The Effect of Aphasia on Quality of Life, Coping Style, and Resilience

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THE EFFECT OF APHASIA ON QUALITY OF LIFE, COPING STYLE, AND

RESILIENCE

by

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A thesis submitted in partial fulfillment of the requirements
for the Honors in the Major Program in History
in the College of Health and Public Affairs
and in The Burnett Honors College
at the University of Central Florida
Orlando, Florida

Fall Term, 2016

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ABSTRACT

Approximately one million people in the United States suffer from aphasia. There are multiple types of aphasia, however they are usually placed into two categories: non-fluent or fluent. The psychosocial factors that are impacted due to the type of aphasia has not been systematically investigated. The purpose of this study is to examine how non-fluent and fluent Individuals With Aphasia (IWA) compare or contrast across three psychosocial factors, Quality of Life (QoL), coping style, and resilience. The World Health Quality of Life- BREF (WHOQOL-BREF), Assimilative-Accommodative Coping Scale (AACS), and the Connor-Davidson Resilience Scale-10 item version (CD-RISC-10), were administered once to 24 subjects with a diagnosis of aphasia. Four of the subjects were excluded after administration, due to incompletion of questionnaire or not meeting inclusion criteria. A cross sectional multivariate analysis of variance (MANOVA) study design was utilized with a separate one-way analysis of variance (ANOVA) utilized to analyze each domain and scale individually. Results from the MANOVA analysis showed no statistically significant difference between non-fluent and fluent IWA when considered jointly among the three Likert scales. However, a separate ANOVA was conducted for each scale individually and showed a statistically significant difference between fluent and non-fluent IWA in the domains of Social Relationships and Environment for the WHOQOL-BREF scale. There was no statistically significant difference discovered among the other domains and scales. In conclusion, the significant difference found between fluent and non-fluent IWA in the domains of Social Relationships and Environment, may be due to the majority of the fluent IWA being categorized as anomic, a higher functioning form of aphasia. Whereas the majority of non-fluent IWA were categorized as having Broca's aphasia, which greatly affects

speech output and, in six out of nine participants, hemiplegia was noted. Future research may want to take into account the severity of aphasia when comparing and contrasting non-fluent and fluent IWA.

Keywords: aphasia, quality of life, coping style, resilience.

DEDICATIONS

For my late grandmother, Antonia "Moña" Duran, whom after being diagnosed with Broca's aphasia, lived the last 7 years of her life filled with compassion and resilience. Thank you for showing me life goes on, even when your voice, as you once knew it, is taken from you. For my parents and immediate family, thank you for your encouraging words and providing me the platform to reach my potential.

ACKNOWLEDGMENTS

I owe my deepest gratitude to everyone that was involved with the creation and completion of my thesis. Dr. Janet D. Whiteside, thank you for believing in me and saying yes to becoming my thesis chair. I will forever value your encouraging words and guidance throughout this past year. To Dr. Richard Zraick, thank you for introducing me to Dr. Whiteside and adding value to my thesis. To Dr. Denise Gammonley, thank you for your insight and guidance with the completion of my thesis. To Ms. Julie Matura, thank you for introducing me Dr. Zraick, none of this would have been possible without you. To Ms. Jane Hostetler, Ms. Michelle Romeo, and Ms. Linda Tatum-Riley, thank you for all of your assistance with helping me recruit all of the participants in my study. To the Summer Research Academy, thank you for peaking my interest in research and providing me the resources to excel. And to my mom, Ms. Marisol Hernandez, thank you for inspiring me to do better and feeding me "brain food" along the way. To all my friends, teachers, and family, thank you for all that you have done for me over the past couple years I've been at the University of Central Florida.

TABLE OF CONTENTS

INTRODUCTION

Approximately one million people in the United States live with aphasia (National Institute of Neurological Disorders and Stroke, 2008). Aphasia is an acquired language disorder that is caused by lesions in the brain most commonly due to a stroke, but may also result from other head injuries or diseases. There are multiple types of aphasia, however they are usually placed into two categories: non-fluent or fluent. Individuals With Aphasia (IWA) post-stroke are associated with increased mortality, lower functional recovery, and lower probability to re-enter the work force when compared with non-aphasic stroke individuals. (Engelter et al., 2006) There have been multiple studies with stroke survivors that suggest coping style is crucial in determining Quality of Life (QoL) post-stroke, however research investigating resilience skills as another key component in different types of aphasia has not been investigated. Therefore, examining how different types of IWA cope and the resilience skills they possess could prove to be a valid intervention instrument used in assessing QoL.

Types of aphasia in post-stroke individuals

Aphasia is a common consequence resulting from an injury to the brain, most typically the left hemisphere of the brain, which can affect all language modalities. Aphasia is considered an acquired neurogenic language disorder that can impair spoken language expression, spoken language comprehension, written expression, and reading comprehension. (American Speech-Language-Hearing Association, 2015) According to the Western Aphasia Battery-Revised (WAB-R) aphasia is classified as either non-fluent which includes global, isolation, Broca's, and transcortical motor aphasia or fluent which includes Wernicke's, conduction, anomic, and

transcortical sensory aphasia (Kertesz, 2007). The different types of aphasia are classified through standardized assessments that identifies how each modality of language has been affected.

In the non-fluent category, Global aphasia is considered the most severe form associated with the acute phase after a stroke with receptive and expressive language severely impaired. Isolation aphasia is also associated with the acute stage with some verbal output. Broca's aphasia affects the production of speech, making it difficult to produce connected speech; however, the individual may understand speech relatively well. Persons with transcortical motor aphasia have mildly impaired comprehension and speech production similar to Broca's, however their ability to repeat is spared. In the fluent category, Wernicke's aphasia effects the ability to understand speech and speech output is considered fluent or hyper fluent. However, sentences do not convey intent making it difficult to make sense of what the individual is attempting to communicate. Conduction aphasia has similar speech output as Wernicke's with poor repetition and good auditory comprehension. Transcortical Sensory aphasia is a less severe form of Wernicke's aphasia with preserved repetition of words and phrases. The hallmark of anomic aphasia is word recall, making it difficult for an individual to engage in a conversation. (Davis, 2007)

For most cases of aphasia complete language recovery is not possible, leaving an individual with lasting impairments that affect aspects of QoL, such as physical, psychological, and social function (National Institute on Deafness and Other Communication Disorders, 2008). Physical impairments include deficit of movement, vision, swallowing, agnosia, hemiplegia, and apraxia. Psychological issues include depression and anxiety, which negatively affects the social function and post-stroke recovery. Individuals may also experience negative psychosocial impact

on family relationships and the inability to maintain an active role within their community. IWA experience physical, social, and cognitive impairments that may have a significant impact on their QoL. (Buono, Corallo, Bramanti, & Marino, 2015)

Quality of Life (QoL)

QoL is a concept tied to multiple factors associated with an individual's physical status, psychological status, level of independence, social relationships, personal beliefs, and economic status (World Health Organization, 1997). The World Health Organization (WHO) developed a scale called the World Health Organization Quality of Life (WHOQOL) and defined QoL as "an individual's perception of their position in life in the context of the culture and value systems in which they live in relation to their goals, expectations, standards and concerns" (WHOQOL Group). Health-related quality of life (HRQoL) measures how an individual's well-being is being affected by a disease. The utility score ranges from 0.0 (death) to 1.0 (full health). Post-stroke individuals range from 0.47 to 0.68, while the average of a healthy adult is 0.93. (Centers for Disease Control and Prevention, 2000) Leach, Gail, Dewey, Macdonell, and Thrift, (2011) found that stroke survivors seven years post still reported a very poor HRQoL. Of the 1,983 subjects the study followed, 908 died, leaving a 31.2% survival rate. The survivors that were able to take the post-assessment averaged a mean HRQoL of 0.51. The study determined that targeting factors such as basic activities in daily living and instrumental activities of daily living could lead to an improvement in the long term HRQoL of stroke survivors (Leach, et al., 2011).

Post-stroke depression (PSD) is common in IWA and has a negative impact on functional outcome and QoL. The prevalence of PSD varies considerably across studies due to the diverse population, different assessment methods, timing of measurements, and study designs. There is

3

not a universally accepted definition of PSD, however some of the symptoms include crying, loss

of energy, lack of motivation, and loss of energy. (Teasell et al., 2009) A commonly used

assessment to detect and measure depression in IWA during the subacute stage of stroke is called

the Aphasia Depression Rating Scale (ADRS). The assessment measures insomnia, anxiety,

somatic symptoms, hypochondriasis, loss of weight, apparent sadness, mimic, and fatigability.

(Benaim, Cailly, Perennou, & Pelissier, 2004) Anderson, Vestergarrd, Ingemann-Nielsen, &

Lauritzen (1995) conducted a correlational study on 285 stroke patients that determined the main

risk factors for PSD includes a history of previous stroke, a history of previous depression,

female gender, and social distress pre-stroke. (Anderson, Vestergarrd, Ingemann-Nielsen, &

Lauritzen, 1995) Depression should be closely monitored in IWA as it is an important factor in

determining long term QoL post-stroke.

Coping

Coping is an important psychosocial factor that influences an individual's QoL. Coping

style is generally defined as "an individual's preferred method of dealing with a stressful event"

(Visser, Abden, Heijenbrok-Kal, Busschbach, & Ribbers, 2014). There are several coping styles

in literature which include emotion-focused coping, problem-focused coping, and meaning-

focused coping. Emotion-focused coping can be divided into two different strategies; adaptive

strategy such as seeking social support and maladaptive strategy such as blaming others.

Problem-focused coping focuses on strategies such as seeking advice, gathering research, and

problem solving. Meaning-focused coping concentrates on beliefs such as religion, spirituality,

and focusing on positive moments. (Folkman, 2013) Copying style can be influenced by the

outcome, such as it being controllable or having to accept it.

Brandstader and Renner (1990) distinguished two additional coping styles known as assimilative and accommodative coping. Individuals who actively aim to adjust to an unpleasant circumstance by attempting to continue life as it was before are said to be using the assimilative coping strategy, also called the Tenacious Goal Pursuit (TGP). Individuals who attempt to accept the consequences of an unpleasant circumstance by adjusting personal preferences and goals are said to be using the accommodative coping strategy, also called the Flexible Goal Adjustment (FGA). (Brandtstadter & Renner, 1990) The latter is more associated with the chronic phase in stroke patients, while the former is more associated with the acute phase.

Darlington et al. (2007) conducted a longitudinal study that examined the relationship between coping styles and QoL with first-ever post-stroke survivors, however, individuals with severe language impairment were excluded from the study. The subjects were evaluated at 4 different time periods: 1 week, 2 months, 5 months, and 12 months after discharge. At each time point, subjects completed questionnaires that measured their QoL and coping strategies. The EuroQoL (EQ-5D) was used to measure the QoL, and the Assimilative-Accommodative Coping Scale (AACS) was used to measure coping strategies. The results from the study showed the variances in coping styles right after a stroke were related to long-term QoL. In particular, higher tendencies to the coping strategy FGA at discharged was correlated to higher levels of QoL 9-12 months later. As mentioned in this particular study, there have been previous studies conducted that shows the importance of the relationship between FGA and QoL in post-stroke individuals. (Darlington et al., 2007)

Resilience

The inquisitiveness in how certain individuals who've gone through traumatic situations can escape unharmed psychologically is attributed to the investigation of resilience as a construct. Richardson (2002) constructed a metatheory of resilience where he proposed that an individual will respond to trauma in either one of two ways: resilient reintegration or dysfunctional reintegration. An individual using resilient reintegration is said to be using an adaptive coping approach which is correlated to a meaningful and productive life. While individuals who use dysfunctional reintegration strategies, such as denial or substance abuse, will unlikely lead a stable and productive life. (Richardson, 2002) Richardson's theoretical framework on resilience skills has been widely used as an effective measure in individual's responses to traumatic experiences. Resilience has been linked to coping styles and psychological wellness in a variety of traumatic situations that's leaves an individual permanently disabled. Tan-Kristanto and Kiropoulous (2015) studied resilience, self-efficacy, and coping styles in individuals with multiple sclerosis (MS) as predictors of increased depressive and anxiety symptoms. The results showed that resilience and emotion-focused coping strategies were predictive of depression and anxiety symptoms. (Tan-Kristanto & Kiropoulous, 2015)

There are two main components when analyzing resilience in individuals: the skills and the traits a person possesses. (White, Driver, and Warren, 2008) Despite the fact traits are innate, skills can be encouraged and developed in therapy sessions. Lukow et al. (2015) identified 7 core skill sets found in resilient individuals: (1) even temperament/stable emotionality (2) positive outlook/optimism (3) self-regulatory skills and even-tempered behaviors (4) social perception/arousal of "liking responses" in others (5) insightful modification of behavior (6)

6

good problem-solving skills (7) effective communication (Lukow et al., 2015). Although many of the skills listed above may be viewed as a personality trait, researchers have determined these skills can be initiated or strengthened in individuals who score low on a resilience scale. In turn, these skills can be applied by therapists in the rehabilitative and reintegration phase.

Lukow et al. (2015) investigated the relationship between resilience, adjustment, and psychological functioning in 98 adult survivors of mild to severe traumatic brain injury. The instruments used to measure resilience were the Connor-Davidson Resilience Scale 10-item version (CD-RISC-10), the Brief Symptom Inventory (BSI-18) to characterize psychological distress, and the Mayo-Portland Adaptability Index (MPAI-4) to measure ability, adjustment and participation. The results indicated a significant positive correlation between psychological health and resilience. The subjects with higher resilience scores were also associated with better behavioral and emotional adjustment and fewer depressive symptoms. (Lukow et al., 2015)

Purpose

The psychosocial factors that are impacted due to the type of aphasia has not been systematically investigated. The resilient skills found within coping strategies, may be a crucial tool that clinicians may utilize in fostering a higher QoL for their clients. The main objective of this study is to evaluate if there are any significant differences in QoL, coping style, and resilience in fluent and non-fluent IWA. Therefore, future interventions aimed at improving QoL may have an additional instrument that can assist in developing a therapeutic framework that is tailored to each type of aphasia.

METHODOLOGY

Participants

Patients post-stroke with a diagnosis of aphasia were invited to participate in the study. The participants were selected from the University of Central Florida's Communication Disorders Clinic. Inclusion criteria were the following: diagnosis of aphasia, adult over 18, and post-onset minimum of 12 months. Exclusion criteria included: progressive neurological disorder, non-English speaker, and self-reported alcohol or drug abuse. IRB approved, aphasia friendly consent forms were signed and collected prior to administering questionnaires. The subject pool consisted of 24 subjects with a diagnosis of aphasia. Two subjects were excluded for having a post-onset date of less than 12 months. Two additional subjects were excluded due to incompletion of questionnaires. All subjects had the Western Aphasia Battery-Revised (WAB-R) examination within six months of the study (Kertesz, 2007). WAB-R aphasia type was determined by the Aphasia Quotient (AQ) score.

Of the remaining 20 subjects, eleven subjects were categorized as fluent and nine subjects were categorized as non-fluent. Of the eleven subjects with fluent aphasia, six were male and three were female, with an average age of 62 years (range 35-77), and average time post-onset of 71 months. Of the nine subjects with non-fluent aphasia, six were male and three were female, with an average age of 51 years (range 36-74), and an average post-onset of 85 months. See table 1 and 2 for the demographics.

Table 1.   List of Fluent Subjects

Fluent IWA	Age	Gender	Post-month onset	Type of Aphasia
Subject 1	77	F	55	Conduction
Subject 2	74	M	178	Anomic
Subject 3	52	F	37	Conduction
Subject 4	72	M	21	Wernickes
Subject 5	65	M	132	Anomic
Subject 6	54	M	49	Conduction
Subject 7	35	F	57	Anomic
Subject 8	59	M	56	Anomic
Subject 9	66	M	138	Anomic
Subject 10	62	M	26	Anomic
Subject 11	68	M	36	Anomic

Table 2.   List of Non-fluent Subjects

Non-fluent IWA	Age	Gender	Post-month onset	Type of Aphasia
Subject 12	54	F	147	Broca's
Subject 13	74	F	110	Broca's
Subject 14	44	M	68	Broca's
Subject 15	36	F	97	Broca's
Subject 16	59	M	133	Transcortical Motor
Subject 17	50	M	24	Broca's
Subject 18	49	M	84	Global
Subject 19	52	M	58	Broca's
Subject 20	41	M	44	Broca's

Measures

World Health Organization Quality of Life- BREF

The WHOQOL-BREF questionnaire was utilized to measure QoL. This scale consists of 26 questions resulting in 5 domains of HRQoL: Overall, Physical Health, Psychological Health, Social Relationships, and Environment. The items are measured on a 5-point rating scale, ranging from 1-5. The domain scores are calculated as the sum scores of items in the domains.

Assimilative- Accommodative Coping Scale

The AACS was utilized to measure coping methods, it consists of two subscales: tenacious goal pursuit and flexible goal adjustment. Each subscale contains 15 items measured on a 5-point rating scale, ranging from 0 to 4. A sum score was calculated for both sub scales. Higher scores on one of the subscales indicate more use of that strategy.

Connor-Davidson Resilience Scale, 10-item version

The Connor-Davidson Resilience Scale (CD-RISC-10) was utilized to measure resilience. It is a 10-item Likert-type, self-report scale where the subjects are presented with a series of descriptors and then rate themselves on a 0- to 4-point scale ranging from "rarely true" (0) to "true nearly all the time" (4). A sum score was calculated.

Procedure

Participants were given the baseline assessment materials to complete, including the WHOQOL-BREF, AACS, and CD-RISC-10 questionnaires. The questionnaires were completed once per participant across one session. All questionnaires followed the framework of the Quality of Communication Life Scale (ASHA QCL), a reliable and valid instrument designed to assess the quality of communication for adults with a communication disorder. (Paul, 2005) The questionnaires are a self-reported measure where the participants were asked to point on a vertical line to record their responses. Their answers were recorded by the author on each individual scale provided by WHOQOL-BREF, AACS, and CD-RISC-10. The reliability of using the Likert scales were tested before administration through a practice item to ensure the

subjects understood the format of the questions. All scales were administered by the author in presence of a trained Communication Sciences and Disorders graduate student.

Data Analysis

A cross sectional multivariate analysis of variance (MANOVA) study design was utilized to evaluate how types of aphasia affect the QoL, coping style, and resilience in IWA. The 5 domains in the WHOQOL-BREF (overall, physical health, psychological, social relationships, and environment), the two coping styles in the AACS (TGP and FGA), and the overall resilience score were analyzed for group differences among fluent and non-fluent IWA using MANOVA's in SPSS (version 23.0) with alpha levels set at .05. A separate one-way analysis of variance (ANOVA) was conducted to analyze each domain and scale individually with alpha levels set at 0.05.

RESULTS

In the descriptive statistics, fluent IWA averaged higher mean scores across all of the scales. In the WHOQOL-BREF Overall Domain, the fluent participants had a mean of 4.4 with a standard deviation of .44 and non-fluent had a mean of 3.6 with a standard deviation of 1.22. In the Social Relationship Domain, fluent participants had a mean of 4.4 with a standard deviation of .61 and non-fluent with a mean of 3.3 and a standard deviation of 1.22. In the Environment Domain fluent participants had a mean of 4.4 with a standard deviation of .37 and non-fluent with a mean of 3.8 and a standard deviation of .87. The other descriptive statistics can be viewed on Table 3.

Table 3.

Descriptive Statistics

	Subjects	Mean	Std. Deviation	N
WHO-Overall	Fluent	4.41555	.438929	11
	Nonfluent	3.58889	1.218036	9
	Total	4.04355	.950848	20
WHO-Physical Health	Fluent	4.07800	.435057	11
	Nonfluent	3.77767	.805353	9
	Total	3.94285	.629452	20
WHO-Psychological	Fluent	4.19391	.498281	11
	Nonfluent	3.79256	.822279	9
	Total	4.01330	.676265	20
WHO-Social relationships	Fluent	4.39773	.614457	11
	Nonfluent	3.33333	1.224745	9
	Total	3.91875	1.060873	20
WHO-Environment	Fluent	4.44318	.368119	11
	Nonfluent	3.75000	.870524	9
	Total	4.13125	.718042	20
Coping-FGA	Fluent	2.60918	.379380	11
	Nonfluent	2.48833	.641556	9

	Total	2.55480	.502852	20
Coping-TGP	Fluent	2.83318	.435352	11
	Nonfluent	2.62667	.389371	9
	Total	2.74025	.417971	20
Resilience	Fluent	3.336	.4081	11
	Nonfluent	3.089	.7184	9
	Total	3.225	.5665	20

MANOVA analysis of between-group difference were performed to determine difference between both groups. No statistically significant difference was found between non-fluent and fluent IWA when considered jointly on the variables of the following scales: WHOQOL-BREF, AACS, and CD-RISC-10. Wilk's Λ= .495, F (8,11) =1.40, p= .295, partial eta squared =.51. Subsequently, a Levene's Test of Equality of Error Variances was performed to determine if there was a difference among both groups of IWA at the univariate level, with individual p values set at 0.5. P values .05 or greater meet the assumption of equality among both groups of IWA and values less than .05 provides evidence of variances among both groups. The WHOQOL-BREF Psychological domain, both coping styles of FGA and TGP, and Resilience satisfied the equal variance assumption on the univariate level with p values greater than .05. The following did not satisfy the assumption, WHOQOL-BREF Overall Domain F (1,18) =11.95, p=.003, WHOQOL-BREF Physical Health Domain F (1,18) =5.43, p=.032. WHOQOL-BREF Social Relationship domain, F (1,18) =5.75, p=.028, WHOQOL-BREF Environment Domain F (1,18) =5.26, p=.034.

A separate ANOVA was conducted to determine the nature of differences found in the Levene's Test of Equality, with each ANOVA evaluated at the alpha level of .05. There was a statistically significant difference between fluent and non-fluent IWA in the domain of Social

Relationships for the WHOQOL-BREF scale, F (1,18) =6.40, p=.021, partial eta squared =.26, with fluent (M=4.40) scoring higher than non-fluent (M=3.33). There was also a significant difference in the domain of Environment, F (1,18) =5.77, p=.027, partial eta squared=.24 with fluent (M=4.44) scoring higher than non-fluent (M=3.75). WHOQOL-BREF Overall score trended towards significance, F (1, 18) =4.41, p=.050, partial eta squared =.20 with fluent (M=4.42) scoring higher than non-fluent (M=3.59). There was no statistically significant difference between non-fluent and fluent in the WHOQOL-BREF domains of Overall, Physical Health, and Psychological, as well as FGA and TGP coping styles and the overall resilience score. (See Table 4)

Table 4.   **Tests of Between-Subjects Effects**

Dependent Variable	Degrees of Freedom	Error	F	Sig	Partial Eta Squared
WHO- Overall	1	18	4.41	.050	.197
WHO-Physical Health	1	18	1.14	.301	.059
WHO- Psychological	1	18	1.82	.194	.092
WHO- Social Relationships	1	18	6.40	.021*	.262
WHO- Environment	1	18	5.77	.027*	.243
Coping- FGA	1	18	.28	.606	.015
Coping- TGP	1	18	1.22	.283	.064
Resilience	1	18	.94	.345	.050

Note: * = p<0.05

DISCUSSION

This study examined how non-fluent and fluent IWA compared or contrasted across three psychosocial factors, QoL, coping style, and resilience. There have been little to no other comparison studies that exclusively look at the psychosocial factors of non-fluent and fluent IWA separately. The quality of close relationships an IWA has with families and friends is greatly altered after a stroke. (Cruice, Worall, & Hickson, 2006) These data from this research suggest that fluent IWA scored significantly higher than non-fluent IWA in two of the domains for the WHOQOL-BREF, Environment and Social Relationships. The WHOQOL-BREF Overall score trended towards significance between the two groups, however, did not reach significance. There was no significance noted with the AACS, however, both fluent and non-fluent individuals scored higher in the TGP approach rather than the FGA approach. There was no significant difference among the groups in resilience, however, fluent IWA dominated, scoring slightly higher than non-fluent IWA.

Key factors that IWA view as being important in successfully living with aphasia are meaningful relationships and social companionship. Social support can be viewed as the cushion that helps individuals with a chronic illness. Previous studies suggest IWA have the same frequency of contact with immediate family, but less contact with neighbors and friends. Due to uncertainty in communication, IWA are dissatisfied with the quality and quantity of their social interactions, and they report feeling isolated. (Hilari & Northcott, 2006) The data for Social Relationships suggests that IWA categorized as fluent scored higher than those categorized as non-fluent. When reviewing the data, it's substantial to note that eight out of the eleven participants, whom were diagnosed having fluent aphasia, were categorized by the WAB-R test as being

anomic. Individuals with anomic aphasia are considered higher functioning when compared to the other forms of aphasia, due to their auditory comprehension still being intact and their ability to speak fluently. Eight out of nine non-fluent participants were diagnosed with having Broca's aphasia, which greatly affects speech output; and in six out of nine participants, hemiplegia was noted. The major difference in speech output amongst these two types of aphasia is fluency, which may have caused the Social Relationship domain to be significantly different among both groups.

The Environment domain was another area that was significant, where the fluent IWA scored higher than the non-fluent IWA. One of the reasons can be attributed to the six non-fluent participants that suffered from paralysis. Due to limited mobility, the majority of the non-fluent participants relied on family members or public transportation to get around. Hemiplegia also greatly affects leisure activities since it can limit or completely take away the possibility of participating in activities once enjoyed prior to stroke. Another aspect of the Environment domain that may have influenced the fluent participants in scoring higher than their counterparts would be finances. It is a known concern that post-stroke individuals consistently have a low retention rate of returning back to work (Cruice, Worall, & Hickson, 2006). Due to the majority of the non-fluent IWA having some form of paralysis, it is much more probable that they will not return to work; however, the majority of the fluent participants being anomic have a higher chance at returning to work. Satisfaction with the condition of living space may also have played a crucial role in why non-fluent IWA scoring significantly lower. Of the non-fluent participants, only two lived independently and three lived with family members.

The Overall domain score trended towards significance, but did not reach significance for both groups. This is crucial in that both fluent and non-fluent IWA view their overall health and

QoL as the same. However, with the difference among both groups trending towards significance it might be an area for future research. The Physical Health and Psychological domain did not reach statistical significance among both groups. This outcome can be viewed as significant since its suggesting both fluent and non-fluent IWA view their psychological and physical health as similar regardless of their physical differences, such as paralysis that is noted in many of the non-fluent participants. Look at Appendix A and Appendix B for the full list of questions in the WHOQOL-BREF questionnaire.

Contrasting to previous studies, both groups scored higher in TGP rather than FGA. Research surrounding AACS have documented 12+ months post-stroke survivors tend to score higher in the FGA approach, while individuals less than 12 months' post-stroke score higher in the TGA. (Darlington, A. et. al., 2009) Both groups scoring higher in TGP can be attributed to the level of difficulty they had with cognitively understanding the statements that were being read to them. Most of the statements had to be repeated and re-worded before full understanding was obtained by the participant. One participant became discouraged and gave the same response to each statement, which lead to his disqualification from the study. The language used in these scales could be considered pretentious for some individuals.

Fluent IWA did score slightly higher than non-fluent in overall resilience, however, there was no statistical difference among both groups. When comparing the average resilience score of 3.2 in IWA to the score of 2.2 in TBI subjects of the Lukow et al. (2015) study, IWA scored significantly higher. (Lukow et al., 2015) It is also interesting to note, the average resilience score of a random telephone-based community survey in Memphis, Tennessee yielded the same score of 3.2. (Campbell-Sills, Forde, & Stein, 2009) The high resilient scores may be attributed to the

recruitment of participants that are active within the University of Central Florida's Communication Disorders Clinic and support groups, such as the Friday Only Club. Furthermore, the resilience scores of the other studies are unique to their population, additional research in the resilience of IWA still needs to be explored.

Study limitations

There were several limitations throughout the study that should be addressed. First, as mentioned previously, the majority of the fluent participants were classified as anomic, which means their aphasia is less severe and primarily affects word recall. Secondly, the majority of the participants had difficulty comprehending the statements that were being read to them from the AACS, which may have led to both groups scoring higher in the TGP. Lastly, the subject pool was rather small with eleven participants classified as fluent and nine participants classified as non-fluent.

Suggestions for future research

The results of this study classified IWA as being non-fluent or fluent, however this form of classification does not take into account the severity of aphasia. Future studies may want to specifically look at WAB-R scores within each group as an additional classification. This could be accomplished by selecting an arbitrary number that divides severity of aphasia, such as a WAB-R score below 50 would be considered one group and a WAB-R score of 50 and above would be another group. In addition, length of post-onset should be controlled, as well as reoccurrences of stroke. These could prove to be beneficial in understanding a better trajectory of the specific psychosocial needs of IWA.

Another area of research is the development of a coping scale that can be successfully used with the aphasia population. Lo Buono et al. (2015) conducted a descriptive review on the measures of coping and QoL post-stroke and discovered there is a lack of studies that explore the relationship amongst the two. (Lo Buono, Corallo, Bramanti, & Marino, 2015) This in part may be due to the difficulty in administering questionnaires to IWA. Additionally, research surrounding resilience and its role in psychosocial function and life satisfaction could prove to be beneficial.

As a follow up to the Environment and Social Relationships domains, future studies with IWA may want to include the Community Integration Questionnaire (CIQ). The CIQ consists of 15 questions that cover the domains of home integration, social integration, and productive activities. (Willer, Ottenbacher, & Coad, 1994). This questionnaire may provide more insight in what specific areas fluent and non-fluent IWA are engaged and what areas need improvement.

Lastly, including Mutuality Scale (MS) for future studies would provide insight on the caregiver's perspective. The MS is composed of four factors (love, shared pleasurable activities, shared values, and reciprocity) and was developed by Archbold et al. (1990) as a measurement to assess the relationship between the patient and the caregiver. (Archbold, Stewart, Greenlick, & Harvath, 1990). The use of this scale may be considered in building a psychosocial repertoire for the QoL and coping style for the patient and their caregiver.

In conclusion, this investigation suggests fluent and non-fluent IWA differ significantly in the QoL domains of Social Relationships and Environment, which can be viewed as being interlinked when evaluating how an individual's life is altered after a traumatic event. However, severity of aphasia may have largely influenced these differences versus type of aphasia. Also,

time post-onset should be considered as a factor in future investigation of QoL. No other

significant differences were discovered in the QoL domains of Overall, Psychological and

Physical Health. In addition, there was no significant difference in copying style and resilience

among both groups. Research should continue to investigate additional psychosocial scales that

can capture the unique essence of what it means to live with aphasia.

Domains and questions 236/BREF	
Overall Quality of Life and General Health	
G1.1/B1	How would you rate your quality of life?
G2.3/B2	How satisfied are you with your health?
Domain 1	**Physical Health**
F1.2.5/B3	To what extent do you feel that physical pain prevents you from doing what you need to do?
F13.1.4/B4	How much do you need any medical treatment to function in your daily life?
F2.1.1/B10	Do you have enough energy for everyday life?
F11.1.1/B15	How well are you able to get around?
F4.1.1/B16	How satisfied are you with your sleep
F12.2.3/B17	How satisfied are you with your ability to perform your daily living activities?
F16.2.1/B18	How satisfied are you with your capacity for work?
Domain 2	**Psychological**
F6.1.2/B5	How much do you enjoy life?
F29.1.3/B6	To what extent do you feel your life to be meaningful?
F7.1.6/B7	How well are you able to concentrate?
F9.1.2/B11	Are you able to accept your bodily appearance?
F8.2.1/B19	How satisfied are you with yourself?
F10.1.2/B26	How often do you have negative feelings such as blue mood, despair, anxiety, depression?
Domain 3	**Social relationships**
F17.1.3/B20	How satisfied are you with your personal relationships?
F3.2.1/B21	How satisfied are you with your sex life?
F18.2.5/B22	How satisfied are with the support you get from your friends?

Domains and questions 236/BREF	
Domain 4	**Environment**
F20.1.2/B8	How safe do you feel in your daily life?
F27.1.2/B9	How healthy is your physical environment?
F23.1.1/B12	Have you enough money to meet your needs?
F25.1.1/B13	How available to you is the information that you need in your daily-to-day life?
F26.1.2/B14	To what extent do you have the opportunity for leisure activities?
F21.2.2/B23	How satisfied are you with the condition of your living place?
F24.2.1/B24	How satisfied are you with your access to health services?
F28.2.2/B25	How satisfied are you with your transport?

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