

EFFECTIVENESS OF AN APHASIA TRAINING MODULE PRESENTED TO MENTAL  
HEALTH PROFESSIONALS

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## LIST OF ABBREVIATIONS

ASHA.....	American Speech-Language-Hearing Association
CBT.....	Cognitive Behavioral Therapy
PWA.....	Person With Aphasia
SLP.....	Speech Language Pathologist
QOL.....	Quality of Life

## ABSTRACT

### EFFECTIVENESS OF AN APHASIA TRAINING MODULE PRESENTED TO MENTAL HEALTH PROFESSIONALS

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People with stroke-induced aphasia are often limited in communication effectiveness and efficiency because of their language disorder. Such limitations can have drastic impacts on these individual's quality of life and mental health. Given the myriad of post-stroke complications that can occur, management of aphasia follows an interdisciplinary approach involving a team of medical and rehabilitation professionals. Logically, this team would also include mental health professionals; however, mental health providers are not always prepared to work with people with aphasia or their families. The purpose of this study was to determine the effectiveness of aphasia training provided to those in the mental health fields. The training module consisted of a 15-minute video training and pre/post-assessments to measure knowledge gained. The aphasia-training module addressed five areas: the clinical definition of aphasia, its classifications, depression related to aphasia, communication strategies that enable effective and efficient communication, and cognitive behavioral therapy. Immediately before and after watching the video module, participants completed a short, multiple-choice quiz related to the content covered.

Twenty-one participants completed all components of the study; these participants included graduate students, faculty, and alumni of a university counseling program. A significant increase in performance on the post-training test compared to the pre-training test indicated that the video training module was effective in increasing mental health professional's knowledge about aphasia ( $t(20) = -5.934; p = .000$ ). An increased knowledge of aphasia and strategies to facilitate communication with this population via a video training module may translate into more frequent and effective opportunities to receive counseling for mental health concerns, hopefully improving functional outcomes and QOL post-aphasia.

## CHAPTER ONE: INTRODUCTION

### Stroke and Aphasia

Cerebrovascular accidents, or strokes, can occur following ischemic (i.e., blockage of blood flow) or hemorrhagic (i.e., bleeding in or on the cerebrum) events in the cerebrum.

According to Perna and Temple (2015), stroke affected close to 800,000 people in the United States and was the fourth leading cause of death in 2015. When stroke occurs, there is an interruption of blood flow and thus oxygen in the cerebrum causing localized or diffuse neural damage. This injury to the cerebral tissue leads to functional impairments, including but not limited to impairments in movement, speech, sensation, vision, executive functions, attention, and memory. Although not present in all cases of stroke, approximately one third of persons who experience a stroke will demonstrate signs and symptoms of aphasia (Dickey et al., 2010). For many of these individuals, the aphasia and its consequences will persist for the remainder of their lifetime.

Aphasia is an acquired neurogenic language disorder affecting all modalities of language, which includes producing and understanding the spoken and written word. In nearly all cases, damage in the “zone of language” is most often associated with aphasia; this includes the perisylvian region of the left hemisphere of the brain. The extent of cortical damage and location of the lesion are often associated with the type and severity of the presenting aphasia. Anterior cortical lesions are most often associated with deficits in expressive language, whereas posterior lesions likely lead to impairments in receptive language. Given the varying sizes and locations of lesions, the resulting language profiles are equally variable.

When describing the clinical profile of a person with aphasia, they are typically assigned one of seven classifications; however, a report of nonfluent or fluent may be all that is provided in a medical history. Nonfluent aphasia is indicative of verbal utterances that are five or fewer words in length. Agrammatic speech and the use of short sentences comprised mostly of key content words (rather than adjectives, articles, and prepositions) are typical of the nonfluent aphasias. Syntagmatic deficits, impairments in grammar and sequencing of spoken language, are common, as well. Classifications of nonfluent aphasia include Broca's, transcortical motor, and global.

Conversely, utterance length of nine or more words characterizes the fluent aphasia types. However, the types of fluent aphasia vary greatly after accounting for utterance length. For example, persons with Wernicke's and transcortical sensory aphasia demonstrate poor understanding of language. Repetition is a significant impairment for people with conduction aphasia. Those with anomia typically experience isolated deficits in word retrieval and naming.

### Mental Health Disorders Following Stroke and Aphasia

Stroke can affect a person physically, cognitively, and emotionally, and the effects of stroke are apparent in every aspect of a person's life, including daily routines, social interactions, family relationships, employment, and finances (Bhalerao & Varadharajulu, 2016; Herrmann & Fehr, 2007). However, a person with stroke-induced aphasia also suffers the communication consequences of the stroke, which can be directly related to decreased self-esteem and confidence (Simmons-Mackie & Damico, 2011). It is not surprising that the psychological and emotional concerns after onset of stroke and aphasia make their way into speech-language therapy sessions (Ireland & Wotton, 1996). Simmons-Mackie and Damico (2011) suggested that

the complexity, severity, and impact of these issues range from those that are relatively simple to those that are life altering. Regardless of the severity, these issues often arise in the absence of a psychological illness. However, difficulty adapting to a post-stroke and post-aphasia life could lead to the development of a psychological illness, namely depression (Bhalerao & Varadharajulu, 2016). Depression affects approximately 30% of stroke survivors and approximately 60% of persons with aphasia at 12-months post-onset (Morrison, 2016).

### Counseling Persons with Aphasia

In an effort to prevent or treat depression in PWA, counseling services should be available to these individuals and their caregivers throughout the rehabilitation process (Sekhon, Douglas, & Rose, 2015). Hackett and colleagues (2008) reviewed 14 studies that explored the use of either pharmaceuticals or psychotherapy to improve mood and prevent depression post-stroke (Hackett et al., 2008). Their findings suggested that psychotherapy resulted in a significantly positive effect. Although an encouraging finding, the results referenced individuals with stroke, not specifically those with aphasia. Assessment and diagnosis of depression in PWA is challenging given that comorbid conditions and communication difficulties can mask signs and symptoms of depression, and persons with aphasia reportedly benefit less from services related to mental illness due to the presence of the aphasia (Worrall & colleagues, 2016). If psychotherapy is effective in treating and preventing depression in persons with stroke, but the presence of aphasia has the potential to decrease the success of said therapy, it makes sense that professionals familiar with aphasia and trained to facilitate communication with the population should be providing the counseling services. The speech-language pathologist is one such professional.

The American Speech-Language-Hearing Association (2016) states that it is within the SLP's scope of practice to provide counseling to clients and families when it relates "to emotional reactions, thoughts, feelings, and behaviors that result from living with a communication disorder" (p. 9). SLPs are trained to communicate and interact with persons with aphasia in ways that ensure accuracy, highlight competence, and facilitate dialogue. They are also trained to treat communication disorders and the participation restrictions that follow. However, personal preferences of the SLP regarding potentially uncomfortable discussions cannot be ignored, and an ethical boundary exists given how this statement is written. For example, Simmons-Mackie and Damico (2011) found that SLPs often avoid counseling opportunities during the traditional speech-language therapy setting for reasons including avoidance of awkward situations, prioritization of direct treatment, and understanding of professional roles. Regarding the latter, the ethical boundary exists when those reactions, thoughts, and feelings are caused by a psychological disorder such as depression. In either of these cases, a referral is warranted so that professionals comfortable with and trained to treat depression through psychotherapy can intervene. Social workers, counselors, psychologists, psychiatrists, and therapists are all qualified to provide psychotherapy related to mental illness (Sekhon, Douglas, & Rose, 2015). Unfortunately, it has been suggested that very few of these professionals have received the adequate training necessary to work with this population (Odom & Barnes, 2016).

In a recent survey, Odom & Barnes (2016) examined mental health professionals' knowledge of and experience with aphasia. Questions addressed the aphasia definition, experiences treating PWA, and confidence in one's ability to treat mental illness ethically in this population. Although the majority of respondents were familiar with the term *aphasia* and could

identify that it was a type of communication disorder, few indicated that they had professional experience with PWA. Respondents also indicated that they were, at best, neither confident nor doubtful in their ability to treat mental illness in this population. Although the reasons underlying their decreased confidence was not explored in this study, it is likely that one of the obstacles was the communication barrier.

### Aphasia Training for Health-Care Providers

In order to deliver patient-centered care, effective communication must be established between the healthcare provider and the patient, which will likely lead to “increased patient adherence to treatment recommendations, satisfaction with services, and improved overall patient health” (Burns et al., 2012, p. 675). Aphasia training has already been shown to be successful with a variety of populations including caregivers, medical doctors, and hospital volunteers (Burns et al., 2012; Kagan, Black, & Duchan, 2001; Legg, Young, & Bryer, 2005; Simmons –Mackie et al., 2007, 2010; Turner & Whitworth, 2006). Training provided to healthcare providers typically presents general information about aphasia so that the information applies to various contexts as needed. This is in contrast to a spouse or child of a PWA who will receive training more specific to his or her loved one with the unique communication impairment. Training provided to the healthcare providers is typically completed within a group session, such as an in-service lead by the facility’s SLP, workshops, or online learning modules.

### Statement of Purpose

Depression frequently occurs following stroke and aphasia (Morrison, 2016) and psychotherapy can improve mood and prevent depression in the stroke and aphasia populations (Hackett et al., 2008; Kneebone, 2016; Thomas et al., 2013). Unfortunately, the mental health professionals who are qualified to provide psychotherapy for depression report a lack of

experience and confidence in treating this group (Odom & Barnes, 2016). To ensure that PWA are receiving optimal post-stroke care, the related healthcare professionals, specifically those providing therapies for depression, need training on aphasia, its consequences, and communication strategies to enhance and ease interactions with PWA. Following training, the investigators hope that mental health providers would be better equipped to provide treatment when a PWA requests services. The purpose of this pilot study is to determine the efficacy of an online training module to provide mental health professionals with information about aphasia and communication strategies that can be used in the therapeutic realm. Specifically, the training areas included the aphasia definition, the clinical presentation, mental health consequences secondary to aphasia, research supporting intervention, and communication strategies to facilitate dialogue. The following research question has been identified:

Question 1: Will mental health professionals demonstrate an increased knowledge regarding aphasia after completing the aphasia training module?

Hypothesis<sub>0</sub>: Mental health professionals will not demonstrate an increased knowledge regarding aphasia after completing the aphasia training module.

Hypothesis<sub>1</sub>: Mental health professionals will demonstrate an increased knowledge regarding aphasia after completing the aphasia training module.

## CHAPTER TWO: METHODS

### Participants

Participants in the study included graduate students and recent alumni of the counseling program at Western Carolina University. Participating students were either in the first or second year of their graduate program. Alumni included those who graduated from the program within the last 14 years. In total, 58 current students, six faculty, and 14 alumni were invited to participate in the study by way of electronic mail sent from the counseling program's department head. Ultimately, 78 persons were invited to participate, 29 persons provided consent to participate, and of those, 21 completed all study requirements, indicating a response rate of 26%.

### Pre- and Post-Training Assessments

A 10-question multiple-choice assessment was administered immediately before and after the aphasia training video. Developed in Qualtrics (Qualtrics, 2017), the web-based pre-training assessment consisted of ten questions regarding the aphasia definition, communication failures common to aphasia, helpful communication strategies, and the principles behind Cognitive Behavioral Therapy (see Appendix A). The same questions were presented in the post-training assessment in addition to questions regarding participant demographics (i.e., age, race, years of education, and years of experience). To ensure that pre-training and post-training assessments were paired correctly, at the start of each assessment, participants entered an identification code consisting of no more than five letter or number characters. To assess the overall quality of and satisfaction with the training video itself, participants were also asked to complete eight questions related to the objectives originally stated in the training video. Answer choices were presented using a Likert scale with five response choices ranging from *strongly agree* to *strongly*

*disagree*. Additional open-ended questions were added to the end of the survey to inquire about potential improvements and additions to the training module.

### Training Video

A 15-minute training video was presented to participants using Panopto (Panopto, 2017). A variety of topics were covered in the video. The training video included a PowerPoint slide show and voice-over, filmed and edited by Western Carolina University's Information Technology department. Objectives included increasing the learner's basic knowledge of aphasia; its impact on communication; the relationship between aphasia and mental illness; and the use of CBT to manage depression in persons with aphasia. In order to meet these objectives, the training video contained information regarding the definition of speech and language, information on the effects of damage to central areas associated with language production and comprehension, the definition of aphasia, types of aphasia and their communication characteristics, and a brief explanation of CBT. Finally, participants were provided a few practical tips for efficient communication with PWA.

### Procedure

Western Carolina University's Institutional Review Board approved this study. This recruitment email included a description and requirements of the research project explaining that the participants were to complete a pre- and post-assessment to evaluate the effectiveness of an aphasia training video. Hyperlinks were provided for each of the assessments created using Qualtrics (Qualtrics, 2017) and the training video presented through Panopto (Panopto, 2017). When participants selected the link to begin the study with the pre-test, they were first directed to the consent form. After reading the form and providing consent to participate, all individuals were directed to the first question of the pre-assessment. Immediately upon completing the

assessment, participants were instructed to watch the 15-minute training video. After completion, participants were directed to the post-training assessment, which was the final step of the procedure. From start to finish, completion of the research study took approximately 25 minutes.

### Data Analysis

For each participant, the number of correct responses on the pre-training assessment and post-training assessment were calculated representing the paired dependent variables to be tested. Statistical analysis was completed to determine normality of the data and to identify statistically significant results. Using the Shapiro-Wilk test, it was determined that the data approximated a normal distribution ( $t(21) = .929$ ;  $p = .134$ ). Thus, a paired t-test was used to compare mental health professionals' knowledge of aphasia before and after completion of the training module. Categorical data were collected regarding satisfaction with the study's design and objective achievement and were discussed descriptively.

## CHAPTER THREE: RESULTS

### Participant Demographics

Participants included 58 students, six faculty, and 14 alumni in the counseling department at WCU. They were given survey links via electronic mail inviting them to participate in the study. Of the 78 individuals given access to the training module, 29 pretest and 24 posttest survey responses were initiated. Of this sample, 21 participants completed all required portions of the pre and posttest.

The 21 participants responded to three questions regarding their race, age, and years of experience within the counseling profession. Of the 21 respondents, two (10%) participants identified as Hispanic, 18 (85%) participants identified as White/Caucasian, and one (5%) participant preferred not to identify their race. Eighteen (85%) of the participants responded that they were currently students, one (5%) participant reported he/she had been a practicing mental health professional for 6 to 10 years, and two (10%) reported they had been practicing professionals for 11 to 15 years. The participants were between 18 to 64 years of age. Five (24%) participants identified as 18 to 24 years of age, 10 (48%) participants identified as 25 to 44 years of age, and six (28%) participants identified as 45 to 64 years of age.

### Efficacy of the Aphasia Training Module

It was determined that the average number of responses correct on the pre- and post-tests were approximately six questions ( $M=6.05$ ,  $SD=1.532$ ) and eight questions ( $M=8.24$ ,  $SD=1.375$ ), respectively. Results yielded a statistically significant difference in the participants' pre-test performance compared their post-test scores,  $t(21) = -5.934$ ;  $p = .000$ . These results

suggest completion of the training module led to the learning of at least some of the material presented.

### Satisfaction with the Training Module

Follow up questions were presented to participants after completion of the posttest regarding their opinions on how the training module successfully met the objective proposed by the researchers. The aphasia training module was designed with the following objectives:

1. to provide participants with a basic understanding of neurogenic communication disorders with specific emphasis on aphasia;
2. to demonstrate the impact of aphasia on communication;
3. to discuss the relationship between aphasia and mental illness;
4. to review current literature related to the management of depression in persons with aphasia through the use of cognitive behavioral therapy and communication creativity.

Satisfaction data are presented in Table 3.1. Overall, the majority of participants agree that the researchers provided material that was sufficient and easy to understand regarding aphasia.

Table 3.1.

Degree to which participants agreed that material was easy to understand and amount of content was sufficient to achieve the four objectives of the training module.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
<u>Objective 1</u>					
Material was easy to understand	58.30%	37.50%	4.20%	0%	0%
Information presented was sufficient	54.20%	45.80%	0%	0%	0%
<u>Objective 2</u>					
Material was easy to understand	58.30%	37.50%	4.20%	0%	0%
Information presented was sufficient	45.80%	54.20%	0%	0%	0%
<u>Objective 3</u>					
Material was easy to understand	70.80%	25%	4.20%	0%	0%
Information presented was sufficient	45.80%	54.20%	0%	0%	0%
<u>Objective 4</u>					
Material was easy to understand	45.80%	45.80%	8.30%	0%	0%
Information presented was sufficient	37.50%	45.80%	12.50%	4.2%	0%

### Changes to Training Materials

Of the 21 respondents, six suggested changes to the training modules. Video examples of PWA were requested so that a visual representation of aphasia could accompany the description. Other requests included a more clear delineation between fluent and nonfluent aphasia, alternative communication options, concerns PWA may bring to counseling sessions, and an explanation of the acronym “SLP” in the pretest. Overall, 18 of the 21 participants had no further questions for the researchers.

## CHAPTER FOUR: DISCUSSION

### Conclusions and Implications

Treatment of depression is not in the SLP's scope of practice (ASHA, 2016). If an SLP is concerned about a client's mental health, he or she should refer the client to a mental health professional for an evaluation. Unfortunately, research has suggested that most mental health providers have not received education or training on aphasia and report a decreased confidence in providing ethical services to this population. Because aphasia inherently presents challenges to traditional assessment and treatment of depression, establishing effective and time-sensitive trainings for mental health providers is of importance.

Traditional therapy approaches for depression, such as Cognitive Behavioral Therapy (CBT), are "talk-based" in which the client uses speech to discuss factors related to his or her depression, but Thomas et al. (2013) suggested that the verbal communication difficulties and lack of aphasia training create obstacles for the PWA and the mental health professional providing services. Importantly, Kneebone (2016) suggested that CBT can be used effectively with clients post-stroke, but in these cases, clinicians should dialogue more concretely (versus abstractly) and utilize a variety of non-linguistic communication strategies. Communication strategies are simply alternative avenues for communication (e.g., pointing to pictures, writing, drawing) that can be used by any communication partner to facilitate information exchange with the PWA. It would seem that with the right training and appropriate implementation of strategies, CBT can be successful to improve mood in PWA. Although the post-training test did not obtain data regarding confidence in treating PWA, the results of this study suggested that

participants did acquire a greater understanding of aphasia when comparing the pre- and post-training tests.

### Measuring Effectiveness of Training

There is an increasing body of research to guide the development of a training protocol, strategies for implementation, and selection of appropriate outcome measures (O'Malley et al., 2013; Hedderly, 2015; Macurik et al., 2008; Nilsson et al., 2015). Although patient-outcomes and policy changes represent broader outcomes of these types of trainings, the first step in assessing the effectiveness of a training is the individual participant's knowledge, attitudes, and skills following training. Outcomes can certainly be influenced by the trainee's background, current knowledge, and motivation (O'Malley et al., 2013); however, the design of the training and how it is delivered is also of influence. In the present investigation, there were several reasons for using an online training module. Online training modules are a cost efficient and effective alternative to face-to-face instruction (Hedderly, 2015; Macurik et al., 2008; Nilsson et al., 2015). Second, they demand less time from instructors after the initial module is developed. Third, online modules allow providers to refresh their skills with pre-recorded material; mental health providers may not regularly have PWA on their caseloads and need to retrain. The current module was shown to be effective in terms of aphasia knowledge acquisition, but it was also created with minimal cost, required only 15 minutes for completion, and was completed at the convenience of the participants. The current research supports the use of online trainings.

### Limitations

The researchers have identified several limitations regarding the pilot study. First, the study procedures consisted of three individual hyperlinks through which the participant could access the three parts of the study (i.e., pre-test, training, post-test). Instructions with these

hyperlinks were emailed in a single email document. As a result, it would be easy for participants to intentionally or accidentally miss a step of the procedure or complete steps out of sequence. In the future, the module will be more directive in terms of what the participant should do at what point in the study.

Given this was a pilot study, researchers elected to recruit from a smaller sample of mental health students and professionals connected to a university program in counseling. Obviously, a more heterogeneous sample of mental health providers is necessary for broader application of findings. Data related to education, sex, years of experience, personal experience with aphasia, clinical practice setting, and community setting could all allow for a more robust examination of data.

#### Implications for Future Training Modules

Based on the data from this pilot aphasia training module and suggestions from participants, there are relative changes researchers should consider making to the training. Participants in a study by Barnes and Odom (2016) indicated they would like to receive training material related to aphasia. Access to this information will allow researchers a greater base for module distribution in the future and an opportunity for interprofessional collaboration.

Creating a module that is accessible via one link connecting components would allow for greater ease in data tracking and an overall enhanced learning environment for participants. Distribution of materials and access to technological interfaces for the module could prove to be a barrier for researchers as well as difficulty accessing the materials for participants.

In addition to the distribution and structural changes to consider, researchers should contemplate adding a more detailed explanation of material related to fluent and nonfluent aphasias. Including language samples or video clips of persons with fluent or nonfluent aphasia

could provide participants with clarification related to the expressive nature of the aphasia types. An explanation of the acronym SLP was an oversight by the researchers and will be added into future pre and posttests.

Lastly, researchers should make additions to measure the effectiveness of the training module with mental health professionals' knowledge and subsequent clinical practices. While this training measured the knowledge gained by mental health professionals about aphasia, there was not a measure related to the application of these newfound skills. For example, an all-inclusive training would allow mental health professionals to participate in the online training module and then put their newly learned skills into practice with PWA. The effectiveness measures would examine the change in knowledge about aphasia but would also provide mental health professionals an avenue to have practical experience. The goal would be to determine if mental health professionals gain knowledge about aphasia while determining if these professionals feel more competent and effective in their service delivery after completing the training module.

### Conclusions

Mental health has a significant impact on rehabilitation potential and overall QOL. Practicing SLPs should be conducting in service education for their colleagues in the medical field regarding communication disorders, including aphasia. Education surrounding aphasia for mental health professions will allow for greater identification and treatment of mental health disorders. Collaborating with mental health professionals allows for greater knowledge for both SLPs and mental health professionals to provide the most appropriate and effective services for PWA and to increase their overall QOL. This study initiated the distribution of materials related to inter-professional education on aphasia and proved the effectiveness of a video based aphasia

training module. Further research is needed to extend education to other health care professionals who work alongside PWA and communication disorders.

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## APPENDIX A: PRINCIPLES OF CBT

CBT uncovers a client's thoughts, feelings, and behaviors by talking about them. This therapy approach allows clinicians to guide their patients through various thought processes to reveal any patterns that might be connected to an already-diagnosed mental health disorder. This process can be as abstract or concrete as the clinician chooses to make it.

Given the cognitive and communicative demands placed on the client receiving counseling, Kneebone (2016) recommended using a more direct approach to therapy with persons with aphasia. More direct questioning by the therapist potentially relieves some of the cognitive and communicative load placed on the person with aphasia while still providing insight into the client's thought patterns. In other words, "the style of therapy might need to be more direct than the guided discovery approach" (Kneebone, 2016, p.103).

## APPENDIX B: CONSENT FORM

### **Informed Consent Form** **Effectiveness of an Aphasia Training Module Presented to Mental Health Professionals**

#### **What is the purpose of this research?**

The purpose of this research is to determine the effectiveness of an online training program on the topic of aphasia presented to mental health professionals and graduate students in one of the mental health professions (e.g., counseling, social work). The rationale behind this research is to increase knowledge of aphasia as well as communication strategies that will likely improve interventions provided by the mental health providers.

#### **What will be expected of me?**

Participants will complete a brief, online training module that will consist of a pre- and post-training test and video training. The pre- and post-test measures will be presented online and will consist of 10 multiple-choice questions.

#### **How long with the research take?**

Participation should take approximately 15 minutes.

#### **How will you use my information?**

All pre- and post-test measures will be compared within and across participants. However, no identifying information will be collected beyond profession/student status and years in clinical practice.

#### **Can I withdraw from the study if I decide to?**

Participation is voluntary. Participants can withdraw from the research study at any time even if they previously agreed to participate. They have the right to tell the researchers that their responses to test questions or other data collected cannot be used. If participants withdraw from the study they will not face any consequences as a result of choosing to withdraw.

#### **Are there any potential risks or discomforts that I can expect from this study?**

There are no foreseeable risks associated with this study.

#### **How will I benefit from taking part in the research?**

By taking part in this study, participants will gain relevant knowledge about aphasia and its manifestations as well as implications for treatment of mental illness in this population. The results of the study will provide valuable information for practice and treatment of people with aphasia and a mental illness with the goal of improved quality of life.

#### **Who should I contact if I have questions or concerns about the research?**

Contact me, Kalie Deaton at 828-545-1723 (or [kedeaton1@catamount.wcu.edu](mailto:kedeaton1@catamount.wcu.edu)). You can also contact Dr. K. Leigh Odom, the principal investigator and faculty advisor for the project, at 828-227-3834 (or [kmodom@email.wcu.edu](mailto:kmodom@email.wcu.edu)). If you have concerns about your treatment as a participant in this study, contact the chair of WCU's Institutional Review Board through the office of Research Administration at WCU (828-227-7212) or via email at [irb@wcu.edu](mailto:irb@wcu.edu).

## APPENDIX C: PRE- AND POST-ASSESSMENT

So that your performance on the pre- and post-assessments can be paired, please create an identification code consisting of up to 5 numbers or letters. You will be asked to enter this code at the beginning of each assessment. This code will not be linked to any information that would allow others to establish your identity. \_\_\_\_\_

1. Which of the following is not true of aphasia?
  - Results from damage to the brain
  - Associated with sensorimotor deficits affecting speech
  - Affects all aspects of language, including reading, writing, speaking, and understanding
  - It can only be acquired after language has been developed
  
2. Which of the following is an aspect of language?
  - Spoken language expression
  - Written expression
  - Reading comprehension
  - All the above
  
3. Fluent aphasia is most often characterized by:
  - Poor articulation, few words, and pretty good flow
  - Good articulation, lots of words, and pretty good flow
  - Poor articulation, lots of words, and poor flow
  - Good articulation, few words, and poor flow
  
4. Non-fluent aphasia is most often characterized by:
  - Short phrase length, mostly nouns or key words
  - Long phrase length, grammatically correct
  - Short phrase length, grammatically correct
  - Long phrase length, mostly nouns or key words
  
5. What is cognitive behavioral therapy?
  - An approach that aims to explore events that have led to depression to understand why it has occurred
  - An approach in which the therapist serves as an active facilitator of behavior/emotional change through explicit instruction
  - An approach that attempts to point the client toward his/her goals for the future rather than the problems that brought him/her to therapy in the first place
  - An approach that attempts to change feelings and behavior by modifying faulty thinking and believing
  
6. Which method of CBT is most effective for clients with aphasia?

- An indirect approach in which the client responds to open-ended questions from the therapist
  - A direct approach in which the therapist poses questions with brief, concrete answer choices
  - Allow a family member to answer questions on behalf of the client with aphasia
  - Use script training to modify thoughts contributing to depression
7. During a therapy session, which of the following communication strategies will benefit the client the most?
- Predicting and anticipating what the client will say
  - Using a computer so the client can type what he/she wants to say
  - Finishing the client's sentence when there is a pause in conversation
  - Using written key words, pictographic resources and drawing
8. How can you best match a client's needs with an appropriate AAC device?
- Describe the client's communication to the AAC device developer or his/her recommendations
  - Use online reviews to feature-match a device to your client
  - Consult a speech-language pathologist familiar with the client
  - Experiment with different types of AAC devices to find one the client prefers
9. Who should the therapist first elicit information from when requesting that a quality of life measure be completed?
- The person with aphasia
  - A family member of the person with aphasia
  - Fill out the form using what you have observed while working with the client
  - A professional care provider, such as a physician or nursing staff
10. How can the therapist verify the accuracy of his/her understanding of what the person with aphasia is sharing?
- Ask the client to repeat information until the therapist feels confident that the intended message was received.
  - Periodically rephrase what the client said and ask for confirmation regarding its accuracy
  - Ask yes/no questions throughout the session to verify accuracy of the message
  - Monitor the client's body language for signs of confusion

APPENDIX D: POST-TRAINING SURVEY

**Please choose the word that best matches your opinion.**

Regarding objective 1 (i.e., To provide you with a basic understanding of aphasia), to what extent do you agree that:

**The information provided in the training was easy to understand?**

Strongly Agree      Agree      Neutral      Disagree      Strongly Disagree

**This objective was sufficiently covered in the training video?**

Strongly Agree      Agree      Neutral      Disagree      Strongly Disagree

Regarding objective 2 (i.e., to demonstrate the impact of aphasia on communication), to what extent do you agree that:

**The information provided in the training was easy to understand?**

Strongly Agree      Agree      Neutral      Disagree      Strongly Disagree

**This objective was sufficiently covered in the training video?**

Strongly Agree      Agree      Neutral      Disagree      Strongly Disagree

Regarding objective 2 (i.e., to discuss the relationship between aphasia and mental illness), to what extent do you agree that:

**The information provided in the training was easy to understand?**

Strongly Agree      Agree      Neutral      Disagree      Strongly Disagree

**This objective was sufficiently covered in the training video?**

Strongly Agree      Agree      Neutral      Disagree      Strongly Disagree

Regarding objective 2 (i.e., to review current literature related to the management of depression in persons with aphasia through the use of cognitive behavioral therapy and communication creativity), to what extent do you agree that:

**The information provided in the training was easy to understand?**

Strongly Agree      Agree      Neutral      Disagree      Strongly Disagree

**This objective was sufficiently covered in the training video?**

Strongly Agree      Agree      Neutral      Disagree      Strongly Disagree

**Is there anything that needs to be more clearly explained from the video?**

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**Is there anything you would like to see added to the training module?**

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**What is your age?**

- 18-24 years
- 25-44 years
- 45-64 years
- 65 years and older

**Which of the following best describes your racial or ethnic background?**

- Asian
  - Black/ African-American
  - White/ Caucasian
  - Hispanic
  - Native American
  - American Indian
  - Other
- Please specify: \_\_\_\_\_

**What is your highest degree earned?**

- Some college
- Bachelor's degree
- Master's degree
- Doctoral degree
- Medical degree

**Years of experience as a mental health professional: Please select one.**

- Undergraduate student
- Graduate student
- 0-5 years
- 6-10 years

- 11-15 years
- 16-20 years
- 20+ years

## APPENDIX E: APHASIA TRAINING VIDEO SCRIPT

Welcome to the Counseling in Aphasia Crash Course. We are so grateful that you are taking the time to complete this brief independent study because research suggests that people with aphasia are in need of mental health services, but few are receiving those services and possibly living with decreased quality of life as a result. This training will hopefully prepare you to work with this population and those affected by the disorder. The following are our objectives for this training:

- To provide you with a basic understanding of neurogenic communication disorders with specific emphasis on aphasia;
- To demonstrate the impact of aphasia on communication;
- To discuss the relationship between aphasia and mental illness;
- And to review current literature related to the management of depression in persons with aphasia through the use of cognitive behavioral therapy and communication creativity.

So let's get started with the basics. What is language? Language and speech are two different entities of communication. Language is a set of rules that are used for social communication. For example, language consists of word meaning, word creation and sentence construction, and deciding which words should go together to fit a person's current situation.

Speech on the other hand is all about the verbal output of communication. How sounds are made; the use of the vocal folds for voice production; and the fluency and rhythm are all part of speech. So where is language managed in the brain? If you ask a speech-language pathologist about the zone of language, I bet he or she will describe it as a brain region that allows language input and output to be processed. It allows the communicator to understand what he or she is hearing, and in turn, respond appropriately to the communication partner. Have a look at this.

This is a lateral view of the left side of the brain. Here towards the front is the frontal lobe, and towards the back is the temporal lobe. These are separated by the Sylvian fissure. When we think about language processing in its most simplified form, we think about language comprehension taking place in the temporal lobe, specifically Wernicke's area as shown here, and then language production coming from the frontal lobe, specifically Broca's area. But how do they connect? That is through the thick bundles of neurons called the arcuate fasciculus.

Well, what happens when a neurological event damages this zone of language? It results in a communication disorders called aphasia? More on aphasia to come, but let's talk brain injury. There are several neurological events that can cause brain damage resulting in aphasia. These include traumatic brain injury and tumors, but the most common cause is a cerebrovascular accident, or stroke. Simply put, a stroke is an interruption of blood flow to the brain, and it can be ischemic which is a blockage of the blood vessel or hemorrhagic which is a rupture of the vessel wall resulting in bleeding in or around the brain.

Well, if we know that different parts of the zone of language are responsible for a different piece of the language processing puzzle, it makes sense that different sized lesions in different parts of that zone of language will result in a different pattern of language impairment. And that's exactly the case. Let's get into the definition of aphasia and the classification of types.

Aphasia. What is it? The classic definition of aphasia states that it is a neurogenic language disorder resulting from damage to the brain, usually the left hemisphere, that affects all language modalities, including reading and writing. As a speech-language pathologist, when I describe an aphasia profile in a report, I'm going to talk about a lot of different aspects of language, including

- Spoken language expression
- Spoken language comprehension
- Written expression, and
- Reading comprehension.

Although not always a perfect match, the language profile of a person with aphasia can often be ascribed to one of seven types, also referred to as classifications. In the interest of time, we won't discuss all seven, but we will cover a few, starting with two fluent types.

When you think about fluency, I want you to think about the general flow of discourse. A client with fluent aphasia would most likely have good articulation, lots of words, and pretty good flow. However, in some cases, what is said can lack meaning, relevance, and can be produced at a too-rapid-for-comfort rate. But even in that description, there is a lot of variability. For example, let's start with Wernicke's aphasia.

Wernicke's aphasia is a fluent aphasia characterized by impaired auditory and reading comprehension. They are fluent because these individuals often demonstrate fluently articulated speech, but what they say can be full of word retrieval errors, which we call paraphasias, and their rate can be too fast for the communication partner to follow. Let's look at this sample of a person with Wernicke's aphasia describing where they live:

"Well its, a meender place and it has two...two of them. For dreaming and pindering after supper. And up and down. Four and down and three of them."

A second fluent type is anomic aphasia, which is characterized by impairments of word retrieval and naming. Speech is generally fluent except for hesitations and pauses associated with word finding deficits. Here is an example of a person with anomic aphasia talking about their son:

"My son...Paul, he works in a...he works at...in the ...that thing... but not TV. At the... I don't know... I know but... at the *Register*... the *register*. It's a paper... a news...newspaper. Paul is a...he goes out and he talks to people. He does.. uh he does.. interviews."

Okay, let's switch gears and head to the opposite end of the fluency spectrum: nonfluent aphasia. The nonfluent aphasia types have one big thing in common and that is a short phrase length, as in 1-5 words. We describe their language output as agrammatic or telegraphic, which means that the words produced tend to be the key content words rather than adjectives, articles, and prepositions. One example of a nonfluent aphasia type is Broca's aphasia. This is characterized

by poor articulation, restricted vocabulary, agrammatism, and relatively intact comprehension. This is a good example of what I'm describing. This person is describing the well-recognized "cookie theft picture" which illustrates two children stealing cookies while their mother washes dishes.

"uh mother. And dad...no...mother...and and disses..uh...running over...and uh and...water....and floor...and they uh wiping...dishes."

Although there are others, the last type I'll tell you about is global. As the name suggests, this is the worst type of aphasia you can have because all modalities of language are affected. Imagine that for a second. You can't talk. You can't understand what others are saying to you. You can't read. And you can't write. Let that sink in.

Regardless of the type, my job as a speech-language pathologist is to help persons with aphasia maintain their quality of life by overcoming the limitations that aphasia may present.

That can be challenging because most people with aphasia don't have just one deficit post-stroke. Because no two lesions are the same, it is likely that the person with aphasia will have additional deficits such as problems with vision, movement, and attention. But the coexisting impairments will vary considerably in combination and severity of deficit.

So, now that you have some idea of what aphasia, what causes it, and what it presents like, let's talk about the impact on mental health. I'm sure you've already guessed that aphasia can lead to a pretty remarkable impact on mental health. It can be seen throughout the literature that mental health disorders are common in the population of people with aphasia. In a recent study, researchers discovered that patients 34% of patients with aphasia three months post-stroke were diagnosed with depression and 12 months post stroke this number rose to 62%.

Speech-language pathologists focus treatment on areas of concerns for each individual patient but, as one might think, mental health disorders can have a significant impact on recovery; therefore, treatment goals concerning mental health should not be ignored. Okay, speech-language pathologists. You know so much about aphasia, why don't you do the counseling? Well, the speech language pathologist's scope of practice covers counseling that is specifically related to a communication disorder; it is unethical for the speech therapist to counsel patients on subjects related to depression and anxiety. The speech clinician must know when a referral to a mental health professional needs to be made. That's actually the easy part. The hard part is finding a mental health professional who understands aphasia and how to communicate with these individuals.

Our goal in this training module is to give you, the mental health professional, information and strategies about how to work with this population. Although it might seem a daunting task, there's actually research already out there supporting the use of cognitive behavioral therapy (CBT) in persons with aphasia.

As you know, CBT uncovers a client's thoughts, feelings, and behaviors by talking about them. This therapy approach allows clinicians to guide their patients through various thought processes

to reveal any patterns that might be connected to an already-diagnosed mental health disorder. This process can be as abstract or concrete as the clinician chooses to make it.

Given the cognitive and communicative demands placed on the client receiving counseling, Kneebone (2016) recommended using a more direct approach to therapy with persons with aphasia. More direct questioning by the therapist potentially relieves some of the cognitive and communicative load placed on the person with aphasia while still providing insight into the client's thought patterns. In other words, "the style of therapy might need to be more direct than the guided discovery approach" (Kneebone, 2016, p.103).

Using other means of communication, such as pictures, drawing, and music may provide an avenue through which the client with aphasia can communicate without spoken words. This is precisely the approach taken by Thomas and colleagues (2012). To address the communication barriers, treatment was tailored to the unique cognitive-communicative needs of the participant, and alternate means of communication (e.g., pictures, photograms, letter charts) were used.

Let's spend some time here. This is important. So you need to modify communication strategies used to make sure your client with aphasia can participate fully in the therapy setting. Although they seem like common sense, it's still appropriate for us to spend some time talking about different strategies that may prove useful. Just remember, no two clients with aphasia are the same so what works for one client may not work for the next.

The purpose of communication strategies is to ensure the person with aphasia is given opportunities to express what he/she knows, thinks, or feels. Using supports such as gesture, written key words, pictographic resources and drawing will aid the professional in encouraging conversation and gaining further understanding into the underlying thoughts of the person with aphasia.

Augmentative-alternative communication, or AAC devices can be as simple as an alphabet board or as high tech as a speech-generating device. Working alongside a SLP will prove beneficial here to match a client's needs with a device that is best suited for him or her. And depending on the complexity of the device, you may need a little bit of training, too.

Kneebone (2016) further discussed ways in which traditional CBT can be tailored to the individual with aphasia. Depending on the level of cognitive and communicative impairment following stroke, therapy strategies were described on a continuum requiring that communication abilities be more or less intact. For example, assuming that cognition and communication are more impaired, behavioral therapy should be utilized instead of cognitive behavioral therapy meaning that sessions are more activity-based than discussion-based.

As another suggestion, the use of mnemonics and reminders are helpful in encouraging use of strategies provided in the treatment session and thus carry over into daily living. You'll likely need to role play this with this client to ensure he or she recognized the need for the strategy, retrieves the appropriate strategy using the reminders, and then initiates the strategy. Also, with permission from the client, review with the partner or care provider the strategies you've provided so they can encourage use of the strategies outside the therapy session.

Finally, to guide you in topics of discussion, you may consider administering a quality of life measure for persons with aphasia, if this hasn't already been completed by the speech-language pathologist and provided to you in the referral. There are several out there, but one of the easiest is the Stroke and Aphasia Quality of Life Scale-39. After scoring, you may gain some insight into which areas such as of motor function, energy, communication, and social interaction are the most challenging and debilitating for the client. This measure can also be completed by the caregiver on behalf of the client according to the research. Personally, when possible, I see a great deal of benefit in having both partners complete the measure independently, and then comparing results for inconsistencies.

Keep in mind; a client may be limited to using any of these strategies due to other physical deficits that exist after a stroke occurs. Work with the client, care providers, and speech-language pathologist to optimize the time you are in session.

A few other pointers for you before we close. It is critical that you recognize that the person with aphasia is a person who deserves your respect. Acknowledge the communication competence of this person by talking naturally and avoiding a patronizing tone. Explicitly share with the person with aphasia that you know this to be true, and that his or her know competence is not in question. Next, don't pretend to understand if you don't. If you don't understand, get clarification. You are trying, and communication exchange that is influenced by aphasia is tough for everyone. A great strategy is to state back to the person with aphasia what you have understood thus far in your conversation and ask him or her to verify that your understanding is accurate. Allow him or her to correct errors if necessary. Still struggling to understand, then how about prompt for one of those other communication strategies we discussed earlier. Try different things until you are both satisfied that you are on the same page.

If you are looking for additional resources on aphasia or other neurogenic communication disorders, listed here are some great online resources to check out, including the National Aphasia Association.

So there are the basics. Over the course of this video, we have reviewed the definition of aphasia, it's impact on communication, the relationship this disorder has with mental illness, and current research to help the mental health professional work with the person with aphasia who also has a diagnosis of depression.

Thank you for taking time out of your schedule to watch this video and please don't forget to complete the post-test.