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Coeffects of experience and professional interest on SLPs' assessment of chronic aphasia: A correlational survey study

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COEFFECTS OF EXPERIENCE AND PROFESSIONAL INTEREST ON SLPS'
ASSESSMENT OF CHRONIC APHASIA: A CORRELATIONAL SURVEY STUDY

by

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B.S., Purdue University, 2013

A Thesis

Submitted in Partial Fulfillment of the Requirements for the
Masters of Science in Communication Disorders and Sciences

Department of Communication Disorders and Sciences
Southern Illinois University Carbondale
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THESIS APPROVAL

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Masters of Science

in the field of Communication Disorders and Sciences

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AN ABSTRACT OF THE THESIS OF

ALIVIA BERRY, for the MASTERS OF SCIENCE degree in COMMUNICATION DISORDERS AND SCIENCES, presented on MARCH 23, 2015, at Southern Illinois University Carbondale.

TITLE: *COEFFECTS OF EXPERIENCE AND PROFESSIONAL INTEREST ON SLPs' ASSESSMENT OF CHRONIC APHASIA: A CORRELATIONAL SURVEY STUDY*

MAJOR PROFESSOR: Dr. Valerie E. Boyer

Background: Aphasia is a commonly treated language disorder; however there is discrepancy among professionals regarding classification and assessment practices (Code & Petheram, 2011; McNeil & Pratt, 2001). Current research focuses heavily on acute treatment; chronic aphasia is severely under-represented. A review of the literature revealed a wide array of standardized and non-standardized tests used to evaluate both acute and chronic aphasia cases. Overall, there appears to be variance in evaluation practices, especially among SLPs (Bland et al., 2013).

Aims: The present study aims to quantify two variables that may account for this inconsistency in evaluation procedures: 1) years of clinical experience and 2) professional interest.

Methods: SLPs with membership to either ASHA Special Interest Group 2 or the ABAI Speech-Pathology Interest Group were contacted to participate in a survey. They were presented with a demographic questionnaire and hypothetical vignettes detailing chronic aphasia cases. The data was collected through SurveyMonkey and exported to R for statistical analysis. Months of clinical experience were subsequently correlated to specific survey responses measuring the following variables: decision to reassess, decision of what clinical constructs to address, selection of assessments, and opinion regarding generalization of naming to functional requesting behavior.

Results: Due to lack of participation, the professional interest variable was eliminated. A Spearman Rho test revealed statistical significance for 5 variables. The majority of participants supported reassessment, inclusion of functional assessments, and use of confrontational naming to target requesting. Further research is warranted on the subject, including possible development of valid functional language assessment for chronic aphasia patients.

Keywords: chronic aphasia, assessment, experience, professional interest, survey, functional behavior

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CHAPTER 1

INTRODUCTION

Aphasia is a complex language disorder that is routinely evaluated and treated by speech-language pathologists (SLPs). Although it is a commonly cited diagnosis among professionals, there is extreme variability in its classification. Davis (2007) defines aphasia as an acquired communication disorder, often caused by a stroke, that affects an individual's ability to comprehend and produce language. Broca's aphasia in particular has severe ramifications on expressive language and serves as the focus of the present study.

The lack of a universal definition affects incidence and prevalence rates, neither of which are definitively known (Code & Petheram, 2011). Current research estimates that prevalence rates outweigh incidence rates, implying that chronic cases are actually on the rise. Consequently, SLPs' assessment methods of chronic aphasia should be evaluated.

Maintaining accordance with the variance in definitions, there is also inconsistency in assessment practices. Bland and colleagues (2013) found that when held to a predetermined assessment protocol, SLPs were least likely of three disciplines (speech, occupational therapy, and physical therapy) to adhere to the battery. Perhaps this is due in part to the overwhelming amount of assessments available. "Traditional" assessments measure receptive and expressive language (e.g. BDAE-3, WAB, etc.); others may examine cognition (CACE), quality of life (ALA5) or function (CADL-2, AHSA-FACS). Esch et al. (2010) assert that assessment of the lattermost construct may be especially useful when evaluating chronic patients.

Presumably, there are many variables that influence an SLP's assessment of chronic aphasia. This study aims to quantify two such variables—years of experience and professional interest—through use of a survey. The former variable will be correlated with decision to assess

/ not assess, selection of constructs and assessments, and opinion regarding generalization of naming to functional requesting behavior. Membership to a professional interest group will be examined in regards to opinion of generalization of confrontational naming to requesting skills. It is hypothesized that members of a behavioral analysis special interest group will be in favor of functional assessments and not support generalization of requesting. Experienced SLPs are suspected to reassess patient using fewer assessments to make a definitive diagnosis.

CHAPTER 2

LITERATURE REVIEW

Definition of Aphasia

As experts in communication, SLPs readily treat an array of language disorders. These disorders may be developmental, affecting the individual from birth, or they may be acquired later in life. A common example of one such acquired impairment is aphasia (Davis, 2007). The term aphasia, while often utilized as an umbrella term by many professionals, is actually quite complex and varies greatly depending on the definition used. McNeil and Pratt (2001) explored this variability and listed dangerous implications of operating under an implied definition. They note that, “until researchers and clinicians specify the formal definition under which they practice, research will remain difficult to replicate” (p. 910). Keeping this in mind, the current study operated under the following definition offered in Davis’ *Aphasiology* text (2007, p. 18):

Aphasia is an acquired disruption of the cognitive system responsible for language comprehension and production. It is usually caused by a stroke, which leaves other cognitive functions relatively intact... an aphasic person knows what he or she wants to say but just cannot come up with the words.

This concise definition acknowledges that aphasia is a cognitive impairment that affects language processes, and it makes mention of the common neuropathology. In addition, it closely aligns with patterns present in Broca’s aphasia, which is the focus of the present study. Broca’s aphasia is caused by damage to Brodmann’s area 44 in the brain, just anterior to the pre-central gyrus (Davis, 2007). It is characterized by agrammaticism and word finding / sentence formulation difficulties, resulting in the epithet “expressive” or “nonfluent” aphasia. This type of aphasia represents one of the most frequently treated aphasia syndromes (Benson, 1979).

Code and Petheram (2011) further endorse the necessity of operating under a formal aphasia definition, arguing that the issue of what aphasia is considered to be can greatly impact incidence and prevalence rates. The authors elaborated the topic by defining the two demographic groups and equating them to different types of aphasia cases. They explained that incidence is the number of new cases in a population, and therefore represents more acute cases. In contrast, prevalence represents the total number of cases in a defined population, and thus can be linked with chronic cases. Although exact numbers are unknown due to the variability in what can constitute a diagnosis of aphasia, the authors stated that based on stroke data alone, the prevalence of aphasia in the developed world ranges from 0.1-0.4%. This is higher than incidence rates reported, which range from 0.02-0.06%. Specific incidence numbers for several countries, including the United Kingdom and the United States, were 0.05% and ~0.02%, respectively. When analyzed under the previous theory regarding incidence and prevalence, these rates indicate that chronic aphasia cases actually outweigh acute cases. Consequently, current and future research should begin to shift its focus to this often overlooked group, as it could have serious implications on assessment and service provision.

Assessment of Aphasia

Reaffirming the lack of continuity in a mere definition, assessment of aphasia is also highly variable. Most of the current research focuses on intervention instead of assessment; a topic of interest for many researchers is the effect of various constrained versus unconstrained aphasia treatment paradigms (Rose et al., 2013; Kurland et al., 2012). Studies that have looked specifically at aphasia assessment have concluded that it is highly unstandardized. For example, Bland and colleagues (2013) studied clinician adherence to an assessment protocol in a post-stroke population. The quasi-experimental retrospective study used patient records from Barnes

Jewish Hospital and the Rehabilitation Institute of St. Louis to examine adherence to assessments across disciplines (occupational therapy, physical therapy, and speech-language pathology) and across settings (acute hospital, inpatient rehabilitation facility, and outpatient facility).

Adherence was defined as, “all measures completed at their specific time point” (p. 1050) for the given facility. This information was extracted from the database for statistical analysis.

The facilities utilized a predetermined, standardized test battery for speech evaluation, with administration of some assessments contingent upon scores from other tests. The entire protocol consisted of a total of 16 possible measures, which was the greatest number for any discipline. Analysis confirmed that among the three disciplines, SLPs had the lowest adherence to assessment protocol, with an average of 64% (Bland et al., 2013). The authors speculate that this may have been due to the fact that SLPs assess two domains (cognition and language), making it difficult to complete all assessments in the allotted timeframe. Nonetheless, the study confirmed that an ongoing effort is needed to establish and maintain use of standardized assessment batteries.

Ivanova and Hallowell (2013) outlined what constructs should be addressed in the assessments included in such a protocol. They delineated that test and subtest items should work to classify aphasia through addressing specific types of linguistic behavior. At minimum, a basic aphasia test should measure, “abilities to comprehend and produce linguistic content (semantics), form (phonology, morphology and syntax) and the ability to use language appropriately in context (pragmatics)” (Ivanova & Hallowell, 2013, p. 900). Assessments should also include items of varying degrees of difficulty that address all language functions.¹ Moving beyond obvious language measures, the authors cited several studies (most recently Wright &

¹ *The reader is encouraged to refer to Table 2 of Ivanova & Hallowell's original work (p. 901-903), which describes language functions to be measured, corresponding test items, and factors that should be controlled.*

Fergadiotis, 2012; Hula & McNeil, 2008; and Murray, 2004) that provide mounting evidence of the negative effects that concurrent nonlinguistic deficits can have on total language impairment. Nonlinguistic tasks involving assessment of attention, memory, and executive skills all require some degree of verbal processing. Scores on such tests might then be confounded by existing expressive and receptive language deficits associated with aphasia. For this reason, they advocated that assessment of strict cognitive function should be included in standard protocol (Ivanova & Hallowell, 2013).

One area of cognition that warrants specific attention is the mental capacity for decision-making. Carling-Rowland et al. (2014) ardently support the need for aphasia evaluations to measure this construct, especially when considering patients are routinely asked for consent for medical procedures, discharge, etc. The authors developed the Communication Aid to Capacity Evaluation (CACE), which was subsequently validated using a randomized controlled trial. Sixteen blinded social workers assigned to the experimental group first administered the Capacity to Make Admissions Decisions (CMAD), a routine capacity questionnaire. Following training, they administered the CACE two weeks later. In contrast, the control group administered the CMAD during both trials. Analysis revealed a statistically significant difference in the two groups' ability to accurately determine mental capacity, with the experimental group demonstrating improved communication ($p = .002$) and therefore improving transfer of information ($p = .003$) (Carling et al., 2014). Additionally, participants with aphasia reported increased ability to communicate information and reduced frustration, further supporting implementation of the CACE.

Other authors have different ideas of domains that should be addressed in aphasia assessment batteries. Simmons-Mackie and colleagues (2014) were compelled to develop an

assessment that addressed aphasia-related quality of life. They created a pictographic, patient self-report measure called the Assessment for Living with Aphasia (ALA). A quasi-experimental design was implemented to assess test-re-test reliability, construct validity, and ability to determine aphasia severity. Statistical analysis of results produced acceptable values for all measures, indicating the ALA can be used as a valid measure for assessing aphasia-related quality of life.

Entering the realm of behavior analysis, some researchers have argued for the need for speech-language assessments to consider a functional approach (Esch, et al. 2010). The authors stated that the majority of language assessments evaluate the response form (topography) without considering the environmental variables responsible for producing the response. They provide the example that a thirsty person saying “water” is much different than an individual saying “water” in response to a teacher’s instructions. The context for the former example illustrates a basic mand (Skinner, 1957), or request that is evoked by motivating conditions. Upon coding and analyzing a variety of speech-language assessments, Esch and colleagues found that none of the included aphasia assessments² included items that used an inherent or implied mand as the antecedent condition (Esch et al., 2010). They responded in alarm to this finding, ascertaining that, “of all the verbal functions potentially impaired in aphasia, the mand would be of foremost importance to evaluate and, if weak, to re-establish quickly” Esch et al., 2010, p. 182). This is a logical deduction, as powerful motivating factors could obviously have an effect on an individual’s capacity to produce a verbal response.

Despite the fact that a number of “functional” assessments exist, they fail to capitalize on the incorporation of these motivating operations. Refer to the commonly used Communication

² *Boston Assessment of Severe Aphasia (BASA), Reading Comprehension Battery for Aphasia (RCBA-2), and Western Aphasia Battery Revised (WAB).*

Activities of Daily Living (CADL-2) and the American-Speech-and-Hearing Association (ASHA) Functional Assessment of Communication Skills for Adults (ASHA-FACS), both of which Spreen and Risser (2003) include in their chapter on functional communication. The former assessment is the only test included in the chapter that hints at the integration of requesting items, being that it measures “communication of basic needs” (Spreen & Risser, 2003, p. 104) as one of its four major domains. As the name implies, the ASHA-FACS also aims to quantify functional communication abilities. Based on the World Health Organization’s International Classification of Disability, Impairment, and Handicap, the ASHA-FACS measures how speech, language, hearing, or cognitive deficits affect performance of activities of daily living (Frattali & Thompson, 1995). This is completed using social communication tasks, communication of basic needs, daily planning, and reading/writing tasks. Although tests like the CADL-2 and ASHA-FACS provide an important stepping-stone to measuring functional and social impacts of the disability, future research still warrants development of assessments that centralize on motivating factors and the use of mands to demonstrate functional competence.

While it is obvious that SLPs have a variety of options to choose from when constructing their assessment battery, many opt for more brief, “cut and paste” style methods that informally assess the presence and severity of aphasia. Spreen and Risser refer to these commonly used tests as clinical bedside examinations (2003). The authors highlighted the importance of such assessment methods, describing how clinical bedside examinations often provide the basis from which formal, standardized tests are developed. At the most basic level, receptive and expressive language is assessed through spontaneous speech, repetition, comprehension of spoken language, word finding, writing, etc. The informal nature of these assessments provides many advantages, including flexibility, conciseness, and suitability for even severely impaired

individuals. However, the authors also detailed several disadvantages that professionals should take into account when conducting clinical bedside examinations. Such limitations include variability in content and administration, subjectivity of results, and poor replication. Therefore, it seems reasonable that SLPs should utilize common comprehensive examinations in conjunction with their clinical examinations. These comprehensive assessments measure many of the same language dimensions as their bedside counterparts (e.g. naming, spontaneous speech, etc.); however, they do so in an organized, systematic manner that resolves aforementioned limitations associated with clinical examinations, thus allowing for a careful differential diagnosis. Spreen and Risser referenced an explanation by Schuell (1973) that describes such definitive diagnoses as, “the sine qua non of all responsible clinical procedures in dealing with brain damaged patients” (2003, p. 117). Widely used assessments that meet this criteria include, but are not limited to: the Boston Diagnostic Aphasia Examination, 3rd edition (BDAE-3), the Minnesota Test for Differential Diagnosis of Aphasia (MTDDA), Porch Index of Communicative Ability (PICA), and the Western Aphasia Battery (WAB).³

Katz and colleagues (1998) examined use of these formal style assessments more closely in their multidimensional survey study of aphasia management practices. The survey measured access, diagnosis, treatment, discharge, and follow up patterns of patients with aphasia in the following nations: Australia, Canada, the United Kingdom, the United States Private Sector (US-Private) and the United States Veterans Health Administration in the Department of Veterans Affairs (US-VA). With regards to aphasia evaluation, the researchers differentiated between tests for acute inpatients and chronic outpatients. For the former group, they found that the Boston Naming Test (BNT) (Kaplan et al. 1983) was the only exam among the top 20% for all

³ *The reader is encouraged to refer to Chapter 9 of the Spreen & Risser text for a more exhaustive list of available comprehensive examinations.*

five national healthcare systems. The BDAE was among the top 20% for four of the healthcare systems. For chronic aphasia patients, survey respondents from all countries listed both the BNT and the BDAE in the top 20% of the most frequently administered examinations. The WAB was among the top 20% for four out of five healthcare systems, and was also reported as Australia's top examination for chronic aphasia patients. The study also found that every healthcare system reported at least one exam in their top 20% that was cited by $\leq 2\%$ of respondents from the other nations. This echoes the aforementioned variability in aphasia assessment practices.

Furthermore, Katz et al. reported that participants from all five healthcare systems reported using portions of standardized tests (i.e. clinical bedside examinations) by either eliminating or adding various subtests to their protocol. This tendency suggests that no current standardized examination collectively addresses all aphasia assessment needs.

Phases of Aphasia

Like any acquired condition, progression of aphasia is conceptualized in stages. Specific stages may vary slightly; however, at minimum the disease process is divided into acute (early) and chronic (later) phases, the latter of which is the focus of this manuscript. A comprehensive review of the literature revealed no standard time parameters that define the terms acute and chronic. One text suggests that the chronic phase begins when a patient is transferred from an acute care (i.e. hospital) setting (Davis, 2007). Researchers are also in disagreement when it comes to time criteria, as evidenced by Kurland and colleagues (2012). They measured progress of two individuals with chronic aphasia, one of which was nine years post-onset while the other was only six months post-onset; clearly there is discrepancy as to what constitutes a label of "chronic."

For the purposes of this study, chronic phase is defined by at least 1-year post onset to allow for spontaneous recovery time as well as initial therapy efforts.

One complication that the chronic phase of aphasia presents, especially considering an individual who is many years post onset and no longer receiving rehabilitation, is the decision to reassess communicative ability. Factors which may ultimately influence an SLP's decision to assess include: knowledge of the ASHA scope of practice, knowledge of the Medicare system, responsiveness to comments from nurses or other healthcare personnel, and familiarity with the disorder and available assessments. A measure that encompasses all of the aforementioned factors is clinical experience. An experienced SLP may better understand the implications chronic conditions present in regards to third party payment (as detailed by Erdem et al., 2013). Most notably, it is difficult to show increased speech-language function in the time frame typically allotted by the Medicare system. If patients fail to exhibit significant progress as a result of skilled intervention, they are often dropped from services and forced to pay out of pocket. This financial burden on the patient greatly increases the likelihood that they will choose not to pursue therapy services. In addition, experienced clinicians may be better versed in ASHA admission and discharge criteria, realizing that an individual is entitled to follow-up even if past treatments had no measurable benefit (ASHA, 2004). They might be more inclined to take notice of passing comments from hospital staff that could indicate a change in communicative status, thereby warranting reevaluation. Years of experience also increase their familiarity of the disorder and its patterns. This affects which assessments are administered and, consequently, which constructs are measured. This is not to say that newer, inexperienced clinicians are incapable of making an informed decision regarding assessment; in fact, their recent didactic instruction suggests they may be more aware of specifics of the disorder and

newer assessment techniques. These considerations raise the following question: does clinical judgment gained through years of experience impact SLPs' perspectives and/or protocols for assessing an individual with chronic aphasia?

Another variable of interest that could potentially influence assessment decisions is membership to special interest groups; for example, a professional interest in applied behavior analysis techniques. The previously cited study by behavior analysts Esch et al. emphasizes the importance of incorporating the mand operative to elicit functional requests. They maintain the stance that independent variables (i.e. functions) are responsible for the words and word forms produced. Therefore, it seems plausible that like-minded individuals would not support the use of confrontational naming tasks to assess functional requesting behavior.

The current study aims to explore these theories through use of a comparative survey. The subsequent research questions will be addressed:

1. Do years of clinical experience correlate with SLPs' decision to assess/not assess an individual with chronic aphasia?
2. Do years of clinical experience influence SLPs' selection of aphasia assessment tools?
3. Do years of clinical experience relate to SLPs' opinion regarding generalization of naming to functional requesting behavior?
4. Does membership in a special interest group (American-Speech-Language Hearing Association or the Association for Behavior Analysis International) influence opinion regarding generalization of naming to functional requesting behavior?

The hypothesis that these questions aim to disprove (i.e. the null hypothesis) is as follows: years of clinical experience and membership to special interest groups have no effect on both aphasia

assessment and professional opinion regarding generalization of naming to functional requesting behavior.

Table 1
Summary of Assessments Analyzed

Assessment	Date Developed	Areas Assessed
Communication Aid to Capacity Evaluation (CACE)	2014	Cognition, decision-making
Aphasia Living Assessment (ALA)	2014	Aphasia-related quality of life
Boston Diagnostic Aphasia Examination (BDAE-3)	2000	Receptive & expressive language, cognition
Boston Naming Test (BNT)	1983	Receptive & expressive language, cognition
Minnesota Test for Differential Diagnosis of Aphasia (MTDDA)	1972	Receptive & expressive language, cognition
Porch Index of Communicative Ability (PICA-R)	2001	Receptive & expressive language, cognition
Western Aphasia Battery Revised (WAB-R)	2006	Receptive & expressive language, cognition
Communicative Activities of Daily Living (CADL-2)	1999	Receptive & expressive language, cognition, functional communication[1]
American-Speech-and-Hearing Association Functional Assessment of Communication Skills for Adults (ASHA-FACS)	1995	Receptive & expressive language, cognition, functional communication[2]

[1] Does not use mand as context for antecedent condition
 [2] Does not use mand as context for antecedent condition

CHAPTER 3

METHODS

Participants

Participants were recruited through two special interest groups: (1) the ASHA Special Interest Group 2, Neurophysiology and Neurogenic Speech and Language Disorders, and (2) the Association for Behavior Analysis International (ABAI) Speech-Pathology Special Interest Group. Participation in the survey was dependent on membership to one of these two groups. Because this was a pilot study, participation was not limited by any additional variables.

Participants were not offered any form of compensation for completing the survey.

Design

This study utilized a quasi-experimental approach to assess the perspectives of SLPs regarding the assessment of individuals with chronic aphasia. The survey allowed for examination of possible correlational relationships between SLPs' experience and interest and decisions regarding aphasia assessment. Before completing the survey, participants were asked to complete a demographic questionnaire. This allowed for data, such as years experience, highest degree earned, current work setting, and membership to special interest groups to be collected on an individual basis. Specific data allowed survey responses to be analyzed using a continuum approach in regards to exact number of years experience.

Definition of Variables

Independent variables included number of years experience for each participant and membership to particular special interest groups. The remaining dependent variable was responses to the following survey questions: decision to assess, selection of assessment tools, and opinion of relationship between naming a functional requesting. The study aimed to focus

on measuring the strength of relationship between these the independent and dependent variables to establish any possible correlation.

Procedures

Upon approval from an Institutional Review Board, representatives from ASHA and ABAI were contacted with a request to participate in the survey. Next, a formal e-mail containing the survey link was sent out to group members. The request for ASHA SIG 2 members to participate was posted on the group's community board. The survey was web-generated using Survey Monkey software (www.surveymonkey.com). This online tool provided easy and equal access for all participants. The link remained open for a one-month period, after which the portal was closed. A reminder prompt was sent two weeks before the survey closed.

Sufficient sample size for the factor analysis was determined using G*Power v. 3.1.7 (2013). This free, downloadable program was used to calculate the power of a statistical test. Power (β) is defined as the probability of not making any type II errors; i.e. negating the null hypothesis when the alternative is true (McCrum-Gardner, 2010). Confirmation of the power ensures that no type II errors can confound the results. For the present study, it was calculated with a 0.5 correlational coefficient that a minimum of 42 responses per group should be included for statistical analysis. (Department of Psychology, 2008).

Survey structure. Participants were presented with brief, hypothetical vignettes of an assessment scenario (see Appendix). Two vignettes were included to provide ample presentation to participants, thus encouraging continuity of responses and helping to prevent biased decision-making. Case history and background information were presented for chronic Broca's aphasia patients residing in a skilled nursing facility. The vignettes detailed a change in condition one year post-onset. The participants were then presented with four questions asking the following:

(1) would they recommend reassessment based on the change, (2) what constructs would they measure, (3) what assessments would they use, and (4) what is their opinion of a functional assessment's ability to measure language abilities, with response being analyzed in regards to membership to a special interest group (ABAI or ASHA). All questions required a forced choice, although questions two and three allowed for selection of multiple responses. This structure allowed for responses to be easily quantified and analyzed. For question number three, all assessment options were presented using acronyms only, so as to not provide diagnostic information that may have influenced participants' decision.

Data Collection and Analysis

SurveyMonkey is designed so that responses are directly recorded and stored in the "Analyze Results" tab of the survey creator's individual account. After the survey portal is closed, results can be exported directly for analysis. However, due to upgrade charges data was manually coded into Microsoft Excel and then subsequently analyzed using the free, downloadable program R.

Research questions one, two, and three were correlational in nature, as they examined the direct relationship between number of years experience and responses to survey questions. Although correlational, both variables were not normally distributed; therefore, they were quantified using the Spearman rho nonparametric ordinal statistic (Morgan et al., 2007). Scatter plots were also used to check initial assumptions and to visually represent data.

For research question number four, data would have been analyzed using a Chi-square test with a contingency table. This test would determine if a significant relationship exists between the two dichotomous variables (Morgan et al., 2007), membership to a special interest group (ASHA or ABAI), and opinion of generalization to functional requesting (yes or no),

respectively. However, due to limited survey participation, research question four was eliminated, and no data analysis was conducted.

Reliability and Validity

Validity was addressed and confirmed through expert analysis. An SLP with extensive experience and knowledge in field of aphasia was asked to examine the survey to confirm construct validity. Content validity of data was established by checking values obtained from R using SPSS software.

CHAPTER 4

RESULTS

General Results

The survey was created and posted in October 2014. It remained open for a one-month period after the first response was collected, from December 5, 2014 – January 5, 2015. 86 total surveys were completed and returned. Due to restrictions on SurveyMonkey, all responses were numerically coded and recorded in Microsoft Excel before being imported to R for statistical analysis.

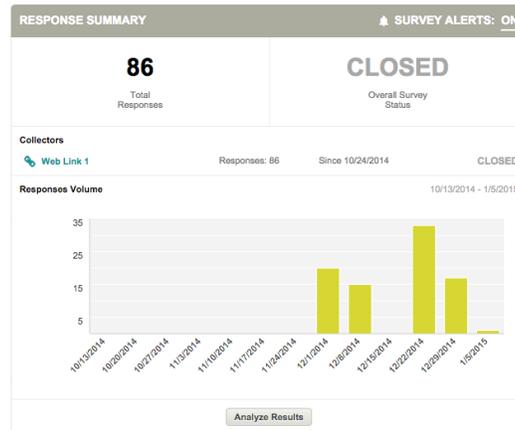


Figure 1 - Summary of Survey Return Rate 1

Analysis revealed that of the 86 responses, no members from the Association for Behavior Analysis International (ABAI) Speech-Pathology Special Interest Group completed a survey. Therefore, research question number four was eliminated.

Additionally, out of the 86 surveys, one respondent failed to indicate membership to a special interest group. Since this was the only inclusion criteria specified, this data was not included for analysis. Finally, several participants had <1 year clinical experience and reported experience in months. For continuity all responses were subsequently converted to months experience instead of years experience.

Results were analyzed using a 95% confidence interval. Initially, the following parameters were measured using Spearman rho correlation: 1) decision to assess / not assess vs. years experience, 2) sum of constructs vs. years experience, 3) sum of assessments vs. years experience, 4) vignette 1 response vs. years experience, and 5) vignette 2 response vs. years experience. Sum of constructs and assessments are defined as the total number of tools selected from the provided field. Individual constructs and assessments were then analyzed in the same manner in order to provide more specific information and insight.

Of the 86 respondents, 18 indicated that they had a Ph.D degree (20.9%). The remaining individuals indicated either a Masters of Science or a Masters of Arts. Due to variance in responses regarding current workplace, results could not be quantified; however, informal evaluation indicates that the majority of respondents work in a medical-based setting. The average number of months experience among all respondents was 197.52, or 16.46 years. Of the six individuals who reported that they would not reassess one or both patients, the mean number of months experience was 213.0, or approximately 17 years. It is interesting that this number is comparable to the number of months experience of clinicians that would assess, showing that sheer amount of clinical experience may not influence this decision.

Research Question Number 1 Results: Decision to Reassess

Upon assessing months experience with decision to reassess patient, it was found that there was no true statistical significance between the two variables ($p = .816$). However, further investigation revealed that statistical values were skewed because almost all participants across the board would reassess, regardless of months experience. 93% of participants indicated that they would reassess both patients detailed in the vignettes. This is the response that the vignettes

were designed to evoke, showing that the majority of the sample pool correctly gauged when reassessment was warranted.

Research Question Number 2 Results: Tool Selection

Sum of Constructs and Assessments. Similar to the decision to reassess, the selection of constructs and assessments (i.e. sum of constructs and sum of assessments) was not significant among the differing clinical experience groups ($p = .390$ and $p = .213$, respectively). The mean number of constructs measured was 3.87; the mean number of assessments selected was 2.71. However, sum of constructs was negatively correlated, supporting the supposition that more experienced clinicians may provide a more specific differential diagnosis, therefore requiring fewer standardized assessments.

Individual Constructs. The only individual construct found to reach a level of significance when analyzed in regards to months experience was cognition. This had a negative correlation value of $\rho(86) = -.225$, $p = .037$. This negative correlation indicates an inverse relationship; as years of experience increase, the likelihood that cognition will be assessed decreases. Although Construct 5 (functional behaviors) was not found to be significant in regards to months experience, further analysis revealed that 87.2% of respondents believed that functional behavior should be included in an aphasia assessment protocol.

Individual Assessments. Several measures were found to have a significant value of $p \leq .05$, including ALA ($\rho(86) = .212$, $p = .051$) ASHA-FACS ($\rho(86) = .258$, $p = .016$), and Clinical Bedside Evaluation ($\rho(86) = -.214$, $p = .048$). The latter assessment is negatively correlated, indicating that more experienced clinicians are less likely to utilize it.

Research Question Number 3 Results: Generalization to Functional Requesting

Responses to hypothetical vignettes were utilized as a means of measuring opinion of translation of successful confrontational naming to functional requesting. Based on the data, the majority of SLPs believed that requesting would generalize for the case presented in V1 ($p = .034$), but not the case in V2. Probable influences are discussed presently.

Exact values for correlations, as well as statistically significant scatter plots, are reported below (Tables 2-4; Figures 2-6):

Table 2
Major Research Questions Significance Values

	Spearman Correlation	P-value
Assess / Not Assess	.026	.816
Sum of Constructs	-.124	.390
Sum of Assessments	.136	.213
Vignette 1	.230	.034
Vignette 2	.108	.327

Note. 95% confidence interval.

Table 3
Individual Constructs Significance Values

	Spearman Correlation	P-value
C1 - R/E Language	-.120	.270
C2 - Cognition	-.225	.037
C3 - Decision Making	-.050	.649
C4 - Quality of Life	.003	.976
C5 - Functional Requesting	.110	.312

Note. 95% confidence interval.

Table 4
Individual Assessments Significance Values

	Spearman Correlation	P-value
A1 - CACE	.098	.369
A2 - ALA	.212	.051
A3 - BDAE	-.012	.915
A4 - BNT	-.026	.814
A5 - MTDDA	.027	.802
A6 - PICA	.049	.654
A7 - WAB	.074	.497
A8 - CADL	.144	.185
A9 - ASHAFACS	.258	.016
A10 - Clinical Bedside	-.214	.048

Note. 95% confidence interval.

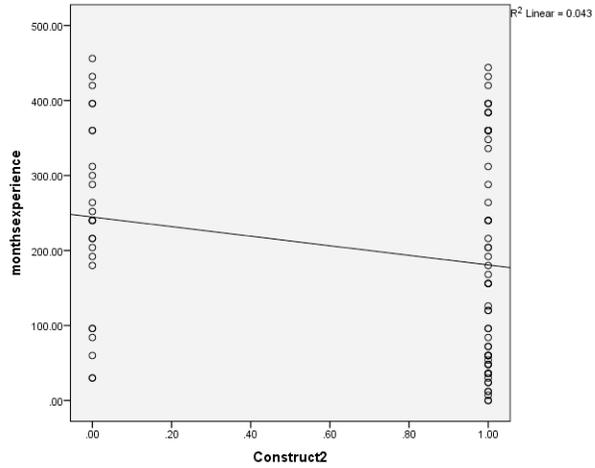


Figure 2. Months Experience vs. Cognition

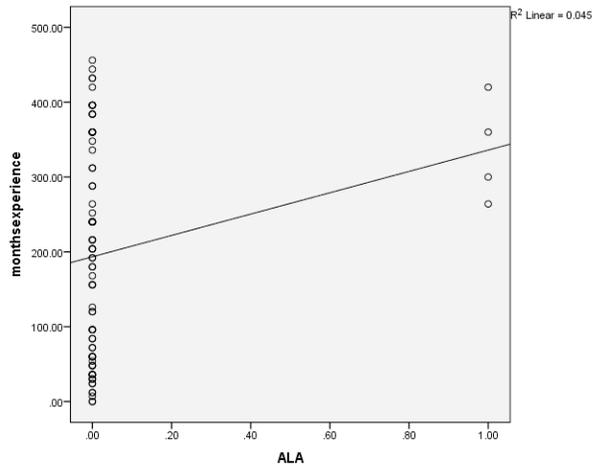


Figure 3. Months Experience vs. ALA Assessment

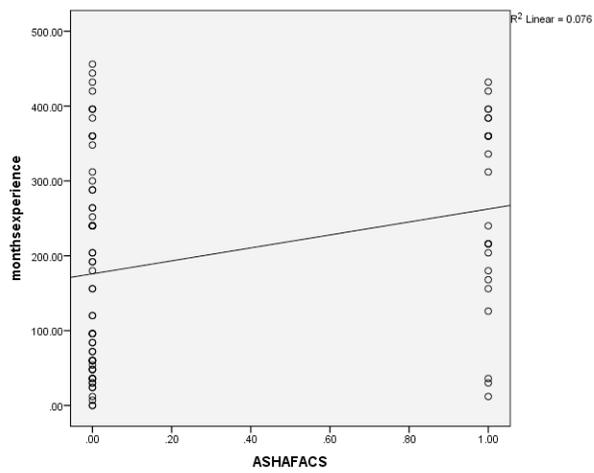


Figure 4. Months Experience vs. ASHAFACS

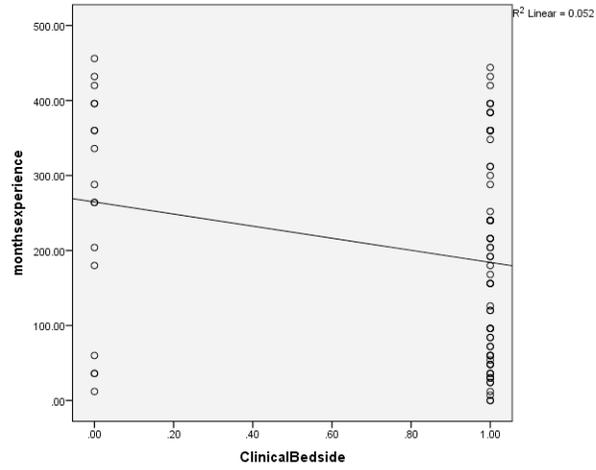


Figure 5. Months Experience vs. Clinical Bedside

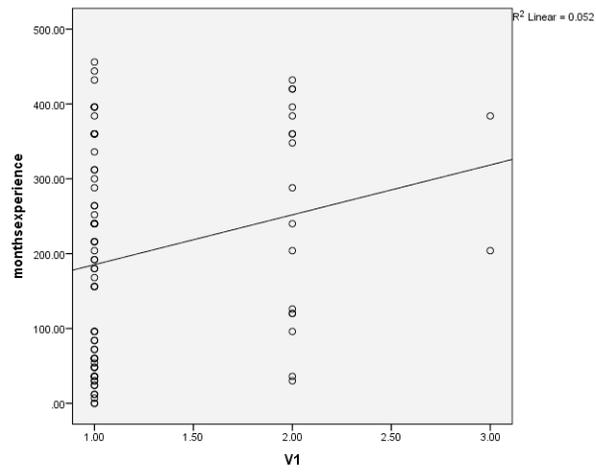


Figure 6. Months Experience vs. Response to V1

CHAPTER 5

DISCUSSION

Interpretation of Research Questions

The overall indication of the present study is that clinical experience is generally not predictive of differences in aphasia assessment procedures. Analysis of responses from this sample pool revealed that there were small, statistically significant correlations between the following variables: (1) months experience and cognition construct, (2) months experience and ALA assessment, (3) months experience and ASHA-FACS assessment, (4) months experience and Clinical Bedside assessment, and (5) months experience and generalization of requesting as detailed in V1. No significant correlation was found between major decisions such as assess/not assess; however, this was due to the fact that most participants indicated they would reassess; therefore, clinical experience has no real influence on decision, and was reflected in the data as such. Selection of measuring functional behavior as a construct was similar in this respect.

Only 30% of provided aphasia assessment choices yielded any real statistical significance, and these values in themselves were relatively small, with two measures barely clearing the significance threshold of $p = .05$. Visual analysis of Figures 2-6 also confirms that most correlations are minor in nature. Presumably, aphasia assessment protocol may be influenced by many extraneous factors. Each individual SLP may have a different rationale that affects assessment choices; for example, personal preference, familiarization with assessments, time constraints, and facility protocol, among others. The results call into question the value placed upon “clinical experience;” although this measure is often said to guide therapists’ judgment and decisions regarding patient care, this study shows that it is highly variable, subjective measure. The vast number of tests available may have influenced responses regarding

standardized aphasia assessment. Even though three correlations were found to be minimally statistically significant, overall there appears to be no standard criterion when it comes normed aphasia assessment selection. The one measure that was significant for all experience groups is a Clinical Bedside Evaluation, as 80.2% of all respondents indicated they would use it as part of their assessment repertoire. However, this assessment was also negatively correlated with months experience ($\rho(86) = -.214$), indicating more experienced clinicians are less likely to use this approach. This measure, although highly flexible, lacks consistency across clinicians—what one SLP includes in an informal evaluation may be drastically different from another therapist's selection.

Of the nine survey respondents that provided other constructs to be measured, the average number of months experience was 140 (~12 years). Free-response answers collected detailing extra constructs to be measured include: dysphagia, voice and psychological state. The mean months experience for individuals who indicated they would utilize assessments not listed was 256.36 (~21 years). Various assessments indicated include the following: BASA, QLRS, Raven's Matrices, Aphasia Diagnostic Profile, QLQT, ADP, ASHA-QCLS, TONI, Mini-Mental State Examination, Brns Brief Inventory of Communication & Cognition, Arizona Battery, BCRS, GDS, FAST, Geriatric depression scale, RCBA. Responses are indicated exactly as they were entered on the survey. This large number of additional suggested assessments further supports the idea that the multitude of options available for aphasia assessment may create lack of consistency of assessment practices among professionals.

Several negative correlations were observed in the data. The first was months experience with sum of constructs, specifically constructs 1-3. This could be indicative of a more experienced clinician's tendency to zero in on measures they deem relevant for an individual

patient; they would be less likely to measure several constructs at once. It is interesting that construct number four, quality of life, was not negatively correlated. Despite its more subjective nature, veteran clinicians still perceive it as a valuable measure. This was reflected in their selection of assessments, as months experience was positively correlated with the Assessment for Living With Aphasia (Simmons-Mackie et al., 2014; $p = .051$), which looks at aphasia related quality of life.

With respect to individual constructs, cognition was the only statistically significant measure found to be negatively correlated to months experience. This contradicts Ivanova and Hallowell's (2013) rationale that cognition should be analyzed separately, as receptive and expressive language impairments could skew other non-linguistic measures. As the authors argued, even seemingly non-verbal measures such as attention and memory require a degree of language processing to understand task directions. It is surprising that experienced clinicians would not see the value of measuring strict cognitive function to ensure that appropriate goals for treatment are formulated. For example, if cognition was shown to be impaired, it would be prudent to include executive function goals as part of therapy as opposed to just targeting language.

Various assessments, including the BDAE-3 and the BNT, were also found to be negatively correlated with month's experience. The BDAE-3 is still a relatively new assessment, so older clinicians may not be as familiar with it, thus providing possible rationale for the negative correlation. However, as Katz and colleagues (1998) found, the BNT is among the top 20% of the most frequently administered examinations in five various healthcare systems. Since the BNT is a very established and widely used assessment in the field, it is surprising that this measure is negatively correlated with months experience.

A promising finding of the study is that the majority of SLPs (93%) answered that they would reassess patients presented in the vignettes. This indicates that although there is variability when it comes to selection of constructs and assessments, there is a general consensus and consistency concerning the decision to reassess. This response demonstrates professional awareness of not only the needs of long-term aphasia patients, but also a sensitivity to changes in those patients that could warrant reassessment.

Another interesting conclusion is that the overwhelming majority of respondents (87.2%) indicated that they would measure functional behaviors as part of an aphasia assessment protocol. This positive response illustrates that SLPs recognize the value of functional communication and the role that behavioral measures have in evaluating this construct. However, despite the recognition of the importance of functional communication, this response contrasts with correlations for the two “behavioral” measures included in Vignettes 1 & 2. Both the CADL-2 and the ASHA-FACS include a degree of functional communication assessment, although neither assessment uses the mand as an operative condition for requesting. For both tests, only 27.9% of all participants indicated that they would include them in their protocol. This could be reflective of several situations; for example, perhaps respondents were not familiar with the assessments, or maybe they did not believe the assessments are valid appraisals of functional communication. Regardless of this measure, both the CADL-2 and the ASHA-FACS were found to be positively correlated with months experience, with the latter correlation being statistically significant. This finding demonstrates that although the general majority of clinicians are hesitant to incorporate the CADL-2 or ASHA-FACS into their assessment protocol, those that do include it tend to have more months experience, resulting in the

supposition that experienced clinicians may be more apt to incorporate functional materials into their assessment process.

Interpretation of Vignettes to Measure Opinion of Functional Requesting

Analysis revealed some discrepancy between Vignettes 1 & 2 (V1 & V2), as only V1 was found to have a positive correlation with months experience ($p = .034$). The vignettes intended to measure whether confrontational naming would generalize to functional requesting; when analyzed as such, results reveal that for V1 only, experienced clinicians were more apt to believe that naming would generalize to requesting. This is intriguing, as the vignettes were designed to be balanced so as to prevent biased decision-making, and therefore should not have produced drastically different results. Both vignettes aimed to portray a chronic aphasia case detailing a change in communication. After continued examination, however, it was found that V1 included explicit and implied details that V2 did not include. It was stated that: (1) the patient was discharged because he stopped making meaningful progress, (2) the patient was moved to skilled nursing due to the death of his wife, and (3) the patient's primary mode of communication was gesture. These details may have influenced more experienced clinicians to believe that progress made with confrontational naming in therapy would generalize to functional situations.

As aforementioned, analysis of the responses to Vignettes 1 & 2 revealed that the majority of respondents believed that confrontational naming targeted in therapy would in fact translate into functional communication activities. For V1, 81.2% of returned surveys indicate "yes" for generalization probe; on V2 the rate was 82.6%. Note that both values have high rates of affirmative answers but only V1 was correlated with years experience. Nonetheless, this is not in line with what Esch and colleagues (2010) detailed in their study; specifically, that

confrontational naming would not generalize to truly functional requesting without using the function of the mand as the antecedent. Furthermore, when indicating what constructs they would measure, 87.2% of respondents, not considering amount of clinical experience, indicated that they believed functional behaviors should be addressed during evaluation procedures. It would have been interesting to see how members from the ABAI special interest group responded to this question given their behavioral background. Regardless, responses suggest that if SLPs place a large value on measuring functional behaviors, there should be an assessment available to measure this construct. Furthermore, treatment should begin to reflect truly functional requesting using the mand as a precursor. As Esch et al. suggest, targeting this behavior will translate to more real-life situations, which is ultimately the goal of any effective speech therapy.

Limitations

The study faced several significant limitations, first and foremost being lack of participation from one of the highlighted special interest groups. Despite multiple efforts to contact the coordinator, no survey responses were collected from the speech pathology ABAI special interest group, which resulted in elimination of major research question number four.

In general, the sample pool was still relatively small, with only 86 complete surveys returned. This, of course, skews data results and interpretation. However, the survey still met sufficient power numbers as calculated by G power. In retrospect, the restricting variables may have been a limitation. Although they were originally put in place to ensure that the intended research questions could be studied, they ultimately limited participation. A special interest group question could have been added in the demographic questionnaire, thereby allowing the survey to be distributed to multiple groups; for example, regional associations such as the Illinois

Speech-Language Hearing Association and the Missouri Speech-Language Association, both of which could have been more easily contacted and solicited for participation.

Finally, the format of SurveyMonkey was a severe limitation. The free trial software allowed for a 10-question maximum, without features such as predictability, skip a question, etc. Ultimately, the survey could have been more specific if it could have been longer, which could have influenced responses. The time window that the survey was available was also relatively short (approximately 30 days), which may have inhibited some prospective participants from completing it.

Future Research

Although results indicated limited significant relationships between experience and aphasia assessment, the study still revealed several areas that warrant future research. Firstly, the current study could be improved upon using a large-scale survey distributed to various speech-language associations, regardless of professional interest. Professional interest could be collected on an individual basis in the initial demographic questionnaire, and research question number four could be addressed in this manner. Additionally, it would be interesting to compare responses of more “mainstream” SLPs (i.e. clinicians who do not have a strong interest in neurogenetics or aphasia assessment) to responses of SIG members. Inclusion of these individuals would allow for analysis of non-specializing SLPs as an additional independent variable.

Future directions for research could also include an analysis of academic coursework at the graduate level. Depending on the didactic instruction students receive regarding cognition, aphasia assessment, and functional requesting, it is possible that evaluation protocol more is less dependent on years experience, and more reflective of academic instruction. For example, perhaps recent graduates have received more instruction in cognition and cognitive assessment,

thus explaining why clinicians with more years experience are less inclined to measure this construct. This analysis could be achieved in one of two ways—1) collected coursework responses at the individual level or 2) investigating what department chairs are teaching about aphasia. Another study could also focus on work setting as a variable that influences chronic aphasia assessment.

Perhaps the most significant finding of the study is a call for behavioral based speech-language assessments that assess functional requesting behavior. Based on responses from SLPs, this is an area that the majority of professionals want to address when assessing or reassessing aphasia cases; however, no such assessments are readily available.

Conclusion

In summation, chronic aphasia assessment is a multi-faceted, often overlooked area of cognitive and language rehabilitation. A large amount of assessments are available, which may contribute to variability in assessment practices. Analysis revealed that there is minimal correlation between months experience and assessment practices; however, the following variables were found to be statistically significant: (1) months experience and cognition, (2) months experience and the ALA, (3) months experience and the ASHA-FACS, (4) months experience and the Clinical Bedside assessment, and (5) months experience and generalization of requesting as detailed in Vignette 1. Interestingly, the majority of respondents believed that both patients should be reassessed, and they also indicated that functional assessments should be conducted. However, when asked if generalization would occur to functional requesting, most participants also indicated yes, which is contradictory to what was found in the literature (Esch et al., 2010). Overall, this indicates that SLPs generally value functional behavior as a construct, but do not have the tools to effectively measure it, thus affecting how it is targeted in therapy.

Future research should continue to focus on chronic aphasia as a topic of interest, specifically in the development of a truly function-based assessment to quantify ability to name and request items. This, in turn, would aid in the creation of realistic yet functional therapy goals for clients. If effective, this test could become a gold standard tool in an area lacking consistency and uniformity, thus guiding chronic aphasia [re]evaluation and treatment for years to come.

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APPENDICES

Appendix

1. How many overall years experience do you have as a speech-language pathologist (SLP)?
2. What is your highest degree earned?
3. What is your current workplace setting?
4. Please indicate your membership to the following special interest groups:
 - ❖ American-Speech-Language-Hearing Association (ASHA) Special Interest Group 2, Neurophysiology and Neurogenic Speech and Language Disorders
 - ❖ Association for Behavior Analysis International (ABAI) Speech Pathology Special Interest Group

Demographic questionnaire

Please answer the questions based on the following vignettes:

(1)

Mr. Jones is a 74-year-old Caucasian male who is one year, seven months post onset of a left-hemisphere ischemic stroke. While in acute care, he was diagnosed with moderate-severe Broca's aphasia with right hemiparesis, which greatly limits his mobility. With the exception of hypertension, he has no other comorbid disorders.

Mr. Jones received six months of intensive therapy at an inpatient rehabilitation center, but was discharged to home when he stopped making meaningful progress. He was moved to a skilled nursing facility after the death of his wife, who was his primary caregiver. Currently, his primary mode of communication is gesture.

Although Mr. Jones is not currently on your caseload, you overhear several nurses talking about recent emotional outbursts before mealtimes. They report that he screams and yells at staff and then proceeds not to eat his food.

(2)

Mr. Smith is a 79-year-old Caucasian male who is one year, nine months post onset of a left-hemisphere CVA. He was diagnosed with moderate Broca's aphasia. He also suffers

from right hemiparesis, and he must use a wheelchair to get around.

Mr. Smith received initial speech therapy services while in inpatient care at your rehabilitation and nursing center, but he met all of the established goals and was discharged from services. He still resides at the center.

Mr. Smith is not on your caseload; however, you have noticed that he is becoming much more withdrawn, and family members are complaining that he is using fewer words when engaging with them. Mr. Smith appears most anxious before his bedtime routine.

Vignettes 1 & 2

1. Would you reassess the patients based on the provided information?

- ❖ Yes, reassess both patients.
- ❖ Yes, reassess Mr. Jones only.
- ❖ Yes, reassess Mr. Smith only.
- ❖ No

If no, explain decision not to reassess one OR both patients.

2. What constructs would you measure?

- ❖ Receptive and expressive language
- ❖ Cognition
- ❖ Decision-making capacity
- ❖ Quality of life
- ❖ Functional behaviors
- ❖ N/A (I would not reassess)

Are there constructs that you would measure for one patient but not the other? If so, explain.

3. What assessments would you use?

- ❖ CACE
- ❖ ALA
- ❖ BDAE-3

- ❖ BNT
- ❖ MTDDA
- ❖ PICA
- ❖ WAB
- ❖ CADL-2
- ❖ ASHA-FACS
- ❖ Informal clinical bedside examination (may include portions of the above subtests)
- ❖ N/A (I would not reassess)

Are there assessments you would utilize for one patient but not the other? If so, explain.

4a. In therapy, Mr. Jones has successfully labeled food items up to 10 items when presented with a picture card. Based on this progress, would you target requests and do you anticipate generalization to functional requesting (i.e. asking for certain foods at meals or when hungry)? ⁴

- ❖ Yes
- ❖ No
- ❖ N/A (I would not reassess)

4b. During treatment, Mr. Smith exhibited progress with naming bedroom and bathroom items, and can now name up to 8 items when presented with a picture. Based on this progress, would you target requests and do you anticipate generalization to functional requesting (i.e. asking for desired items during bed or bath routines)? ⁵

- ❖ Yes
- ❖ No
- ❖ N/A (I would not reassess)

Survey

⁴ Question 4a. pertains to Vignette 1.

⁵ Question 4b. pertains to Vignette 2.

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