ATTITUDES, ANXIETY AND COPING STRATEGIES IN PERSONS WITH STUTTERING

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Register number: 08SLP009

**A Dissertation submitted in part fulfillment of
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**ALL INDIA INSTITUTE OF SPEECH AND HEARING
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May, 2010

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CERTIFICATE

This is to certify that this dissertation entitled **"Attitudes, Anxiety and Coping strategies in persons with stuttering (PWS)"** is a bonafide work submitted in part fulfillment for the degree of Master of Science (Speech Language Pathology) of the student (Registration number: 08SLP009). This has been carried out under the guidance of a faculty of this institute and has not been submitted earlier to any other university for the award of any other diploma or degree.

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CERTIFICATE

This is to certify that this dissertation entitled **"Attitudes, Anxiety and Coping strategies in persons with stuttering (PWS)"** has been carried out under my supervision and guidance. It is also certified that this has not been submitted earlier to any other University for the award of Diploma or Degree.

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DECLARATION

I hereby declare that this dissertation entitled **"Attitudes, Anxiety and Coping strategies in persons with stuttering (PWS)"** is the result of my own study under the guidance of Dr. Y. V. Geetha, Professor of Speech Sciences, Department of Speech Language Sciences, All India Institute of Speech and Hearing, Mysore, and has not been submitted earlier to any other university for the award of Diploma or Degree.

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to enact gratitude is generous and noble,
but to live gratitude is to touch Heaven".

Johannes A. Gaertner

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-Richard Bach

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CHAPTER I

INTRODUCTION

Stuttering is an involuntary, intermittent and debilitating speech disorder that afflicts approximately 1% of the population. Its primary manifestations include aberrant sound prolongations and syllabic repetitions that are interspersed with otherwise perceptually normal speech patterns (Bloodstein, 1995). In other words, a person who stutters may begin oral communication normally without disruption and then suddenly and uncontrollably, begins to produce unexpected rapid oscillatory syllabic repetitions (Kalinowski et al., 2004). Oftentimes, syllable repetitions are intermixed with audible (i.e., sound prolongations) and inaudible oscillatory fixations (i.e., no sound), producing intermittent and aberrant interruptions in the communicative process. However, these overt speech disruptions often end just as abruptly as they started, with the return of normal-sounding speech. The sudden onset and offset of stuttering continues throughout oral communication and differentiates the speech of those who stutter from those who do not. Along with these perceptual/acoustic manifestations, people who stutter oftentimes exhibit oscillatory, ancillary behaviors that transcend the speech mechanism. These aberrant behaviors may include involuntary head jerks, arm jerks, finger tapping, foot tapping, postural fixations, facial grimaces, lip bites, clavicular breathing, and other struggle behaviors (Bloodstein, 1995; Woolf, 1967).

People who stutter (PWS) tend to have increased levels of anxiety compared to people who do not stutter (PWNS), particularly in social situations (Messenger, Onslow, Packman, & Menzies, 2004).

Stuttering is described as unusually frequent disruptions in the flow of speech (Guitar, 2006). These disruptions include phoneme, syllable, or word repetitions, phoneme prolongations, and airflow or voicing blocks. Additional symptoms include facial grimacing, fixed articulatory postures, and obvious fear during speech attempts, or anticipation of speech failure prior to speech attempts (Sheehan, 1975). Nevertheless, these overt symptoms of stuttering are only a small part of the disorder, resulting in the analogy of stuttering as an iceberg (Sheehan, 1975). The audible and visible signs of stuttering are likened to the tip of an iceberg that rises above the water level. Yet, far greater and more detrimental is its submerged portion, which when likened to stuttering, comprises feelings of fear, shame, guilt, anxiety, hopelessness, isolation, and denial.

A variety of theories have been formulated in an attempt to describe the nature and etiology of stuttering. Examples of theories that describe the nature (or moment) of stuttering are the **Neuro-psycholinguistic theory** (Perkins, Kent, & Curlee, 1991) and the **Covert Repair Hypothesis** (Postma & Kolk, 1993). The Neuro-psycholinguistic Theory (Perkins et al., 1991) describes disfluent speech as an in-coordination between the linguistic and paralinguistic mechanisms of speech, which are habitually organized in different parts of the brain and culminate together to produce speech. Stuttering is therefore defined as speech disruptions that occur as the result of a loss of control when the speaker is under time pressure to speak. The Covert Repair Hypothesis (Postma & Kolk, 1993) suggests that speakers self-repair potential speech errors through the use of an internal monitoring device before speech is articulated. Because correcting speech errors covertly prior to speech articulation naturally interferes with fluent articulation, it

is thus demonstrated that stuttered speech results when speakers continuously attempt to repair their speech programmes before speaking.

Of particular interest to the present study is the role of anxiety in stuttering. There are several well-known theories that have been developed which focus on anxiety and stuttering. For example, the **Two-Factor Theory of stuttering** (Brutten & Shoemaker, 1967) suggests that the listeners' negative reaction to the speech of PWS conditions a link between speech and anxiety. An individual's consequent avoidance of phonemes and words they perceive as difficult, or even avoidance of speech situations due to apprehension of stuttering, results in stuttering, and thus reinforces the link between speech and anxiety. A similar theory, known as the **Anticipatory struggle hypothesis** (Bloodstein, 1987; Hulit & Haasler, 1989), suggests that some children simply consider speech a demanding task. This is primarily due to experiencing difficulty and frustration. On the other hand, the **Approach-Avoidance Conflict Theory**, proposed by Sheehan (1953), is based on the notion of internal conflict. Typical types of internal conflict include approach-approach, avoidance-avoidance, and approach-avoidance. People face approach-approach conflicts when having to make a decision between the two desired options. Conversely, avoidance-avoidance conflicts occur when a choice must be made between two unfavorable alternatives. Stuttering, as it relates to anxiety, is likened to an approach-avoidance conflict. Although PWS desire to speak in social situations, they are also afraid of speaking for fear of stuttering. The Approach- Avoidance Conflict Theory maintains that stuttering arises when PWS experience an internal conflict between wishing to speak and wishing to remain silent. When the avoidance of not speaking by

remaining silent exceeds the approach drive to speak, PWS remain silent. Alternatively, when the desire to approach speaking is stronger than the avoidance of not speaking (and instead remaining silent), for example when wishing to convey great enthusiasm or in emergencies, PWS are able to speak fluently. However, when the internal drives to approach versus avoid speaking tasks are relatively equal, stuttering occurs. PWS avoid speech for several reasons, including fear of stuttering on certain words or in certain speaking situations, anxiety about the emotions they may express, or an unpleasant relationship with their communication partner.

The Approach Avoidance Conflict theory was further developed by Sheehan (1975), based on earlier work by Miller (1944), and described as the **Double Approach-Avoidance Conflict Theory** (Miller, 1944; Sheehan, 1975). In this there are approach and avoidance tendencies for both speaking and remaining silent. Firstly, when PWS desire to approach speaking to fulfill their social obligations, they are simultaneously faced with a fear of stuttering during their speaking attempts (Johnson & Knott, 1936). The alternative to speaking is silence, which appears an appealing approach tendency, since it bypasses the potential risk of stuttering that is associated with speaking. However, silence is also a threat to social standing. Hence, if they speak PWS may stutter and experience listeners' negative reactions towards their disfluent speech. Yet if they remain silent to eliminate the danger of speaking, they may be perceived as disinterested or unsociable. For that reason, while they desire to avoid speaking in order to avoid stuttering, they are also afraid to be silent. Struggling between the possibilities of speaking and remaining silent, together with an inability to resolve this inherent conflict,

consequently results in stuttering. An additional facet of the Double Approach-Avoidance Conflict Theory is the association of negative emotions to either speaking or remaining silent. In the event of speaking, the trade-off is shame and guilt, whereas in remaining silent, feelings of frustration and guilt are experienced. Because both choices result in guilt, a choice must be made between experiencing either shame or frustration. Regardless of the option selected, speakers feel regret as the avoidances of the alternative choice become insignificant and it appears that the alternative choice would indeed have been a more beneficial option to have selected.

Anxiety is a negative emotion and consists of state and trait components (Bennett, 2006). **State anxiety** is specific to a given situation and may be triggered by factors associated with social interaction (Ezrati-Vinacour & Levin, 2004). **Trait anxiety** refers to an individual's general level of anxiety, regardless of situational factors that are likely to evoke anxiety (Menzies, Onslow, & Packman, 1999). In contrast to state anxiety, trait anxiety develops gradually over time (Ezrati-Vinacour & Levin, 2004).

It is commonly believed that anxiety is related to stuttering, despite conflicting evidence in the literature with regard to the precise nature of this relationship (Blood, Blood, Bennett, Simpson, & Susman, 1994; Craig, 1990; Ezrati-Vinacour & Levin, 2004; Miller & Watson, 1992; Poulton & Andrews, 1994; Weber & Smith, 1990). PWS often report anxiety related to producing particular sounds or words, or participating in certain communicative situations (Blood et al., 1994). In addition, stuttering severity appears to be dependent on factors such as communication partner status or the number of

addressees, novelty, formality, and familiarity with the speaking situation, and feelings of conspicuousness (Buss, 1980; Porter, 1939; Siegel & Haugen, 1964). Because stuttering severity is associated with emotions such as embarrassment, frustration, and apprehension of negative social evaluation, greater anxiety levels in PWS compared to people who do not stutter (PWNS) are to be expected (Craig, Hancock and Tran, 2003). Nevertheless, it remains unclear at present, whether PWS are more anxious in general than PWNS.

A **Generalized Anxiety Concept** has been proposed to suggest that PWS show overall high state and trait anxiety (Craig & Hancock, 1996). There is conflicting evidence in the literature to support this concept (Craig, 1990; Craig et al., 2003; Fitzgerald, Djurdjic, & Maguin, 1992; Kraaimaat, Janssen, & Van Dam-Baggen, 1991; Miller & Watson, 1992). For example, Craig (1990) found that PWS experienced state anxiety specific to speaking situations prior to treatment, as well as overall higher levels of trait anxiety than PWNS, regardless of whether they had had treatment or not. Further, Craig et al. (2003) found higher levels of generalized anxiety in severely affected PWS who were currently (or had been previously) involved in treatment than in PWNS. The researchers concluded that PWS who stuttered most severely showed clear evidence of heightened generalized anxiety, whereas those who had not been involved in treatment did not differ significantly from PWNS. Kraaimaat et al. (1991) also found differences between PWS and PWNS on both state and trait anxiety components. In contrast, Miller and Watson (1992) found no differences in state or trait anxiety, as measured by the State-Trait Anxiety Inventory (STAI) (Spielberger, Gorsuch, & Luschene, 1970) between

PWS and PWNS aged between 16 and 68 years. Despite conflicting evidence in the literature with regard to the Generalized Anxiety Concept (Craig, 1990; Craig et al., 2003; Fitzgerald et al., 1992; Kraaimaat et al., 1991; Miller & Watson, 1992), several researchers have concluded that trait anxiety is comparable between PWS and PWNS, with primary differences between the two groups related to state anxiety (Ezrati-Vinacour & Levin, 2004; Van Riper, 1982). For example, Ezrati-Vinacour and Levin (2004) did not find any differences between the trait anxiety levels of individual PWS as a function of stuttering severity, however they did find a difference in state anxiety levels specific to social situations.

Modern theorists review stuttering in the light of learned behavior. These theorists advocate that stuttering is learned behavior with an antecedent of anxiety. Anxiety is the drive state which precipitates the stuttering behavior. Because of the evolution of this theory, interest is focused on defining, measuring and assessing anxiety and its importance to the PWS in his speech behavior.

It is generally accepted that PWS do indeed experience increased levels of state anxiety compared to PWNS, particularly in social situations (Messenger, Onslow, Packman, & Menzies, 2004). This is termed, "communication apprehension" (McCroskey1978). The familiarity of negative emotions in association with speaking experiences of the past serves to condition communication apprehension in PWS (Alm, 2004). In support of this claim, several questionnaire studies have confirmed the presence

of negative communication attitudes in PWS (Baumgartner & Brutten, 1983; Bloodstein, 1975; Vanryckeghem & Brutten, 1996).

In summary, although the exact role of anxiety in adults who stutter remains unclear at present, it is generally believed that PWS have greater state anxiety specific to speaking situations than PWNS. Research investigating the Generalized Anxiety Concept in PWS has generally been rejected (Ezrati-Vinacour & Levin, 2004; Miller & Watson, 1992; Van Riper, 1982).

Stuttering becomes more severe when an individual is exposed to threatening or demanding stimuli and reduces when the stimulus is less threatening. For instance, anxiety-provoking situations such as speaking to an audience or to someone in authority, or to a listener who seems to be impatient or critical, are associated with increased stuttering (Bloodstein, 1995). Conversely, the frequency of stuttering is generally reduced in situations that are not anxiety-provoking, such as talking to a familiar person or someone not in authority.

Levels of state anxiety tend to be higher at the moment of stuttering than at non-stuttering moments and or in non-stuttering controls. For example, Craig (1990) found that people who stutter had substantially higher state anxiety levels than non-stuttering controls when talking on the telephone. Gabel *et al* (2002) found that people who stutter had higher levels of state anxiety when speaking, as did Peters & Hulstijn (1984). Ezrati Vinacour & Levin (2004) found that severity of stuttering correlated significantly with

state anxiety during speech tasks, whereas no significant association existed between state anxiety and non-speech tasks. Social anxiety disorder involves the persistent fear of embarrassment and humiliation, with sufferers avoiding participating in events they think may be potentially distressing, for example public speaking, meetings and social occasions. The disorder is characterized by high levels of generalized anxiety, which can result in severe distress and impede functioning (American Psychiatric Association, 1994).

Anxiety has almost invariably been suggested either as a necessary or at least as an accompanying component of stuttering. Direct research into the role of anxiety in stuttering has been carried on for over sixty years. But defining the presence of anxiety in individuals who stutter and the relationship and role of anxiety to stuttering has been difficult and confusing. Discrepancies among research studies in the type of anxiety examined (e.g., trait/general anxiety, vs. situation specific/state anxiety) and measurement techniques (personality inventories, self-report scales, physiologic indices such as cardiovascular or electro-dermal responses, or cortisol levels in saliva, etc.) further add to the discrepant and confusing results seen in the literature.

'Attitudes' are one of the most useful concepts that psychologists have evolved to deal with organizations of experiences and behavior. Attitudes, being hypothetical constructs refer to something that cannot be directly observed and inferred from their effects on behavioral actions which are directly observable. In simple terms, attitudes are not directly observable, but their effects are observable and measurable. It is a system of

organization of experience and behaviors related to a particular object or event. According to McDavid & Harari (1974), every attitude includes 3 components, a cognitive component (idea), an affective component (feelings and emotion), and a behavioral component (judgment or actions).

The act of communication happens always in the social context, involving one or more listeners. Hence, communication disorders are always entangled with the attitudes of the listeners towards that disorder and the person who possess the disorder. Such attitudes are influenced by the level of adequacy of communication. People with communication disabilities, especially stuttering, develop a negative personality stereotypes maintained by different groups of people (Weisel & Spektor, 1993).

All speech is more difficult when under pressure. Commonly, social pressures, like speaking to a group, speaking to strangers, speaking on the telephone, or speaking to authority figures, will irritate and make worse a stutter. Also, time pressure often exacerbates a stutter. Pressure to speak quickly when answering or conversing is usually very difficult for a PWS, particularly on the telephone where they do not have body language to aid themselves. This usually leaves dead silence in the place of nonverbal communication, which will indicate to the listener that the PWS is not there or the line has been disconnected. Other time pressures will also worsen a stutter, such as saying one's own name, which must be done without hesitation to avoid the appearance that one does not know his or her own name, repeating something just said, or speaking when

somebody is waiting for a response. Getting hot or sweaty, heart pounding, and butterflies in the stomach are natural - the body response to strong emotions.

Coping behaviors in the developing or chronic stuttering problem can take many forms and change with experience. They can be physiological behaviors in the speech mechanism, such as forcing, speeding or otherwise disrupting the natural sequence of speech movements. They can be non-speech physiological behaviors, such as extraneous movement of body parts before or during stuttering episodes or fluent speech. They can be voluntary avoidance of specific sounds, words, people or situations. They can even take the form of intellectual rationalization or denial of the speaking problem.

When stuttering, PWS will often use nonsense syllables or less-appropriate (but easier to say) words to ease into the flow of speech. They also may use various personal tricks to overcome stuttering or blocks at the beginning of a sentence, after which their fluency can resume. Finger-tapping or head-scratching are two common examples of tricks, which are usually idiosyncratic and may look unusual to the listener. In addition to word substitution or the use of filled pauses, they may also use *starter devices* to help them ease into fluency. A common practice is the timing of words with a rhythmic movement or other event. For instance, PWS might snap their fingers as a starter device at the beginning of speech. These devices usually do work, but only for a short amount of time. Often PWS will do something at some point to avoid, postpone, or disguise a stutter and, by coincidence, will not stutter. The PWS then makes a cause-effect connection between that new behavior and the release of the stuttering, and the behavior becomes a habit.

As PWS often resort to word substitution in order to avoid stuttering, some develop an entire vocabulary of easy-to-pronounce words in order to maintain fluent speech - sometimes so well that no one, not even their spouses or friends, know that they have a stutter. PWS who successfully use this method are called "covert stutterers" or "closet stutterers". While they do not actually stutter in speech they nevertheless suffer greatly from their speech disorder. The extra effort it takes to scan ahead for feared words or sounds is stressful, and the replacement word is usually not as adequate a choice as originally intended.

Literature on attitudes, anxiety and coping strategies seen in PWS shows the existence of negative attitudes and anxiety in PWS. Though attitudes are universal they differ to some extent with cultures. There have been no reported studies relating the attitudes, anxiety and coping strategies in PWS in the Indian context.

Hence, it is very important to assess the attitudes, anxiety and coping strategies in PWS and to intervene if required. Stuttering is a heterogeneous group of disorders, and hence it is necessary to study it in different cultural and linguistic perspective.

Need for the study

There is a need to study the attitudes, anxiety and coping strategies in PWS with regard to various groups of PWS such as: new PWS, PWS after a month of therapy and in relapse cases. This is in view of the general observation that;

i. because of the negative attitudes PWS are resistant to changes in their fluency even after fluency therapy.

ii. according to Personal Construct Theory (Kelly, 1955), "A person's unique psychological processes are channeled by the way s/he anticipates events"

iii. there are relapses seen in at least 50% of PWS

iv. assessing the attitudes and coping strategies in PWS will be helpful in overall management of PWS

Hence, the present study was planed by taking into account all these factors. It is also desirable to study if the attitudes, anxiety and coping strategies in PWS vary with respect to severity, chronicity and family history which might later help in intervention of PWS. The present study was hence planned with the following objectives as to how:

a) attitudes and coping strategies differ with respect to severity of stuttering

b) attitudes and coping strategies differ with respect to chronicity of stuttering

c) attitudes and coping strategies differ with respect to relapses

d) and to study the relationship between attitude, anxiety and coping in PWS

CHAPTER II

REVIEW OF LITERATURE

Communication is essential to human beings for social survival especially in modern societies. Without communication or language human beings will have difficulty to survive as a social person. Communication disorders are always entangled with the attitudes of the person who possess the disorder and attitudes of listener towards that disorder.

Triandis (1971) described attitudes as an idea charged with emotion that predisposes a class of action to a particular class of situation. Triandis (1967) supports a tripartite attitudinal model that describes three classes of evaluative responses to specific stimuli or attitudinal objects. They are (a) affect is associated with sympathetic nervous response or verbal statements of affect or emotion (the feeling component), (b) behavior deals with overt action or verbal elements concerning the behavior (the action component), and (c) cognition is associated with perceptual responses or verbal statement of belief (the idea component).

The presence of a stigma has negative effects on interpersonal behavior of both the stigmatized person and the person(s) with whom he or she is interacting (Farina, Allen & Saul, 1968; Hastorf, Schneider & Polefka, 1970; Love, 1981). This information is relevant to speech language clinicians in at least two ways. First, in relation to clinical interaction with clients, a speech language clinician should be fully aware of the problems the client faces in the society so that the clinician can relate to the client effectively (Turnbaugh, Guitar & Hoffman, 1979; Woods & Williams, 1971). Second,

awareness of the problems the clients encounter in different places (including work place) which will help in providing the necessary support and guidance to overcome the same. The Speech language clinicians are in a unique position to assure that the rights of the persons with communicative handicap are not violated (Love, 1981).

Psychology of stuttering

The psychology of functional speech disturbances and inadequacies has a definite place in abnormal psychology since the use and understanding of speech is one of the most striking mental phenomena. Stuttering is an obvious abnormality, and the usual absence of organic basis for it places it as a *psycho- neurosis*.

Other psychological studies found no difference between PWS and PWNS for self-concept, levels of aspiration, body images, role perception, handwriting, social maturity, birth order, exaggerated fears, sleep disturbances, hyperactivity, temper tantrums, thumb sucking and nail biting. PWS are, on average, psychologically normal, except for fears and anxieties about talking. PWS generally have the same speech-related fears and anxieties as PWNS, such as fear of talking to strangers and fear of speaking to an audience, but these fears are greater in PWS.

Most of the attempts to define stuttering are on the basis of blockages, dis-coordination or fragmentations of the forward flow of speech (fluency). These stoppages, referred to as disfluencies, are often excessive and characterized by specific types of disfluency. These types of disfluencies include repetitions of sounds and syllables, prolongation of sounds, and blockages of airflow. Individuals who stutter are often aware of their stuttering and feel a loss of control when they are disfluent. Both children and

adults with stuttering expend an excessive amount of physical and mental energy when speaking. Older children and adults who stutter show myriad negative reactive behaviors, feelings, and attitudes. These behaviors, referred to as "secondary behaviors," make the disorder more severe and difficult to treat.

According to Van Riper (1978) stuttering occurs when the forward flow of speech is interrupted abnormally by repetition of a sound, syllable or articulatory posture or by avoidance and struggle behaviors.

Wendell Johnson (1963) defines "stuttering is an anticipatory, apprehensive, hypertonic, avoidance reaction".... meaning, stuttering is what a speaker does when he expects it to happen, dreads it, tenses and tries to avoid it....

Emotions and changes in emotional arousal are involuntary behaviors, therefore extremely difficult to control. To a large extent the speaker associates the prediction, occurrence and problem of stuttering with the emotional cues triggered by events, people, situations, images and memory. The thoughts, perceptions, and attitudes are integral to the development and maintenance of stuttering. With continued experience with speech disruption and ineffective recovery, the person begins to focus attention on what might occur in the future when talking. This type of anticipatory thinking elicits protective emotional and physiological responses from the system. These responses, in turn, can trigger further problems with fluency. Thoughts can become clouded with images of stuttering, how people will react, the feelings of embarrassment and dread that precede and accompany stuttering and ways of preventing or coping with the problem. Many

thoughts about talking are directed toward ways to prevent, hide, or rapidly escape the bonds of a stuttering episode.

Various theorists have maintained that PWS are psychologically different from PWNS. However, evidence bearing on this point is contradictory. Projective psychological tests have failed to demonstrate any consistent disparities between these two populations. Adams (1969) undertook the review of several other types of psychological investigations of PWS and normal speakers. The collective findings of these projects indicate that PWS do differ significantly from PWNS along several, diverse psychological dimensions.

A great deal of research has been addressed to the investigation of stuttering as a personality disturbance. Goodstein (1958) surveyed the relevant research of the preceding 20 years. He undertook separate reviews of the data bearing on the personality and adjustment of the child and adult PWS. He found little evidence to support the contention that CWS and adult with stuttering has a particular pattern of personality, or is neurotic or severely maladjusted. There was some indication that adult PWS have more personal problems than adult PWNS; however, it was not possible to identify whether such problems were related to the stuttering. In general, personality assessment of PWS regularly found them to be more like psychologically normal individuals than like psychiatric patients.

In a similar analysis Sheehan (1970) extended his original analysis and the accumulated evidence failed to show reliable difference in personality between PWS and

PWNS. Van Riper (1970), surveyed personality studies dating from 1928, arrived at the same conclusion.

Klompas and Ross (2004) investigated the life experiences of a group of South African adults who stutter and the impact of stuttering on their quality of life. Participants were 16 adults with a mean age of 28.9 and ranging from 20 to 59 years. Most participants felt that stuttering had affected their self-esteem and self-image and had evoked strong emotions within them. Findings were taken to suggest the need to incorporate subjective feelings about stuttering into the clinical practice of speech-language therapy; to provide information and coping strategies for teachers and employers; and for further research.

Stuttering is an involuntary fluency disorder that is not uncommon in society. However, the impact of stuttering on a composite measure such as quality of life has rarely been estimated. Quality of life (QOL) assesses the well-being of a person from a multi-dimensional perspective, and valid and reliable general QOL measures are available that can be used to estimate the impact of stuttering on QOL. A study conducted by Blumgart, Tran and Craig (2009) involved the use of a general measure of QOL called the Medical Outcomes Study Short Form-36 (SF-36) in order to assess the impact of stuttering in 200 adults who stutter (AWS). Findings indicated that stuttering does negatively impact QOL in the vitality, social functioning, emotional functioning and mental health status domains. Results also tentatively suggest that people who stutter with increased levels of severity may have a higher risk of poor emotional functioning. These findings have implications for treatment such as the necessity to address the

emotional and psychological aspects of QOL in AWS and the need for additional clinical resources to be invested in stuttering treatment.

Attitudes, anxiety and coping strategies in PWS have been a major area of study in the field of stuttering research. The literature shows that PWS are stereotyped as submissive, non-assertive, persons who are tensed, insecure and fearful.

1. Anxiety and stuttering

Anxiety has been suggested as playing a primary role in a variety of theories, from neurosis/psychosis models (e.g., Glauber, 1958), learned behavior (e.g., Moore, 1938), and physiologic/multi-factorial models (e.g., Smith & Kelly). Many authors describe a clear role for anxiety in the development and/or maintenance of stuttering and provide empirical evidence of heightened anxiety levels in people who stutter. Conversely, others dispute the necessity of anxiety in the equation and cite empirical research demonstrating no difference in measures of anxiety between PWS and PWNS.

Santostefano (1950) reports R. May's definition of anxiety as "apprehension cued off by a threat to anything which the individual holds essential to his existence as a personality."

Studies have found that, when confronted with threatening social stimuli, people who stammer show physical arousal and report increased anxiety at the moment of stuttering (Bloodstein, 1995; Craig *et al*, 2003). Heart rate can accelerate just prior to stuttering, and when reading aloud people who stammer have been found to have greater heart rate variability, greater respiration changes and greater heart rate acceleration than

non-stuttering controls (Bloodstein, 1995; Craig *et al*, 2003). In PWS it has also been found that vasoconstriction is more likely to occur just before stuttering than before fluently spoken words (Bloodstein, 1995).

Mowrer (1939) discusses anxiety as being basically anticipatory in nature and having great biological utility in that it adaptively motivated living organisms to deal with (prepare for or flee from) traumatic events in advance of their actual occurrence, thereby diminishing their harmful effects. Therefore, it might be concluded that the reduction of anxiety reinforces the behavior that brought about the reduction, whatever that behavior might be. The explanation can be generalized to stuttering behavior with reduction of anxiety being the reinforcing agent.

Bloodstein wrote an intriguing article (1950) in which he related reductions in stuttering to a single hypothetical condition - reduced anxiety about stuttering. He summarily stated that "... the less the anxiety about speech difficulties, the less the effort to avoid it, and consequently.... the less the stuttering". This finding indicates that anxiety and stuttering go hand-in-hand.

Trotter and Bergman (1952) compared the reactions of 100 PWNS and 50 PWS to 40 different speaking situations through a rating scale technique. The most impressive finding was that "..... a considerable number of PWNS were more avoidant of speaking and enjoyed speaking less, than many PWS." Such findings indicate that "fear" of speaking is not unique to PWS or stuttering and it can happen in PWNS too.

In a study by Berry and Eisenson (1956), report that PWS are "anxiety-ridden persons who concretize their anxieties and insecurities in their speech."

A review of anxiety literature will reveal that generalities, contradictory descriptions and multiple definitions abound within the same work. Even the most fruitful literature is phrased tentatively and general agreement occurs on only one point- that much remains to be learned.

In the psychological literature, anxiety is differentiated from fear. Fear generally refers to apprehensive states which are related to known objects or situations that are, to a great extent, consciously understood and susceptible to appraisal. The critical feature of anxiety is its element of the unknown.

Research exists attempting to assess anxiety in PWS using physiological measures. Measures such as changes in heart rate, galvanic skin response, and autonomic nervous system activity arousal have all led to inconclusive or equivocal results (Weber & Smith, 1990). Cortisol, a steroid stress hormone, has been extensively used as a measure of generalized, trait, and state anxiety in various populations (Abplanalp, Livingston, Rose, & Sandwisch, 1977; Benjamins, Asscheman, & Schuurs, 1992; Wang, Kulkarni, Dolev, & Kain, 2002). However, it appears heightened cortisol levels are not indicative of generalized or trait anxiety; rather, they suggest increased state anxiety levels (Craig & Hancock, 1996).

Craig (1990) explored the relationship between self-reported anxiety and stuttering. In this study, a large number of PWS were assessed on state and trait anxiety

before, and on trait anxiety after, intensive behavioral treatment. Results showed that persons who stutter had significantly higher levels of fear (state anxiety) in a demanding speech situation. They were also shown to have higher levels of chronic anxiety (trait anxiety) than matched controls. However, trait anxiety measured after treatment was within normal levels. Although not allowing the conclusion that anxiety causes stuttering, these results do have important implications for the management of the disorder.

People who stutter are frequently viewed as more anxious than PWNS and as being depressed. Further, a strong and pervasive stereotype is held by PWNS that people who stutter are guarded, nervous, and tense. A study by Miller and Watson (1992) examined self-perceptions of general state and trait anxiety, depression, and communication attitude in matched groups of PWS and PWNS. Results refute the assertion that people who stutter are more anxious or depressed than those who do not. Findings suggest that the anxiety of people who stutter is restricted to their attitude towards communication situations and that it is a rational response to negative communication experiences.

Blood and Susman (1994) studied anxiety, as measured by self-report inventories and salivary cortisol levels, in 11 male PWS and 11 male PWNS during baseline, low stress and high stress sessions. Significant differences in anxiety levels among the baseline, low stress and high stress sessions for both groups of subjects were found for the State-Anxiety Inventory. Findings suggest that anxiety levels change in low stressed as well as in high stressed conditions.

Walker, Baird and Stein (1996) evaluated features of social anxiety in a group of adult PWS and it was found that many adults seeking treatment for stuttering have salient difficulties with social anxiety that may prove amenable to cognitive-behavioral interventions.

Similarly, Mahr and Torosian (1999) in their study compared symptoms of anxiety among a sample of 22 PWS to previously gathered for social phobics and non-patient controls. Results revealed that PWS had more social anxiety and avoidance and that they may not suffer from social phobia but some may avoid social situations because of fear of stuttering. Therefore, findings suggest that because of fear of speaking, PWS avoid situations that lead to anxiety.

Speech language pathologists have used self-report questionnaire to determine the relative anxiety which clients who stutter experience during different speaking situations. However, little is known about the extent to which a client's perception of his own speech-related anxiety correlates to his physiological arousal in specific speaking situations. In a study conducted by Dietrich and Roaman (2001) 24 PWS were administered a questionnaire to elicit predictions of their speech-related anxiety for 20 hypothetical speaking situations. Results revealed no correlations between participant's prediction of anxiety on the questionnaire and the participant's skin conduction responses. Through this study it was evident that PWS could not predict own speech-related anxiety.

Kraaimaat and Vanryckeghem (2002) investigated the presence of social anxiety in adults who stutter. This was carried out by administering the Inventory of Interpersonal Situations (IIS) (Van Dam-Baggen & Kraaimaat, 1999), a social anxiety inventory, to a group of 89 people who stuttered and 131 people who did not stutter. Two components of social anxiety were measured by the ISS, the extent to which emotional tension or discomfort is perceived in social situations and the frequency with which social responses are executed. The people who stuttered displayed significantly higher levels of emotional tension or discomfort in social situations. They also reported a significantly lower frequency of social responses compared to their non stuttering peers. Findings indicate that PWS had higher levels of social anxiety than PWNS.

A preliminary investigation of the differences in self-reported anxiety of people who do and do not stutter was conducted by Rodney and Linda (2002). Ten people who stuttered, all of whom had experience with stuttering therapy, were matched with 10 participants who did not stutter. The anxiety reported by the group of PWS was compared to the anxiety reported by the group of individuals who did not stutter. Statistical analyses indicated a significant main effect for the group who stuttered as they reported more anxiety during the entire session. There was no main effect for condition. Hence, PWS had increased anxiety regardless of condition than PWNS.

Craig (2003) studied anxiety levels in people who stutter. 87 people identified as definite cases of PWS across all ages and 63 participants who were 15 years or older completed a trait anxiety questionnaire over the telephone. Results revealed that mean

trait anxiety levels were significantly higher than levels generally found in society, though differences were not large.

DiLollo, Manning and Neimeyer (2003) investigated the "meaningfulness" with which fluent and disfluent persons were able to construe themselves in stuttering and non-stuttering speaker's role. This was based on the suggestion by Fransella (1972) that PWS experience a lack of meaningfulness of their fluent speaker role and demonstrated that a Personal Construct Psychology approach to therapy with PWS may be useful. Results indicated that PWS displayed greater cognitive anxiety (difficulty integrating their experience meaningfully) in a fluent speaking role than in stuttering role, whereas the reverse was found for fluent speakers. These results suggest the relevance of assessing and addressing the meaningfulness of the "dominant" disfluent speaker role in treating PWS, insofar as a tendency to maintain the predictability of this familiar role may contribute to stuttering maintenance and relapse.

Ezrati-Vinacour and Levin (2004) examined the relationship within the framework of the multi-dimensional interaction model of anxiety that includes an approach to general anxiety in specific situations. Findings indicate that trait anxiety is higher among people who stutter compared to fluent speakers, thus indicating that anxiety is a personality trait of people who stutter. State anxiety in social communication is higher among those with severe stuttering as compared to those with mild stuttering and fluent speakers. Thus, state anxiety is related to stuttering severity.

Persons who stutter often report their stuttering is influenced by emotional reactions, yet the nature of such relation is still unclear. Psycho-physiological studies of

stuttering have failed to find any major association between stuttering and the activity of the sympathetic nervous system. A study by Alm (2004) of heart rate in relation to stressful speech situations indicate that PWS tend to show a paradoxical reduction of heart rate compared with PWNS. The author argued that reduction of heart rate could indicate an emotional response to anticipatory anxiety and found reduction in heart rate; speech related anticipatory anxiety in people who stutter is likely to be secondary.

The study by Messenger, Onslow, Packman and Menzies (2004) was designed to determine whether expectancy of social harm is associated with speech related anxiety in those who stutter. The participants included were 34 PWS and 34 control participants. The authors concluded that social anxiety in PWS was due to negative social expectancies.

High levels of anxiety can negatively affect the lives of adolescents as well as children. Blood, Meyer and Qualls (2007) conducted a study where thirty-six adolescents who stutter and 36 adolescents who do not were administered standardized scales for anxiety and self-esteem. Results revealed no significant differences between groups on ethnicity, socioeconomic class, gender and anxiety levels. A positive, significant correlation between anxiety scores and self-esteem scores was found for both groups. Therefore, it is clear that PWS have anxiety and self-esteem problems.

The study conducted by Davis, Shisca and Howell (2007) was designed to see whether young children and adolescents who persist in their stutter show differences in trait and/or state anxiety compared with people who recover from their stutter and fluent

control speakers. There were no differences between persistent, recovered and control groups with regard to trait anxiety. The persistent group had higher state anxiety than controls and the recovered group for three out of four speaking situations. The findings were interpreted as showing that anxiety levels in certain affective states appear to be associated with the speaking problem.

Mulcahy, Hennessey, Beilby and Byrnes (2008) examined the relationship between anxiety, attitude toward daily communication and stuttering symptomatology in adolescent with stuttering. Adolescents who stuttered showed significantly higher levels of trait, state and social anxiety than fluent speaking controls. Trait and state anxiety was significantly associated with difficulty with communication in daily situations for adolescents who stutter, but not for controls. These results highlight some of the psychosocial concomitants of chronic stuttering in adolescence, but challenge the notion that anxiety plays a direct mediating role in stuttering surface behaviors. Rather, the results suggest that stuttering is a disorder that features psychosocial conflict regardless of its surface features.

Packman and Onslow (2009) explored the prevalence of anxiety disorders among adults seeking speech therapy for stuttering, employing a matched case–control design, participants included were 92 adults seeking treatment for stuttering, and 920 age- and gender-matched controls. Compared with matched controls, the stuttering group had six- to seven-fold increased odds of meeting a 12-month diagnosis of any *DSM-IV* or *ICD-10* anxiety disorder. In terms of 12-month prevalence, they also had 16- to 34-fold increased odds of meeting criteria for *DSM-IV* or *ICD-10* social phobia, four-fold increased odds of

meeting criteria for *DSM-IV* generalized anxiety disorder, and six-fold increased odds of meeting criteria for *ICD-10* panic disorder and it was concluded that stuttering appears to be associated with a dramatically heightened risk of a range of anxiety disorders.

Blumgart, Tran and Craig (2010) conducted a study to determine the spot prevalence of social phobia in adults who stutter and to investigate differences in social anxiety between AWS and controls who do not stutter. The AWS were found to have significantly raised trait and social anxiety, as well as significantly increased risk of SP in comparison to the controls.

From these studies it is clear that anxiety can lead to stuttering due to negative social expectancies. It can also be noticed that PWS can have self-esteem problems due to stuttering. Hence, these studies conclude that anxiety plays a direct mediating role in stuttering.

2. Attitudes in PWS

Personal Construct Psychology (PCP) is a theory of personality developed by the American psychologist George Kelly in the 1950s. **Personal Construct theory** (PCT) is a psychological theory of human cognition. Eddington (1926) said, "Science is the attempt to set in order the facts of experience." George Kelly, the psychologist and creator of personal construct theory pushed this idea two steps further. He inferred that psychology as a science was an attempt to set in order the facts of human experience so that the psychologist could make good predictions about what people will do when

confronted by new situations. He explicitly stated that each individual's psychological task is to put in order the facts of his or her own experience.

The attitudes and reactions of all PWS to interpersonal verbal communication (communication attitudes) have been regarded as constituting a basic component of stuttering for many years (van Riper, 1948; Johnson, Brown, Curtis, Edney & Keaster, 1956; Travis, 1957; Sheehan, 1970; De Nil & Brutten, 1991; Vanryckegham & Brutten, 1996). Several studies have produced evidence that the communication attitudes of adult PWS are more negative than those of adult PWNS (Brown & Hull, 1942; Erikson, 1969, Andrews & Cutler, 1974).

In one of the earliest studies, Knott (1935) had 28 college going PWS identify their most pleasant and the most unpleasant speaking experiences and rate them on an 11-point rating scale. Knott concluded that the average attitude of these PWS towards speaking situations was apparently entirely normal.

Brown and Hull (1942) used the Speech Attitude Scale developed by Knower with 59 older PWS and compared their scores with normal group. The author reported that as a group the PWS's scores were significantly lower, which was interpreted to suggest that PWS were less confident and enthusiastic about speaking and that PWS need attitude changes for speaking.

Erickson (1969) has described the development of a scale designed specifically to assess communication attitudes among PWS. The final "S-scale" consisted of 39 items retained from an initial Communicative Inventory of 466 items. The results showed

overlap between their S-scale distribution which suggests that communication attitudes of PWS and PWNS may differ.

The measurement of change in attitude has been a difficult and neglected aspect of treatment. Andrews and Cutler (1974) investigated the validity and reliability of the Erickson scale over repeated measures by administering it to a control group of 25 PWNS and to a group of 25 PWS during a therapy program. The results revealed that attitude change was only partial, and it was not until the patients completed a program of supervised experience that their attitudes changed to normal. Hence, it is clear from this study that through therapy, the attitudes in PWS can be changed to some extent.

Bloodstein (1975) surveyed PWS regarding their state anxiety related to communication situations and found that anxiety plays a role in increasing disfluency.

Guitar (1976) investigated the relationship between pre therapy attitudes of adult PWS and post therapy treatment outcomes. Using the Eysenck Personality Instrument, Erickson's S-24 Scale and the Stuttering Self-Rating of Reactions to Speaking Situations, Guitar found that post therapy percentage of stuttered syllables was highly correlated to pre treatment measures of attitude, particularly those involving avoidances. Guitar contended that the clinicians may predict therapy outcomes from pre treatment attitudes. Guitar's conclusions were further supported by other researchers who believed the process of therapeutic change involves not only the development of smooth speech production but also modification in negative speech-related attitudes (Andrew & Craig, 1988; Feinberg, Griffin & Levey, 2000; Guitar & Bass, 1978; Kraaimaat et al., 1988).

Previous research has indicated that attitude change generally follows behavior change in operant stuttering therapy programs. Guitar and Bass (1978) conducted a study which sought to examine the long term therapy outcome of PWS whose communication attitudes were not substantially normalized after fluency establishment and generalization. Post transfer attitude scores of 20 PWS were used to classify them into one of two groups: those whose communication attitudes had been modified to show less abnormality than the mean level for normal speakers, and those whose attitudes had not. Follow-up interviews with the 20 PWS one year later indicated that those whose post transfer attitudes were not substantially normalized stuttered significantly.

A study by Manning, Dailey and Wallace (1984) assessed attitude and personality characteristics of 29 PWS (19 male & 10 female) aged 52–82 years using five questionnaires. Results revealed that self-perceived personality characteristics of the older PWS were similar to a group of older PWNS. It was also indicated that, while the older PWS score approximately the same as young adult PWS on scales assessing approach and performance behaviors, the large majority of older PWS perceived their stuttering as less handicapping than when they were young adults. Hence, this study indicates that there is no difference in personality and attitude characteristics between PWS and PWNS.

Miller and Watson (1992) found that the communication attitudes of PWS appeared to deteriorate with worsening self-ratings of stuttering severity. Additional findings indicated that PWS with mild and moderate stuttering severity exhibited a significant positive correlation between measures of communication attitudes and both

state and trait anxiety. Conversely, PWS with severe stuttering showed no significant correlations between anxiety and communication attitudes. It is also thought that PWS often underestimate the severity of their communication apprehension, perhaps as a form of denial (Pennbaker, 1990; Sackeim & Gur, 1978).

A review of the communication disorder literature reporting empirical results on the relationship between communication attitude and stuttering was made by Lewis (1997). The results indicated that: (1) PWS's communication attitudes are significantly poorer than those of PWNS; (2) pre-therapy concurrent correlations between communication attitude and stuttering severity are all positive and range widely from negligible to moderate; (3) severity correlations between communication attitude and post-therapy stuttering are all positive, moderately strong and consistently larger than concurrent correlations.

Fluent speakers use their own experience of normal dysfluency to infer the personality of persons who are often dysfluent. This was examined in the study conducted by Weisel and Spektor (1998) who analyzed the relationship between 164 adolescent's attitudes towards their own communication, measured by the Erickson Scale, and their attitudes towards stuttering adolescents with stuttering. The results showed weak positive correlation between boys' attitudes toward their own communication and that of PWS. In addition, the sex of the PWS had no effect on the attitudes expressed towards them. Female participants showed significantly more positive attitudes towards PWS. Finally positive correlations was found between attitudes towards own communication and social self-image.

Franic and Bothe (2008) assessed the psychometric properties of instruments used to measure constructs similar to stuttering-specific health-related quality of life. In the stuttering literature, most such instruments were originally intended to measure speakers' attitudes about, or reactions to, their stuttering. It was concluded that available instruments do not satisfy psychometric criteria for use in individual or group-level decision making, either as measures of their originally intended constructs or as measures of health-related quality of life. Therefore, these results suggest that there is need of adequate and reliable assessment and instruments to measure attitudes in PWS.

From these studies it is evident that there is attitude change towards communication and change in self-image in PWS. Hence, there is a need for detailed assessment of attitudes in PWS.

3. Coping with stuttering

Psychologists typically evaluate the psychological impact of a particular disorder and how it influences coping and adjustment. They would typically measure cognitive and behavioral factors such as personality, attitudes, perceptions, coping behavior, relationship behavior, and so on. In stuttering, the long-term social risks to children if not assisted in some way are important to understand. As communication is known to be very important for social interaction, stuttering can create barriers to normal social and psychological development. Coping poorly with stuttering over many years can become associated with problems such as abnormal levels of anxiety and distress, feelings of helplessness, lowered employment opportunities and lower than desired quality of life (Craig, 2000).

Several studies have compared the coping behaviors of PWS and PWNS to different kinds of speaking experiences.

Coping behaviors in the developing or chronic stuttering problem can take many forms and change with experience. They can be physiological behaviors in the speech mechanism, such as forcing, speeding or otherwise disrupting the natural sequence of speech movements. They can be non-speech physiological behaviors, such as extraneous movement of body parts before or during stuttering episodes or fluent speech. They can be voluntary avoidance of specific sounds, words, people or situations. They can even take the form of intellectual rationalization or denial of the speaking problem.

Effectively coping with stuttering involves many factors. One of these essential factors is a support network. Yaruss and Quesal (2004) analyzed the multidimensional nature of the International Classification of Functioning, Disability, and Health (ICF) presented by the World Health Organization (WHO) as it relates to stuttering. The authors stated that the ICF, when adapted, is an effective tool for looking at stuttering because it takes into consideration factors that are beyond the observable characteristics of the impairment. Beyond the physiological deficits of stuttering, personal factors, environmental factors, and the individual's performance in life activities can all be applied to describe the effects of stuttering. In addition, the model focuses on intermingling personal factors and environmental factors and demonstrates how these two areas have an effect on the individual's ability to perform in regard to his/her speech.

Once stuttering has persisted into adulthood, total recovery with or without therapy is very unlikely. For some, negative attitudes to speech and speech related

activity would have continued to build, particularly if early therapy has not been successful.

An investigation was carried out by Evesham & Fransella (1985) to test the hypothesis that PWS who achieved fluent speech during two weeks of intensive treatment would be less likely to relapse if they were also helped to reconstrue themselves as fluent people. Forty eight PWS were randomly allocated to a technique or a construct group. By means of a form of behavior modification they were helped to speak fluently. Then the treatment of the technique group focused on the practice of fluent speech in many situations while the construct groups were helped to reconstrue their fluency along the lines of personal construct therapy. The treatment proved to be effective in reducing stuttering behavior and the relapse rate was low. A comparison of the groups showed that the construct group had a significantly lower relapse rate than the technique group.

Carver, Scheier and Weintraub (1989) developed a multidimensional coping inventory to assess the different ways in which people respond to stress. They report correlations between the various coping scales and several theoretically relevant personality measures in an effort to provide preliminary information about the inventory's convergent and discriminant validity. An inventory was used to assess coping responses among a group of undergraduates who were attempting to cope with a specific stressful episode.

The study conducted by Green (1997) addressed the effects of stuttering upon the extent to which people who stutter may perceive themselves as accepted in social speech situations. Twelve female and 48 male PWS participated in the study. Their perceptions

of coping with the reactions from others during episodes of stuttering, as well as with their own reactions in social speech situations, were assessed. The results are generally consistent with the hypothesis that perceived social acceptance in adults who stutter is a function of how they have coped with being persons who stutter. Therefore, this study indicates that coping play a significant role in social acceptance.

Vanryckeghem, Brutten, Uddin and Borsel (2004) administered the Behavior Checklist, a self-report test procedure to 42 adults who stutter and 76 who do not in order to investigate the number, frequency of usage, type and nature of the responses that they reportedly employ to cope with the anticipation and/or presence of speech disruption. The results of the study suggest that quantitative and qualitative differences in coping responses of those who do and do not stutter are potentially useful with respect to differential diagnostic and therapeutic decision making.

Findings of Plexico, Manning and Levitt (2009) studies describe a coping process that emphasizes strategies of protecting both the speaker and the listener from experiencing discomfort associated with stuttering. The companion paper of the authors describes two cognitive-based approach patterns that emphasize self-focused and problem-focused forms of coping. The first of the cognitive-based coping patterns involved speakers approaching stuttering with a broader perspective about themselves and the experience of stuttering, resulting in an improved self-concept and increased self-confidence. The second coping pattern involved speakers focusing on their own goals which results in increased agency and self-confidence. The results revealed that participants moved from emotion-based avoidant patterns of coping that focused on

protecting the self and the listener from experiencing discomfort associated with stuttering to cognitive-based approach patterns that focused on the needs of the speaker. As the participants chose to approach rather than avoid or escape stuttering, they experienced many positive social, physical, cognitive, and affective results.

Relapse in stuttering

Relapse is defined as recurrence of symptoms after a period of improvement (Webster & Poulos, 1989).

Manning (1996) reported that, among the three stages of treatment, "maintenance is burdensome for the clients, for he is working against many forces that are pulling in the direction of pretreatment performance and cognition".

Bloom and Cooperman (1999) wrote that anywhere from 50% to 90% of adults who have attended intensive treatment programs experience some degree of relapse. Explanations for relapse may be the lack of continued practice once treatment is terminated, treatment that stopped too soon, underdeveloped fluency skills, unnatural speaking patterns, continued avoidance behavior, and/or lack of change in client's self-perception. Starkweather (1998) affirmed that what is considered relapse may be attributed to either the client voluntarily discontinuing using the effortful, unnatural speaking techniques or the fear of stuttering was not completely eliminated in therapy.

Most of the above mentioned studies regarding attitudes, anxiety and coping strategies in PWS are in the western context. The attitudes towards disorders are likely to

be culture-bound (Payne, 1986) and hence it cannot be assumed that attitudes, anxiety and coping strategies are same across diverse populations. Though attitudes are universal, they differ to some extent with different cultures (Cooper & Rustin, 1985). Also there have been no reported large scale studies on the attitudes, anxiety and coping strategies in PWS.

From the literature it is clear that stuttering is associated with many psychological, attitudinal and behavioral patterns which in turn lead to various coping mechanisms to overcome the problem. It will be interesting to see in what ways it is related to coping with stuttering by the individuals, especially with regard to severity, chronicity and repeated relapses. Such studies are lacking and help us in providing better management for PWS.

CHAPTER III

METHOD

The present study was conducted to find out attitudes, anxiety and coping strategies in PWS. This was carried out in two phases.

Phase I: A questionnaire (see materials) was prepared in English through literature survey, consisting of statements to gather information related to attitudes, anxiety and coping strategies seen in PWS. It contained thirty-five questions pertaining to attitudes, anxiety and coping strategies seen in PWS.

Phase II: The questionnaire was administered to all the participants individually.

Participants: Thirty individuals, diagnosed as having stuttering by qualifies speech language pathologists, in the age range of 10-40 years, were considered as participants of the study. These included 10 new PWS who have not taken therapy earlier, 10 PWS who had undergone therapy and had improved and 10 PWS who had undergone therapy and have had relapses. The participants were chosen regardless of language, gender and severity.

Exclusion criteria: PWS were excluded from the study if they had any associated:

(a) central neurological problems

(b) language problems

(c) psychiatric problems

(d) any sensory-motor deficits

Materials:

1) A checklist was prepared which involved brief history regarding onset, development, treatment taken if any recovery/relapses if any etc
2) The questionnaire (see Appendix) consists of 2 parts; Part I included demographic data, questions regarding the participants' age, background, family history, stuttering, and therapy experiences. Part II was the questionnaire which included 10 questions to investigate negative attitudes, 10 questions to investigate anxiety behaviors and 15 questions to investigate coping strategies in PWS.

   The questionnaire prepared to elicit information regarding

   a. Awareness regarding the problem (nature, causes etc),
   b. Beliefs and attitudes about the stuttering which included 10 questions
   c. Anxiety related to stuttering which included 10 questions and
   d. Coping strategies adopted, which included 15 questions

Each item in the questionnaire was expressed as a statement. The subject responded to each statement by putting a tick on the appropriate response options. All the components of questionnaire are rated on a 5-point rating scale ranging from 0 to 4 by the participants (0-no/never/not at all; 1- sometimes [<25%]; 2-medium/average amount [>25-50%]; 3- usually/a good deal/rather often [>50-75%]; 4- practically always/entirely [>75%]).

Procedure:

Prior to the interview written consent was obtained from the participants and the questionnaire was administered through interviewing each of the participant individually. The data obtained from the participants were tabulated and analyzed using SPSS 16 software to answer the research questions.

CHAPTER IV

RESULTS AND DISCUSSION

The aim of the study was to find out attitudes, anxiety and coping strategies in persons with stuttering (PWS). The questionnaire related to attitudes, anxiety and coping strategies seen in PWS was administered to thirty adult PWS, irrespective of gender, language and severity between the ages of 10-40 years. The participants were divided into three groups as shown in table 1.

Groups of Participants	Number of participants
New PWS who have not taken therapy earlier	10
PWS who have undergone therapy for at least a month and have improved	10
PWS who have undergone therapy and have had relapses	10
Total	**30**

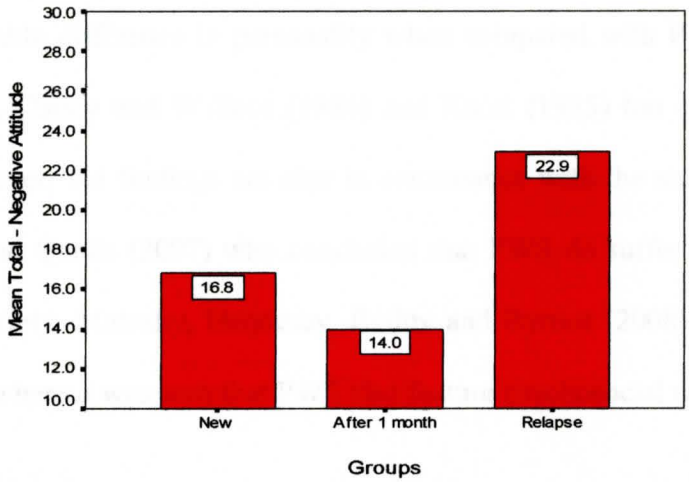
Table 1: Distribution of participants

The results of the study have been analyzed and discussed under five broad headings:

- Attitudes in PWS
- Anxiety in PWS
- Coping strategies in PWS
- Across groups:
  - group 1 (new PWS) and group 2 (Post therapy),
  - groups 1 (new PWS) and 3 (relapse), and
  - groups 2 (Post therapy) and 3 (relapse)
- Comparison of severity scores (v. mild, mild and moderate) in groups 1, 2 and 3.

I. Attitudes in PWS

The questionnaire used in the study consisted of ten questions on attitudes which included questions like anticipations, embarrassment, complexes, self-consciousness etc. The following graph gives mean scores of attitudes across groups.



Graph 1: Mean scores of attitudes and groups

It is evident that the mean scores of relapse group were much higher than the other two groups. That is, they had increased negative attitudes and poor self-esteem, may be because the participants' confidence level in speaking situations had decreased in spite of attending therapy. Participants belonging to post-therapy had lesser mean scores indicating that they had decreased negative attitudes after attending therapy, may be because the participants' self-perception of attitudes had improved after therapy. The new PWS exhibited scores in between these two groups which is also as to be expected.

MANOVA was done to compare the overall scores of the subtest-attitude across groups. On MANOVA it was revealed that for F (2, 27) at $p<0.05$, the score of the

subtest was 2.622. There was no significant difference in attitudes in the three groups of PWS. This may be because of the fact that stuttering is a heterogeneous group of disorders and also probably due to limited number of participants (ten participants in each of the three groups) with many individual differences as seen in mean and standard deviation values (table 5, pp 52). Sheehan (1970) reported the same in his study that PWS do not show reliable difference in personality when compared with PWNS. Van Riper (1970), Manning, Dailey and Wallace (1984) and Knott (1935) too came to the same conclusion. However, the findings are also in consonance with the study conducted by Blood, Meyers and Qualls (2007) who concluded that PWS do suffer from self-esteem problems and anxiety, Mulcahy, Hennesey, Beilby and Byrnes (2008) too came to the same conclusion where it was seen that PWS also feature psychosocial conflicts.

Since an overall score on the subtests did not reveal a significant difference in the groups, subsequently the scores of individual questions in each subtest were compared across the groups.

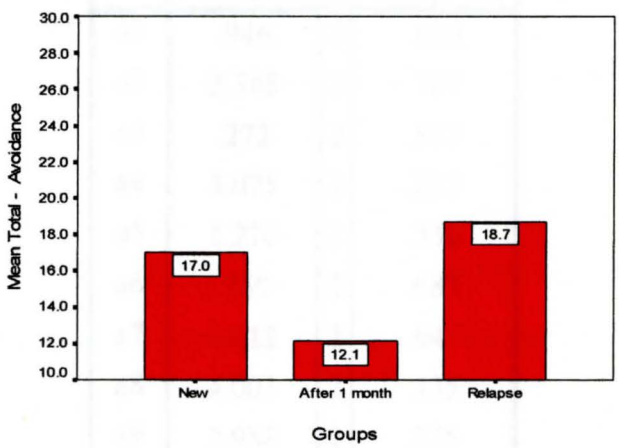
A Kruskal-Wallis test was done to find out the significant difference for individual scores of questions in all the groups. The table 2 gives results of Kruskal-Wallis test. The results of Kruskal-Wallis test for individual scores of questions for subsets on attitudes revealed no significant difference ($p>0.05$) which may be because of small sample size. This may also probably because of individual differences and the small number of subjects, in addition to the number of sessions and its duration in post therapy group which could not be controlled.

Items	Chi-Square	df	Asymp. Sig.
n1	1.778	2	.411
n2	.814	2	.666
n3	1.451	2	.484
n4	3.209	2	.201
n5	5.586	2	.061
n6	2.230	2	.328
n7	3.383	2	.184
n8	2.277	2	.320
n9	2.623	2	.269
n10	3.185	2	.203

Table 2: Result of Kruskal-Wallis test for scores on individual questions on attitudes

II. Anxiety in PWS

The questionnaire used in the study consisted of ten questions related to anxiety in PWS which were administered to thirty participants. The questions included were running out of breath, general body tension, straining to talk, uncomfortable feeling while meeting new people, feelings of nervousness, jerky and forceful movement of body etc. The following graph gives mean scores of anxiety across groups.



Graph 2: Mean scores of anxiety and groups

It is evident that the mean scores of new group and relapse group are much higher than the post therapy group, as expected. The new group, since they had not taken therapy showed more anxiety features because of their speech difficulty. The relapse group had more anxiety which may be because the participants' confidence level in speaking situations had decreased in spite of attending therapy previously due to relapse, leading to more anxiety. Participants belonging to post-therapy had lesser mean scores indicating that they had decreased anxiety after attending therapy, may be because the participants had increased confidence towards speaking situations after therapy with new techniques.

MANOVA was done to compare the overall scores of the sub items of anxiety across groups. On MANOVA it was revealed that for F (2, 27) at $p<0.05$, the score of the subtest were 2.055. There was no significant difference in anxiety in PWS among the groups although it appears so from the graph, especially compared to the post therapy group.

Items	Chi-Square	df	Asymp. Sig.
a1	.946	2	.623
a2	3.348	2	.187
a3	.272	2	.873
a4	3.075	2	.215
a5	1.270	2	.530
a6	.750	2	.687
a7	**6.012**	**2**	**.049**
a8	4.003	2	.135
a9	2.982	2	.225
a10	1.514	2	.469

Table 3: Result of Kruskal-Wallis test for scores of questions (individual)

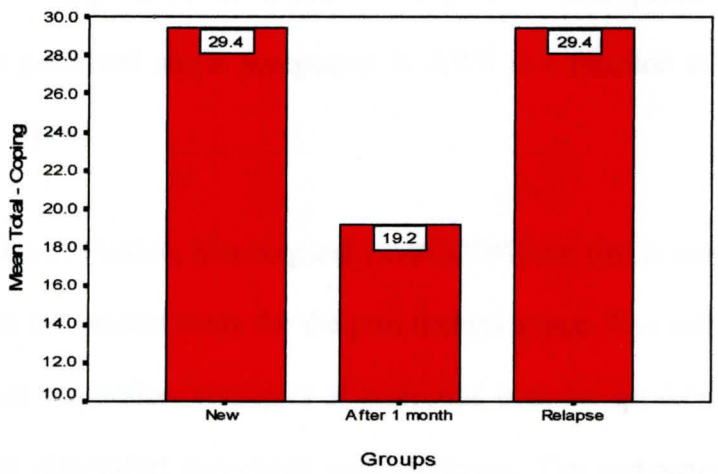
Since the overall scores on the sub items did not reveal a significant difference in the groups, subsequently the scores for individual items were compared on the groups. A Kruskal-Wallis test was done to find out the significant difference for individual scores of questions in all the groups. The following table gives results of Kruskal-Wallis test. The results of Kruskal-Wallis test for individual scores of questions for anxiety revealed that there was significant difference ($p<0.05$) only in question number A7 which elicited anxiety about speaking situation when meeting new people/superiors and there was no significant difference in any of the other 9 questions. This is one of the commonest problems faced by most PWS as observed in clinical practice by most clinicians. This result is in agreement with the study conducted by Bloodstein (1950) in which he related reductions in stuttering to a single hypothetical condition - reduced anxiety about stuttering. He concluded that the less the anxiety about speech difficulties, the less the effort to avoid it, and consequently the less the stuttering. Blumgart, Tran and Craig (2010) study to determine the spot prevalence of social phobia in adults who stutter and to investigate differences in social anxiety between AWS and controls who do not stutter also showed similar findings. The authors too came to the same conclusion that the AWS had significantly raised trait and social anxiety, as well as significantly increased risk of social phobia which led to increased stuttering in PWS comparison to the PWNS.

However, Miller and Watson (1992) study results refute the assertion that people who stutter are more anxious or depressed than those who do not. They examined self-perceptions of general state and trait anxiety, depression, and communication attitude in matched groups of PWS and PWNS.

III. Coping strategies in PWS

The questionnaire used in the study consisted of fifteen questions on coping strategies which were administered to thirty participants. The questions were based on avoiding speaking situations and people in authority, omitting word or part of word planned to say, replying briefly, giving excuses to avoid talking, trying to look away from the speaker etc. The following graph gives mean scores of coping strategies across groups.

It is evident from the graph 3 that mean scores of new PWS and relapse group are much higher than the post therapy group which are as to be expected. That is, the relapse group had increased use of coping strategies which may be because the participants' confidence level in speaking situations had decreased after attending therapy previously due to relapse and hence resorted to the reuse of the same. Similarly for new PWS it is to be expected that the coping strategies are higher as reported by many authors.



Graph 3: Mean scores of coping strategies among the three groups

A MANOVA was done to compare the overall scores of the subtest-coping across groups. On MANOVA it was revealed that for F (2, 27) at $p<0.05$, the score of the subtest was 1.505. There was no significant difference in coping strategies in PWS among the three groups although figure showed differences in the post therapy group compared to the other two groups. The result of the study is in consonance with Trotter and Bergman (1952) who compared the reactions of 100 PWNS and 50 PWS to 40 different speaking situations through a rating scale technique. The most impressive finding was that "..... a considerable number of PWNS were more avoidant of speaking and enjoyed speaking less, than many PWS." The results are also in agreement with Carver, Scheier and Weintraub (1989) who developed a multidimensional coping inventory to assess the different ways in which people respond to stress reported correlations between the various coping scales and several theoretically relevant personality measures which emphasize effective use of coping. Similarly, the study conducted by Green (1997) addressed the effects of stuttering upon the extent to which people who stutter may perceive themselves as accepted in social speech situations. Their results show that perceived social acceptance in AWS is a function of how they have coped with being PWS.

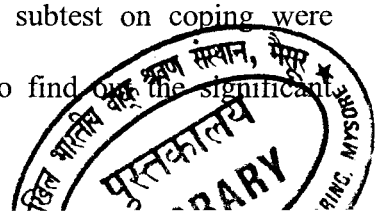
The findings of Plexico, Manning and Levitt (2009) are also in agreement with the results obtained in the present study for the post therapy group. The authors described a coping process that emphasizes strategies of protecting both the speaker and the listener from experiencing discomfort associated with stuttering. The companion paper of the authors describes two cognitive-based approach patterns that emphasize self-focused and problem-focused forms of coping. The first of the cognitive-based coping patterns

involved speakers approaching stuttering with a broader perspective about themselves and the experience of stuttering, resulting in an improved self-concept and increased self-confidence. The second coping pattern involved speakers focusing on their own goals which results in increased agency and self-confidence. The results revealed that participants moved from emotion-based avoidant patterns of coping that focused on protecting the self and the listener from experiencing discomfort associated with stuttering to cognitive-based approach patterns that focused on the needs of the speaker. As the participants chose to approach rather than avoid or escape stuttering, they experienced many positive social, physical, cognitive, and affective results.

Items	Chi-Square	df	Asymp. Sig.
c1	5.971	2	.051
c2	2.425	2	.298
c3	.776	2	.679
c4	3.008	2	.222
c5	2.132	2	.344
c6	3.704	2	.157
c7	1.144	2	.564
c8	2.038	2	.361
c9	2.521	2	.284
c10	1.179	2	.555
c11	1.879	2	.391
c12	4.237	2	.120
c13	.894	2	.639
c14	.708	2	.702
c15	2.830	2	.243

Table 4: Result of Kruskal-Wallis test for scores on questions reg. coping

Since an overall score on the subtests did not reveal a significant difference in the groups, subsequently the scores of individual questions in subtest on coping were compared on the groups. A Kruskal-Wallis test was done to find out the significant



difference for individual scores of questions in all the groups. Table 4 gives results of Kruskal-Wallis test. The results of Kruskal-Wallis test for individual scores of questions for subsets-coping strategies revealed no significant difference ($p>0.05$) this may be because of small sample size and also probably because of individual differences seen in PWS.

IV. Comparison of scores across groups

There were three groups in the study and there were ten participants in each group to whom the questionnaire was administered. The table 5 gives mean and standard deviation scores across groups. As seen in the table the post therapy group scores on attitudes, anxiety and avoidance or coping are in general better than for the other two groups as expected. The standard deviation scores are high for all the groups for all the three variables indicating high variability among the subjects. This is also as expected in the population of PWS in general.

	Groups	N	Mean	S.D
N	New	10	16.8000	8.4827
	Post therapy	10	14.0000	9.4163
	Relapse	10	22.9000	8.7363
	Total	30	17.9000	9.3711
A	New	10	17.0000	9.2256
	Post therapy	10	12.1000	6.3675
	Relapse	10	18.7000	6.7667
	Total	30	15.9333	7.8298
C	New	10	29.4000	17.4177
	Post therapy	10	19.2000	14.8084
	Relapse	10	29.4000	12.9889
	Total	30	26.0000	15.4429

Table 5: Mean and Standard Deviation of scores across subtests and groups

[Note: N- Negative attitude, A- Anxiety, C- Coping]

Since an overall score on the subtests did not reveal a significant difference in the groups, a post-hoc analysis using Mann-Whitney test was done. The table 6 provides results of Mann-Whitney test across group comparisons for question A7 which consisted anxiety and avoidance about speaking situation when meeting new people/superiors since there was no significant difference in any of the other 9 questions.

(i) Group 1 (new PWS) and Group 2 (Post therapy)

(ii) Groups 1 (new PWS) and Group 3 (Relapse)

(iii) Groups 2 (after 1 month of therapy) and 3 (relapse)

The results of post-hoc analysis are given below in table 6.

GROUPS	A7	
	Z	Asymp. Sig. (2-tailed)
1 & 2	-1.126	.260
1 &3	-1.094	.274
2 &3	-2.551	**.011**

Table 6: Mann-Whitney results for groups 1 & 2; 1 &3 and 2 & 3 in question A7

(i) Group 1 (new PWS) and Group 2 (Post therapy)

Post-hoc analysis done by using Mann-Whitney test across group 1 and 2 revealed no significant difference ($p>0.05$) between the two groups for question A7, although the raw scores and the graphs reveal differences. This may be because of limited number of participants and limitations regarding number of sessions and duration of sessions and individual differences. This result is not in consonance with study done by Guitar (1976) who investigated the relationship between pre therapy attitudes of adult PWS and post

therapy treatment outcomes. Guitar contended that the clinicians may predict therapy outcomes from pre treatment attitudes. Guitar's conclusions were further supported by other researchers who believed the process of therapeutic change involves not only the development of smooth speech production but also modification in negative speech-related attitudes (Andrew & Craig, 1988; Feinberg, Griffin & Levey, 2000; Guitar & Bass, 1978; Kraaimaat et al., 1988).

(ii) Groups 1 (new PWS) and Group 3 (Relapse)

Post-hoc analysis done by using Mann-Whitney test across group 1 and 3 revealed no significant difference ($p>0.05$) between the two groups for question A7 (table 6).

(iii) Groups 2 (Post therapy) and 3 (relapse)

The results of post-hoc analysis are given in table 6. Post-hoc analysis done by using Mann-Whitney test across group 2 & group 3 revealed a significant difference ($p<0.05$) between the two groups for question A7. This may be because after a month of therapy the participant's attitudes and their anxiety levels in speaking situations improved and they also tend to have increased self-esteem and also probably due to changes in participant's self-perceptions, similarly in relapse group.

This is in agreement with the study conducted by Andrews and Cutler (1974) where it was concluded that through therapy the attitudes of PWS can be changed to some extent. Similarly, Guitar (1976) investigated the relationship between pre therapy attitudes of adult PWS and post therapy treatment outcomes.

V. Comparison of scores on severity (v. mild, mild and moderate) in groups 1, 2 & 3.

The participants were divided into four groups based on severity levels which included (a) very mild, (b) mild, (c) moderate and (d) severe. As discussed earlier, the questions were presented to participants who were divided into three groups namely 1- New group, 2- Post therapy group and 3- Relapse group. Total of 35 questions were presented to the participants to test the attitude, anxiety and coping strategies in PWS. The following table gives Mean and Standard Deviation for various severity groups.

Severity	Groups	n	N		A		C	
			Mean	S.D	Mean	S.D	Mean	S.D
V. mild	New	2	16.5000	9.1924	12.5000	9.1924	28.5000	31.8198
	Post therapy	2	20.5000	3.5355	15.5000	12.0208	36.0000	19.7990
	Total	4	18.5000	6.1373	14.0000	8.9069	32.2500	22.0662
Mild	New	3	8.6667	5.1316	11.6667	9.2916	18.6667	21.5484
	Post therapy	2	3.0000	1.4142	9.0000	4.2426	3.5000	.7071
	Relapse	2	21.0000	.0000	18.5000	4.9497	36.0000	7.0711
	Total	7	10.5714	8.1416	12.8571	7.2210	19.2857	18.4275
Moderate	New	5	21.8000	6.8337	22.0000	8.0312	36.2000	7.2595
	Post therapy	5	14.4000	10.0896	12.8000	5.9330	19.4000	11.3270
	Relapse	8	23.3750	9.8407	18.7500	7.4402	27.7500	13.9361
	Total	18	20.4444	9.4944	18.0000	7.6926	27.7778	12.8088
Severe	Post therapy	1	21.0000		8.0000		16.0000	
	Total	1	21.0000		8.0000		16.0000	

Table 7: Mean and Standard Deviation of scores across severity and groups

[Note: N- Negative attitude, A- Anxiety, C- Coping]

It is evident that the mean scores are higher for subtest C (coping strategies) in relapse group at moderate level of severity. This may be because at moderate severity level the attitudes and anxiety levels may be much lesser than severe level and also probably because the problem is little compared to severe severity level.

A Kruskal-Wallis test was done to compare the overall scores of severity levels across groups. The following table gives results of Kruskal-Wallis test.

values	N	A	C
Chi-Square	5.165	1.798	2.061
df	2	2	2
Asymp. Sig.	.076	.407	.357

Table 8: Result of Kruskal-Wallis test (total)

[Note: N- Negative attitude, A- Anxiety, C- Coping]

On Kruskal-Wallis test the results revealed no significant difference in severity across groups in PWS at $p>0.05$ which is in agreement with the study conducted by Trotter and Bergman (1952) in which it was concluded that "fear" of speaking is not unique to PWS. Similar with the study by Dietrich and Roaman (2001) where it was observed that PWS could not predict own speech-related anxiety also negative skin responses were seen. And also an investigation conducted by Rodney and Linda (2002) showed that PWS had increased anxiety levels regardless of condition. Buss (1980), Porter (1939), Seigel and Haugen (1964) reported that stuttering severity is dependent on factors such as communication partner status or the number of addressees, novelty, formality and familiarity with the speaking situations. Craig, Hancock and Tran (2003) also came to the same conclusion that stuttering severity is associated with the anxiety levels in PWS.

Since an overall score on the severity level did not reveal a significant difference in the groups, subsequently the scores of individual questions in each severity levels were compared on the groups. Table 9 reveals the Mean and Standard Deviation of each of the Attitude question in each of the severity level.

	V.mild			Mild			Moderate			Severe		
	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD
n1	4	1.75	.500	7	1.14	.900	18	2.06	1.259	1	2.00	.
n2	4	2.25	1.258	7	1.57	1.134	18	1.94	1.392	1	3.00	.
n3	4	2.00	1.414	7	.43	.787	18	2.00	1.237	1	2.00	.
n4	4	2.50	1.732	7	1.14	1.464	18	2.17	1.465	1	3.00	.
n5	4	1.75	.957	7	1.14	1.345	18	2.11	1.491	1	2.00	.
n6	4	2.25	2.062	7	1.57	2.225	18	2.39	1.378	1	3.00	.
n7	4	1.50	1.915	7	1.14	1.464	18	1.94	1.392	1	2.00	.
n8	4	1.50	1.291	7	1.29	1.604	18	2.11	1.410	1	2.00	.
n9	4	1.75	1.500	7	.57	1.134	18	2.33	1.188	1	2.00	.
n10	4	1.25	1.258	7	1.00	1.155	18	1.39	1.037	1	.00	.

Table 9: Mean and S D of scores across severity levels and Attitude

Table 10 reveals the Mean and Standard Deviation of each of the Anxiety questions in each of the severity level.

Items	V.mild			Mild			Moderate			Severe		
	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD
a1	4	1.00	1.155	7	1.29	1.380	18	1.89	1.278	1	3.00	.
a2	4	1.50	1.291	7	1.43	1.134	18	1.50	1.098	1	.00	.
a3	4	1.00	1.414	7	.57	.976	18	1.11	1.231	1	.00	.
a4	4	1.25	1.258	7	1.86	.690	18	.89	1.023	1	.00	.
a5	4	1.25	1.258	7	1.00	1.000	18	1.61	1.243	1	.00	.
a6	4	1.75	1.500	7	.57	.787	18	1.89	1.183	1	.00	.
a7	4	1.50	.577	7	1.71	1.890	18	2.39	1.420	1	2.00	.
a8	4	1.75	1.258	7	1.71	1.254	18	2.22	1.353	1	2.00	.
a9	4	2.50	1.732	7	2.00	1.732	18	2.78	1.166	1	1.00	.
a10	4	.50	1.000	7	.71	.951	18	1.72	1.274	1	.00	.

Table 10: Mean and S D of scores across severity and Anxiety

Table 11 reveals the Mean and Standard Deviation of each of the Coping question in each of the severity level.

Items	V.mild			Mild			Moderate			Severe		
	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD
c1	4	1.75	1.708	7	1.29	1.704	18	2.11	1.491	1	3.00	.
c2	4	1.75	1.258	7	1.14	1.676	18	1.83	1.505	1	4.00	.
c3	4	2.00	2.309	7	.86	1.464	18	2.33	1.495	1	3.00	.
c4	4	1.75	1.500	7	.43	.787	18	1.28	1.447	1	.00	.
c5	4	2.00	1.155	7	1.43	1.813	18	1.61	1.335	1	.00	.
c6	4	2.25	1.500	7	1.29	1.704	18	2.33	1.455	1	1.00	.
c7	4	2.75	1.500	7	1.00	1.414	18	1.89	1.132	1	1.00	.
c8	4	3.25	1.500	7	1.29	1.704	18	1.83	1.383	1	.00	.
c9	4	2.50	1.915	7	1.71	1.890	18	2.33	1.455	1	3.00	.
c10	4	2.00	1.826	7	1.71	1.704	18	2.11	1.491	1	.00	
c11	4	1.75	1.500	7	1.71	1.704	18	1.39	1.145	1	1.00	.
c12	4	2.00	1.414	7	1.00	1.414	18	1.28	1.638	1	.00	.
c13	4	2.50	1.291	7	1.29	1.254	18	1.44	1.338	1	.00	.
c14	4	2.50	1.291	7	1.86	1.464	18	1.72	1.320	1	.00	.
c15	4	1.50	1.732	7	1.29	1.604	18	2.28	1.602	1	.00	.

Table 11: Mean and SD of scores across severity and Coping

The mean scores for different items in different subtests do not indicate differences across various severity groups may be due to wider individual variations as seen in standard deviation scores and because of lesser number of subjects in each of the severity groups.

A Kruskal-Wallis test was done to find out the significant difference for individual scores of questions in all the subtests. The following table gives results of Kruskal-Wallis test. The results of Kruskal-Wallis test for individual scores regarding questions on attitudes for three severity levels, namely very mild, mild and moderate revealed that there was significant difference ($p<0.05$) in question numbers N3, which included negative feelings such as fluent periods may not last long and may begin to

stutter sooner and N9, which involves complexes about the PWS's way of speaking and what others may think about PWS.

Questions	Chi-Square	df	Asymp. Sig.
n1	2.538	2	.281
n2	.752	2	.687
n3	**7.911**	**2**	**.019**
n4	2.641	2	.267
n5	2.491	2	.288
n6	2.060	2	.357
n7	1.863	2	.394
n8	2.072	2	.355
n9	**8.123**	**2**	**.017**
n10	.807	2	.668

Table 12: Result of Kruskal-Wallis test for scores on questions reg. Attitudes

There was no significant difference ($p>0.05$) in any of the other 8 questions. Several studies conducted by Baumgartner & Brutten (1983), Bloodstein (1975) and Vanryckeghem & Brutten (1996) have confirmed the presence of negative communication attitudes in PWS.

The results of Kruskal-Wallis test for individual scores regarding anxiety questions for three severity levels, namely very mild, mild and moderate (table 13) revealed that there was significant difference ($p<0.05$) in question number A6, which includes rigid articulatory postures which makes one unable to move the articulators and there was no significant difference ($p>0.05$) in any of the other 9 questions.

Questions	Chi-Square	df	Asymp. Sig.
a1	2.236	2	.327
a2	.017	2	.991
a3	1.321	2	.517
a4	5.244	2	.073
a5	1.063	2	.588
a6	**6.463**	**2**	**.039**
a7	1.755	2	.416
a8	.964	2	.617
a9	1.148	2	.563
a10	5.680	2	.058

Table 13: Result of Kruskal-Wallis test for scores of questions reg. Anxiety

Similar result was obtained in a study conducted by Vinacour and Levin (2004) where there was no difference in anxiety levels in PWS as a function of stuttering severity. However, there was a difference in state anxiety levels specific to social situations. Craig, Hancock and Tran (2003) too came to the conclusion that stuttering severity is associated with the anxiety levels in PWS which is in agreement with the findings of this study. The results of Kruskal-Wallis test for individual scores regarding anxiety questions for three severity levels, namely very mild, mild and moderate revealed that there was significant difference ($p<0.05$) in question number A6, about rigid articulatory postures which makes one unable to move the articulators and there was no significant difference ($p>0.05$) in any of the other 9 questions.

The results of Kruskal-Wallis test for individual scores regarding coping questions for three severity levels, namely very mild, mild and moderate revealed that there was no significant difference ($p>0.05$) in any of the questions.

Questions	Chi-Square	df	Asymp. Sig.
c1	1.683	2	.431
c2	1.174	2	.556
c3	4.929	2	.085
c4	2.991	2	.224
c5	.967	2	.617
c6	2.479	2	.289
c7	5.121	2	.077
c8	4.445	2	.108
c9	.778	2	.678
c10	.360	2	.835
c11	.359	2	.836
c12	1.021	2	.600
c13	2.525	2	.283
c14	1.215	2	.545
c15	2.263	2	.323

Table 14: Result of Kruskal-Wallis test for scores of questions reg. Coping

There are no studies comparing the severity of stuttering to coping strategies and hence no comparison could be made. Post-hoc analysis was done by using Mann-Whitney test across severity levels:

- very mild and mild,
- very mild and moderate,
- mild and moderate,

The results of Post-hoc analysis was done by using Mann-Whitney test is given below in Table 15.

SEVERITY	Very mild & mild			Very mild & moderate			**Mild & moderate**		
SUBTESTS	N3	N9	A6	N3	N9	A6	N3	N9	A6
Z	-1.865	-1.462	-1.405	-.220	-.749	-.177	-2.783	-2.822	-2.583
Asymp. sig	.062	.144	.160	.826	.454	.860	**.005**	**.005**	**.010**

Table 15: Mann-Whitney results between different severity levels

Post-hoc analysis done by using Mann-Whitney test across very mild & mild severity level and very mild & moderate severity level revealed no significant difference between any of the two groups. But mild and moderate severity level revealed a significant difference ($p<0.05$). This may be because of limited number of participants in very mild which consisted of only four participants and mild severity level which consisted of only seven participants when compared with moderate severity level which included of eighteen participants and also because of the individual differences which PWS showed. These findings are in consonance with the study conducted by Miller and Watson (1992) where it was found that PWS with mild and moderate stuttering severity exhibited a significant positive correlation between measures of communication attitudes and both state and trait anxiety. Conversely, PWS with severe stuttering showed no significant correlations between anxiety and communication attitudes.

Severe level was not used in analysis because of only one subject was available with severe stuttering. Therefore it was excluded from the analysis.

Therefore from analysis it is evident that PWS showed anxiety about speaking situation when meeting new people/superiors, had negative feelings, inferiority complexes and rigid articulatory postures. PWS also had improved results after attending therapy. PWS with mild and moderate severity levels exhibited a significant positive correlation between measures of communication attitudes and both state and trait anxiety.

CHAPTER V

SUMMARY AND CONCLUSIONS

The purpose of the study was to find out the attitudes, anxiety and coping in adult PWS with respect to severity, chronicity and relapse and also to study the relationship between attitudes, anxiety and coping in adult PWS. Thirty participants regardless of gender, language and severity in the age range of 10-40 years without any associated disorders were selected including 10 new PWS who have not attended therapy earlier, 10 adult PWS who have undergone therapy for at least a month and have improved and adult PWS who have undergone therapy and have had relapses. A questionnaire consisting of Part I with demographic data, Part II with 10 questions to investigate negative attitudes in PWS, 10 questions to investigate avoidance behaviors and 15 questions to investigate coping strategies in PWS was used to collect data. The data obtained from the 30 PWS was analyzed using SPSS 16 software to answer the research objectives. The results revealed the following observations:

- The scores of attitudes in PWS in the new and relapse groups were much higher than the post therapy group. They had increased negative attitudes and poor self-esteem may be because of the participant's confidence level in speaking situations had decreased even after attending therapy previously due to relapse.

- There was no significant difference ($p>0.05$) in attitudes in the three groups of PWS on MANOVA.

- It was evident that the mean scores of new group and relapse group were much higher than the post therapy group with respect to anxiety, as expected. That is, they had more anxiety which may be because the participants' confidence level in speaking situations had decreased in spite of attending therapy previously leading to more anxiety. Participants belonging to post-therapy had lesser mean scores indicating that they had decreased anxiety after attending therapy, may be because the participants had increased confidence towards speaking situations after therapy with new techniques.

- There was no significant difference in anxiety in PWS among the groups on MANOVA.

- Another important finding was that in PWS, there was increased anxiety about speaking situation when meeting new people/superiors and hence avoided speaking to new people/superiors. There was no significant difference ($p>0.05$) in any of the other 9 questions on anxiety which is one of the commonest problems faced by most PWS observed in clinical practice by most clinicians. Therefore this suggests that PWS had fear of speaking and hence avoided speaking situations.

- Regarding the coping strategies in PWS it was found that there was no significant difference ($p>0.05$) in PWS but the mean scores of new PWS and relapse group were much higher than the other groups. That is they had much higher coping strategies which may be because the participants confidence level in speaking situations had decreased even after attending therapy previously, similarly in new

PWS because they have not attended therapy previously they had developed coping strategies.

- Some other important finding of the present study was that on analyzing different groups of the study, the participants included in after one month of therapy and relapse group had changes in attitudes, anxiety and coping strategies which was found out using post-hoc analysis. This indicates that therapy can change a person's psychology towards stuttering.

- It was seen that most of the PWS had negative feelings such as fluent periods may not last long and may begin to stutter sooner; had complexes about the way of speaking and what others may think; and rigid articulatory postures and the remaining subtests had no difference ($p>0.05$).

- Another important finding of the present study was that PWS differed in attitudes, anxiety and coping strategies when post-hoc analysis was done to the participants of mild and moderate severity group, but very mild & mild level and very mild & moderate level did not show any significant difference ($p>0.05$).

As a conclusion it can be pointed out that PWS do have attitudes, anxiety problem and adopt various coping strategies. This can also be seen at various severity levels. Therefore it may be concluded that

- PWS do suffer from negative feelings
- PWS have inferiority complexes
- PWS have anxiety related to stuttering

- PWS have personality changes which could be changed with treatment

All these above mentioned factors cause fear of stuttering and this in turn leads to avoidance of speaking situations.

From this study it can also be noted that;

- The attitudes and anxiety levels and coping in PWS differ depending upon severity of stuttering
- With appropriate therapy the attitudes, anxiety and coping in PWS can be changed

The study has clinical implications. The information in the questionnaire can be used in assessment and intervention of PWS. Appropriate counseling and guidance along with fluency shaping therapy can be provided to the person depending on how the person scores in the questionnaire. The questionnaire provides detailed information regarding negative feelings, avoidance and coping strategies which can be helpful in counseling both the PWS and also the guardian. It can also be used in creating awareness to public.

Hence, as mentioned earlier, it is very important to assess the attitudes, anxiety and coping strategies in PWS and to intervene if required. Stuttering is a heterogeneous group of disorder and it is necessary to study it in different cultural and linguistic perspective.

Limitations of the study:

- ❖ Due to time constraints the number of participants studied under different groups (new PWS who have not taken therapy earlier, PWS who have undergone therapy

for at least a month and have improved and PWS who have undergone therap and have had relapses) had to be limited.

- The number of sessions and duration of sessions could not be controlled.
- Careful demarcation of participants regarding severity level could have enhanced the attitudes, anxiety and coping issues related to stuttering.

Recommendations for further study:

- Large scale study with different geographic, linguistic background is necessary
- The study can include other groups of PWS like different age, severity, pre and post therapy, with large number of subjects
- Large scale study including difference in attitudes, anxiety and coping between gender is important
- Validating attitudes, anxiety and coping in children with stuttering

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APPENDIX I

PART I: CHECKLIST FOR PWS

I. GENERAL INFORMATION

a. Case name: **b.** Case number:

c. Age/gender: **d.** Phone number:

e. Address: **f.** Mail:

g. Education: **h.** Occupation:

j. Languages used: At home: Kannada/English/Hindi/Tamil/Malayalam/Telugu

Mother tongue: Kannada/English/Hindi/Tamil/Malayalam/Telugu/others

k. Severity of the problem (as per SSI scores): v. mild/ mild/ moderate/ moderately severe/ severe/ v. severe

l. Fluency therapy if taken before: yes/no; If yes, duration (approx):

m. Relapse of the problem: yes/no; If yes, specify reasons if any:

II. BRIEF HISTORY/ ONSET &DEVELOPMENT OF PROBLEM

a. Onset: Sudden/Gradual

b. Age of onset:

c. Duration:

d. Has the dysfluency been consistent or intermittent? Increased/reduced/remain same/fluctuating

e. Associated problems: articulation/language/auditory/motor/cognitive

f. Medical history: nil/affected

III. STUTTERING HISTORY/REACTION

a. Family history: no/yes; If yes: parents/siblings/grandparents/uncle/aunt

b. Reaction towards stuttering: Self:

Family members:

Friends:

IV. VARIATION IN STUTTERING

a. Situations

b. Individuals

c. Do you avoid speaking situations- yes/no

d. Coping mechanisms: As reported:

As observed:

PART II: Questionnaire for Attitudes, Anxiety & Coping strategies in PWS

Name: **No:** **Education:**
Occupation: **Age/Gender:**

Therapy: **(if yes) Duration:**

Instructions: Please read the following statements and answer with appropriate options as noted below:

0 - No/never/not at all; **1** –Sometimes (<25%); **2** – medium/average amount (>25-50%); **3** – Usually/a good deal/rather often (>50-75%); **4** - Practically always/entirely (> 75%)

Sl.No	Questions	Ratings				
		0	1	2	3	4
N1.	I feel/anticipate interruptions in speech (e.g..repetitions, prolongations or blocks)					
N2.	I expect certain sounds, letters or words are going to be particularly "hard" to say					
N3.	I feel fluent periods are unusual, that they cannot last and that sooner or later I will stutter					
N4.	Even though knowing the right answer, I have often failed to give it because of fear to speak out.					
N5.	Sometimes I feel embarrassed by the way I talk.					
N6.	Sometimes wish that I could say things as clearly as others do					
N7.	Worry if I make a fool of myself, or feel I have been made to look foolish?					
N8.	Feel that other people are better than me?					
N9.	I have complexes about the way I speak & what others think about me.					
N10.	I feel self-conscious about my appearance even when I am well-dressed and groomed.					
A1.	I have general body tension during speech attempts (e.g., shaking. trembling or feeling knotted up inside)					
A2.	I breath noisily or with great effort while trying to speak					
A3.	I feel the face getting warm and red (as if blushing) while struggling to speak					
A4.	I run out of "breath" while speaking					
A5.	I strain to talk without being able to make a sound					
A6.	I hold lips, tongue or jaw in a rigid position before speaking or when getting "stuck" on a word					

A7.	I feel uncomfortable when meeting new people/superiors (teachers, employers, authorities)					
A8.	I often feel nervous while talking.					
A9.	Even the idea of giving a talk in public makes me feel afraid					
A10.	I make sudden jerky or forceful movements with my head, arms or body during speech attempts (e.g., clinching of fist or jerking head to one side)					
C1.	I avoid talking to people in authority (e.g., teacher, employer, or clergyman)					
C2.	I avoid asking for information (e.g., asking for directions or inquiring about a train schedule)					
C3.	I avoid choosing a job or a hobby because speaking would be required					
C4.	I avoid making new acquaintances (e.g., not visiting with friends, not dating, or not joining social, civic, or church groups)					
C5.	I avoid introducing self, giving my name, or making introductions					
C6.	I avoid speaking situations – eg., before an audience, telephone					
C7.	I omit a word, part of a word or a phrase planned to say (e.g., words with certain sounds or letters)					
C8.	Having another person speak for me in a difficult situation (e.g., having someone make a telephone call or order food in a restaurant)					
C9.	I hesitate to volunteer in a discussion or debate with a group of people					
C10.	I reply briefly using the fewest words possible.					
C11.	I act in a manner intended to keep out of a conversation or discussion (e.g., being a good listener, pretending not to hear what was said, acting bored or pretending to be in deep thought)					
C12.	I try to give excuses to avoid talking (e.g., pretending to be tired or pretending lack of interest in a topic)					
C13.	I make my voice louder or softer when stuttering is expected					
C14.	I say words slowly or rapidly preceding the word on which stuttering is expected					
C15.	I try to look away while speaking					