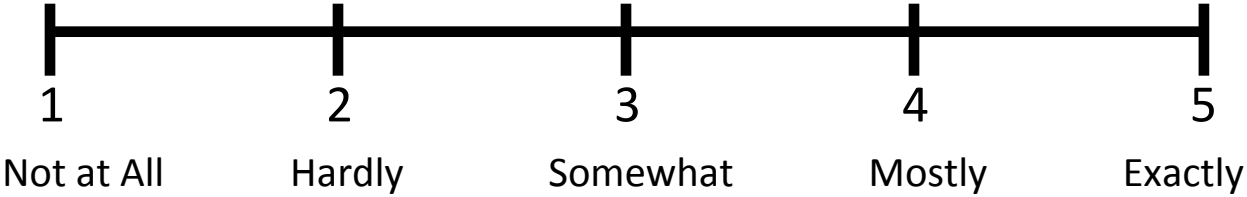


Comments _____

Survey Question #30

Did you feel too tired to do what you wanted to do?

LIV Card PA22

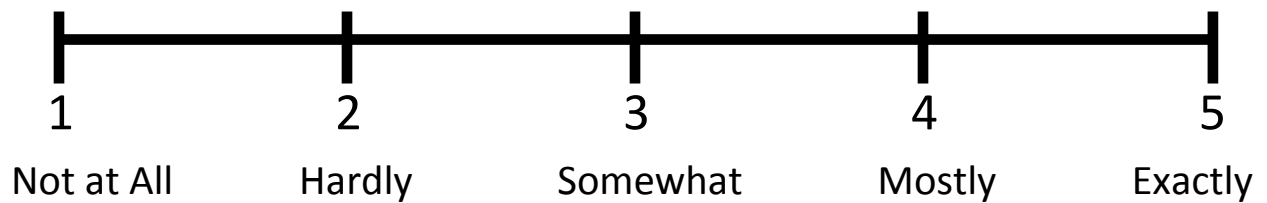


Comments _____

Survey Question #21

How much trouble did you have preparing food?

L!V Card HC22



Comments _____

Survey Question #1

VITA

Dara Lynn Deroche was born in New Orleans, Louisiana, and raised in the outlying suburb of St. Bernard Parish. Upon graduating from Mount Carmel Academy in New Orleans, Louisiana, in 2005, she enrolled at Southeastern Louisiana University to pursue a Bachelor of Science in communication sciences and disorders. Shortly after graduating in May of 2009, Ms. Deroche began her master's program at Louisiana State University Agricultural and Mechanical College. She began work on a master's thesis under the direction of Dr. Neila J. Donovan in partial fulfillment of the requirements for a Master of Arts degree, to be awarded in May of 2011. Upon graduation, Ms. Deroche plans to travel the United States where she hopes to complete the necessary clinical fellowship requirements to become a licensed speech-language pathologist.