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IMPACT OF STUTTERING ON COMMUNICATION ATTITUDE
AMONG ADULTS WHO STUTTER AND THEIR LIFE PARTNER

by

RANDY PANZARINO

B.S., University of Central Florida, 2016

A thesis submitted in partial fulfillment of the requirements
for the Honors in the Major Program in Communication Sciences and Disorders
in the College of Health Professions and Sciences
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ABSTRACT

This study investigates the extent to which the fluent life partners (LPs) of persons who stutter (PWS) understand the effect stuttering has on their partner who stutters' communication attitude. This was accomplished by administering the Communication Attitude Test for Adults Who Stutter (BigCAT; Vanryckeghem & Brutten, 2018), a subtest of the Behavior Assessment Battery (BAB; Vanryckeghem & Brutten, 2018). The BigCAT was administered to 33 PWS and a modified version was administered to their LPs via Qualtrics, an online survey software system. Between-group total score comparison revealed no significant difference in total scores, and a low-medium score correlation was evidenced. Within both groups, participants age and gender did not have a significant effect on total scores. The perception of stuttering severity was found to significantly influence BigCAT scores within each group. No differential effect of duration of relationship on score agreement was found to exist. A high Cronbach Alpha coefficient was obtained for both test forms. Between-group item score comparison revealed that only answers on two out of the 34 items differed significantly. They were related to frequency of speech disruption and avoidance of persons, places or situations. Item 24 had a perfect correlation between the two groups and relates to common behaviors PWS exhibit in trying to attain more fluency. Overall, the findings of this study show that LPs of PWS have a general understanding of the impact stuttering has on their partner who stutters' communication attitude.

To people who stutter, their loved ones, friends and advocates

ACKNOWLEDGEMENTS

Let it be known - I am a person who stutters. Stuttering is very personal to me.

This thesis is a testament to my self-actualization. It has allowed me to grow, given me a voice, and further ignited my curiosity to learn more about the disorder. Most importantly, it allotted me the opportunity to add to the body of knowledge which intends to help us further understand and treat stuttering. This has given me a sense of meaning and purpose.

To my thesis advisor, Dr. Martine Vanryckeghem - words cannot express my gratitude for the time you have sacrificed to guide me through this process. Every draft edited, suggestions made and inferences drawn have come with a series of invaluable lessons. Your high expectations, keenness to detail, commitment to the research process and the example you set daily have made me strive to be the best I can be. We share a fascination of all things stuttering. Our discussions I enjoy most.

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LIST OF ABBREVIATIONS

AWS	Adult who Stutters
AWNS	Adult who does not Stutter
BAB	Behavior Assessment Battery
BigCAT	Communication Attitude Test for Adults Who Stutter
LP	Life Partner
PWS	Person who Stutters
PWNS	Person who does not Stutter

CHAPTER ONE: INTRODUCTION

1.1. The Person Who Stutters

Stuttering has been defined as a disorder of the temporal aspects of speech, due to the inability to perform the correct motor sequencing of a sound, syllable or word at a proper moment in time (Van Riper, 1982). Referred to in *The Diagnostic and Statistical Manual of Mental Disorders* (5th ed.; DSM-5; American Psychiatric Association, 2013) as “Child-Onset Fluency Disorder,” stuttering is most common among the fluency disorders, with a prevalence of 1% (Bloodstein & Bernstein Ratner, 2008) and an overall incidence of 5% (Andrews & Harris, 1964; Mansson, 2000). Boys are four times more likely to stutter compared to girls (Bloodstein & Bernstein Ratner, 2008). Yairi and Ambrose (2005) found the mean age of onset to be around 2.8 years, and in 95% percent of the cases stuttering onset occurs before the age of five. Prevalence rates are shown to decline as children enter later years of grade school, suggesting the rate of spontaneous recovery to be high, around 75% (Bloodstein & Bernstein Ratner, 2008; Yairi & Ambrose, 2005).

Stuttering is commonly characterized by disfluencies, or interruptions in the forward flow of speech. These overt speech disruptions include sound/syllable and mono-syllabic word repetitions, oral prolongations, blocks and broken words. Historically, a unidimensional view of stuttering would allow these overt speech disruptions to exclusively dictate the assessment and treatment of stuttering. However, this unidimensional approach has been challenged, and a multidimensional view has been adopted by most (Brutten & Shoemaker 1967; Johnson, 1959; Sheehan, 1970; Smith, 1999; Van Riper, 1982; Yaruss & Quesal, 2006). Sheehan (1970) made the analogy of stuttering with an iceberg. Above the surface refers to the observable, overt speech disruptions, whereas below the surface lie the - to the observer unknown - concomitants

of stuttering. They include fear, guilt, shame and negative thinking, among others, and have a large impact on the person who stutters (PWS). This compound of variables, referred to as the “ABC’s” of stuttering, helps to explain the psychosocial impact of stuttering on an individual, something vital to the assessment and treatment of the disorder. The *Affective*, or (A) component, refers to the negative emotional response a PWS typically has to his or her stuttering. The *Behavioral* (B) component denotes the speech disruptions that typify stuttering and the associated avoidance and escape behaviors. Finally, the *Cognitive* (C) component consists of negative speech-related thoughts, attitudes or beliefs. Under this multidimensional approach which is broader than just looking at the speech impediment alone, the PWS is best described by adding the extent to which the individual makes use of coping behaviors, as well as by the intrinsic features that relate to negative communication attitude and the affective reactions associated with speech disruption (Brutten & Shoemaker 1967; Brutten & Vanryckeghem 2003a,b; 2007a; Guitar, 1976; Sheehan, 1970; Vanryckeghem & Brutten, 2018; Watson 1988, 1995).

A common affective reaction experienced by PWS that helps characterize the (A) component of the ABC’s is social anxiety, which at the very least, is an important factor in the nature and maintenance of stuttering (Brutten & Shoemaker, 1967; Sheehan, 1970; Van Riper, 1986; Wischner, 1950). Social anxiety disorder, defined as a fear of one or more social or performance situations in which the person may experience scrutiny by others (DSM–5; American Psychiatric Association, 2013), has been found in a large portion (between 22%–60%) of the population of adults who stutter (AWS) (Blumgart, Tran, & Craig, 2010; Iverach et al., 2009; Menzies et al., 2008; Stein, Baird, & Walker, 1996). Social anxiety disorder can be influenced by a number of factors, including fear of negative evaluation, negative cognitions, attentional biases, safety

behaviors and self-focused attention (Iverach, Rapee, Wong, & Lowe, 2017). Additionally, researchers have found that social anxiety disorder can have negative effects on one's relationships, career, education, social functioning, self-esteem and socioeconomic status (Slade et al., 2009; Stein & Kean, 2000).

The (B) component of the ABC's is referenced in the research literature as PWS commonly reporting that moments of stuttering are more than just overt speech disruptions that the listener may or may not perceive. In a phenomenological analysis of the experience of stuttering, Tichenor and Yaruss (2018) discovered that PWS report a number of experiences related to the moment leading up to and during stuttering. In the moments preceding stuttering, PWS reported anxiety, tension, lack of confidence, uncertainty and fear. During the moment of stuttering, PWS reported a lack of control, and their reactions to this included physical acts like pushing and struggling, as well as the experience of fear and panic (Tichenor & Yaruss, 2018). Ginsberg and Wexler (2000) offer three components that also help describe the behavioral aspects of stuttering. *Struggle*, they say, refers to the physical strain, tension or effort observable while talking, and assists clinicians in measuring the severity of stuttering. *Expectancy*, related to behavior, anxiety and attitude, represents the PWS' assumptions of his or her ability to communicate, and becomes apparent as symptoms preceding the struggle behavior. This expectancy or anticipation leads to *avoidance*, which is an effort to evade speaking situations, sounds, words or anything else that could cause stuttering.

Qualitative interviews conducted by Corcoran and Stewart (1998) found another experience related to stuttering to be *suffering*. In their study, four key elements came to the forefront: helplessness, shame, fear, and avoidance. Crichton-Smith (2002) added that *limitation* was also a theme common in the lives of PWS. These areas of limitation, which were said to

begin in childhood and continue into adulthood, were most reported in areas of employment, education and self-esteem (Crichton-Smith, 2002).

1.2. The PWS and Cognition

The relationship between cognition and stuttering has also been extensively researched (Lincoln, Onslow, & Menzies, 1996). Cognitions, defined as thoughts, ideas or beliefs, can be rational or irrational and help to establish attitudes. This cognitive (C) component of the ABC's of stuttering is commonly referred to as the *attitudinal* component, or one's *speech-associated attitude*.

To best comprehend PWS' speech-related attitude, it is important to have an understanding of the nature and function of attitudes in general (Watson, 1995). It should be noted, however, that the conceptualization of attitude, as well as attitude formation, activation and attitude functions, are looked at by researchers in different ways. Triandis (1970) defines attitude as, "an idea charged with emotion that predisposes a class of actions to a particular class of situations" (p. 2). Within this framework, attitude is seen as an object, and *affect*, *behavior* and *cognition* are three classes of evaluative responses to stimuli that help shape that object (Breckler, 1984). In this tripartite model of attitude, supported by Triandis and others (Breckler, 1984; Rosenberg & Hovland, 1966), *affect* refers to the feelings or emotions associated with the attitude object, *behavior* involves the actions or verbal statements one makes regarding the attitude object, and *cognition* is comprised of the perceptual or verbal statement of belief one attributes to the attitude object. In their representation of this model, Rosenberg and Hovland (1960) see these components, although closely related, as intervening variables, in which one might have a stronger effect on attitude formation than the others.

Watson (1995) describes how attitudes in both PWS and people who do not stutter (PWNS) can serve different functions. In a *knowledge* function, as Watson explains, attitudes help individuals understand their world by organizing complex stimuli from the environment, which allows the person to better understand the world around him or her. Atypical to fluent speakers, this function in a PWS might be used for something like organizing a complex schema of sounds, words or situations in which he or she fears and wants to avoid because of past negative experiences with those speech-related variables. Using an *ego-defensive* function, Watson suggests a PWS might often say something like, “I hate to talk anyway!”, although he or she may actually enjoy talking, but just dislikes the shame and embarrassment experienced due to stuttering (p. 145). This attitudinal function, then, serves to protect the individual’s self-esteem, and justifies more behaviors of avoidance, such as not speaking (Watson, 1995). These examples, which are based on negative experiences and negative affective reactions, highlight the severe impact mal-attitude can have on the behavior of a PWS. This reciprocal influence, Watson stresses, shows how the nature of attitudes and behavior can affect one another.

Going back in history, Johnson (1934) had a particular interest in the influence stuttering has on one’s attitude. In a series of case studies, he found that PWS reported their speaking disability to be responsible for more than half of their personality problems, which included shyness, moodiness, anxiety and depression. These self-reported mal-adjusted attitudes and adaptations were a result of a frustrating and humiliating speaking ability (Johnson, 1934). More recently, a study by Bleek et al. (2012) investigated the five-factor personality model as it relates to a person’s overall experience of stuttering. Their findings showed the impact of stuttering to be greater in a person who has high levels of neuroticism and low levels of extraversion. This further suggests that personality traits in PWS can also interact with one’s speech-associated

attitude. Stipdonk, Liefink, Bouwen, and Wijnen's study (2014) focused specifically on the relationship between extraversion and communication attitude. Their findings indicated that PWS who obtained higher scores on an extraversion scale had a more positive communication attitude. The reverse was true for those who scored lower on the extraversion scale and thus reported a more negative communication attitude. Additionally, Miller and Watson (1992) stipulated that the anxiety of a PWS is restricted to their attitude toward the communication situation, which they claimed is a rational response to the negative experiences PWS commonly encounter when speaking. Based on these investigations, the relationship between speech-associated attitude and aspects of one's personality, affect and behavior is clearly noted (Bleek et al., 2012; Miller & Watson 1992; Stipdonk, Liefink, Bouwen, & Wijnen, 2014; Watson, 1995).

1.3. Assessment Protocols for and the Investigation of Attitude

The nature of speech-associated attitude and how it is assessed and applied in the treatment of stuttering has been investigated and found to be critically important. Research in this realm also gives us more insight on how attitude impacts a PWS. As one might imagine, as a group, PWS have a significantly more negative speech-associated attitude than PWNS (Andrews & Cutler, 1974; Erickson, 1969; Vanryckeghem & Brutten, 2011; 2018). Historically, the importance of attitude in the treatment of stuttering has been debated. Guitar (1976) found that the best prediction of treatment outcome for stuttering therapy is pre-treatment communication attitude. In his investigation, PWS with a more positive speech-associated attitude had a better prognosis for treatment, whereas those with a more negative speech-associated attitude were more likely to experience relapse. Additionally, Andrews and Cutler (1974) discovered that negative speech-associated attitude correlated with reduced success in the maintenance of fluent speech. They

found that, if fluency was to be generalized in everyday life outside of therapy, speech-associated attitudes needed to improve and become more like the communication attitudes of PWNS. These findings demonstrate the importance of pre-treatment attitude as it relates to prognosis for treatment and suggests attitude change to be a prominent factor in therapy.

A person's thinking about his or her speech can be discerned by means of interview or the use of a qualitative survey. However, better still are the use of self-report tests that are standardized and normed, and have been the primary way of measuring speech-associated attitude in PWS. Among the first of these tests was the Iowa Scale of Attitude Toward Stuttering (Ammons & Johnson, 1944), which led, after its initial administration, to the conclusion that speech-associated attitude was a possible factor in the onset and maintenance of stuttering. Years later, in an attempt to create a scale that provided an index in which communication attitudes of PWS would deviate from communication attitudes of PWNS, Erickson (1969) designed the Erickson S-scale. The S-Scale compiled items from existing tests of speaking-related attitude and settled on 441 items, plus an additional 13 items which intended to detect a respondent's effort to present him or herself in an unfavorable light. After two administrations to PWS and PWNS, the S-Scale was reduced to 130 and then to 39 items, in hopes to demonstrate a significant dichotomy between PWS and PWNS. In Erickson's third administration of the now 39 item S-Scale, he was finally able to differentiate communication attitudes of PWS and PWNS. However, a good amount of overlap was found to exist in the score distributions, indicating that the composition of the S-Scale was still not completely valid. With the removal of 15 additional items from the S-Scale that were found to not relate to speech-associated attitude, Andrews and Cutler (1974) adapted the original S-scale, renaming it the Erickson S-24. This scale proved to be a more reliable and valid measure of speech-associated attitude that was capable of

differentiating PWS from PWNS. The test was also used to indicate, through pre- and post-treatment data, that increased maintenance of fluency correlated with a more positive communication attitude.

Other self-report tests have been created to examine specific aspects related to communication attitudes, however, most of them in a tangential way. The Self-Efficacy Scale for Adult Stutterers (SESAS; Ornstein & Manning, 1985) was developed to estimate AWS' confidence for maintaining fluency in different speaking situations. SESAS specifically asks respondents about their confidence in entering and maintaining fluency in a hierarchy of speaking situations which range from easy to hard. Although this scale correlated positively with the Erickson Scale documenting its criterion validity to test confidence in maintaining fluency, it is a measure of one's confidence of fluency and not of speech-associated attitude. The Unhelpful Thoughts and Beliefs about Stuttering (UTBAS) and the briefer UTBAS-6 help identify speech-associated cognitions and speaking-related anxiety (Chu, Sakai, Mori, & Iverach, 2017; Iverach et al., 2016; St Clare et al., 2009). Another self-report assessment created by Yaruss and Quesal (2006), the *Overall Assessment of the Speaker's Experience of Stuttering* (OASES), examines the PWS' affective, behavioral and cognitive reactions to stuttering as a compound, not as three separate components.

In a Belgian investigation with the Erickson S-24, Brutton and Vanryckeghem (2003b) found that items 1, 6, 9 and 15 did not correlate with their respondents' total score, and that item 9 was linguistically outdated. These factors highlighted the need for the development of an unconfounded cognitive-based measure of speech-related attitude, which led to the creation of the Communication Attitude Test for Adults Who Stutter (BigCAT; Vanryckeghem & Brutton, 2011; 2018). Following this, the researchers set out to obtain normative and comparative data for

the BigCAT, comparing 96 AWS to 216 adults who do not stutter (AWNS). The data showed the average score of PWS to be 6 standard deviations (SD) above the mean score for PWNS, suggesting a highly significant group difference and pointing to the strong discriminative power of the BigCAT. A Cronbach Alpha coefficient of .85 for PWNS and .84 for PWS was found, indicating a strong internal reliability of this measurement tool (Vanryckeghem & Brutton, 2011). In pursuit to further investigate the strength of the BigCAT, Vanryckeghem and Brutton (2012) compared the BigCAT's differential diagnostic capabilities with that of the Erickson S-24. The Erickson S-24 yielded results of PWS scoring 3 SD above the mean of PWNS, versus the BigCAT revealing mean scores for PWS at 5 ½ SD above the mean for PWNS. This proved the BigCAT to be a more powerful discriminative measure of speech-associated attitude than the Erickson S-24 (Vanryckeghem & Brutton, 2012). More recently, a test-retest reliability investigation by Vanryckeghem and Muir (2016) with 33 AWS and 50 AWNS pointed to a test-retest reliability coefficient for PWS and PWNS of .83 when tests were administered 5 to 7 days apart. In addition, the BigCAT scores on the first and second administration for both groups were not statistically significantly different. These findings support the notion that the BigCAT has strong test-retest reliability. Additionally, once again, the average PWS score on the BigCAT in this study was found to be 6 SD above the mean of the PWNS, which confirmed previous studies' results. Based on these findings, it is noted the BigCAT's discriminative power, validity and reliability make it a powerful tool to measure speech-associated attitude.

1.4. The Person Who Stutters and Relationships

Research regarding stuttering and life partner (LP) relationships has shown that PWS are at a considerable disadvantage in regard to romantic opportunities (Mayo & Mayo, 2013; Shears, Behrens, & Jensema, 1969; Van Borsel, Brepoels, & De Coene, 2011; Zhang, Saltuklaroglu, Hough, & Kalinowski, 2009). In their study of the acceptability of anomalous persons, Shears and Jensema (1969) found that, although 96.93% of respondents would “speak to” a PWS, only 7.16% would “marry” a PWS. More recent research has proven more positive for the outlook of the acceptability of a PWS as a romantic partner, but still shows that PWS are at a considerable disadvantage. Van Borsel, Brepoels, and De Coene (2011) discovered that adolescents and young adults consider peers who stutter less attractive than non-stuttering peers, indicating that 41% would not engage in a romantic relationship due to the other person being a PWS. Out of 132 college students, Mayo and Mayo (2013) reported that only 50 (38%) would date a PWS. When taking the perspective of a PWS, participants in the Zhang, Saltuklaroglu, Hough, and Kalinowski (2009) investigation reported that stuttering might become mostly detrimental to romance, just behind vocation and daily activities.

Linn and Caruso (1988) particularly examined the effect of stuttering on the formation and maintenance of intimate relationships. Two important variables discussed included courtship and perceptions of potential partners. Courtship, they mention, is the first step in the acquisition of an intimate relationship and refers to exposure and acquaintance with potential significant others. Courtship can be negatively impacted by stuttering due to avoidance behaviors employed by PWS, such as avoiding social situations and ultimately missing out on opportunities of courtship. Carlisle (1985) noted that those who do engage in intimate relationships with a PWS understand the debilitating effects of their partner’s stuttering on social and vocational

opportunities. Boberg and Boberg (1990) had similar findings, reinforcing the idea that the LP of a PWS expects to have a limited social life due to marrying or being in a relationship with a PWS.

It has been determined by a significant body of research that, overall, others' perceptions of PWS are negative (Crowe & Cooper, 1977; Crowe & Walton, 1981; Dorsey & Guenther, 2000). Amick, Soo-Eun Chang, Wade, and McAuley (2017) revealed that people form negative social or cognitive impressions about individuals who stutter based solely on their stuttered speech. In their investigation, centered on this variable alone, AWS were perceived to have lower cognitive ability, be less likeable and thought to be more anxious than fluent counterparts. Although stuttered speech may not be exclusive in the causation of the negative perceptions of PWS, this research draws attention to the fact that stuttered speech, a primary observable characteristic of the disorder, impacts perceptions others have of PWS.

Perceptions of people who hold a variety of different relationships with PWS have been explored. The participants of those investigations include students, colleagues, teachers, parents and peers (Crowe & Cooper; 1977; Crowe & Walton, 1981; Dorsey & Guenther, 2000; Lass et al., 1992; St Louis & Lass, 1981; 4; Woods & Williams, 1976; Yeakle & Cooper, 1986).

Perceptions of one particular group of people, the LPs of PWS, however, has been little explored.

Beilby et. al. (2013) are one of the few who have investigated life partner's perceptions of their loved one who stutters. In their mixed-mode investigation, they administered the OASES, Medical Short Form 36, and conducted semi-structured qualitative interviews with 10 PWS and their life partners. From qualitative interviews, congruent themes of anxiety, avoidance and supportive relationships emerged. In an analysis of the quantitative perceptions of the PWS

and their partner, both reported similar experiences in reaction to stuttering and perceived difficulties in communication. However, LPs did not understand the impact stuttering has on the quality of life of their partner who stutters. These findings suggest that, although partners of PWS may understand the nature of stuttering in a similar way as their partners do, they are not fully aware of the extent to which stuttering may impact their partner who stutters. Including the fluent partner in the treatment of the PWS could thus aide in understanding the impact of stuttering and assist in the generalization process of treatment (Beilby et. al., 2013). This study does not, however, examine how the LP perceives the speech-associated attitudinal reactions his or her partner who stutters experiences. The focus of the present study pertains specifically to this issue. The aim is thus to explore the extent to which a PWS' life partner understands how stuttering affects his or her partner's speech-associated attitude and cognition.

CHAPTER TWO: METHODOLOGY

2.1. Participants

The participants in this study were required to be at least 25 years old, be able to read and understand English, and to have been in a committed relationship with their life partner who does not stutter for at least one year. Thirty-three PWS and their LPs participated in this study.

Duration of the committed relationships ranged from 1 year to 47 years with an average of 12.15 years ($SD=11.10$). The participants were representative of a diverse population from 17 different states (Arizona, California, Colorado, Connecticut, Florida, Georgia, Illinois, Maine, Massachusetts, Nebraska, Nevada, New Jersey, New York, Pennsylvania, Texas, Virginia, and West Virginia). For the PWS sample, ages ranged from 25 to 71, with the average age being 38.9 ($SD=12.50$). Seventy-three percent (73%; $n=24$) of the PWS were male and 27% ($n=9$) were female. For the LPs, ages ranged from 25 to 69, with an average age of 38.2 ($SD=13.00$). Thirty percent (30%; $n=10$) of the LPs were male and 70% ($n=23$) were female. In the demographic questionnaire, all participants indicated they were “very comfortable” in their ability to read and understand English.

All participants who stutter reported they had been diagnosed by a Speech-Language Pathologist as a PWS. Individuals with a speech disorder other than stuttering or a language disorder were excluded from the sample to avoid confounding variables. PWS in this study were recruited with the help of the National Stuttering Association (NSA), Speech-Language Pathologists and Board-Certified Fluency Specialists. Ninety-seven percent (97%) of PWS reported they had been in speech therapy during some point in their lives. Twenty-four percent (24%) of those reported they were currently enrolled in speech therapy. Types of therapy they had been exposed to included desensitization/anxiety reduction (72%), attitude change (61%),

fluency shaping/reinforcement (58%), stuttering modification (55%), reduction of associated behaviors (42%) and others (18%). Sixty-one percent (61%) reported being a member of a stuttering support group.

2.2. Materials

2.2.1. *Communication Attitude Test for Adults Who Stutter (BigCAT)*

Participants were administered the Behavior Assessment Battery (BAB; Vanryckeghem & Brutten, 2018). Although three tests that are part of the BAB were administered to the participants, only the Communication Attitude Test for Adults Who Stutter (BigCAT), a sub-test within the BAB, will be discussed in this study. The BigCAT is a self-report test comprised of 34 True/False questions which respondents have to evaluate relative as to what they *currently think* about their speech. Answers on the BigCAT that represent negative communication attitude receive a score of 1, while answers that denote a positive communication attitude receive a 0, as reflected on the BigCAT scoring key. BigCAT scores can thus range between zero and 34. Test item examples are: “I like the way I speak...”. If a respondent answers “False”, a score of 1, indicating negative communication attitude, would be assigned to this item. If “True” is chosen, 0 points are given for this item, indicating positive thinking. The item “There is something wrong with the way I speak...” would reflect a negative communication attitude if answered “True”, and receive 1 point, whereas a “False” response would indicate positive speech-associated attitude and receive a score of 0. In the LP group, a modified version of the BigCAT questionnaire asked participants what their *partner* currently thinks about his or her speech. Items state e.g. “My partner likes the way he/she speaks” or “My partner thinks there is

something wrong with the way he/she speaks”. On this modified version, items were scored in the same way as the original version.

As mentioned, the BigCAT is a solely cognitive measure of an individual’s speech-associated attitude. The test has been proven to have strong validity, internal reliability, consistency and positional stability and is capable of differentiating PWS from PWNS based on their speech-associated attitude (Vanryckeghem & Brutten, 2011, 2012, 2018; Vanryckeghem & Muir, 2016).

2.3. Procedure

Participants in this study were given a Consent Form approved by the University of Central Florida’s Institutional Review Board (confirmation number: SBE-17-13586) to give their consent to participate in this investigation. They completed the study using Qualtrics Survey Software, an online questionnaire software program. Participants who stutter were administered the BigCAT, and their partners were administered a modified version of the BigCAT questioning what their perception was as it related to their partner who stutters’ thinking about communication.

Participants were asked to complete the BigCAT independently and not to discuss their perceptions with each other.

2.4. Data Analysis

Data for all participants were entered into IBM SPSS Statistics V25 software for statistical analysis. A between-groups total score analysis was performed to find out if the BigCAT scores differed significantly between PWS and their LP. This was done using an independent samples t-test at a pre-set significance level of .05. The effect of gender was determined via within-group independent samples t-tests. Age and perceived stuttering severity effects were explored using linear regression models. The possible differential effect and interaction between length of relationship and total scores' between-group agreement was also investigated via regression. In addition, internal reliability through Cronbach Alpha correlation was established as well as item score comparison between the two groups of participants via t-tests.

CHAPTER THREE: RESULTS

3.1. Total Score Analysis

For the group of PWS, the minimum BigCAT score was 9, and the maximum was 32 (the possible minimum score being 0 and possible maximum score 34). The median was 24 and the modes were 18, 25 and 27. For LPs, the minimum score was 4 and the maximum score was 34. The median was 21 and the modes were 17, 21, 26, 27 and 28. As can be seen in Table 1, the average BigCAT score of LPs and their partner who stutters was essentially the same ($t=-.034$, $p=.973$). A low-medium Pearson Correlation coefficient was evidenced ($r=.38$, $p=.03$).

Table 1: Measures of Central Tendency and Variation for PWS and their LP on the BigCAT and its Modified Version

	PWS	LP
Mean	21.36	21.42
Standard Deviation	6.86	7.78
Median	24	21
Mode	18, 25, 27	17, 21, 26, 27, 28
Minimum	9	4
Maximum	32	34

3.1.1. Effect of Gender

In the PWS group, consisting of 73% males and 27% females, the mean total score was 22.54 ($SD=6.76$) for the males and 18.22 ($SD=6.48$) for the females, a difference that was not statistically significant ($t=1.653, p=.108$). In the LP group, with 30% males and 70% females, the mean scores were 22.50 ($SD=7.20$) and 20.96 ($SD=8.13$), respectively. This difference was also not statistically significant ($t=.989, p=.608$).

3.1.2. Effect of Age

The effect of age on total scores for both groups was determined via linear regression. For the PWS group, age did not have a statistically significant effect on total scores ($F=.434, \beta=-.117, p=.515$). No age effect was found for LPs ($F=.459, \beta=.121, p=.503$).

3.1.3. Effect of Perceived Stuttering Severity

The effect of perceived stuttering severity on total scores for the PWS and LP groups, also determined via linear regression, was found to have a significant influence on total scores for PWS ($F=.610, \beta=.419, p=.015$) and LPs ($F=21.169, \beta=.637, p=.000$).

3.1.4. Effects of Duration of Relationship

Regression was used to test the effect of duration of the couples' relationship on total score agreement between the groups. No effect was observed ($F=.662, \beta=.345, p=.419$).

3.2. Item Score Analysis

Internal reliability investigated through Cronbach Alpha revealed a high coefficient of .90 for both groups. Item comparison between the PWS and LP groups only revealed that answers to items 13 (“I will usually have some trouble with my speech”) and 28 (“Because of my speech, I need to avoid certain people, places or situations”) differed significantly. Item 24 (“Sometimes I need to do special things such as changing words, taking a deep breath, or talking slowly, for my speech to come out without trouble”) had a perfect correlation between the two groups.

CHAPTER FOUR: DISCUSSION

4.1. Interpretation of PWS Results

The BigCAT scores of PWS ($M=21.36$, $SD=6.86$) in this study were lower when compared to scores of the most recent investigation (Wesierska et al., 2018) with Polish adults who stutter ($M=24.34$, $SD=7.21$). It should be noted that the Wesierska et al. study had a much larger sample size ($n=123$) than in the current investigation. Still higher total scores were evidenced in Vanryckeghem and Brutton's (2011, 2012) United States-based investigations ($M=26.68$, $SD=5.33$; $M=26.97$, $SD=4.97$), which were, again, based on larger samples of PWS compared to the present study ($n=96$; $n=72$).

The fact that gender nor age had a significant influence on the BigCAT scores confirmed the data from the Wesierska et al. (2018) study. Although, as it relates to exploring the effect of age, a different approach was used: the use of linear regression in the present study, whereas Wesierska et al. based their age investigation on grouping their participants into a younger (less than age 30) versus older (older than 30) group and compared the two groups using independent samples t-tests.

Vanryckeghem and Brutton (2011) investigated a gender, but not an age effect. Similar to the current study and the Wesierska et al. (2018) investigation, gender was not found to have a significant influence on BigCAT total scores. This absence of a gender effect has been supported in other studies (Brutton & Vanryckeghem, 2003b; Vanryckeghem & Brutton, 2012). It should be noted, however, that male PWS in this study scored descriptively higher than female PWS on the BigCAT, which is typically not seen in other investigations with adults (Vanryckeghem & Brutton 2011; 2012), as well as attitude investigations with children by means of the Communication Attitude Test for Preschool and Kindergarten Children Who Stutter (KiddyCAT;

Vanryckeghem & Brutten, 2007) and Communication Attitude Test for School-Age Children Who Stutter (Brutten & Vanryckeghem, 2007), where females tend to score slightly higher than males.

In the current investigation, perceived stuttering severity was found to have a significant effect on participants' total scores. A medium correlation between these variables was evidenced, meaning that, as one perceived their stuttering to be more severe, his or her BigCAT score increased, or communication attitude became more negative.

The present internal reliability data pointing to a high Cronbach Alpha coefficient indicate that the BigCAT items correlate highly with each other. They are similar to coefficients found in other BigCAT studies (Brutten & Vanryckeghem, 2003b; Vanryckeghem & Brutten, 2011; Wesierska et al., 2018), where coefficients between .85 and .92 were obtained. The data are, once more, a testimony to the fact that this BAB sub-test is a solid and internally consistent instrument. In other words, its items are all closely related to one another.

4.2. Interpretation of LP Results

The total scores of the LPs on the BigCAT's modified version cannot be compared to other investigations due to the fact that this is the first study of its kind. Like the PWS sample, the LP group data indicated that age and gender did not have a significant influence on the BigCAT total scores. Thus, also in this group did the perception of the partner who stutters' stuttering severity significantly influence scores on the BigCAT's modified version. An even stronger correlation was found in the LP group compared to the PWS group, meaning as LPs rated their stuttering partner's perceived stuttering severity as more severe, so did they tend to rate their partner's perception of communication attitude as more negative.

An internal reliability investigation yielded the same Cronbach Alpha coefficient for the BigCAT's LP version as it did for the BigCAT original version. This shows that the modified version's test items have strong internal consistency. Again, the coefficient cannot be compared to that of other studies because this investigation is the first to utilize a modified BigCAT test for LPs.

4.3. Between Group Data

A between-group total score comparison revealed a very close approximation of both groups' mean BigCAT scores; so much so that they were essentially the same. This suggests that the LPs of PWS have a general understanding of the effect that stuttering has on their partner who stutters' speech-associated attitude. Additionally, the low-medium Pearson Correlation found between the groups' total scores suggests that scores between PWS and their LP tended to move in the same direction. Thus, LP's appear to have a good grasp of their partner's negative speech-related cognitions.

There was no differential effect of the duration of relationship on the BigCAT score agreement between PWS and their LPs. Given the current data, and the wide range of duration of relationships (1 to 47 years), it cannot be said that there was more in the way of agreement between the two groups the longer they had been in a relationship. Thus, the data seem to point to the fact that, early on in a relationship, the LPs of PWS have a general understanding of the negative effect stuttering has on their partner who stutters' thinking about his or her own speech. These findings might be attributed to the LPs' overall observation of their partner who stutters and the inferences they make based on their perception of their partner's behavior, affective reactions and expressed thoughts. Possibly, the LPs' scrutiny of their partner's reactions in

different speaking scenarios, their use of coping devices, the level of anxiety and speech disruption in different situations, and their conversations with their partner might give them an idea of their speech-related attitudinal reactions. Because mal-attitudes are affected by aspects of one's behavior and affect, this assumption is highly plausible.

An item score comparison analysis between PWS and their LPs revealed that all but two items were answered in a similar way. Not only did the BigCAT total scores fail to differ significantly when comparing the two groups, but the vast majority of the separate item answers were in agreement. The two items that did reveal a statistically significant different score were item 13 "I will usually have some trouble with my speech" which relates to one's attitude toward the frequency of speech disruption in general, and item 29 "Because of my speech, I need to avoid certain people, places or situations", which describes cognitions a PWS might hold in relation to their need to use avoidance behaviors. Possibly, the LP might not be aware of the perceived need by the PWS to adopt these coping devices, because they are used in a highly covert way. Item 24, on the other hand, "Sometimes I need to do special things such as changing words, taking a deep breath, or talking slowly, for my speech to come out without trouble", yielded, surprisingly, a perfect correlation between all 33 PWS and their LPs. All individuals answered this question with "True", indicative of negative communication attitude. This seems to be somewhat in contradiction with the lack of agreement as it relates to item 29, because both of these test items relate to the belief that the PWS holds as far as the need to use coping behaviors is concerned, albeit in a different domain: avoiding people and situations versus the use of speech-related avoidance and escape behaviors. The data uncovered in this item analysis further support the findings that LPs of PWS have a general understanding of the effect stuttering has on their partner who stutters' communication attitude.

4.4. Inclusion of Life Partners in Stuttering Treatment

The most noteworthy finding of this investigation is the concept that LPs of PWS understand the impact stuttering has on their partner who stutters' speech-associated attitude. It can then be inferred that LPs have at least some knowledge of the nature of the disorder, as they accurately perceived their partner's speech-associated attitudinal reactions. This understanding is not only conceptualized by knowledge, but by emotional empathy and support, as it will allow LPs of PWS to sympathize with their partner who stutters and potentially aid in the therapy process. The question then remains how these data can be associated with other research findings in the pursuit of providing the best possible treatment for stuttering.

Research most closely related to the current study deals with familial support, which is seen as a critical factor in the treatment of stuttering. As it relates to children who stutter, parental participation has been found to be an essential component in assuring maximum progress in the treatment process (Ramig & Dodge, 2005). In therapies such as the Lidcombe Program (Onslow, Packman & Harrison, 2003), direct parental participation, where the parent acts as the primary clinician and gives verbal contingencies to their child in reaction to fluent or stuttered speech, is a requirement. The Demands and Capacities model (Starkweather 1987; Starkweather & Gottwald, 1990) views stuttering in a framework of diminished capacity in response to linguistic, emotional, environmental, or cognitive demands within the child's environment. In treatments based on this model, like RESTART (Sonneville-Koedoot, Stolk, Rietveld, & Franken, 2015), parents are instructed to facilitate change in these areas of the child's environment, as well as to alter their own behavior as it relates to these factors. In the Palin parent-child interaction therapy (PCIT), parents are observed by a clinician and trained to

practice a slow speech rate with their child, give praise and use other strategies which aid the child in the production and maintenance of fluent speech (Millard, Nicholas, & Cook, 2008).

Overall, research suggests that, at the very least, parents need to have an understanding of the nature and variability of stuttering, as they are arguably the person closest to their child and are quite possibly their most common conversational partner (Conture, 1997; Ramig & Bennet, 1995; Shapiro, 2011). Having an understanding of the negative impact of the disorder, parents can also help their child who stutters by providing counseling which will help them cope more effectively with their speech impediment (Ramig & Bennett, 1995). Their role in therapy then becomes, as Ramig (1993) describes, facilitators of communication. After the clinician educates parents on stuttering and the debilitating and atypical reactions associated with the disorder, the parent observes therapy sessions and ultimately becomes an active participant in the treatment process. Favorable outcomes in therapy can be offset by parents who do not have an understanding of their role in the child's speech development (Conture, 1990). Ultimately, the outcome of a child's stuttering treatment relies heavily on the commitment and involvement of the parents (Gregory & Hill, 1993).

These concepts can most certainly be applied to the consideration of LPs' involvement in their partner who stutters' treatment. Similar to parents of children, LPs are assumedly one of the PWS' most common conversational partners. They act not only as a listener and a communication partner, but as a family member who is there to counsel their loved one. Provided the current data, we know that LPs already have a good understanding of the cognitive factors associated with stuttering. Nevertheless, they could still benefit from additional educational counseling, as research suggests it is beneficial for family members to possess a deep

understanding of stuttering (Conture, 1997; Ramig & Bennet, 1995; Ramig & Dodge, 2005; Shapiro, 2011).

The critical role speech-associated attitude plays in the assessment, prognosis, treatment and outcome of stuttering therapy has been recognized (Andrews & Cutler, 1974; Guitar, 1976; Guitar & Bass, 1978; Lincoln, Onslow, & Menzies, 1996; Vanryckeghem & Brutten, 2011; 2018; Watson 1988, 1995). More specifically, a change in communication attitude is imperative for sustained fluency and overall therapeutic success (Andrews & Cutler, 1974; Guitar & Bass, 1978). Like Ramig and Dodge (2005) encourage parents to take action in identifying their child's negative communication attitudes while helping to promote positive ones, the same holds for LPs when supporting their partner who stutters. Examples of this might include promoting the idea that their loved one is a strong and successful communicator, encouraging an open and honest communication model about stuttering and its impacts, and encouraging "positive self-talk" (Ramig & Dodge, 2005). By taking an active role in the therapy process, LPs may be able to have a substantial effect on their partner's treatment outcome. For their partner who stutters, this might include improved positive communication attitude, reduced or modified stuttering, a lessening of the negative psychosocial impacts of stuttering and an improved quality of life. It can be assumed from the findings of this study that LPs possess an understanding and cognitive empathy to successfully implement these practices, alongside any other recommended involvement suggested by the Speech-Language Pathologist who is treating the partner who stutters.

4.5. Limitations

Some limitations of this study include the data being based on a small sample size compared to other investigations that utilize the BigCAT (Vanryckeghem & Brutten, 2011, 2012, 2018; Vanryckeghem & Muir, 2016; Wesierska et al., 2018). Because of this, the sample may not be as representative of the general population of PWS as other studies are. Additionally, although fluency specialists and speech-language pathologists around the country were contacted, a good percentage (61%) of the participants in this study reported being a member of a stuttering support group, which may have an influence on their reported speech-associated attitudinal reactions.

It was intended that the PWS and LP couples in this investigation were not to discuss the perceptions of their partner with each other. This request was written in the instructions of the administered questionnaire. However, it is, of course, unknown if the couples did indeed abide by this request. If they did not, it may have impacted their BigCAT scores.

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