OASES- IN ADULTS WITH STUTTERING:

AN EXPLORATORY STUDY

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CERTIFICATE

This is to certify that the dissertation entitled ***"OASES- In Adults with Stuttering: An Exploratory Study"*** is the bonafide work done in part fulfilment of the degree of Master of Science (Speech-Language Pathology) of the student with Register No. 11SLP002. This has been carried out under the guidance of the 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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This is to certify that this dissertation entitled ***"OASES-In Adults with Stuttering: An Exploratory Study"*** has been prepared under my supervision and guidance. It is also certified that this has not been submitted earlier in any other University for the award of any Diploma or Degree.

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DECLARATION

I hereby declare that this dissertation entitled ***"OASES- In Adults with Stuttering: An Exploratory Study"*** is the result of my own study and has not been submitted earlier in any other University for the award of any Diploma or Degree.

Mysore **Register No.: 11SLP002**

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Dedicated to my Parents and My Guide

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"To be nobody but yourself in a world which is doing its best, night and day,
to make you everybody else
means to fight the hardest battle which any human being can fight;
and never stop fighting"

-Cummings

Chapter I

INTRODUCTION

Speech has been given an immense importance in ancient Indian Vedic literature. Voice has been associated with goddess Saraswati and is depicted as a messenger of speech, knowledge, empowerment and science. One of the means to knowledge is speech. Speech is a form of energy which is capable of expressing our inner abstract thoughts, invisible emotions, hidden feelings, beautiful praise and unseen descriptions. Speech has been compared with light by many eminent writers. This light of speech has an important role to play to help humans follow a right path. Thus, any disruption in this powerful mode can bring about dissatisfaction and a sense of inferiority in any human being. Stuttering is one such condition.

Many definitions of stuttering have been given by different authors which are based on their respective views on stuttering. According to World Health Organisation (WHO) in 1977, stuttering is defined as "disorders in the rhythm of speech in which the individual knows precisely what he wishes to say, but at the same time is unable to say it because of an involuntary, repetitive prolongation or cessation of a sound". According to Van Riper (1973, 1982), stuttering is a condition in which a word is patterned inappropriately in time and it also includes speaker's reactions towards stuttering. Stuttering is a speech planning, patterning and coordination problem, and the speaker's reaction to the speech impediment is an important aspect to it. Tanner, Belliveau and Siebert (1995) gave a definition of stuttering based on Van Riper's definition which tries to put together the manifestation of primary and secondary features of stuttering. They defined stuttering as - "Any condition where an individual improperly patterns phonemes, syllables, words and/or phrases in time,

experiences classically - conditioned negative emotional reactions to disfluent speech and associated stimuli and who may engage in visible avoidance and escape behaviours when confronted with disfluent speech or associated stimuli".

To a listener, it may just be in form of surface characteristics like repetitions, prolongations and blocks (Bloodstein & Ratner, 2008). These dysfluencies mainly work to add disruption to the normal forward flow of speech. In addition to this, there may be other signs of struggling behaviours evident in the speech of persons with stuttering, which may be rapid eye blink, tremor of lip, extreme tension in the extremities, jaw jerk and so forth.

Over the past several years, researchers have opined that stuttering can be best understood from a multidimensional perspective. Stuttering is a dynamic disorder where different processes that lead to visible stuttering behaviours are hidden. These processes occur at multiple levels. Stuttering has been understood well by taking an example of a volcano. The surface units of stuttering are akin to the smoke of the volcano. Volcanologists need to deeply understand the formation and various events which gave rise to that volcano. Similarly, there are many psychological processes already built up in the mind of person with stuttering which comes out in form of dysfluencies.

People who stutter usually experience emotional and cognitive reactions like fear, anxiety, anger and helplessness. They sometimes experience "loss of control" in speech (Perkins, 1990) and as a brief "death" during moments of stuttering (Van Riper, 1982). It can be an embarrassing event for them and sometimes the most obvious reason for being introvert and possessing less socially interactive personality. They monitor each and every moment of their speech and this renders a usual easy

task of communication in normal circumstances as a burden for them. They also start avoiding speaking situations. Persons with stuttering may experience negative affective, behavioural, and cognitive reactions both from themselves as well as from their environment. This can have significant limitations in their participation in various activities which lead to a satisfactory life and a negative effect on their overall quality of life (Yaruss & Quesal, 2004a).

WHO (1993) puts forth the concept of quality of life as how an individual perceives his/her position in the culture and value system in which he/she lives. This perception is relative to his/her goals, standards, expectations and concerns. It is a broad and multidimensional concept which is affected in a complicated way by an individual's physical wellbeing, psychological state, independence level, their social relationships and also relationships with other important aspects in their environment.

O'Keefe (1996) believes that a resultant negatively affected quality of life of an individual with stuttering can have serious effects on his activities as a social animal. Persons with stuttering may have reduced range of meaningful activities which would lead to restricted enjoyment. They also face problems at every stage of life cycle starting from their school, maintaining relationships with family, friends and teachers, working for a respectable and satisfactory job and a responsible parenthood.

Perkins (1990) introduced another factor to be considered in stuttering and that is the speaker's frame of reference, where how a speaker perceives his stuttering is also important. A more recent view to look at the stuttering manifestation and its impact on an individual is given by Yaruss and Quesal (2004, 2006). They held the ICF perspective in mind and considered components of body function and structure, personal and environmental factors and activity/participation as a framework for

stuttering assessment and therapy. To have a better understanding of the impact of stuttering on person's quality of life, many scales have been developed which assess these covert behaviours. Yaruss and Quesal (2002), designed the *Overall Assessment of the Speaker's Experience of Stuttering (OASES-Adult)* which analyses the overall quality of life and the impact of stuttering on individual's functioning in various domains such as social interactions, economic independence, and so forth. OASES is also available in child and adolescent versions.

Craig, Blumgart, and Tran (2009) devised *Medical Outcomes Study Short Form-36* as a means of assessment of impact of stuttering on adults. They opined that stuttering negatively affects quality of life in the areas of vitality, social functioning, emotional functioning and mental health status.

The quality of life measures are very important and used for a variety of reasons. They can help the speech language pathologists to assess the impact of intervention by comparing the pre- and post-treatment conditions. The speech language pathologists may use the information provided by the results of these questionnaires to identify the areas in a person's life that need to be focussed in therapy program for better generalisation and maintenance. Using quality of life instruments may therefore contribute to the complete measurement protocol for the assessment and treatment of stuttering (Bramlett, Boothe, & Franic, 2006).

The assessment of stuttering till date have focused majorly and exclusively on changes in the visible manifestations of stuttering, and very little importance is given to the hidden consequences of the same experienced by the speaker (Andrews, Guitar & Howie, 1980; Bothe, Davidow, Bramlett, & Ingham, 2006; Cordes, 1998; Prins & Ingham, 2009; Thomas & Howell, 2001). This emphasis which is usually put on

reducing disfluencies can be reasoned out well based on many factors. Some of these are - these observable behaviours are core characteristic feature of the disorder, and individuals attending therapy definitely want reduction in the amount of stuttering they exhibit. Treating these surface characteristics is most salient for the listeners and also the easiest aspect to measure and also the rating of improvement made due to intervention becomes easy. However, when people with stuttering are asked about their own "complaints", the negative consequences of stuttering faced by these individuals is a key aspect present and hence should be given equal importance in assessment and therapy.

Need of the Study

The multifaceted disorder of stuttering comprises of not only what is visible but also certain hidden factors which although being not visible may have a tremendous effect on the communication attitude of the persons with stuttering. These major dimensions of stuttering disorder which should be considered for assessment and therapy are *overt speech characteristics, physical concomitants, physiological activity, affective features, cognitive processes* and *social dynamics*. Thus, there is a need that clinical practice of speech-language pathology includes these subjective feelings about stuttering for better outcomes and results.

There is a dire need to view stuttering as a whole, to understand its varied impact and to view the person with stuttering holistically. It is very important to incorporate subjective feelings into the assessment and therapy process as stuttering has an impact on self worth, self identity and self respect of the individual concerned. Also, for proper generalisation and maintenance of the therapy techniques and its utility, the SLPs should be aware of the consequences of stuttering on individual's life in terms

of his family and social relationships and the problems being faced by the individual at work and other places. Hence there is a need of studying OASES in Indian population with an aim of creating awareness and developing sensitisation for the same. OASES is a single tool which integrates all the aspects needed to eradicate stuttering from root. At the same time, OASES is highly motivated theoretically. It provides clinicians and researchers working in area of stuttering with important information about the speaker's overall speaking experience taking stuttering into consideration. Hence the present study is aimed at integrating the utility of OASES in adults with stuttering. The OASES (Yaruss, 2006, 2010) is one such scale however not used in everyday clinical assessment of fluency disorders in Indian scenario. Thus, is required awareness of such a scale among the speech language pathologist so that the client's current status of a multifaceted stuttering condition can be easily assessed and also the treatment outcomes can be better monitored. OASES is based on tenets of evidence based practice.

Aim of the Study

The present study is carried out with purpose to administer OASES scale on adults with stuttering to have an insight about their feelings towards their problem. This would help the clinicians to have a better, global and comprehensive understanding of the disorder. This would then lead them in better assessment and to make much more focussed therapy goals which would also target domains other than only speech thus reducing the chances of relapse. Clinicians would be able to use this tool to bring about meaningful changes in relevant aspects of the speaker's experience of stuttering.

Objectives of the Study

- Investigating the test-retest reliability of OASES.
- Investigating the effect of education on OASES.
- Investigating the effect of employment on OASES.
- Investigating the effect of SSI on OASES.
- Investigation of OASES in Persons with Stuttering with different attributes of personality.

"***Many have mistakenly believed that if only the 'cause' could be found, a fast cure would result"***

-Murray

Chapter II

REVIEW OF LITERATURE

"*Stuttering is more than a riddle. It is at least a complicated multidimensional jigsaw puzzle, with many pieces still missing"*. (Van Riper, 1982).

Stuttering is a mystery without a known etiology, unpredictable characteristics, and highly individualistic assessment and therapy protocols which is capable of giving a lot of opportunities to the researchers. It is like a disclosed book which provides experimental field to the investigators for quenching their thirst of knowledge in this explored but unrevealed area. The dilemma of giving a good and satisfactory answer to various questions related to stuttering is evident from the basics of defining stuttering.

Stuttering manifests itself as certain observable characteristics which can be termed as *overt behaviours*. These overt behaviours are either in form of *dysfluencies* which are mainly repetitions, prolongation or blocks or as *secondary behaviours*. The secondary behaviours develop later in the course of time and can be easily observed as signs of avoidance from the moment of stuttering. These are eye blinks, head nod, flaring of nostrils and jaw jerk. The dysfluencies work to disrupt the normal forward flow of speech in persons with stuttering. The secondary behaviours are the strategies which are unconsciously developed by the persons with stuttering to get rid of the moment of stuttering. There are also some other features which lie under the surface and reside in the more subtle cognitive and affective layers of the disorder. These are the negative feelings and attitudes developed in persons with stuttering in their mind termed as *covert behaviours*. As Starkweather (1999) points out efficacious therapy should deal with all levels of disorder because in many cases, the less observable

features are often more important than the more obvious ones for the success of therapy.

History of Stuttering

Presence of stuttering can be tracked back in centuries to the times of Demosthenes. He tried to reduce his disfluencies by keeping pebbles in his mouth while speaking. Laotze in China, mentioned stuttering in a poem which is 2500 years old. In Galen's theory, stuttering was observed when four bodily humors – yellow bile, blood, black bile and phlegm were in an imbalanced state. This was the most dominant theory for stuttering until the 18^{th} century. Around 18^{th} and 19^{th} century in Europe, surgical interventions were recommended for stuttering. Italian pathologist Giovanni Morgagni opined stuttering to be due to deviations in the hyoid bone. Some of the causes of stuttering mentioned in the ancient Vedic literature are taking bulb poison, heavy weight carrying, cracking too many jokes, chewing hard substances disturbing the neural force which as a result leads to asymmetrical face. When both the functions of central and sympathetic nervous system and thermo-genesis are disturbed, the Kapha related with the functions of thermo-genesis brings out the suppression of voice and stuttering. Similar findings are also supported by Western investigators.

Views about Stuttering

There has been a great deal of variety in defining fluency and its disorders. Researchers in this area define it differently according to their own perspectives and views based on their experiences with people who stutter. The same is reflected in the traditional assessment and therapy protocols being followed all over the globe to handle the persons with stuttering.

As definition of stuttering depended highly on individualistic opinions, it resulted in avoiding the holistic view of stuttering. Starting from first half of the 20th century, stuttering came to be known as associated with change in handedness in some way and "Cerebral Dominance" theory of stuttering emerged (Travis, 1931). Stuttering has also been associated with emotional maladjustment (Glasner, 1949). In the 1950s, Johnson put forth the view according to which stuttering results due to acquired learning characteristics because of which the person anticipates stuttering in special circumstances. In the first half of the 20th century, various studies reported the cause of stuttering to be emotional, psychometric and behavioural disturbances (Brill, 1923; Brown, 1932; Fisher, 1970). Then came into light the psychopathological view of the disorder (Glauber, 1958). The main factors considered were fear, anxiety, feeling inferior in terms of social relationships. Perkins (1990) introduced another factor to be considered in stuttering and that is the speaker's frame of reference, where how a speaker perceives his stuttering is important. A more recent view to consider stuttering manifestation and its impact on an individual is given by Yaruss and Quesal (2004 & 2006). They proposed the view based on ICF perspective and considered the components of body function and structure, personal and environmental factors and activity participation as a framework for defining, assessing and treating stuttering.

Impact of Stuttering

Stuttering has profound effects on daily living of an individual, his participation in social events and also on his surrounding environment. This disorder has the strength to render an almost natural task of speech as a difficult activity. This leads to ineffective communication which is not acceptable to human beings of any culture or belief invariably.

Researches done in view of effects of stuttering using personal reports, biographical collection, and empirically motivated research highlight the fact that people with stuttering experience feelings of embarrassment, shame, and anxiety. They mostly face difficulty in communicating their ideas. They have a sense of dissatisfaction with their life due to stuttering which is hidden within themselves (Ahlbach & Benson, 1994; Carlisle, 1985; Corcoran & Stewart, 1998; Craig, Blumgart & Tran, 2009; Jezer, 2003; Klompas & Ross, 2004; Manning, 1999; Manning, 2010; Shapiro, 1999; St Louis, 2001; Yaruss & Quesal, 2006; Yaruss et al., 2002).

Joss (1993) conducted a study on children with stuttering. He assessed drawings of this population as an attempt to reach their thoughts and feelings. The participants could produce images which represented their stuttering in some iconic form. The participants could draw and describe these images which indirectly assessed their ideas about their stuttering. The findings suggested that majority of them viewed stuttering as an undesirable experience. Subsequently, Pistorius (1994) investigated the conceptualisation of stuttering in some adults and adolescents with stuttering through drawings. The findings reflected feelings of discomfort, restriction and anxiety. Corcoran and Stewart (1998) conducted a study on eight adults with stuttering. The study was aimed at performing a qualitative analysis that investigated the meaning persons with stuttering give to their experiences of stuttering. This was done by asking them to narrate the stories about the same. It was assumed that these stories would give insight about how stuttering has been associated with various phases of their lives. It would also give an insight about its impact on their personal relationships and important choices they make in their life. The authors had envisioned that knowledge gained from this study would increase the effectiveness of

therapy by considering each individual separately taking into account their unique experience of stuttering. Subjects of the study participated in an initial 60-90 minutes interview by answering to open-ended questions and probes. The narratives thus obtained were analysed by an investigator for the possible theme that reflected in what way stuttering had an impact on lives of these individuals. A second 60 minute interview was also conducted to assess the credibility of interpretation of these experiences. Results revealed that persons with stuttering had suffering as the primary theme. This suffering resulted from their core experience of being blocked and obstructed and was characterised by four key elements: (a) helplessness, (b) shame, (c) fear, and (d) avoidance. The article has clinical implications emphasizing the need of establishing and maintaining good and positive clinician-client relationship as important and crucial element in the relief of suffering.

Adults who stutter can gradually develop a risk of emotional, behavioural and psychological problems (Craig, 2003). Spencer, Packman, Onslow, and Ferguson (2005) tried to study the linguistic aspects of stuttering by applying sociolinguistic model of language (SFL) to account for changes in language use before and after therapy for two adults who stutter. The authors presented detailed case study of two adults with stuttering in which recordings were analysed for various communicative situations throughout the course of therapy. The findings suggested that both the speakers increased their use of grammatical resource after treatment. They could engage themselves longer during conversations. Thus their present study indicates how stuttering has an impact on overall usage of language by a person with stuttering for communication.

Study done by Mulcahy, Hennessey, Beilby and Byrnes (2008) aimed at examining the relationship between anxiety, attitude towards daily communication and stuttering symptomatology in adolescents with stuttering. 37 adolescents with stuttering between ages 11 and 18 years were taken as subjects who were required to complete the State and Trait Anxiety Inventory, Fear of Negative Evaluation Scale, OASES-T. Participants' stuttering severity was also determined and they were also grouped into two predominant stutter types- repetition or prolongation/block. Results obtained demonstrated that adolescents with stuttering were significantly different from adolescents with no stuttering when anxiety and communication attitude were considered. Adolescents with stuttering had increased levels of state and trait anxiety. They also had greater fear of being evaluated on a negative basis and faced greater difficulty when functional communication was considered as compared to those who do not stutter. The authors as a result of their findings stress for use of alternate treatments such as desensitisation for management of stuttering in adolescents. There should be involvement of anxiety-reduction therapy that would lead to minimised functional communication difficulties.

Stuttering can have negative impact on quality of life in the domains of social and emotional functioning and mental health (Craig, Blumgart & Tran, 2009). The authors conducted the study using SF-36 to measure effect of stuttering on quality of life of adults who stutter who sought out therapy for stuttering. The findings were compared with the people who do not stutter to have an estimate of possible negative impact stuttering may have on their quality of life. The method involved using SF-36 on 200 adults with stuttering. The results were compared with another 200 individuals with no stuttering of similar age and sex ratio. Results revealed that stuttering has a negative effect on quality of life in the domains of vitality, social functioning,

emotional functioning and mental health status. Results also suggested that persons with stuttering with high severity levels had higher risk of poor emotional functioning. Thus the authors focussed on modifying therapy programs which include provisions to consider the emotional and psychological aspects related to quality of life in persons with stuttering.

Several studies were conducted to explore attitudes, reactions and communication effectiveness of persons with stuttering in different situations. James, Brumfitt and Cudd (1999) studied the attitudes of individuals with stuttering while using telephone. The aim of the study was to study the issues pertaining to telephonic habits of specific group of persons with stuttering, to know about their perception of ways in which telephone talk is different from 'face-to-face' talk and what effect does telephoning difficulty have on their lives along with advantages and associated problems of the same. Data was collected by a survey using questionnaire sent to the participants through post in which 223 useable questionnaires were returned out of 260 distributed ones. The instrument used had 40 items distributed in 3 sections. Section I contained 19 items which gathered information about telephone use, out of which 16 questions were presented in close-ended format and the remaining 3 were open-ended questions. Section II consisted of a 10 item Likert scale where respondents had to agree or disagree to the statements on the telephone. This section also had six open-ended questions on attitudes to telephone use and experiences of using the same. Section III consisted of 5 questions asking about demographic information. Results indicated that answering calls is much easier than making calls for people with stuttering. Avoidance-like behaviour while taking phone calls was more evident in young people than their older counterparts. It was also supported that persons with stuttering perceived lesser resultant handicap towards middle and later childhood. Also severity

of stuttering was a major factor influencing perception and use of the telephone by persons with stuttering. The results indicated that persons with severe stuttering found it more difficult to use telephone than 'face-to-face' conversation as compared to the persons with mild stuttering. 64% of the total respondents reported that difficulties in using telephone had negative effect on their lives. The researchers concluded that inability to use telephone effectively by the persons with stuttering could be a major communication handicapping condition. It can even affect social life and career. The authors thus emphasized the need to identify and develop effective approaches to therapy which can target telephoning problems.

Stuttering was reported to have impact on daily living activities in persons with stuttering which therefore led to their inability to function satisfactorily in society. Silverman and Paynter (1990) studied whether stuttering had any impact on occupational competence of person who stutters. The research question they articulated was whether person with stuttering can be considered as being less efficient than other in the same occupation. For this, they considered 48 undergraduate students who were registered in an introductory speech course and who were rated on one of four scenarios ("a lawyer", "a lawyer who stutterers", "a factory worker", or "a factory worker who stutterers") on 81 semantic differential tasks. Each of these scenarios were rated by 12 students. Results showed that both the lawyer and factory worker with stuttering were perceived to be less competent than others in these occupation. Authors of the study opine that stuttering does not prevent the person from doing what is required by his occupation unless he has extremely severe stuttering. Also they suggest, that in order to cope up with the prejudice of people around him, the person who stutterers should accept his stuttering and acknowledge it

in front of others. Ginsberg (2000) reported that people with stuttering experience a broad array of psychological experiences such as heartache, challenge and triumph.

Klompas and Ross (2004) studied the life experiences of a group of adults with stuttering from South African and the impact of stuttering on their quality of life. They considered 16 adults ranging from 20-59 years as subjects in their study. The participants were interviewed to explore their life domains pertaining to education, employment, social life, speech therapy, beliefs, social life, family and marital life, and emotional issues. The findings revealed that 62.5% of the participants had an opinion that stuttering had a negative impact on their academic performance at school and it also affected their relationship with teachers and classmates. Although, stuttering did not influence their ability to establish friendships (56.25%), people reacted negatively to stuttering generally (37.5%). 75% of the participants felt that stuttering did not have any adverse effect on the choice of occupation which they make, ability to obtain work (50%) and relationships with managers (43.75%) and co-workers (31.25%), however it influenced their work performance (37.5%) and hampered their chance of promotion (37.5%). More than half of the participants had opined that speech therapy positively influenced their quality of life. Stuttering did not influence participants' family and marital life (56.25%). Most participants reported that stuttering had affected their self esteem and self identity (87.5%). The investigators stress the need to include these subjective feelings about stuttering into the daily clinical practice.

Klein and Hood (2004) did a study to explore the impact of stuttering on job performance and its effect on employment in individuals with stuttering. 232 people who stuttered were selected as participants and a 17 item survey was administered. This had 17 questions in total where the first seven questions assessed participants'

perception about the impact of stuttering in their work environment in general and the remaining 10 questions were regarding judgements about their personal experiences in the workplace. Results revealed that more than 70% of people with stuttering had agreed that stuttering has an impact on one's promotion. More than 33% of people with stuttering accepted that stuttering interferes with job performance and 20% had rejected their job or promotion because of their stuttering. Also it was found out that women perceived their stuttering to be less handicapping than men. The authors emphasized that assessment of other factors like impact of stuttering on client's ability to pursue many quality of life issues, their social adjustments, emotional and physical health, and occupation is important for targeting therapy goals and may account for better documentation of success. The therapists should be assessing perceptions of the person with stuttering as well as with whom he communicates and therapy should be focused more on making him an effective and comfortable communicator in his workplace.

McAllister, Collier and Shepstone (2012) conducted a study, the goal of which was to examine the relationship between stuttering and employment status and educational level and comparing these results with the population which did not stutter. The samples of the study comprised of the data obtained from National Child Development Study (NCDS). The original cohort had 18,558 children. Surveys were conducted in this population at time of birth and when the cohort members were 7,11,16,23,33,42,46 and 50 years of age. Questions asked were mainly pertaining to development at 7, 11 and 16 years and explicitly about stuttering at 7 and 16 years. Thereafter 2 groups of cohort members were considered. One was those whose parents reported of stuttering at age 16 and another whose parents reported of no stuttering at 16 years of age which served as the control group. Results revealed that

those cohort members who comprised the first group were more likely to be males, had poor cognitive test scores and were reported to have been bullied. As reported in the study, there was no significant effect of stuttering on education. With regards to employment outcomes, socioeconomic status of occupation was associated with stuttering at the age of 50. These people had lower-status jobs. The results had clinical implications and highlight the importance of encouraging the persons with stuttering by the therapist to refrain themselves from using coping mechanisms like avoidance strategies. This may help to reduce negative impact of stuttering on educational and employment outcomes.

The study conducted by Iverach et al. (2009b) aimed at using the tool of International Personality Disorder Examination Questionnaire (IPDEQ) to screen for personality disorders in persons with stuttering and to determine rate of ICD-10 personality disorders in them. Also, their aim was to compare the rate of first stage ICD-10 personality disorders in the study with the age- and gender- matched controls from The Australian National Survey of Mental Health and Well-Being (ANSMHWB) which was done by Australian Bureau of Statistics (2000). Participants were 92 adults who were seeking therapy for stuttering and 920 age- and gender-matched controls. The participants completed the International Personality Disorder Examination Questionnaire (IPDEQ) as a first stage screener. With the available data, first stage screening of any personality disorder as well as specific personality disorder was determined. The results revealed that presence of personality disorder is high among adults with stuttering than the control group. The major personality disturbances seen were dissocial, anxious, borderline, dependent and borderline personality disorders. The authors highlighted the importance of the study in the light

of improvement of the management services for mental health disorders in persons with stuttering. This would lead to enhanced overall functioning in these individuals.

Study conducted by Iverach et al. (2010) aimed to explore the five personality domains of neuroticism, extraversion, openness, agreeableness and conscientiousness measured by NEO Five Factor Inventory (Costa & McCrae, 1992b) and to compare these with the normals. 93 subjects with stuttering seeking therapy for stuttering were considered and were made to fill the NEO Five Factor Inventory (NEO-FFI). Results of the study revealed that the stuttering group had 'average range' of NEO-FFI scores on all five domains. However they were characterised by increased neuroticism and low agreeableness and conscientiousness. With this, the authors articulated that detailed personality profiling should be done on basis of which treatment outcomes could be predicted and effectiveness could be improved.

The same study was extended further by Bleek, Montag, Faber and Reuter (2011) where in addition they considered age and gender matched control group which was matched with the experimental group of the previous Iverach et al. (2010) study. The authors reported similar findings in their study for personality domain of neuroticism. However, results could not be replicated for domains of conscientiousness and agreeableness. The authors highlight the importance of longitudinal studies in this field.

Another study aimed at investigating the presence of negative affectivity across a number of domains in persons with stuttering by Tran, Blumgart and Craig (2011). The study involved conducting a comprehensive assessment of a wide range of negative mood states in 200 persons with stuttering and comparing it with a control group with 200 participants with no stuttering. All the participants were made to fill

standardised psychological questionnaires followed by interview for approximately 3 hours that provided information about how stuttering influenced their life. The psychological questionnaires that were used are- Symptom Checklist–Revised (SCL-90-R, Derogatis, 1994) and Lifestyle Appraisal Questionnaire (LAQ1, Craig et al. 1996). Results revealed that persons with stuttering had increased levels of distress and negative mood states than the adults who did not stutter. Significant differences were found for anxiety as well as for the other dimensions like interpersonal sensitivity, somatisation, hostility, depressive mood, and paranoia. The authors suggested that the findings should provide new directions in clinical management of stuttering and should target affects and feelings of the person who stutterers rather than just the observable characteristics.

The effects of stuttering on individual's life is deep rooted and strong. After a certain point of time, stuttering becomes a part of the personality of persons who stutter, with every aspect of the person's existence being coloured by the communicative disability. Stuttering can be seen not only as a speech impediment but it is an impediment in social living.

Stuttering and Quality of Life

WHO in 1993 defines quality of life as "Individuals' perceptions of their positions in life in the context of the culture and value system in which they live and in relation to their goals, expectations, standards and concerns". Quality of life was chosen as it is a multi-dimensional concept and can account for many aspects of stuttering experienced by the person with stuttering. According to ASHA (2007), quality of life is the essence of speech language pathologists along with understanding the experiences of people with any communication disorder. Aspects of a person's life

that are incorporated under this are factors like physical, mental and emotional functioning, social interaction, vocational experiences, ability to fulfil expected roles, and ability to achieve the desired and expected goals (e.g. Schipper, Clinch, & Olweny,1996; Schumaker, Anderson & Czajkowski, 1990). The WHO in 1998 stated that quality of life should be defined within a "cultural, social and environmental context" along with "health status", "life style", "life satisfaction", "mental status" or "well being". Thus, quality of life is particularly relevant to stuttering studies as quality of life can be viewed as a "macro-variable" covering many aspects of an individual's experience.

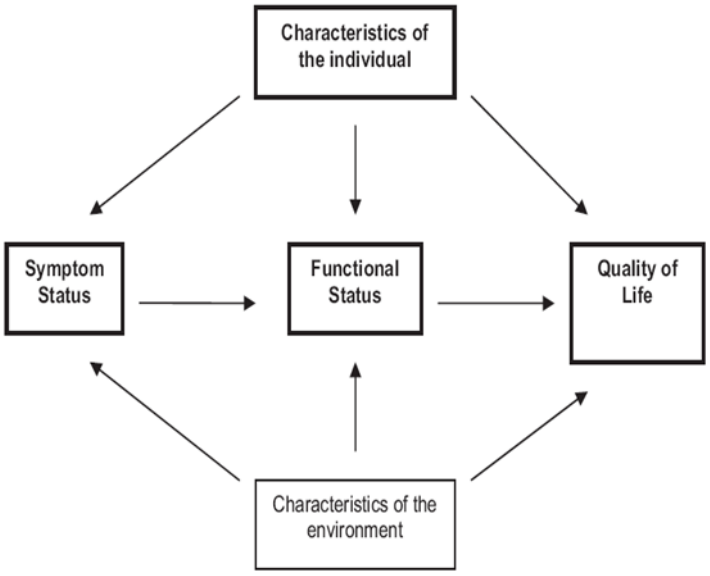

Figure 1. Conceptualization of factors determining quality of life. (*Source:* Koedoot, C., Bouwmans, C., Franken, M. C., & Stolk, E., 2011)

The above model given by Wilson and Cleary (1995) explains the relationship between symptoms due to a disorder and functioning and general health perception. The latter is generally referred to as health related quality of life (HRQOL). *Symptoms* here mean perceptual judgements of an abnormal physical, emotional, or cognitive state. *Functioning* refers to individual's ability to perform particular defined tasks

which comprises of these domains- physical, social, role and psychological functioning (Coons, Rao, Keininger & Hays, 2000). *General health perception* reflects an overall, subjective evaluation of one's health status, which is in relation to the first two components that are the symptoms and functional problems. The model targets the direct and indirect relationship between different outcome levels. Also, the model considers personal characteristics of the individual and his environment and puts forth that it might affect the experience of symptoms, daily functioning and QOL and their social relationships.

Assessment of Quality of Life

Being aware of stuttering and its manifold presentations there is a dire need to bring about a change in assessment and therapy protocols. Previous researches have revealed that the stuttering treatment outcomes primarily focused extensively on changes in the visible characteristics of stuttering and with very little or no importance given to the associated consequences of the same experienced by the speaker (Andrews, Guitar & Howie, 1980; Bothe, Davidow, Bramlett & Ingham, 2006; Cordes, 1998; Prins & Ingham, 2009; Thomas & Howell, 2001). This finding can be attributed to many reasons, the observable speech disruption is a core feature of the disorder, and people coming for therapy want to reduce these observable characteristics more than anything else. Also, visible stuttering behaviour is the most important aspect for the listeners to judge a speaker and it is the easiest to measure to estimate the effect of therapy.

There are many instruments which are available to evaluate broader experiences of stuttering. For example, *Iowa Scale of Attitudes Toward Stuttering* (Ammons & Johnson, 1944) is a 45-item scale which measures attitudes of people who stutter

towards their stuttering. *Modified Erickson Scale* (Andrews & Cutler, 1974) is a series of 24 true-false statements assessing whether or not the statements are characteristic of people who stutter. *Speech Situation Checklist* (Brutten & Shoemaker, 1974) which has formats for both children and adults. Each format has two parts. Part I rates negative emotional feelings and part II rates amount of speech disruption. Both the formats use 5-point rating scale. *Fear Survey Schedule* (Brutten & Shoemaker, 1974) has a list of 80 possible things that may frighten children or make them feel uncomfortable due to their stuttering.

Crowe's Protocol was given by Crowe et al. (2000) for treatment of stuttering. *S-Scale* (Erickson, 1969) consisting of 39 questions in true-false format which provides information about attitudes of stutterers towards interpersonal communication. *The Measurement of Stuttering Severity* (Lanyon, 1967) assesses behaviours and attitudes related to stuttering. *Self-Efficacy Scale for Adult Stutterers* (Ornstein & Manning, 1985) has 50 speaking situations dichotomized into 50 approach and 50 performance items. *Subjective Screening of Stuttering Severity* (Riley, Riley, & Maguire, 2004) assessed three areas- perceived stuttering severity, the level of internal or external locus of control, and reported word or situation avoidance. Watson's (1988) *Inventory of Communication Attitudes* (ICA)- measure speaker's experience in different communicative situations. *Perceptions of Stuttering Inventory,* PSI (Woolf, 1967) examines a stutterer's perception of the presence of struggle, avoidance and expectancy of stuttering. The *Wright and Ayre Stuttering Self-Rating Profile*, WASSP (Wright & Ayre, 2000) is a 24 item questionnaire which is grouped into 5 sections- Stuttering behaviours, thoughts about stuttering, feelings about stuttering, avoidance due to stuttering and disadvantages due to stuttering.

In spite of having many of these tests, they are not generally used in routine clinical setups and for treatment research. One reason may be that by assessing communicative difficulties faced by people who stutter, these scales indirectly measure changes in the observable characteristics of stuttering. These scales are limited in scope and are not able to tap all the significant areas of difficulty in persons with stuttering. Hence most of the researchers started considering one major factor from broader aspect of stuttering and that is changes occurring in speaker's overall quality of life.

Various scales to assess quality of life in fluency disorders have been developed which helps in a more comprehensive assessment communication related areas, than can be accomplished with general quality of life instruments. Health-related quality of life (HRQOL) is defined by the Food and Drug Administration (2006) as: "A multi-domain concept that represents the patient's overall perception of the impact of an illness and its treatment. A HRQOL measure captures, at a minimum, physical, psychological and social functioning".

There are mainly two kinds of HRQOL – generic and specific. Where a generic scale provides a "summary health profile" a specific scale focuses on specific problems associated with a disease or area of functioning. *SF-36* (Mc Horney et al., 1993) is the most widely used generic scale. A disadvantage of such scales is that they are not sensitive to detect changes in specific medical conditions. Because of their insensitivity, generic scales are less preferred than the specific scales which, on the other hand, concentrate on symptoms relating to the specific body part or system in question. Cummins (2010) report that there is only tentative data available on quality of life and stuttering relationship because of use of underdeveloped scales. His conclusion was based on the study done by Franic and Bothe (2008) in which they

stated that the available instruments do not meet the criteria of the psychometric scales. They further suggested that there is a need to develop and validate a quality of life measure which is stuttering-specific.

Another specific HRQOL is *15D* (Sintonen, 2001) which is also severely flawed. It was found that objective and subjective variables were combined in this scale. It was used by Arkkila, Rasanen, Roine, Sintonen and Vilkman (2008). Generic HRQOL, on the other hand, however flawed still give results of interest. Craig et al. (2009) conducted a study with an aim of investigating the impact of stuttering on quality of life of persons with stuttering who were attending therapy by using SF-36. Also, the authors compared this group to a control group which had participants with no stuttering. 200 participants were considered for the study for both the experimental and the control group. The two groups considered were similar for educational levels and employment profiles. Demographic details of each participant were recorded followed by calculation of stuttering frequency and speech rate for each. This was based on analysis of speech sample of conversational speech. The participants thereafter, completed an elaborate sequence of filling psychological questionnaires.

However, authors included only Medical Outcomes Study Short From-36 (SF-36; Ware & Gandek, 1998; Ware, Snow, Kosinski & Gandek, 1993) and Lifestyle Appraisal Questionnaire (LAQ; Craig, Hancock & Craig, 1996) in the study. The comparison could be done successfully and results revealed that stuttering has a negative impact on quality of life in the domains of vitality, social functioning, emotional functioning and mental health status. Results also suggested that persons with stuttering with increased severity levels had higher risk of poor emotional functioning. Thus the authors focussed on modifying therapy programs which include

provisions to consider the emotional and psychological aspects of quality of life in persons with stuttering.

Stuttering and ICF

The individualised nature of stuttering has made it very difficult for assessment of treatment outcomes as it is unclear that which aspects of an individual's experience should be measured. One possible solution to manage this is describing the entirety of stuttering disorder. Several attempts have been made to develop tools on this: ICF made an attempt in this regard. ICF – the International classification of Functioning, Disability, and Health (ICF; WHO, 2001) classifies all experiences related to human health in terms of two major categories: (a) body functions and structure (i.e., all the major structures and functions of the human body) and (b) activities and participation (i.e., all important activities that one wishes to perform to participate in life effectively). Difficulties arising due to body functions or structures are termed as *impairments* whereas those with activities and participation are called as *activity limitations*. ICF is a revision and update of the WHO's previous framework that is the International Classification of Impairments, Disabilities, and Handicaps (ICIDH; WHO, 1980) for describing the consequences of disorders.

About ICIDH.

It was designed to describe the consequences of disorders in terms of *impairment* ("loss or abnormality of psychological, physiological, or anatomical structure or function"), *disability* ("restriction or lack of ability to perform an activity in the manner or within the range considered normal for a human being") and *handicap* ("a disadvantage for a given individual that limits or prevents the fulfilment of a role that is normal for the individual") as given by WHO in 1980. The ICIDH framework was

first adopted by Yaruss (1998) for stuttering as this model described experience of stuttering from the perspectives of the person who stutterers. It takes into consideration, the presence of speech dysfluencies and the resulting negative consequences these may have for speaker's life in general. It was the beginning of Yaruss's (1998a, 1998b, 2001) model of stuttering as it examined the consequences of disorder at multiple levels and not only focussing on the etiology or observable behaviours that characterise the disorder. It describes surface behaviour of stuttering – impairment, difficulties that speakers might face in day to day communication situations – disability and vast array of consequences that it could have on speaker's life experiences – handicap. The ICIDH was widely welcomed as a framework which could be used to effectivly document treatment results (e.g., Brandsma, Lakerveld-Heyl, Van Ravensberg, & Heerkens, 1995; Chamie, 1990; de Kleijn-de Vrankrijker, 1995; Halbertsma, 1995; Schuntermann, 1996; Yaruss, 1998a, 2001). However, the ICIDH was not sensitive towards the differences between individuals. This might exaggerate their experiences of disability. Some authors reported confusion about the use and definition of the term disability and handicap (e.g., Brandsma, Lakerveld-Heyl, Van Ravensberg, & Heerkens, 1995).

About ICF.

ICF also considers personal and environmental contextual factors that describes an individual reaction to his/her health condition as well as reaction of people in his/her environment. Yaruss (1998, 2001, 2007) and Yaruss and Quesal (2004, 2006) suggested that ICF can be applied to fluency disorders as an ideal framework to evaluate experiences of people who stutter. This can be done as:

- *Impairment in body function* - difficulty with speech production that includes speech dysfluencies (Boehmler, 1958; Conture, 2001; Johnson, Darley, & Spriestersbach, 1963; Johnson, 1961; Riley, 2009; Williams & Kent, 1958; Yairi & Ambrose, 1992; Yaruss, 1997).

- *Impairment in body structures* – refers to the neuroanatomical correlates causing stuttering (Beal, Gracco, Lafaille, & DeNil, 2007; Chang, Erickson, Ambrose, Hasegawa-Johnson, & Ludlow, 2008; Foundas, Bollich, Corey, Hurley, & Heilman, 2001; Foundas et al., 2003; Sommer, Koch, Paulus, Weiller, & Buchel, 2002).

- *Personal contextual factors* – speaker's affective, behavioural and cognitive reactions to his stuttering (Cooper, 1993; Manning, 1999, 2010; Murphy, 1999; Shapiro, 1999; Starkweather & Givens-Ackerman, 1997; Van Riper, 1982; Watson, 1988).

- *Environmental contextual factors* – reaction by people in the environment (Craig, Tran, & Craig, 2003; Doody, Kalinowski, Armson, & Stuart, 1993; Mackinnon, Hall, & MacIntyre, 2007; Woods & Williams, 1976).

- *Activity limitation and participation restriction* – difficulty which speakers face in performing daily activities related to communication which includes interaction with others, talking on phone, speaking at work or other places (Brutten & Shoemaker, 1974; Erickson, 1969). This section also includes those difficulties which speakers face in doing what they want to do (Yaruss & Quesal, 2006).

The ICF is a revised concept of WHO's original ICIDH framework was proposed on May 22, 2001. The ICF framework preserves most of the original terminologies of the ICIDH. This revised framework in specific incorporates contextual factors (environmental or personal) and depicts the impact on person's overall experience of life resulting due to these factors.

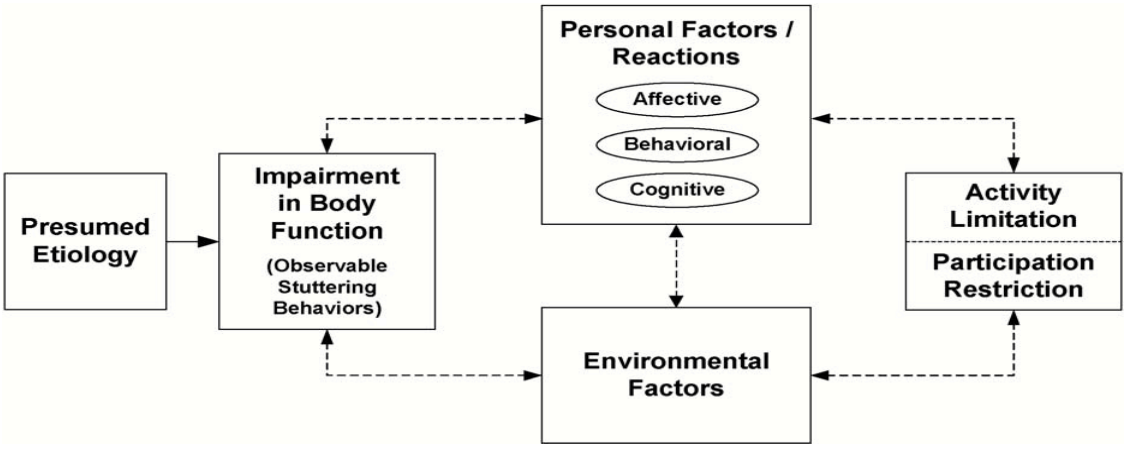

Figure 2. Schematized representation of ICF framework. (Source: Yaruss, J. S. & Quesal, R. W., 2004).

The above figure depicts Yaruss and Quesal's (2006) framework reflecting the new structure of ICF and its application to stuttering disorder. The model demonstrates how a person with stuttering (i.e., impairment in body functions affecting fluency of speech) can also experience affective, behavioural and cognitive reactions (personal factors) that can limit participation in certain activities which are associated with daily living like speaking, participating in conversations, or other aspects of social interaction. The individual may also experience these limitations due to certain environmental factors also. These limitations, in either way can affect both the speaker's reactions to stuttering and the reactions of these in his/her environment. Model also shows how the listener's reactions can influence speaker's reactions and the reverse is also true. The model finally shows that reaction to stuttering (both from the speaker and environment) can affect impairment in body functions. Several interacting components present in the model are:

- the *presumed etiology* or underlying cause(s) of the disorder
- the *impairment in body function*, indicated by the observable characteristics of stuttering

- the speaker's *affective, behavioural, and cognitive reactions* to stuttering
- the effects of the *environment* on stuttering, indicated by the difficulty in different speaking situations and the reaction of others
- the overall impact of stuttering on the speaker's life, indicated by *limitations in communication activities* and *restrictions in participation* in daily life.

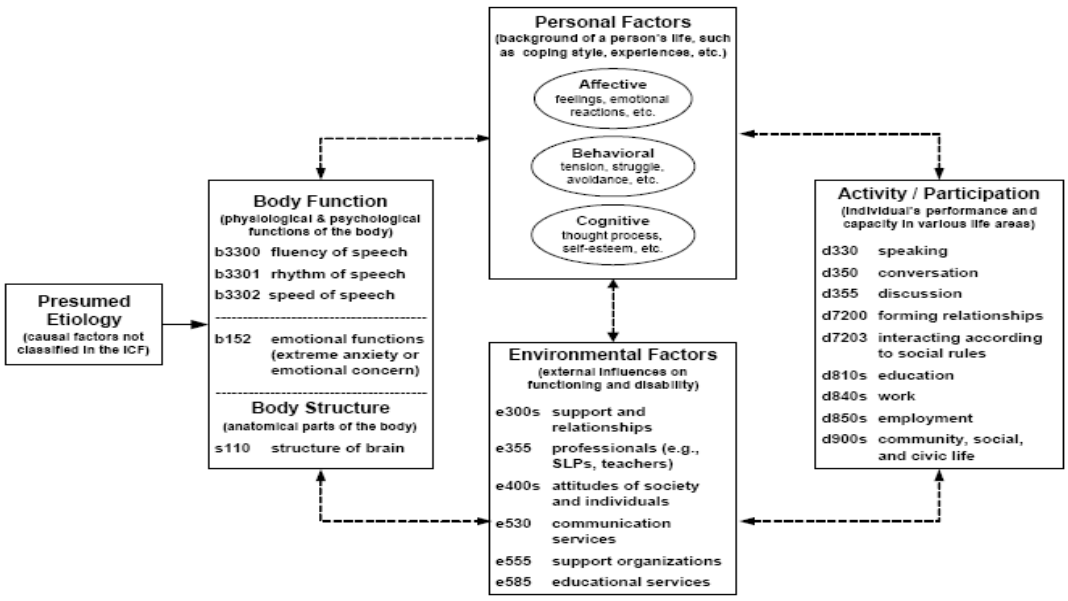

Figure 3. Graphical representation of application of the World Health Organization's International Classification of Functioning, Disability, and Health (ICF) to stuttering disorder. (Source: Yaruss, J.S., & Quesal, R.W., 2006)

Stuttering Assessment and Treatment and the ICF

Most of the time clinicians have difficulty in deciding the assessment tool to select and use. The ICF can be of guidance in this respect. It helps the clinicians to describe entirety of the stuttering disorder and then comprehensive assessment instruments can be designed to address each of these ICF components. OASES is one such scale.

Comprehensive treatment also requires the clinicians to consider the complete experience of the disorder by the individual who has the disorder. Although there is a vast array of treatment options available documented in the literature, however at some point of time they may seem to be confusing. One way in which this confusion can be minimised is by using a consistent terminology about components of treatment, both in description of the treatment and the outcomes of therapy. ICF is an advantage here because researchers and clinicians could specifically identify which aspect of the disorder their treatment program addresses.

Introduction to OASES

It is a new instrument developed from the previously used WHO's ICF and ICIDH. This collects comprehensive information about the stuttering disorder, including: (a). General perspectives about stuttering, (b). Affective, behavioural and cognitive reactions to stuttering, (c). Functional communication difficulties, and (d). Impact of stuttering on the speaker's quality of life. OASES can be used as a supplementary test and can be reliably used in addition to the other widely used measures such as Stuttering Severity Instrument (Riley, 1994). It is available in three versions. OASES-A is for adults (18 years and above); OASES-T (Yaruss, Coleman, & Quesal, 2010) is designed for teenagers (13-17 years); and the OASES-S (Yaruss, Quesal, & Coleman, 2010) is designed for school-age children (7-12 years).

Development of OASES and its Validation process

Development of OASES took place in several stages. There were some major concerns in mind of authors before developing this test. The authors aimed to develop a pencil-and-paper tool that could be easily administered in a typical clinical setting. The questions involved should have simple language, with minimal ambiguity with

some degree of overlap between items and sections to ensure validity. Secondly, economy of time was kept in time so that the test could be administered and scored in a short period of time so that it is easy to use. For this, it was thought the items kept would be limited in number, with small number of selection options and the scoring procedure should be easy and simple process. Third, the test was developed keeping in mind a broad range of people with different stuttering severity levels. Thus, in subsequent evaluation procedures, the items that exhibited strong ceiling and floor effects were minimized, reframed with other optional words or the inappropriate elements were eliminated and instead more general questions were preferred that were capable enough to give a complete picture of common experiences of people with stuttering. Finally, the strongest point in developing this test was that it should be strictly adhering to the WHO's theoretical frameworks for describing health experiences. As a beginning, three individual tests were considered which examined separate aspect of the WHO's framework. Then a single tool by combining these individual items was devised which could assess the entire stuttering disorder.

- **Initial instruments used as trials: SRS, FCS, and QOL-S.**

These are the three different tests which tap on the specific component of the WHO model. These instruments were based on WHO's original ICIDH. The three specific components of the stuttering that these instruments focused were: (a). Speaker's perceptions about stuttering (*reactions*), (b). Speaker's difficulties communicating in daily situations (*disability and environment*), and (c). The overall impact of stuttering on the speaker's quality of life (*handicap*).

Speaker's Reactions to stuttering (SRS). This was designed to assess speaker's perception about their speech, the actions which they did because of stuttering and

knowledge about their reactions to stuttering. This scale was based on the already existing instruments to assess people's reactions to stuttering (e.g., Brutten & Shoemaker, 1974; Erickson, 1969; Ornstein & Manning, 1985; Woolf, 1967). These factors were further categorised as *affective* (e.g., negative feelings and emotions such as anxiety, shame), *behavioural* (e.g., tension and struggle), and *cognitive* (e.g., low self esteem and negative self evaluation) reactions. For affective reactions initially 75 different emotions were selected. These were then reviewed by the focus groups which had more than 30 people with stuttering and more than 20 experts dealing with treatment of stuttering. Ultimately, 20 of these were selected for next stage evaluation. Similar procedures were followed for the behavioural and cognitive reactions. The initial draft of SRS had total of 100 items.

Functional communication and stuttering (FCS). This instrument was to judge how environment has an impact on the person's speech. This was done by examining the difficulties faced by person with stuttering in different situation. The FCS initially had 35 items which focused on three situations, (a) talking to other people in general, (b) communicating at work, and (c) interacting in social situations. This instrument was very much similar to the previously existing "attitude inventories". However, unlike the already existing inventories, FCS examined the overall difficulty speakers experienced in general while communicating in different situations and not the overall fluency.

Quality of life and stuttering (QOL-S).This examined the potential disadvantages people may face because of their stuttering. It targeted on assessing the speaker's overall quality of life. The initial items were based on the already available QOL instruments (e.g., Schipper, Clinch, & Powell, 1990; Schumaker, Anderson, &

Czajkowski, 1990; Testa & Simonson, 1996; WHOQOL, 1995). The draft of QOL-S instrument had 30 items.

- **Initial pilot studies: Item analysis.**

The early SRS, FCS and QOL drafts were further passed through two pilot studies. The first pilot study involved 39 participants. This helped in gathering opinions of the focus group. The issues that were considered in this pilot study were whether the wording of test items were appropriate or not, format and layout of the test forms which was constructed and used, and the time required for test completion. The second pilot study involved 85 people as an aim to evaluate the concurrent validity. The instrument was distributed to the participants with a questionnaire collecting brief demographic information, a respondent comment form where the participants were expected to mark and comment for their responses and the S-24 scale (Andrews & Cutler, 1974). A total of 74 packets (84% return rate) were returned and these were looked into for more detailed item analysis. The distribution of the individual items was examined to avoid any floor or ceiling effects, limited variability, non normal distributions. In some cases, the items which did not indicate normal distribution were still retained as these items addressed those aspects which were relevant for a specific subset of respondents. After this, pair wise correlation analysis was done to avoid item redundancy. The items which had Pearson product-moment correlation coefficients of 0.90 or above with any other item were either removed, reworded or combined. Also, reliability coefficients were calculated to make sure of that related items examined related constructs. Pearson product-moment correlations were calculated between total scores for different tests to make sure that the tests are different from each other and that they are examining different aspects of the stuttering disorder.

The initial pilot studies were helpful to pave the way for future development of the instruments. For example, the initial version of SRS examined both the frequency and the strength of various feelings and emotions experienced by individuals due to their stuttering. The results of pilot analyses showed that respondents had difficulty in differentiating between the two and hence later version focused on how frequently the feelings were experienced. Also, the initial drafts included both the "positive" and "negative" feeling terms. Item analyses revealed that all the "positive" terms highly correlated with each other and strongly negatively correlated with the "negative" feeling terms. Their presence in addition added to the confusion in the scoring process and hence they were eliminated in later versions of the instrument. After the pilot studies, the items related to how difficult is the participants' communication because of their stuttering, were kept under one section termed as overall "difficulty" of communication in various situations. Earlier versions of these tests had different heading terms and different scoring procedure and values. Pilot analysis showed that the respondents did not consistently follow the anchor terms used in the initial instruments. The later versions incorporated consistent set of anchoring terms. It also followed a scoring procedure according to which the higher values indicated a greater negative impact. Pilot analyses revealed that the 5 –point Likert scale was more consistent than the 7 –point Likert scale and that the 5 –point Likert scale maintained a satisfying degree of variability and improved ease-of-use and enhanced reliability.

- **Initial Pilot Studies: Validity and reliability issues.**

The S-24 (Andrews & Cutler, 1974) was selected for evaluating the concurrent validity. Correlation ranging from 0.68 to 0.83 between three instruments (SRS, FCS, and QOL-S) and the S-24 was revealed on statistical analysis. The highest correlation was seen between SRS and the S24. To ensure for content validity, responses from the

focus groups, narrative responses from participants, and input from expert reviewers were considered to check that items of the developing questionnaire could be used with a wide range of people who stutter. A preliminary assessment of test-retest reliability was done for these trial instruments to ensure the stability of responses. Five individuals were taken and were given the SRS, FCS, QOL-S and S-24 to complete in two sittings the duration between the two being 2 weeks. Responses were compared on bases of mean different scores, correlations, and *t*-tests. Analysis revealed that although the reliability of some items on the scales was high, still the respondents found the wordings of some items on SRS and FCS scales difficult to understand. Those items were either removed or substituted with other optional and appropriate words. Reliability test was again conducted to check for overall reliability of the instrument.

First integrated instrument: CASES.

After the pilot analyses were complete, the items which were redundant or confusing were removed or reworded by using simple words. In some cases, even the entire sections had to be modified to ensure integrity of these sections. Changes were made to ensure the purpose and structure of WHO's ICF. Terminology from the ICF was used instead of ICIDH terminology. The resulting information was combined into one single tool which included all the previously described instruments. In addition to these, a new section was added – *general information*. This section helped to gain information about the speaker's own perceptions about his problem and self-ratings of his fluency in different situations, as well as how much the speech sound natural to himself or to others, difficult in communicating in different situations, knowledge about stuttering and general opinions about various aspects of stuttering. This gave

rise to a tool as "Comprehensive Assessment of the Speaker's Experience of Stuttering" or CASES.

The trial version of the CASES had total of 100 items with a 5-point Likert scale, and had four sections: *General Information, Reactions to Stuttering, Communication in Daily Situations,* and *Quality of Life.* These four sections strictly followed the WHO's ICF perspective and tapped the following areas of functioning: the general information sections which addressed the speaker's experience of *impairment in body function,* the reactions section addressing *personal contextual factors*, the communication abilities which was addressed both in *daily activities* and the impact of *environmental contextual factors,* and quality of life section which addressed *restrictions in the person's ability to participate* in life.

- **Additional pilot analyses and final revisions.**

Further pilot studies were conducted which had a larger sample size of respondents than the earlier studies. This was done to assess the reliability and validity of the finally integrated CASES instrument. A group of respondents was made keeping in view that it should be heterogeneous which would represent a population with various degrees of stuttering severity. The trial CASES was given to more than 550 people with stuttering. Out of this, 183 forms were available for data analysis. Of these 6 were excluded as the participants were less than 18 years of age, and four other were excluded because their forms were not completed at all or because only a few items were marked. Hence at the end, there were 173 adults who stutter who were considered for the final analyses. Individual item analyses was done in detail to ensure that the items in the CASES did not exhibit floor or ceiling effects, limited variability, or non normal distributions. Pair wise correlations were calculated

to avoid redundancy. Maximum pair wise correlation for items within a given section of the CASES was set at 0.90. Pearson product-moment correlation coefficients ranged from 0.01-0.89. Correlations were also calculated for total scores between the four sections of the CASES. Cronbach's alpha coefficient was calculated independently for each of the four sections of the instrument. The results revealed strong internal reliability. These above mentioned analyses confirmed that all of the test items of CASES have appropriate reliability and validity. This made the instrument worthy to be used in clinical and research applications. However, a few specific items still required minor changes in terms of ease of word. The final version of the revised instrument was renamed as the *Overall Assessment of the Speaker's Experience of Stuttering* (OASES).

Overall Assessment of Speaker's Experience of Stuttering (OASES)

The final version of OASES has 100 items, each is scored on a 5 point Likert scale. This instrument is organised into four sections: (a) *General Information*, (b) *Reactions to Stuttering*, (c) *Communication in Daily Situations*, and (d) *Quality of Life*. Section I contains 20 items which deal with speaker's perception about his fluency and speech naturalness, his awareness about stuttering and options available for stuttering therapy, and overall perceptions about stuttering in general. Section II contains 30 items which examine speaker's affective, behavioural, and cognitive reactions. Section III contains 25 items which assess the degree of difficulty which speakers have when they communicate in different situations like in general situations, at work, in social situations and at home. Section IV contains 25 items which assesses interference of stuttering with speakers' satisfaction with their ability to communicate in different situations, their relationships with family, friends and

others and their ability to participate in their lives, and their overall sense of well-being.

Scoring Procedures.

The higher scores on the OASES indicate a greater degree of negative impact associated with stuttering and lower scores indicate less negative impact on the individual due to stuttering. Respondents are asked to leave those items that are not relevant for them. In this case, to make sure that the skipped items would not affect the overall scoring, two scoring rules are followed. First is that, it is a rule that an individual section can only be scored if the respondent has completed at least half of the items in that section. Second is that scoring should be based on the calculation of a ratio of the total number of points that a respondent scores in the questionnaire divided by the total number of points possible for the items that were completed.

Then the "impact score" was calculated which had three steps: first, clinician calculates the number of points the respondent has scored for each section. Second, this total number obtained from the first step is multiplied by 5 to obtain the number of possible points in each section. Third, the number of points in the respondent's scores were divided by the number of possible points. The resulting value is multiplied by 100. A scoring summary sheet is provided to make the accounting of scores for each section the calculation of impact scores easy.

Impact Ratings.

The scores of the OASES yield an indication of the *impact* of stuttering on various aspects of the speaker's life. These "impact rating" were obtained as a result of pilot study where the main aim was to determine if scores could be used to divide

the respondents into logical groups representing differing degrees of stuttering impact (mild, mild-to-moderate, moderate, moderate-to-severe, severe). The authors suggest that even though the questionnaire gives an overall impact rating at the end which can be considered parallel to severity index, it is still important to take into consideration the performance of respondents on individual items in the instrument. The impact score could be calculated separately for each section as well as for the instrument as a whole. These impact ratings can provide an indication of the impact of stuttering on life of speaker and it can help us to assess the experiences of person with stuttering.

Final Evaluation of Reliability.

One more final round of reliability test was conducted for OASES after correcting for wording of all items and proper scoring procedure was decided. For this, the OASES was distributed to 20 adults with stuttering. 70% of them responded on two separate occasions separated by 10-14 days, with no on- going therapy during the retest period. This was done to examine the test- retest reliability in several ways. First, for each item on the instrument, point-to-point agreement was assessed individually. Also it was to analyse whether the variability between test administrations would yield differences that could affect the overall results provided by the instrument. The findings supported that there was a strong consistency from one test administration to the next. Impact scores were compared for all the four parts of the instrument as well as for the overall instrument. Analysis showed a high degree of test-retest reliability for impact scores. Pearson product-moment correlations ranged from 0.90 to 0.97 for impact scores obtained from the first and second administration of the instrument. Also, the impact ratings were compared. Comparison of impact ratings revealed strong reliability between initial and follow-up administrations of the OASES. The authors therefore conclude that the final version

of the OASES exhibits strong reliability and validity that are sufficient to support its use in the evaluation of stuttering treatment outcomes.

Studies on OASES

The following section deals with the studies on OASES. A study by Koedoot, Versteegh, and Yaruss (2011b) aimed at translation of OASES in Dutch language. Also psychometric performance of this Dutch version of the OASES-A was evaluated. This translation of the OASES-A into the Dutch version followed a standard forward and backward translation process. The translated Dutch OASES-A version newly termed as OASES-A-D was administered to 138 adults with stuttering. Out of these, 91 participants included both who were not receiving therapy and people who had registered for therapy just at the time of investigation. This group was asked for their demographic details followed by the administration of OASES-A-D and a self assessment score of speech (SA scale score; Huinck & Rietveld, 2007). The SA scale is a 10 point rating scale. For the remaining respondents, Clinical Assessment (CA) scale was used. It was a clinician- based stuttering severity rating which followed 5-point Likert scale. 32 participants also completed the Dutch S-24 scale (Brutten & Vanryckeghem, 2003). In OASES-A-D, all items were acceptable without any ceiling effects. For 30 out of 100 items most of which were in the *Quality of life* section, floor effects were observed. Internal consistency and reliability was assessed through Cronbach's α coefficients. All the four sections demonstrated good internal consistency and reliability. The results of the study were in line with the results on internal consistency reported by Yaruss and Quesal (2006). Concurrent validity was determined by calculating the correlations between Impact scores and the Dutch S-24, SA and CA scores. Concurrent validity came out to be moderate to strong. Construct validity was also determined. All sections of OASES-A-D were successful in

differentiating participants with different levels of stuttering severity. Only the moderate and severe categories of SA scale did not correlate significantly with OASES-A-D Impact score. The results suggested that OASES-A-D is a reliable and valid instrument which can be used to assess the impact of stuttering on Dutch population of adults who stutter.

The study by Koedoot, Bouwmans, Franken and Stolk (2011a) gave a new boost to studies related to stuttering and Quality of Life (QoL). The primary objective of the study was to explore the extent to which QoL is affected in persons who stutter. The authors also aimed to identify determinants of QoL in them. This was done by testing relationships between stuttering severity, coping, functioning and QoL and by comparing these scores in two conditions- receiving therapy versus not receiving therapy. Total 91 adults with stuttering were considered for the study who filled questionnaires like- Self assessment scale of Speech (SA Scale, Huinick & Rietveld, 2007), Speech Satisfaction Scale, OASES-A, Coping Inventory for Stressful Situations (CISS, DeRidder and vanHeck, 2004). The results revealed that moderate to severe degree of stuttering had a negative impact on overall quality of life. The domains of functioning- individual's speech, emotion, cognition, pain, daily activities and anxiety/depression were predominantly affected. Persons with stuttering rated their stuttering as more severe and recorded more problems in therapy group than the non therapy group. It was also found that individual's coping style which refers to the conscious response to events which are perceived as stressful, also had an impact on QoL in adults with stuttering. Relationship between stuttering severity and overall QoL was influenced by task-oriented and emotion-oriented coping style. The authors conclude by stressing for further development of effective therapies for the disorder of stuttering which would be more global in approach.

Blumgart, Tran, Yaruss and Craig (2012) established Australian normative data values for the OASES-A version. Scores of Australian population on OASES-A was compared with the population of American and Holland. In this study the OASES-A version was administered to 200 adult males and females who stutter, aged between 18 and 35 years. Also, the influence of age, gender, and frequency of stuttering was presented. The findings revealed no significant relationships between OASES scores for gender, age and educational level of the participants. However, the participants with more severe stuttering had higher negative scores for the section of '*General Information'*, '*Communication in Daily Situations*,' and for the overall OASES score. It was also found that for all the three datasets, i.e., Australian, American and Holland, mean scores of adults with stuttering fall predominantly in the moderate impact category.

A recent study by Beilby, Byrnes, Meagher and Yaruss (2013) aimed to explore the impact of an individual's stuttering on his overall quality of life with specific focus on his interpersonal and most intimate relationships that is with his spouse. They aimed to investigate personal experiences and themes for both members of the couple dyad where one of the member is a person with stuttering and to examine whether both the members of the couple dyad experience the same impact of stuttering on their lives. 10 dyad couples were considered in the study. The dyads were given two questionnaires- the OASES and SF-36. A parallel version of original OASES was developed named as OASES-P which was used to assess the experiences of the fluent partners. In this adaptation, words such as 'your speech' were replaced by 'your partner's speech'. Results of the study indicated that persons with stuttering had similar experiences in reaction to stuttering and perceived difficulty in communication as their fluent partners. Most emergent and strong themes evident

were of anxiety, avoidance and supportive relationships. This study helped in understanding the importance of a healthier integration of the entire family in the treatment practice with enhanced support from partners in the clinical process.

A new ray of light emerged in use of OASES due to study conducted by Bleek, Reuter, Yaruss, Cook, Faber and Montag (2012). The study focused on establishing an association between five factor model of personality measured by the NEO-Five-Factor Inventory (NEO-FFI) and the Overall Assessment of Speaker's Experience of Stuttering (OASES). The five factor model of personality comprises of five dimensions- Openness to Experience, Conscientiousness, Agreeableness, Extraversion and Neuroticism. They selected 112 persons with stuttering from Germany as subjects. They were asked to fill the NEO-FFI and the OASES questionnaires which were later analysed. Results of the study showed strong positive correlation between personality trait neuroticism and OASES scores but negative correlation between extroversion and OASES scores. The results could be interpreted as person with stuttering who has increased neuroticism and lower extraversion scores experiences greater impact of stuttering on their life. Therefore personality traits should be considered for better therapy results.

The above studies were done in Western context where the life style differs when compared to India. The impact of stuttering also varies across countries. Even, perceptions about stuttering, its assessment and therapy procedures vary in India as compared to the West. Acceptance of the same is a major issue due to lack of opportunities and awareness in the country. Hence, exploring a new way of looking at stuttering and its impact on one's life by using OASES was planned in Indian context in the present study.

Locus of Control of Behavior (LCB)

This is a 17-item Likert-type scale which was developed by Craig, Franklin and Andrews (1984). This scale is particularly designed to have an idea about the degree to which a person perceives daily occurrences of stuttering to be a consequence of his or her behavior. Subjects are required to indicate their agreement or disagreement to each of the 17 statements which are related to their personal beliefs. The rating used is a six-bipolar Likert-type scale. The scores of all these 17 statements are summed to yield a total LCB score. In the scale, items 1, 5, 7, 8, 13, and 16 reveal strong internality. Hence while scoring the scores of each of these 6 items are scored in reverse order (e.g., a score of 4 becomes to a 1 or vice versa). Higher scores on this scale are indicative of perception of external control or *externality* by the subject and lower scores indicate perception of internal control or *internality*. Here, externality means that the subject believes that his behavior is determined by forces beyond his control. Internality means the self perception of the subject that he is able to determine his own behavior. Manning (2010) state that scores for adults with severe stuttering often have LCB scores as high as 44 to 55 and for nonstuttering speakers these scores generally lie between high teens to low twenties.

Craig et al. (1984) in their study administered LCB on two groups of non-stuttering adults which comprised of 123 university students (mean score 28.3) and 53 nurses (mean score 27.9). The other group was consisting of 45 persons with stuttering who were awaiting treatment for stuttering (mean score 31.0). Thus, the control group (university students and nurses) had lower scores as compared to the experimental group (persons with stuttering) in this case and thus more internality. Also, Craig et al. (1984) noted that a reduced LCB score (indicative of greater internality) during treatment was a good predictor of fluency maintenance during

maintenance following therapy whereas an increase or no change in LCB score (indicative of greater externality) was predictive of relapse 10 months following treatment. The scale was found to have good internal consistency and reliability. Thus the authors stated the importance of the tool in the fact that clinician can hope to see, in due course of therapy, a reduction in disorder which would also be reflected in reduction of the LCB scores towards internal dimension.

Craig and Andrews (1985) conducted another study to replicate their previous study. Their aim was to replicate the original finding that changes in LCB score during the course of therapy is helpful in predicting long term outcome. Second aim of their study was to conduct a retreatment study. This was conducted to show that further relapse after retreatment of subjects who had initially shown relapse could be prevented by a specific type of treatment. Changes in LCB scores during treatment could predict changes in performance of subjects with stuttering. Total 18 subjects were considered were measured prior to treatment, immediately after treatment and 10 months after treatment. Frequency of stuttering was measured and locus of control was made to be filled by the 18 subjects. 5% reduction or more in Locus of Control of Behavior scores were considered to be an evidence for development of internalisation. Only 17 subjects were considered during final analysis as they only returned for the long term follow-up. The locus of control of behaviour could successfully predict the outcomes 10 months later for 15 of 17 subjects. For studying the second aim of the study, these 17 subjects were added to the 45 subjects of the original study (Craig, Franklin and Andrews, 1984) to make a pool of 62 subjects. They could conduct their study with 6 subjects using the ABABA paradigm. A1 represents baseline, B1 denotes initial treatment, A2 indicates the first 10-month follow up, B2 is indicative of a treatment similar to B1 but with an additional self-control package, and A3 represents

a further 10- month follow up period. Frequency of stuttering was assessed by taking percentage of syllables stuttered into account and Locus of control was measured by the LCB scale. They found reduction in %SS (percentage of syllables stuttered) and also the LCB scores were indicative of internality. Thus the authors gave the above evidence to prove that LCB is a scale which can strongly predict the chances of relapse and also can be correlated well with the treatment outcomes.

De Nil and Kroll (1995) found less correlating results in terms of LCB being the predictive of long-term change in fluency maintenance. They considered 21 subjects who had been enrolled for a three-week therapy Precision Fluency Shaping Program. 13 subjects were followed up after two years. The findings indicated that the fluency gains achieved during treatment were maintained by most clients, however, no relationship between LCB scores and the client's percentage of words stuttered could be seen. The results in their study did not replicate the findings of the previous studies done in this regard that the amount of change in locus of control toward more internality during treatment predicted success two years after treatment.

Riley, Riley and Maquire (2004) described about *Screening of Stuttering* (SSS): research edition which was designed to quantify the self reports of persons with stuttering. The three areas covered under SSS are perceived stuttering severity, level of internal or external locus of control and reported word or situation avoidance. According to the authors, the severity rating can be correlated with percentage of syllables stuttered, duration or the *Stuttering Severity Instrument*. Locus of control can be assessed using *LCB*. Avoidance could be measured using *S-24.* After selection of the appropriate items, reliability, test retest agreement item to area correlations and subtests to total SSS correlations were seen. SSS was also assessed for validity. Results of a research project using the SSS with 16 persons with stuttering revealed

that percentage of syllables stuttered correlated with the stuttering severity and with locus of control but not with avoidance. Thus the authors emphasize the need for other types of therapy which target other areas like perceived locus of control, use of avoidance and presence of fear which are actually the “seeds of relapse”.

Present study is aimed at administering OASES on Indian population with stuttering and to understand how well this scale can be used in helping clinicians to know perspectives of persons with stuttering about their problem. The study is also aimed at exploring the correlations between SSI, OASES and other variables like education, employment and psychological attributes.

"The stutterer must conquer his own problems.

No one else can do it for him."

- Van Riper

Chapter III

METHOD

Participants

30 adult participants with stuttering were selected from different speech therapy clinics based on their availability and convenience. Participants who were selected from AIISH clinic included individuals attending regular therapy as well as those who were attending demonstration therapy. At the time of data collection, some of them were still attending speech therapy and the rest of them were discharged from therapy. Others were selected based on personal contacts. The data was collected from September, 2012 to March, 2013.

Participants were selected based on the following criteria-

Inclusion Criteria

- Diagnosis of Stuttering: Participants were required to be diagnosed with stuttering by a qualified speech-language pathologist based on formal assessment using Stuttering Severity Index (SSI-3;Riley, 1994). Their severity ranged from very mild to severe degree.
- Age: Participants within age range of 18-30 years were considered.
- Language: The subjects were required to have basic reading, writing and understanding in English language. Mother tongue was not a criterion for selection of subjects.
- Speech therapy: Subjects attending or not attending speech therapy or the ones who are discharged from therapy were considered. Details of duration of therapy and

the type of technique used in speech therapy was not considered as a variable in the present study.

Exclusion Criteria

- Persons with history of physical or neurological disorder leading to stuttering such as dysarthria, apraxia and aphasia were not considered in the study.

In total, OASES was administered on 39 individuals out of whom only 31 were considered. Out of the total 39 participants, 1 was excluded because he was less than 18 years of age. Another six were excluded as they did not fill all the required forms. The remaining one participant was not considered as he had not filled the OASES form completely. Totally 28 males and 3 females were considered. Males constituted 90.3% of the total data, female were 9.7%.

Table 1

Age range and gender-wise distribution of participants

	Age Range	Total No
Male	20-30	28
Female	20-24	3
Total	20-30	31

Note. The age range is narrower for females as compared to males and the distribution across gender is skewed.

Demographic data

Demographic data was collected from all the participants. This included information about age, gender, employment status and educational status of the participant. NIMH Socio-economic status scale (Venkatesan, 2011) was used in the study to classify the employment and educational status of the participants.

Table 2

Educational Status of the participants

	Frequency	Percent
Under Graduates[a]	9	29..0
Graduates[b]	14	45.2
Post Graduates[c]	7	22.6
Ph.D	1	3.2
Total	31	100.0

Note. Participants were categorised as Under Graduates, Graduates, Post Graduates and Ph. D. holders according to the employment status. Adapted from NIMH Socio-economic status scale (Venkatesan, 2011)

[a]Pre-university courses, Intermediate, plus two level courses, etc. [b]Graduates with diploma. [c]Post graduate diplomas, doctorates, professional qualifications.

Table 3

Employment Status of the participants

	Frequency	Percent
Student	13	41.9
Skilled Worker[a]	9	29.0
Professional Worker[b]	8	25.8
Specialised[c]	1	3.1
Total	31	100.0

Note. Participants were categorised as Students, Skilled workers, Professional workers and specialised according to the employment status. Adapted from NIMH Socio-economic status scale (Venkatesan, 2011).

Research Instrumentation

Tool Used. Pen, paper and the questionnaire of 'Overall Assessment of the Speaker's Experience of Stuttering' (OASES; Yaruss & Quesal, 2006, 2010) were used. Approval to use this questionnaire for the present study was obtained from the authors through email.

Description of OASES. OASES is divided into 4 sections with 100 questions in total. Section I – *General Information* contains 20 questions. This section particularly contains statements related to participants' awareness of their own speech naturalness and fluency, their knowledge about stuttering in general, the various therapy options available for the same, the factors which may affect their stuttering and overall positive or negative impact of the problem on their overall speech. Total score in this domain is 100.

Section II – *Your Reactions to Stuttering*- This section contains 30 questions which deal with participants' ratings of their own reactions to stuttering behaviour. This section covers the affective, behavioural and cognitive reactions of participants towards their stuttering. Total score possible for this domain is 150.

Section III – *Communication in daily situations*- This section has 25 items which explores the difficulty faced by persons with stuttering in different situations like at work place, at home, when talking to people in general and in social situations. Thus, this particular section helps to assess the level of difficulty of persons with stuttering face rather than judging about their fluency. Total score for this domain is 125.

Section IV – *Quality of Life*- This is the last section containing 25 items. The section contains questions focusing on interference which stuttering has with participants' ability to communicate satisfactorily in society, their relationship with people around them including friends, family members and strangers. It helps the persons with stuttering to know how much stuttering hinders with their ability to perform job adequately, spiritual well being and control on their own life. Total score possible here is 125.

Socio-economic Status

NIMH Socio-economic status scale (Venkatesan, 2011) was used to assess the educational and employment level of the participants.

Locus of Control of Behaviour

Locus of Control of Behaviour (LCB) questionnaire by Craig, Franklin and Andrews (1984) was also used to investigate the locus of control of behaviour of the participants. Based on this participants were divided as having internal or external locus of control.

Research Protocol

OASES is a self rating questionnaire. It required participants to read the form and fill it accordingly on a five point Likert scale. For the study, well illuminated room and quiet surroundings were chosen. The participants were seated comfortably and were made to relax. The procedure was initiated with a five minute session of rapport building with the participants in which questions about their profession or education and views about their problem were asked. They were then told about the purpose of the study and about the questionnaire. They were clearly informed about the instructions to fill the OASES questionnaire. Written consent was taken from all the participants before the administration of the OASES. The participants were told that the test would take 1 hour for its completion and they were made aware of the terminologies used in the questionnaire. They were asked to read all the domains carefully before filling the questionnaire and were informed to ask for clarifications if any statement was not understood.

Testing was carried further only after the participants had a clear idea about the questionnaire. During the filling, participants were expected to read those questions and mark their answers accordingly on the questionnaire with pen. The response could be either a tick or circling on the correct number which denoted their choice for a particular statement. The participants were advised to fill the form without any bias. Sometimes, during filling of the questionnaire, it happened that participants were not able to understand the meaning of certain technical terms like 'fluency', 'speech sounding natural', 'self help or support groups', 'defensive', 'filler words', 'substitution of words' etc. They were then explained the meaning of the same by the researcher in either English or Hindi whichever was comfortable for the participant. 2 of the participants completed the form filling in two sittings.

OASES form was sent through email to some of the participants who had attended demonstration therapy and had to leave before they could be considered for data collection and also to those who could not come to AIISH for the face to face administration of the test. The participants were instructed about the purpose of the test and also the way of filling the form on telephonic conversation. They were asked to make numbers of their choices in bold form and resend the filled form to the researcher. They were asked to leave any question which they were not sure of. Their doubts were later cleared on telephonic call and then their responses for those set of questions were asked.

Also, along with OASES, the participants were asked to fill the Locus of control of Behaviour questionnaire (Craig, Franklin & Andrews, 1984). It is a 17 item questionnaire which is marked on 5 point rating scale. This questionnaire helps to assess whether the person has internal or external locus of control over his behaviour. The participants were instructed that they had to read the questions carefully and write

the appropriate number of their choice against the space provided for each statement. The participants were given this form to fill after the completion of OASES. Majority of the participants had difficulty in understanding the statements of the questionnaire. In this case, they were asked to clarify the same with the researcher. For some of the subjects who were not personally present to fill the questionnaire, it was mailed to them with the instructions to fill the form written in their mail. Prior approval for sending the form and purpose of the same was sought from the participants through telephonic conversation. They were asked not to mark any statement if they are not confident of the meaning. They were informed to fill as much as they can and send it to the researcher. The researcher later then clarified the doubts on phone and asked their responses.

To have an estimate of their socio-economic status they were asked basic questions related to education, employment and income based on NIMH Socio-economic status scale (Venkatesan, 2011). First question was pertaining to education of the participants. They were asked about their present occupation that is whether they were studying during time of the data collection or they were pursuing jobs. If the participants were working then they were asked about their nature of work and monthly income. In case the participants were students they were asked about the monthly income of the earning member in their family. A few of the participants were not interested in revealing their monthly income. These participants were not forced thereafter.

Design. The study was conducted within a qualitative, small group research design, which included basic rapport building with the participants, followed by filling of the OASES questionnaire by the participants.

Scoring. The scoring of the OASES followed the guidelines as given by Yaruss and Quesal in their original publication. (Yaruss & Quesal, 2006). All the statements in the four domains were rated on a 5 point Likert scale. Responses for each section were totalled and then the number of questions answered by the participant for each section were added. Based on the total number of questions answered by the participants, the total number of points possible for each section was determined. This was done by multiplying the total number of questions attempted by the participant by 5. Thereafter the percentage score for each section was determined by dividing the scores obtained for each section divided by the total points possible for that section and then multiplied by 100. This gave the impact score. The four sections of the form were scored individually and the impact score for each section was assessed. Later a combined score and impact rating gave an idea of how much the stuttering has made an impact on the life of person with stuttering. The counting of the scores and the ratings were done by the examiner in a silent room without disturbance. It was rechecked to avoid any calculation errors. The impact scores and ratings are as followed.

Table 4

OASES Impact Rating and Impact Scores

Impact Rating	Impact Scores
Mild	20.0-29.9
Mild-to-Moderate	30.0-44.9
Moderate	45.0-59.9
Moderate-to-Severe	60.0-74.9
Severe	75.0-100

Note. From Yaruss and Quesal (2006). Adapted with permission.

Higher scores on OASES indicated a greater degree of negative impact of stuttering on various aspects of individual's life. The impact ratings for each section and the combined rating were then communicated to the participants. They were told about their ratings and the different measures to reduce their impact ratings. They were asked to keep themselves aware of the various aspects of stuttering and its effects in their life so that they can better handle their problem and manage it effectively when they are not in the therapy situations.

The LCB scoring was done by transposing the values of all the internal items. According to Manning (2010) the internal items are 1, 5, 7, 8, 13 and 16. So the value of 5 was transposed to be as 0, 4 as 1, 3 as 2 and vice versa. After this, all the scores were summed up resulting in one total value. Higher scores indicated externality and the lower scores indicated internality.

Comparison of impact ratings of OASES across each group based on SSI scores, educational levels, employment status and LCB scores was done in the present study.

For reliability

To check for reliability individual participants were called again to fill the questionnaire in front of the examiner. Out of total 31 participants, 9 were considered for reliability. Some of the participants were sent the questionnaire through emails, with the instructions written in case of any doubt. This was done as some of the participants who had initially filled the form in presence of the investigator were not available in the city at the time of retest. These were those participants who had attended demonstration therapy. They were requested to fill the form again in the same way they did before without any bias. They were also told the reason for filling

the form again. An interval of minimum one month was given between test and retest period so that the responses on retest are valid and not biased.

Statistical Analysis

The statistical analysis was done using SPSS 18 software. Descriptive statistical analysis including mean and standard deviation of the scores of participants on OASES according to various levels of education and employment status and stuttering severity levels was carried out. Kruskal Wallis test was used to compare two variables considered in the study. Mann Whitney U test was used to compare two independent groups considered in the study. Pearson's product moment correlation was used for correlation estimation. Cronbach's alpha coefficient was employed for judging the test-retest reliability of OASES.

"The view holds that any human problem is, in many important ways,

a disorder of thinking"

-Manning

Chapter IV

RESULTS AND DISCUSSION

I. Investigating the test-retest reliability of OASES

The present study is aimed to explore the test-retest reliability of OASES which is not much focused in the literature. The questionnaire was administered on 9 participants again to judge for reliability of the questionnaire. These 9 participants had participated in the first round of administration of the questionnaire also. Retest was done by requesting the individual participants to fill the questionnaire again and to some of the participants, the questionnaire was mailed. This was done as some of the participants who had initially filled the form in presence of the investigator were not available in the city at the time of retest. They had attended only demonstration therapy. The participants were told clearly that they have to fill the questionnaire once again as they did before without any bias. An interval of minimum one month was given between test and retest period so that the responses on retest are valid.

Acceptable level of reliability was achieved for all the sections of OASES except for the total impact score. Table 5 indicates the results of Cronbach's alpha coefficient for reliability testing.

Table 5

Cronbach's alpha coefficient for test-retest reliability of OASES

Sections of OASES	Cronbach's coefficient (α)
Section I	0.72
Section II	0.70
Section III	0.77
Section IV	0.75
Total Impact Score	0.5

Cronbach's coefficient was good for sections I, II, III and IV as it was above 0.70. However it was moderate for total impact score.

The Cronbach's coefficient revealed that there is a good reliability seen on administering OASES. This may be due to the fact that while designing the test, many factors were kept in mind by the authors (Yaruss & Quesal, 2006). They had simplified the questionnaire and wordings of the questionnaire were such that it is easily understood by the participant. The floor and ceiling effects were taken into consideration. The words which were redundant were removed from the final questionnaire. In the present study, the reliability that was observed may be due to the reason that the participants were well instructed about the procedure and things to be kept in mind before filling the questionnaire. Their responses were cross-checked in between and in case of doubt, their responses were confirmed by making them understand the statements written in the questionnaire. The cases that were considered for reliability were those who were aware and concerned about their problem. They

were ready to participate and fill the questionnaire again for reliability. This may be another reason that while filling the questionnaire for the second time also, they were interested and not biased.

There are no studies cited in the literature about the test retest reliability. Hence, the results obtained in the present study cannot be compared to other studies. The reason for not getting reliability for total impact score within acceptable limits may be due to the fact that while filling the form again, some participants had got the job and some others changed the job and thus there was a difference seen in total number of items completed, and also for some of the participants, the scoring changed slightly as the questionnaire was familiar to them and after taking therapy (for some of the participants, they were discharged from therapy) they could better understand and assess the impact of stuttering on their lives. This in turn changed the total score without having much impact on different sections.

II. Investigating the effect of education on OASES

The study was aimed at exploring the effect of education level on OASES. The data pertaining to education level was collected from all the participants using the NIMH Socio-economic status scale (Venkatesan, 2011). Participants were grouped based on their education status as undergraduates (9), graduates (14), postgraduates (7), Ph.D (1). The scores obtained by each participant on various sections of OASES were compared which indicated the impact of education on different sections of OASES. Mean and SD values were obtained using descriptive analysis. Table 6 indicates mean and standard deviation of scores on OASES obtained by subjects differing in educational level.

Table 6

Mean and SD of scores obtained by participants with different educational levels on sections of OASES

OASES Impact Score	UG *n*=9	Graduate *n*=14	PG *n*=7	Ph.D. *n*=1
		Mean (SD)		OASES score
I	52.02 (7.2)	45.20(10.3)	48.23 (9.5)	42.0[a]
II	62.23(13.6)	52.45(15.9)	57.32(11.1)	70.0[a]
III	56.09(15.2)	47.66(13.0)	54.03(22.9)	57.3[a]
IV	49.57(17.3)	42.56(14.8)	52.34(18.7)	25.8[a]
Total Score	55.14(11.1)	47.53(12.3)	53.53(13.7)	50.3[a]
SSI	55.90(17.5)	47.93(11.6)	50.27(18.2)	65.2

Note. UG = Under graduates; PG = Post graduates; SD = Standard deviation; I, II, III and IV = Sections of OASES; Total Score = Total Impact score.
[a]Individual subject score.

Under graduates had higher scores followed by post graduates, graduates and Ph.D. in section I. One subject with Ph.D had higher score followed by under graduates, post graduates and graduates in section II. Under graduates, post graduates and Ph.D had almost the similar score in section III. However, the graduates had lesser score than all the other groups. Subject with Ph.D. had better score in section IV. Under graduates and graduates performed similarly in section IV and scores for post graduates were higher than the rest of the group.

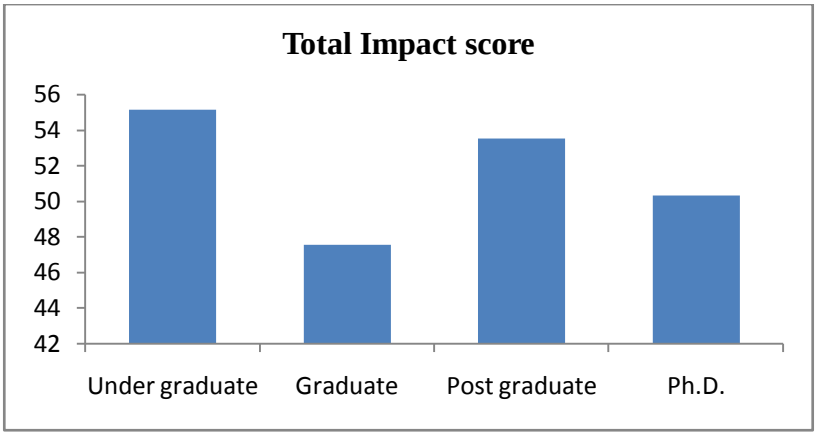

Figure 4. Mean of total Impact scores obtained by participants with different educational levels on OASES

When the overall impact score of OASES was considered, under graduates had the highest score followed by post graduates, Ph.D and then the graduates. When SSI was considered, Ph.D had the highest SSI score, followed by undergraduates then the post graduates and the graduates had the least SSI score.

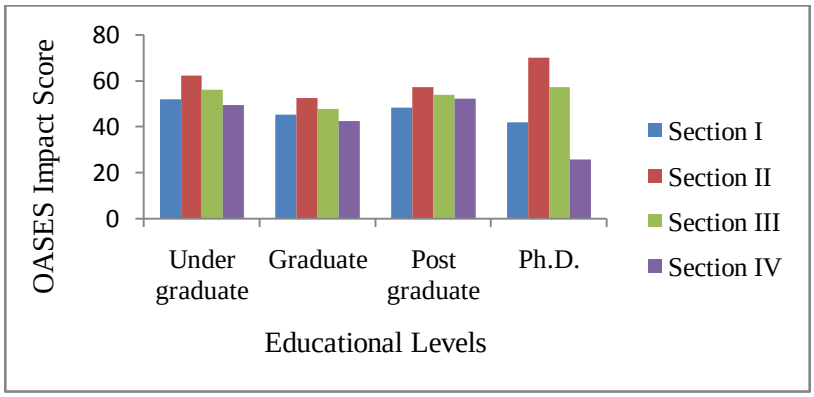

Figure 5 . Mean scores obtained by participants with different educational levels on sections of OASES.

Subject with Ph.D. had performance over a wide range on different sections of OASES. Other groups had almost similar variations on their ratings across sections of OASES. This may indicate that Ph.D. had better performance in some sections and poor performance in other sections when compared to other groups considered in the study.

Table 7

Results of Kruskal Wallis test to compare performance of participants with different educational level on OASES

	I	II	III	IV	Total Score
χ^2(d.f=2)	1.814	2.318	1.740	1.862	2.707
p	0.404	0.314	0.419	0.394	0.258

Note. No statistical significance, p >0.05. I, II, III and IV = Sections of OASES. The participant with Ph.D. was excluded.

When the mean score was compared using Kruskal Wallis test (excluding the participant with Ph.D. since only one participant) with reference to each section based on their education level, no significant trend and difference was observed (p>0.05). The results revealed no significant relation between educational status of the participants and their performance on OASES. Consistent trend was not observed across all the sections in all the groups.

The results of the present study indicated that there is no significant effect of education on different sections of OASES. Thus, education has no effect on participants' general information about stuttering, their reactions to problems, their communication in different situations and their overall quality of life. The results support the findings of McAllister, Collier and Shepstone (2012) who reported in their study that there was no significant effect of stuttering on education. The authors considered many factors responsible for this finding. In their study, parents were asked whether their children stuttered at the age of 16 and then this population was compared with those whose parents reported of no stuttering present in their children at the same age. Thus, the parents were diagnosing stuttering in their children rather

than a speech language pathologist which may give unreliable results. Also the authors reported of missing data in their study.

When the impact of stuttering on education was considered, the authors report that they did not find the group with stuttering to be significantly different from non stuttering group in terms of leaving school at earliest possible opportunity. However, they reported that other descriptive variables like social class, educational background of parents, financial support, and performance of the participants at the age of 11 years on reading comprehension tests were more powerful predictors of educational performance. Hence, it would be attributed to individual differences but as a group, there was no significant difference of stuttering on their educational outcomes. Also the authors report that their study was complementary to a study by O'Brian et al. (2011) where they had reported inverse association between self-reported stuttering severity and highest educational achievement. McAllister, Collier and Shepstone (2012) reported that they considered very few cases of parent-reported severe stuttering in adolescence. This was a hindrance to them for conducting valid regression analyses where direct comparison between two sets of findings was not possible.

Koedoot et al. (2011b) in their study considered three levels of education and investigated whether education had any impact on the OASES-A-D total impact score. The three educational levels considered were low (primary education), middle (secondary education) and high (advanced degree). They reported no significant differences seen in impact scores based on level of education of the participants in their study. Results of the present study supports the findings of the above described study. The present study also supports findings of Blumgart et al. (2012). They reported no significant correlation between education and all four sections of OASES.

Bleek et al. (2012) stated that they could not find any relationship between education level and OASES scores.

Based on the above review, the results of the present study indicate that there was no specific trend seen when impact of education on OASES scores was taken into consideration. According to Indian context, this may be attributed to lack of awareness in people about stuttering and its consequence. Under graduates have less knowledge about their stuttering and its different aspects. They feel more negative about the way they speak when compared to the other groups. This can be attributed to their lack of interest in getting treatment for their problem. Individuals at this age are adolescents and are beginning their college studies. So they might tend to avoid their problem more and do not take it as seriously as the other groups considered in the study.

Participant with Ph. D had highest score on section II as he is a professor and has to take classes in spite of his stuttering. As he has to teach different classes he might be tensed about his problem and may be more concerned compared to the others. He may be experiencing negative reactions like feeling ashamed, anxious, embarrassed and frustrated. In some instances, he also reported that he avoids speaking situations and uses substitution strategies. Thus, this may be attributed to the fact that he may have experienced reactions from people while delivering lectures. This might have been the reason for change in his own perceptions about his stuttering. He might be having inferiority complex and less satisfaction due to which he has more negative scores on section II. Under graduates also have higher scores on section II. Being adolescents, they have initiated their college life. They tend to meet new people and develop a new way of looking at themselves. Their personality grows which at times depend on how others perceive them. Also people at this age develop a negative

reaction pattern against themselves and also towards others because of reactions from others. Their perceptions about their problem depend on the demands for speaking in day to day situations and also their coping strategies.

In section III, graduates performed much better with lesser scores than all the other groups. This may be because this population is highly adjusted towards their problems. They have their own coping mechanisms used in different situations. Participant with Ph.D. performed better for section IV. This participant had a positive attitude towards his quality of life. Although he had negative reactions to his stuttering but he never held back because of this. He always utilised all the opportunities provided to him and did not let his stuttering to be a hindrance. Post graduates had the highest score in this section which means they had much more impact for section IV (Quality of life) as compared to the other groups. This may be because although they have adjusted to their problems but still they had demands for better speaking as they had to face interviews for further studies or for their jobs. They may be more concerned compared to the other groups.

Klompas and Ross, 2004 have studied the relationship and interaction between education and stuttering in a different way. They studied the impact of stuttering on education of individuals. Klompas and Ross (2004) studied the life experiences of a group of South African adults with stuttering and the impact of their stuttering on their overall quality of life. The findings of their study revealed that 62.5% of the participants felt that stuttering had an impact on their academic performance at school and their relationship with teachers and classmates.

Effects of education on LCB- LCB questionnaire (Craig and Andrews, 1984) was used to assess personality attributes for all the subjects in terms of internality and externality. OASES scores and LCB scores were further analysed to examine the effect of education on LCB scores for all the groups with different educational status.

Table 8

Mean and SD of LCB scores for groups with different educational level

Educational Status	*n*	Mean (SD)
Under Graduate	9	32.5(11.2)
Graduate	14	34.5(10.4)
Post Graduate	7	43.0 (6.8)
Ph.D	1	16.0
Total	31	35.3 (10.9)

Post Graduates had the highest LCB scores followed by graduates, under graduates and the least score was obtained by the Ph.D. Thus, it can be concluded that post graduates had more of externality as compared to graduates which have more external locus as compared to the under graduates. One participant with Ph.D. had lowest score which is indicative of internality.

Kruskal Wallis test was administered to find the relation between LCB scores and the educational status of the participants. No statistical significant difference was found (p value was 0.104; $p>0.05$). The results suggested that there was no relationship between LCB scores and the educational status of the participants.

The results obtained in the present study cannot be compared to the earlier studies as there are no studies cited in the literature on these variables. The results of this

study provide an insight of considering education status as one of the variable while focusing on LCB.

III. Investigating the effect of employment on OASES

Another aim of the study was to investigate the effect of employment on different sections of OASES. The data pertaining to employment was collected from all the subjects using the NIMH Socio-economic status scale (Venkatesan, 2011). The impact of employment on different sections of OASES was analysed. Subjects were grouped based on their employment as students (13), skilled workers (9), professional workers (8) and specialised (1). The raw data was analysed to explore the effect of employment on OASES. Table 9 shows the mean and standard deviation value of scores on OASES obtained by subjects differing in employment status.

Table 9

Mean and SD of scores obtained by participants with different employment status on sections of OASES

OASES Impact Score	Stud *n*=13	SW *n*=9	PW *n*=8	Spec *n*=1
		Mean (SD)		OASES Score
I	50.15 (7.36)	46.99(8.76)	45.45(13.17)	42[a]
II	64.27(13.98)	52.39(10.53)	48.55(14.18)	70[a]
III	58.64(15.94)	47.62(11.88)	44.9 (18.35)	57.3[a]
IV	51.42(16.42)	42.72(11.27)	44.44(21.28)	25.8[a]
Total Score	56.57 (11.3)	48.00 (8.28)	46.12 (15.7)	50.3[a]
SSI	53.74(15.29)	53.33 (7.20)	43.42 (19.9)	65.2[a]

Note. Stud = Student; SW = Skilled Worker; PW = Professional Worker; Spec = Specialised worker; I, II, III and IV = Sections of OASES; Total score = Total Impact Score.
[a]Individual subject's score.

Students had higher scores followed by skilled worker, professional and specialised in section I. However, there was a difference seen for section II. The participant who was a specialised worker showed greatest score in section II followed by students and skilled workers. The least of all was obtained by professional workers. Similar kind of trend was also observed for section III. Here group of students and the specialised worker performed similarly and had higher scores as compared to the other two groups. In section IV, students had highest score whereas specialised worker had the least score. Skilled worker and professional worker performed similarly on this section too.

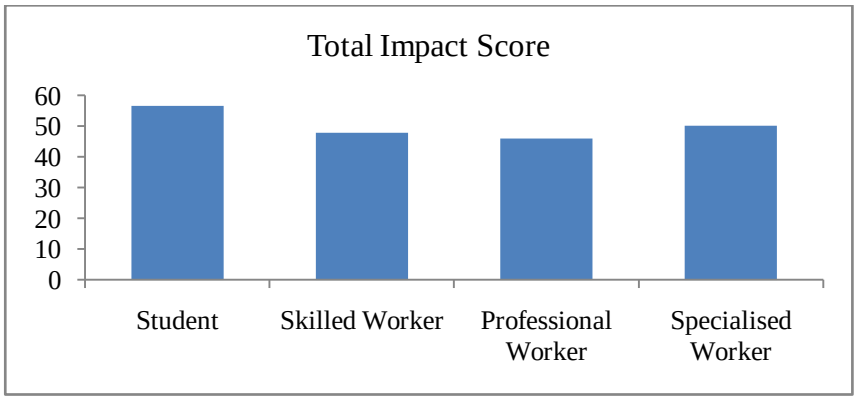

Figure 6. Mean of total Impact scores obtained by participants with different employment status on OASES

When OASES total impact score was considered, highest score was obtained by the group of students, followed by specialised worker. Here the performance of skilled worker and professional worker was almost the same. SSI scores were highest for the individual with specialised job. Student group and skilled workers had almost the similar SSI scores. The least SSI scores were of professional workers. Consistent trend was not observed across the groups.

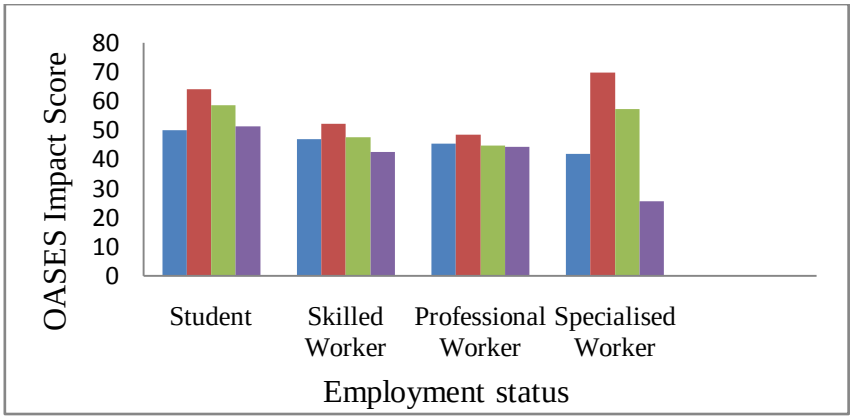

Figure 7. Mean scores obtained by participants with different employment levels on sections of OASES.

Subject who was the specialised worker had performance over a wide range on different sections of OASES. Other groups had almost similar variations on their ratings across sections of OASES. This may indicate that specialised worker had better performance in some sections and poor performance in other sections when compared to other groups considered in the study.

Table 10

Results of Kruskal Wallis test to compare performance of participants with different employment status on OASES

	I	II	III	IV	Total Score
$\chi 2$(d.f.=2)	0.314	5.976	3.328	1.969	4.235
p	0.854	0.050	0.189	0.374	0.120

Note. No statistical significance, p >/= 0.05. I, II, III and IV = Sections of OASES. The participant who was a specialised worker was excluded.

Followed by this, Kruskal Wallis test was done (one participant with specialised job was excluded since he was the only one participant in this group) to compare performance of subjects with different employment status on OASES. No significant trend and difference was observed as p>0.05. The results revealed no significant relation between employment status of the participants and their performance on

OASES. Consistent trend was not observed across all the sections in all the groups. The results of the present study support the findings of Blumgart et al. (2012). They reported that education is not significantly associated with OASES scores. These authors do not provide any specific reason for their findings as they did not consider this factor as the aim of their study.

Klein and Hood (2004) did a study to examine the impact of stuttering on job performance and employability in individuals with stuttering. This study is indirectly related to the aim discussed in this section of the previous study. The results revealed that more than 70% of people with stuttering had agreed that stuttering has an impact on one's promotion. More than 33% of people with stuttering agreed that stuttering hinders with job performance and 20% had turned down a job or promotion because of their stuttering. Also it was found out that women perceived their stuttering to be less handicapping than men. The authors put forth that this may be due to the specific bias by the employers and also it may be as a result of avoidance by the person who stutters. They further opine that many jobs which are of higher socio-economic status require good verbal communication skills and thus people who stutter may avoid taking up such jobs. They may rather opt for lower socio-economic status jobs which are easy to handle and satisfying to them. This study also indicates that stuttering has an impact on choice of occupation made by the person who stutters.

This study is similar to the study done by McAllister et al. (2012) where they reported that with regards to employment outcomes, socioeconomic status of occupation was associated with stuttering at the age of 50. These people had lower-status jobs. If the present study is compared with the studies described above, it can be concluded that although stuttering has a negative impact on employment and the

person is left only with few options to choose, but the reverse is not true. That is, based on the performance of participants on OASES, person who is working at a high post is not different from the person who is not in performance on OASES.

Views of Klompas and Ross (2004), based on their study, are totally different from that of Klein and Hood (2004). Klompas and Ross (2004) reported that 75% of the participants felt that stuttering did not have any adverse effect on their choice of occupation, ability to obtain work (50%) and relationship with managers (43.75%) and co-workers (31.25%), although it did have influence on their work performance (37.5%) and hampered their chance of promotion (37.5%).

In Indian context, typically people think that good speech is very essential for any kind of job performance. Many campus interviews etc are based on the performance of an individual in interviews which is also judged on the basis of his fluency. Sometimes while filling the pre-interview form, they are rejected for interview because of the presence of speech disorder. In navy and army forces, stuttering or speech disorder is a criterion for rejection. Thus, people with stuttering do not usually opt for high profile jobs. They prefer those jobs which provide comfortable environment and less people to speak to them.

Also according to the descriptive statistics, it is seen that students scored highest on section I. They are not much aware of their problem as compared to the rest of the groups. This may be due to the fact that till this age, they are always protected by their family members. It is the initial stage where they make their own identity and thus, they do not bother much to take their problem into consideration. Specialised worker is a doctorate and has lowest score in section I. This may be due to the fact that he is a matured, learned person and understands his problem better. Also his experience in

stuttering has been more than any other group and thus he is much more conscious and concerned about his problem. On section II, specialised worker scored the highest. This is consistent with the findings of previous aim.

Thus, it may be understood that the specialised worker has teaching as his profession, and hence he may face negative reactions from listeners more often than the members of other groups. Due to this, he may be making a negative attitude towards his own self. Thus, he has lot of unwanted negative reactions towards his problems. The least score is obtained by professional workers. This may be due to the fact that these participants are well adjusted in their jobs. They have a comfortable surrounding and cooperative partners. Most of the time, they are the leaders in their team. Hence they do not have to face higher authorities as often as the groups of students and skilled worker would have to. This might lead to their positive thinking and less impact as far as their reactions to stuttering is considered.

In section III, students and specialised worker performed similarly. This may be due to the fact that students have to face situations like their friends, teachers and higher authorities. Also during this time, they are tensed about their future studies. They have inferiority complex in themselves and they are in a constant action to impress their friends by their actions. This may be the reason that these individuals face more problems in various situations of communication. Also the specialised worker faces situations like talking in front of a large group of listeners, answering to their questions, delivering lecture within a specified amount of time, taking lectures in spite of the fact that he is a person with stuttering and he could not avoid the situation. These situations make his communication in various situations difficult. In section IV, students had highest score which indicates that their quality of life is much more impacted due to stuttering than any other group. This may be due to the fact that due

to their inability to convey messages properly, they may be much more frustrated. They have to deal with their problem of stuttering and also have to work for betterment of their future. Specialised worker with doctorate degree has the lowest score in this section. This may be due to the reason that he was very positive regarding the fact that even though he is a person with stuttering, still he is successful in what he is doing.

Effect of employment on LCB- LCB scores for all the groups with different employment status were analysed to find a definite pattern.

Table 11

Mean and SD of LCB scores for groups with different employment status

Employment Status	*n*	Mean (SD)
Student	13	34.8 (10.9)
Skilled Worker	9	36.3 (9.20)
Professional Worker	8	37.2 (12.2)
Specialised	1	16
Total	30	35.9 (10.4)

The highest LCB scores are obtained by Professional workers followed by skilled worker and the least by specialised worker. However, when scores of all the other groups are compared to the mean scores, they all show external locus of control. There is a very small difference observed among all the three groups. Specialised worker showed internal locus of control. This may be due to the fact that the participant who was a specialised worker was very positive and had self confidence in dealing with his own problems.

Kruskal Wallis test was administered to explore whether LCB scores can be compared with the employment status of the participants. No statistical difference was seen (p value was 0.728; $p>0.05$). The results suggested no relationship between LCB scores and the employment status of the participants.

The results obtained in the present study cannot be compared to the earlier studies as there are no studies cited in the literature on these variables. The results of this study provide an insight of considering employment status as one of the variable while focusing on LCB. However, even though the studies are available on LCB they focused more on relapse of stuttering.

IV. Investigating the effect of SSI on OASES

Another aim of the present study was to explore correlation between OASES and SSI. SSI was administered to all the participants by qualified speech language pathologist. The scores from SSI and OASES were considered for correlation. SSI was done for each individual separately. Based on results of SSI, the subjects were grouped according to various severity levels like very mild, mild, moderate and severe stuttering. Individuals with very mild stuttering were four (SSI score between 10 and 17), individuals with mild stuttering were eight (SSI scores were between 18 and 24), moderate stuttering were sixteen (SSI scores between 25 and 31) and with severe stuttering were three (SSI scores between 32 and 36). The percentage scores for SSI were considered.

Table 12 depicts mean and standard deviation values of different severity groups across all four sections of OASES.

Table 12

Mean and SD of scores obtained by participants with different stuttering severity on sections of OASES

	Stuttering Severity			
OASES Impact Score	VM *n*=4	Mild *n*=8	Mod *n*=16	Sev *n*=3
	Mean (SD)			
I	39.70 (14.2)	47.6(10.15)	48.30(6.67)	55.8 (9.52)
II	41.1 (15.52)	55.8(14.83)	58.0(11.00)	75.1 (9.00)
III	40.70 (19.9)	50.33(12.3)	51.5(15.34)	72.6 (7.53)
IV	27.57 (4.95)	52.66(16.6)	43.4(13.77)	69.2 (3.95)
Total Score	37.30(12.89)	52.02(12.70)	50.88(8.50)	69.0 (3.81)
SSI	22.22 (5.10)	43.71(4.84)	57.92(3.91)	75.30(5.02)

Note. VM = Very Mild stuttering; Mod = Moderate stuttering; Sev = Severe stuttering; I, II, III and IV = Sections of OASES; Total Score = Total Impact Score.

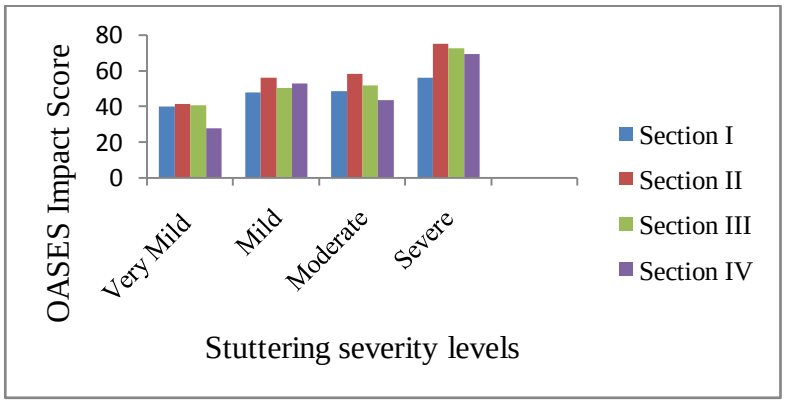

Figure 8. Mean scores obtained by participants with different stuttering severity on sections of OASES

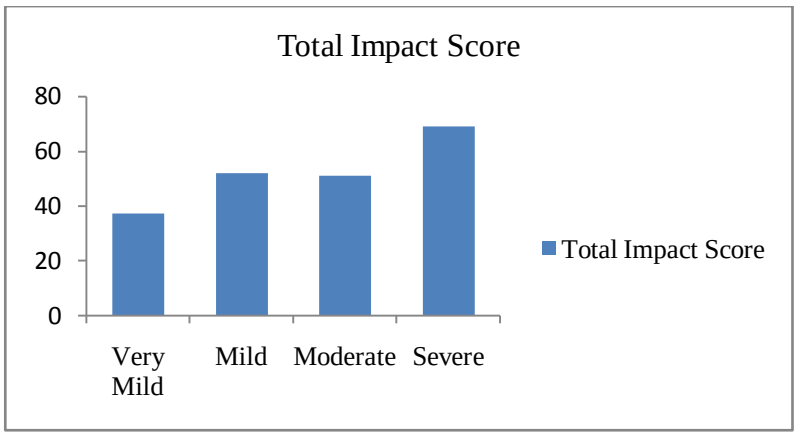

Figure 9. Mean of total Impact scores obtained by participants with stuttering severity on OASES

The scores obtained by all the groups of individuals based on SSI show that OASES impact score for all the sections as well as the total impact score has increased with increase in stuttering severity. However, exception can be noted for section IV where individuals with mild stuttering are scoring more than the individuals with moderate stuttering. This is also reflected in the total impact scores where again the scores of mild group are more than the moderate group. The same trend was also observed for LCB scores where the lowest scores (indicating internality) are obtained by individuals with very mild stuttering, followed by mild stuttering, moderate stuttering and the highest LCB scores (indicating externality) are obtained by participants with severe stuttering.

The present study does not support the findings of Koedoot et al. (2011). In their study, the findings revealed that moderate to severe degree of stuttering had a negative impact on overall quality of life. The domains of functioning- individual's speech, emotion, cognition, pain, daily activities and anxiety/depression were predominantly affected. However in the present study it can be observed that all the

groups, irrespective of their stuttering severity have greatest impact scores for section II of OASES that is, Reaction to Stuttering.

The SSI score was then compared with different sections of OASES using Kruskal Wallis test.

Table 13

Results of Kruskal Wallis test to compare performance of participants with different stuttering severity on OASES

	I	II	III	IV	Total Score[a]	LCB
χ^2(d.f=3)	3.826	**8.704**	6.991	**12.049**	**10.145**	4.474
p	0.281	0.033*	0.072	0.007*	0.017*	0.215

Note. Level of significance p (<0.05); I, II, III and IV = Sections of OASES.
[a]Total score = Total impact score

When the mean scores on OASES were compared using Kruskal Wallis test for participants with different stuttering severity, significant trend and difference was observed as $p<0.05$. However, this result could be seen only for sections II, IV and the total impact score on OASES.

Further to determine whether any pair-wise difference exists between OASES scores when two groups of stuttering severity are considered, Mann Whitney test was used. This test compared two groups of different stuttering severity and interpreted whether differences between those two groups exists on performance on OASES. Mann Whitney test was administered to investigate whether two groups of stuttering severity differ significantly from each other and also whether OASES is valid to discriminate between two levels of stuttering severity ranging from very mild to severe stuttering.

Table 14

Mann Whitney test comparing difference in OASES across different stuttering severity levels

Stg Sev	OASES Sections				Total Score[a]
	I	II	III	IV	
VM vs Mild					
|Z|	1.281	1.361	0.851	**2.208**	1.529
p	0.200	0.173	0.395	0.027*	0.126
VM vs Mod					
|Z|	1.278	**1.985**	1.039	**1.938**	1.701
p	0.201	0.047*	0.299	0.053*	0.089
VM vs Sev					
|Z|	1.605	**2.121**	1.768	**2.121**	**2.121**
p	0.108	0.034*	0.077	0.034*	0.034*
Mild and Mod					
|Z|	0.276	0.184	0.000	1.409	0.766
p	0.782	0.854	1.000	0.159	0.444
Mild vs Sev					
|Z|	1.130	**2.046**	**2.455**	1.429	**2.245**
p	0.258	0.041*	0.014*	0.153	0.025*
Mod vs Sev					
|Z|	1.232	**2.125**	**2.236**	**2.683**	**2.571**
p	0.218	0.034*	0.025*	0.007*	0.010*

Note. Stg Sev = Stuttering Severity levels; VM = Very mild stuttering; Mod = Moderate stuttering; Sev = Severe stuttering; I, II, III and IV = sections of OASES; Level of significance *p <0.05;[a]Total Impact Score on OASES.

The results revealed significant difference between groups of individuals with very mild stuttering and mild stuttering. This indicates that both these groups of individual in a different way on OASES and for section IV. This indicates that OASES is sensitive to differentiate between very mild and mild stuttering The above table shows that there is a statistically significant difference seen on OASES for very mild and moderate stuttering groups for section II and section IV. Thus, these two

sections can discriminate between individuals with very mild and moderate groups of stuttering such that individuals with very mild stuttering would have better scores than the individuals with moderate stuttering for sections II and IV.

The above table reveals that there is a significant difference seen for sections II, section IV and total impact score which can differentiate individuals with very mild stuttering and severe stuttering. This can be attributed to the large difference in the severity levels which in turn can lead to difference in perceptions about stuttering. The individuals with very mild stuttering would have a better score on sections II than the individuals with severe stuttering because they must have experienced less negative reactions from people due to their less number of dysfluencies than the other group. Also due to this, their own way of thinking about their problem, ability to adjust in society, their overall quality of life would definitely provide better scores which would be statistically significant when compared to the individuals with severe stuttering.

On comparing individuals with mild and moderate severity of stuttering across all the sections of OASES no significant difference is observed in their performance on the questionnaire. Thus no specific trend was found and thus it can be understood that both the groups perform similarly on OASES. OASES is not sensitive enough to distinguish individuals with mild and moderate stuttering. The reasons for these findings can be small sample size and the skewed distribution of the population. There is very slight difference in the characteristics of mild and moderate stuttering. This may make the distinction between these two groups difficult.

The table also reveals that there is a significant difference seen for section II, III and total impact score when the individuals with mild and severe stuttering were

compared across different sections of OASES. Thus, the general results that would follow are severe group would have greater scores on OASES section II, III and total impact score than the mild group. However, for the other sections, both these groups performed similarly.

It can be inferred that there is a significant difference for section II, III, IV and total impact score when individuals with moderate and severe stuttering are taken into consideration. Thus, except for section I, individuals with moderate stuttering perform differently from individuals with severe stuttering for all the other sections. A possible reason for this could be that the individuals with moderate stuttering have less impact on their communication in different situations and their quality of life due to their stuttering. In addition, they would not have as much as negative reactions as are seen for individuals with severe stuttering.

The present study can be related to the study of Koedoot et al. (2011). Their study involved OASES-A-D and the authors concluded that OASES-A-D can differentiate between different severity levels of stuttering according to the differences seen in the impact scores. The only exception to this was that it was not able to distinguish between moderate and severe stuttering severity levels. The authors opine that this may be due to the fact that distribution of participants on basis of stuttering severity was skewed. They had only four participants with severe stuttering.

As the aim was to explore correlation between the two, Pearson Correlation test was administered.

Table 15

Pearson Correlation of SSI with sections of OASES

	I	II	III	IV	Total Score
r	0.299	0.312	0.306	0.313	**0.365**
p	0.102	0.088	0.094	0.086	0.043*

Note. Level of significance *p <0.05; I, II, III and IV = Sections of OASES.

The results indicated that there was no correlation between the two on the four sections of OASES (as p>0.05). However, correlation was present between SSI scores and OASES total impact score (p<0.05). It can be concluded that moderate correlation is found between SSI and total impact score, thus when SSI increases, an increase in total impact scores is also observed.

An attempt was also made to compare the mean data obtained by persons with stuttering on OASES in the present study with the results of the Western studies

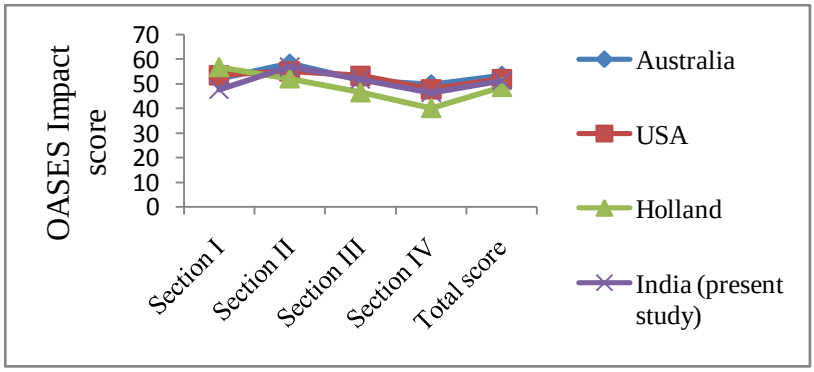

Figure 10. Comparison of Indian normative data set of OASES with Australian North American and Dutch normative data.

Table 16

Comparison of Indian normative data set to Australian, North American and Dutch normative data, for all four parts of the OASES.

	Australia	USA	Holland	India
OASES	*n*=200	*n*=173	*n*=138	(present study)
Impact	M,A.=45.7	M.A.=44	M.A.=34.5	*n*=31
Score				M.A.=25
		Mean (SD)		
I	51.9 (12.1)	53.4 (13.7)	56.8 (10.4)	47.7 (9.4)
II	58.2 (14.4)	55.0 (16.2)	52.2 (12.7)	56.9 (14.4)
III	51.6 (13.8)	53.2 (15.3)	46.5 (11.9)	51.8 (16.0)
IV	49.7 (17.7)	47.8 (17.7)	40.1 (14.2)	46.3 (16.7)
Total Score	53.2 (12.9)	52.0 (14.7)	48.7 (10.5)	51.2 (12.2)

Note. I, II, III and IV = sections of OASES; Total Score = Total Impact Score; M.A.=Mean age

Table 16 indicates that the Indian data is comparable to the data obtained by Australian, American and Dutch data. And as all the other data sets, even Indian data set falls predominantly into moderate impact category. Also for the Australian, American and Indian data sets, the highest score obtained by the participants is for section II (Reactions to Stuttering) which has clinical implications. In the present study, it is followed by section III, section I and the least scores in section IV. Thus, the clinicians should be very cautious in treating persons with stuttering and should handle their negative reactions in the best possible way to have positive outcomes from therapy which are long lasting.

The present study support the findings of Blumgart, E., Tran, Y., Yaruss, J. S., & Craig, A. (2012). They reported that persons with more severe stuttering scored higher on OASES as compared to those with less severe stuttering. Also, they reported that the more severe stuttering group scored higher on Section I (General Information), III (Communication in daily situations) and overall OASES impact

scores. Frequency of stuttering was positively but weakly associated with the OASES scores for section I (General Information). The authors report that their finding is consistent with the previous studies done which reveal an association between severity and impact of stuttering (Caruso, Chodzko Zajko, Bidinger, & Sommers, 1994), The results of the present study are in contradiction to the findings of Blumgart, Tran, and Craig (2010). Blumgart et al. (2012) reported that their finding was not very strong and robust and it needs to be replicated.

Table 17

Grouping of participants according to their impact ratings on OASES

Imp Rat[a]	I		II		III		IV	
	No	%	No	%	No	%	No	%
Mild	2	6.5	1	3.2	4	12.9	8	25.8
Mild-Mod	7	22.6	5	16.1	5	16.1	7	22.6
Mod	9	61.3	2	38.7	13	41.9	9	29.0
Mod-Sev	3	9.7	10	32.3	7	22.6	7	22.6
Sev	-	-	3	9.7	2	6.5	-	-
Total	No= 31; Per = 100%							

Note. I, II, III and IV = sections of OASES; Mod = Moderate; Sev = Severity. [a]Imp Rat = Impact Ratings of OASES which yield an indication of the *impact* of stuttering on various aspects of the speaker's life

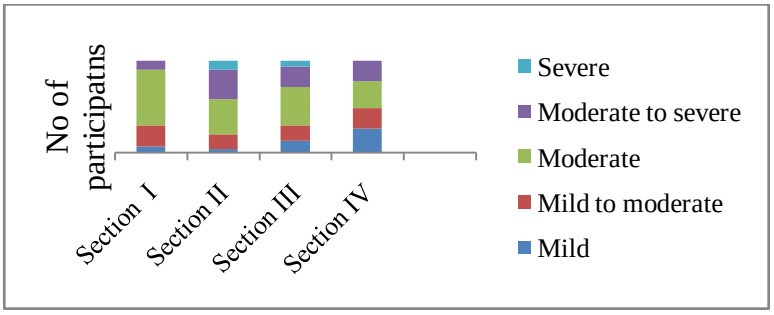

Figure 11. Grouping of participants according to their impact ratings on OASES

In OASES section I, majority of the subjects considered (61%) had impact rating of moderate degree followed by mild to moderate (22.6%), moderate to severe (9.7%%) and the least was mild (6.5%). No participant had severe impact rating.

The results show that majority of the subjects had moderate impact of stuttering on section II of OASES (38.7%). This was followed by moderate to severe (32.3%), mild to moderate (16.1%), severe (9.7%) and the least was mild (3.2%).

The maximum impact ratings were observed for moderate degree for section III of OASES (41.9%). This was followed by moderate to severe (22.6%), mild to moderate (16.1%), mild (12.9%) and the least was severe (6.5%).

For section IV, moderate degree of impact was present for most of the subjects of the study (29%). This was followed by mild impact rating (25.8%). The least was mild to moderate and moderate to severe impact rating (22.6%). No subject had severe impact rating.

Table 18

Grouping of participants according to their total impact ratings on OASES

	Total Impact Rating	
	No	%
Mild	2	6.5
Mild-Mod	7	22.6
Mod	16	51.6
Mod-Sev	6	19.4
Sev	-	-

Note. Mod = Moderate; Sev = Severity.

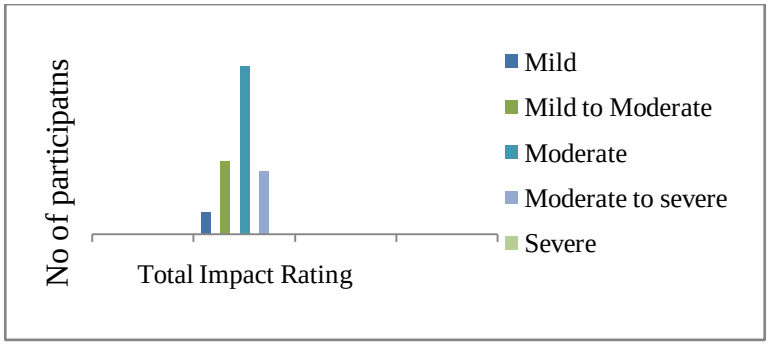

Figure 12. Grouping of participants according to their total impact ratings on OASES.

It is seen from the results that majority of the subjects had moderate impact rating as total impact rating (51.6%). This was followed by mild to moderate (22.6%), moderate to severe (19.4%) and the least was mild (6.5%).

The above table reveals that majority of the subjects had moderate impact ratings for all the sections of OASES and also for the total impact rating. Severe impairment was very rarely seen. The other impact ratings that are mild, mild to moderate, moderate to severe closely follow each other and there is a very little difference which can be found between them. The findings of the present study gains support from the results of study done by Blumgart et al. (2012). These authors in their study report that for all the three datasets, i.e., Australian, American and Holland, mean scores of adults with stuttering fall predominantly in the moderate impact category. This is consistent with the findings of the present study.

Effect of stuttering severity on LCB- As the LCB was considered as one of the variable, the data was analysed with reference to severity of stuttering. Table 19 shows the mean and SD of LCB scores based on severity of stuttering.

Table 19

Mean and SD of LCB scores for groups with different stuttering severity

Stg Sev	*n*	Mean (SD)
Very Mild	4	29.1 (18.7)
Mild	8	41.1 (9.7)
Moderate	15	43.4 (11.9)
Severe	3	50.9 (7.4)
Total	30	41.4 (12.8)

Note. Stg Sev = Stuttering Severity.

The LCB scores indicated that the lowest LCB scores (indicating internality) are obtained by individuals with very mild stuttering, followed by mild stuttering, moderate stuttering and the highest LCB scores (indicating externality) are obtained by participants with severe stuttering.

Kruskal Wallis test was administered to compare LCB scores across levels of stuttering severity of the participants. No statistical significance ($p=0.176$; $p>0.05$) was obtained. The results indicated there is no relationship seen between LCB scores and the severity of stuttering of the participants.

The results obtained in the present study cannot be compared to the earlier studies as there are no studies cited in the literature on these variables. The results of this study provide an insight of considering stuttering severity as one of the variable while focusing on LCB. However, even though the studies are available on LCB they focused more on relapse of stuttering.

V. Investigation of OASES in Persons with stuttering with different attributes of personality.

The LCB questionnaire was used (Craig & Andrews, 1984). The scores of LCB obtained by the persons with stuttering in the present study were compared with the LCB values of persons with stuttering from study of Craig et al. (1984).

Table 20

Mean values of LCB in study done by Craig et al., (1984) and the LCB values in present study

	(Craig et al., 1984)		
	Nonclinical population	PWS	PWS (present study)
Mean age	23	29	25
Total no	53	70	31
LCB Score[a]	27.9 (8.1)	31.0 (9.6)	35.3 (10.9)

[a]LCB Score are represented in the form of Mean (SD).

The scores of LCB for persons with stuttering in the present study can be compared with the scores obtained in persons with stuttering in Craig et al. study (1984). This is because the age range considered for both the studies is almost the same. Hence it can be observed that the mean value of LCB for persons with stuttering in the present study (Indian context) is 35.3.

Correlation between LCB scores and OASES impact scores was carried out to find the relationship between these two variables. Pearson Correlation was administered.

Table 21

Pearson Correlation to show correlation between LCB and sections of OASES

	I	II	III	IV	Total Score
Z	**0.368**	0.328	0.292	**0.470**	**0.436**
p	0.042*	0.072	0.111	0.008*	0.014*

Note. Level of significance *p <0.05; I, II, III and IV = Sections of OASES.

The above table shows a significant correlation seen between LCB scores and impact scores for section I, IV and overall impact scores.

The present study partially supports the findings of Bleek et al. (2012). They investigated correlation between OASES and NEO-FFI and they found moderate to strong significant correlations for personality domains of *Neuroticism* and extraversion. They also reported that *Neuroticism* is the most important predictor of OASES score in their study. The authors reported that *Neuroticism* is indicator of negative emotionality and impaired coping mechanism to deal with problems. Also the authors suggested *Neuroticism* to be creating an impact on QoL.

The present study also supports the study of Bleek et al. (2011) and Iverach et al. (2010). They reported that persons with stuttering have higher *Neuroticism* as compared to the control group on NEO-FFI. Thus, Bleek et al. opine that high *Neuroticism* may be an indicator to greater negative impact experienced by persons with stuttering due to their problem. They face this problem more when sections II, III and IV of OASES are considered. Also in their study, persons with stuttering had lower scores for *Extraversion*. It also showed a negative correlation between *Extraversion* and OASES scores. This suggests that persons with stuttering who are

less outward experience a greater negative impact due to their stuttering which is revealed on OASES sections. The authors attribute this finding to the fact that due to increased impact of stuttering on daily living of these people, they find it harder to meet people, participate in social gatherings and hampered communication.

Table 22

Number and percentage of participants grouped according to the LCB ratings and total impact ratings on OASES

LCB Ratings	Total Impact Rating									
	Mild		Mild-Mod		Mod		Mod-Sev		Total	
	No	%	No	%	No	%	No	%	No	%
Externality	0	0	5	16.6	13	43.3	6	20	24	80
Internality	2	6	2	6	2	6	0	0	6	20
Total	2	6	7	23	15	50	6	20	30	100

Note. Mod = Moderate impact rating; Sev = Severe impact rating.

Table 22 shows the distribution of participants on basis of externality and internality according to their impact ratings on OASES. It can be observed from the table that out of total 30 participants, 24 participants (80%) had scores indicating externality on LCB (which means that they have external locus of control of behavior. These participants believe that their problems are because of external source and to control them is not in their hands). 6 participants (20%) had scores of internality. This means that these participants believe in themselves and they have self confidence to combat all the difficulties which they face due to their problems.

The present study supports the findings of Riley, Riley and Maguire (2004) who stated that percentage of syllables stuttered correlated with the stuttering severity and with locus of control. The present study also supports the findings of Craig et al. (1984) who stated that persons with stuttering have higher scores on LCB indicating

externality as compared to the persons with no stuttering. Also, it can be observed that while considering only externality, majority of the participants belong to the moderate impact category on OASES. This result correlates with the previous aim of the present study where it was observed that majority of the participants fall into moderate impact category on OASES. Hence this may be the reason for having maximum number of participants to moderate category who have external locus of control of behaviour. The least scores in this case are obtained by the ones who have mild impact rating on OASES. This may be due to the reason that as they have mild impact due to stuttering, they still believe in themselves. They have confidence that they would be able to handle all their problems by themselves without any external help. They are much more positive and believe in themselves.

In internality, the scores obtained by participants with different impact ratings are almost similar with the exception of moderate to severe impact category where no participant has internal locus of behaviour. This may be due to the fact that the participants with less degree of impact ratings are still positive and they are ready to face any problem themselves. It may also be that these people due to their less stuttering severity are less impacted overall due to stuttering and hence much more self confident.

Moreover, majority of the participants who were considered for the study were undergoing speech therapy for stuttering, hence the results of the present study could also be due to the fact that the participants have external locus of control because they are still attending therapy and not discharged from it. They are in their therapy process. Thus, there is a dire need to tackle the issue of changing locus of control of behaviour for these participants for better and consistent outcome without relapse.

Results of the present study support the study done by Bleek et al. (2012). Their study revealed strong positive correlation between personality trait neuroticism and OASES scores but negative correlation between extroversion and OASES scores. The results could be interpreted as person with stuttering who has increased neuroticism and lower extraversion scores experiences greater impact of stuttering on their life. In the present study, more number of participants have trait of externality. Thus, combining the two studies which are described above, if a person has internal locus of control and if he is extrovert at the same time, then OASES scores would be less.

"Stuttering is a tough opponent. It never gives up.

You've got to keep knocking it down to stay in command"

-Starbuck

Chapter V

SUMMARY AND CONCLUSION

Stuttering is a speech disorder which has been investigated since ages in terms of its causes, manifestation, symptoms and most important of all its therapy. It is kind of speech impairment which hinders active participation of an individual to some extent. Stuttering has been associated with certain observable characteristics which are most often the target for treatment in therapy. However, apart from this, there are certain other covert manifestations of the disorder which also needs to be handled during treatment process. This helps in dealing with the problem holistically and eliminating it from roots. Evaluating and assessing these covert behaviours has been a major concern for all the researchers and fluency therapists.

Overall Assessment of Speaker's Experience of Stuttering (OASES) designed by Yaruss and Quesal (2002) is a self rating questionnaire which helps the clinician to have an overall picture of the impact of stuttering on individual's life. It takes the perspective of individual with stuttering into consideration. It has 100 items which are covered under four main sections. Section I is 'General Information' which helps the clinician and investigator to know about awareness of persons with stuttering about their own problem, speech naturalness and fluency and various therapy options available for the same. Total items covered in this section are 20 and total score of 100. Section II is 'Your Reactions to Stuttering' which gives information about the reactions of persons with stuttering to their stuttering behaviour. This section covers the affective, behavioural and cognitive reactions of the participants towards their stuttering. Total items covered in this section are 30 and total score is 150. Section III is 'Communication in Daily Situations' which covers questions pertaining to

difficulties which an individual with stuttering may face in situations like at work, at home, social gathering, small group discussion, big group discussions and various other similar situations. Total items covered in this section are 25 and total score is 125. Section IV is 'Quality of Life' focusing on interference which stuttering has with participants' ability to communicate satisfactorily in society, their relationship with people around them including friends, family members and strangers. It helps the persons with stuttering to know the extent to which stuttering hinders with their ability to perform job adequately, spiritual well being and control on their own life. Total items in this section are 25 items and total possible score is 125.

Responses on OASES are to be marked on a 5 point Likert scale with choices ranging from 1 to 5. Higher score on this scale indicate a greater impact of the disorder on all aspects of participant's healthy living. Impact ratings can be calculated for each section as well as the total impact rating which is an overall rating given based on the responses of individual on OASES.

There are a few studies (Beilby, Byrnes, Meagher & Yaruss, 2013; Bleek, Reuter, Yaruss, Cook, Faber & Montag, 2012; Blumgart, Tran, Yaruss & Craig, 2012; Koedoot, Bouwmans, Franken & Stolk, 2011a; Koedoot, Versteegh, & Yaruss, 2011b) which have utilised OASES in western context. However, there were no studies in Indian context. Hence the present study was aimed to explore OASES in Indian population on persons with stuttering.

OASES helps to examine multiple outcomes of stuttering treatment. Also it would be helpful in giving insight to the SLPs to focus beyond the literary concepts and use a comprehensive approach for improving the effectiveness of therapy program. The well targeted goals which consider feelings and attitudes of persons

with stuttering would also help in preventing relapse. Exploring the correlation of OASES impact scores and ratings across various severity levels of stuttering, employment status, educational levels and psychological attributes would provide insight into certain aspects of this suspicious, unrevealed and mysterious disorder. The study would reveal how stuttering manifests itself in Indian population and would provide future directions to research studies related to assessment and therapy of stuttering. This study was also aimed at creating community awareness and educating the people to look at another side of the coin too.

Participants with severity levels ranging from very mild to severe were considered for the stuttering who were 18 years of age or above. It was also ascertained that participants should be able to read English before starting the actual test. The participants were told about the rationale of the study and were asked for any clarifications before they started filling the questionnaire. Explanations for their doubts were provided to them in between if in case of any confusion with the technical terms used in the questionnaire. The participants were give Locus of control of behaviour (Craig et al., 1984) scale to explore the degree to which a person perceives daily occurrences of his stuttering to be a consequence of his or her behaviour. Educational and employment status were asked and they were categorised according to different levels which were used in the analysis according to NIMH Socio-economic status scale (Venkatesan, 2011).

The study was aimed to investigate the effect of education on OASES. The findings indicated that there was no specific relationship found between education and the pariticipants' performance on OASES. There was no specific trend that could be traced between these two variables. Also on Kruskal Wallis test no specific relationship between these two variables was observed. According to Indian context

this may be attributed to lack of awareness in people about stuttering and its consequence. In some sections undergraduates scored the highest while in other sections, some other group. Under graduates were more negative about the way they speak when compared to the other groups. They are mostly adolescents and are beginning their college studies. So they might tend to avoid their problem more and do not take it as seriously as the other groups considered in the study.

Under graduates also had higher scores on section II. Being adolescents, they have initiated their college life. Participant with Ph. D had highest score on section II as he is a professor and has to take classes in spite of his stuttering. He may be experiencing negative reactions like feeling ashamed, anxious, embarrassed and frustrated. Graduates are mostly adjusted towards their problems. They have their own coping mechanisms used in different situations. Participant with Ph.D. performed better for section IV. This participant had a positive attitude towards his quality of life. He always utilised all the opportunities provided to him and did not let his stuttering to be a hindrance.

Post graduates had the highest score in section IV which means they had much more impact for section IV (Quality of life) as compared to the other groups. This may be because although they have adjusted to their problems but still they had demands for better speaking as they had to face interviews for further studies or for their jobs. They may be more concerned compared to the other groups.

Another aim of the study was to investigate the impact of employment on OASES. The findings were very much similar to the findings for the aim mentioned above. There was no specific pattern in which these two variables project themselves. On Kruskal Wallis test, no significant relation could be observed between

employments status and performance on OASES. In Indian context, typically people believe that good speech is essential for any kind of job performance. Many campus interviews etc are based on how the individual performs in interviews which is also judged on the basis of his fluency. Thus, people with stuttering do not usually opt for high profile jobs.

It is seen in the present study that students scored highest on section I. This may be the fact that it is the initial stage where they make their own identity and thus, they do not bother much to take their problem into consideration. Specialised worker is a doctorate and has lowest score in section I. This may be due to the fact that he is a matured, learned person and understands his problem better. On section II, specialised worker scored the highest. It may be understood that the specialised worker has teaching as his profession, and hence he may face negative reactions from listeners more often than the members of other groups. Due to this, he may be making a negative attitude towards his own self.

The least score is obtained by professional workers which may be due to the fact that these participants are well adjusted in their jobs. In section III, students and specialised worker performed similarly. The reason for this may be that students have to face situations like their friends, teachers and higher authorities. Also during this time, they are tensed about their future studies. They have inferiority complex in themselves and they are in a constant action to impress their friends by their actions. This may be the reason that these individuals face more problems in various situations of communication. Also the specialised worker faces situations like talking in front of a large group of listeners, answering to their questions, delivering lecture within a specified amount of time, taking lectures in spite of the fact that he is a person with stuttering and he could not avoid the situation. These situations make his

communication in various situations difficult. In section IV, students had highest score which indicates that their quality of life is much more impacted due to stuttering than any other group. This may be due to the fact that due to their inability to convey messages properly, they may be much more frustrated. They have to deal with their problem of stuttering and also have to work for betterment of their future. Specialised worker with doctorate degree has the lowest score in this section. This may be due to the reason that he was very positive regarding the fact that even though he is a person with stuttering, still he is successful in what he is doing.

The study also aimed to investigate the correlation between SSI and OASES. Descriptive statistics and inferential statistics revealed that as the stuttering severity increases, OASES scores increased. The Indian data is comparable to the Australian, American and Dutch data sets in terms of similar values obtained for Impact score for all the sections. Indian data set falls predominantly into moderate impact category and the highest scores are obtained by the participants in section II (Reactions to Stuttering) followed by section III, section I and the least scores in section IV. There was no correlation between the SSI and the four sections of OASES. However, correlation was present between SSI scores and OASES total impact score. OASES was found to be useful to discriminate between individuals based on their performance on OASES with very mild and mild stuttering, very mild and moderate stuttering, very mild and severe stuttering, mild and severe stuttering, moderate and severe stuttering. Mostly sections II, IV and the total impact score were sensitive for changes in performance on OASES due to different severity of stuttering. Although there are only specific sections for each which are efficient in differentiating between the pairs. There was a strong relationship seen between SSI scores and total impact scores on OASES as revealed by chi square test.

Another aim of the study was to investigate the OASES performance across subjects with different attributes of personality. The mean LCB scores obtained in the present study for persons with stuttering was 35.3. Highest LCB scores were obtained by post graduates in the study followed by graduates, under graduates and the least score was obtained by the Ph.D. There was no relationship seen between LCB scores and the educational status of the participants. When employment was taken into consideration, highest scores were obtained by professional workers followed by skilled worker, students and the least by participant who was a specialised worker. There was no relationship seen between LCB scores and the employment status of the participants. Lowest LCB scores (indicating internality) were obtained by individuals with very mild stuttering, followed by mild stuttering, moderate stuttering and the highest LCB scores (indicating externality) are obtained by participants with severe stuttering. There was no relationship seen between LCB scores and the severity of stuttering of the participants. On Pearson's Correlation, there was a significant correlation seen between LCB scores and impact scores for section I, IV and overall impact scores.

LCB is not studied much in the detail in the literature. The focus of using LCB is mainly to see the effects of therapy on relapse of stuttering. As the present study aimed to explore LCB on the variables like education, employment, stuttering severity and performance on OASES, the results could not be compared to any other study.

The test-retest reliability was done for OASES to check for the reliability of the test. Cronbach's coefficient was within acceptable limits for sections I, II, III and IV as it was above 0.70. However it is moderate for total impact score.

This study was an attempt to sensitise the SLPs in India towards this newly developed, comprehensive and practically motivated tool to be used with persons with stuttering. This questionnaire also helps the persons with stuttering to have a better insight about their problems. Many of the queries in mind about their unresolved and mysterious disorder are given answers to. Also this would be very helpful in preventing relapse which would also mean to decrease the prevalence of this speech impediment in the society.

Limitations of the study

- The sample size considered in the study was skewed and not equally distributed.
- Total SSI score was considered instead of considering only percentage of dysfluencies.
- Certain terminologies in the questionnaire were technical and some of the participants found it difficult in spite of simplification.

Implications of the study

The study used OASES in a wide range of people with different degrees of stuttering severity, different educational and employment status and different personality attributes in terms of having either external or internal locus of control of behaviour.

The study gave fruitful results in terms of utility of the questionnaire and its ability to tap certain areas which are generally missed by the clinicians in the tightly packed schedule of stuttering therapy. This theoretically based tool is useful in making the participants persons with stuttering much more aware of their problems

and sensitizes them towards understanding it more. It was also seen during the study that many participants realised that what was written in the questionnaire was actually what they usually experience. They got a means to express what they actually feel to the clinician in words. And one added advantage to this was that quantitative values were helpful to assess the degree of presence of that feeling. Also it made the clinician easier to make the participant understand his weakness and to motivate him to work for eradicating them for better results.

The ratings in this case were highly subjective. The participant had freedom to choose his option of choice which reduced the experimenter bias. Also the scoring for the investigator was very easy and the results of the questionnaire were easily comprehended and reasoned out too. Time taken for the investigation was also within fair limits and the investigator for the study could interact much with the participants.

The LCB questionnaire was helpful in concluding that majority of the participants had external locus of control which suggest that these participants are less motivated and less interested to change themselves for getting rid of their problems. Thus, using the results they could be explained about the long term effect of their present belief and also change in this thinking could be emphasized. Both the questionnaires used were complementary to each other and their combination gave a meaningful result to the study.

The present study can be regarded as the stepping stone towards using OASES in clinics as well as research purposes. This was a first published attempt to use OASES in Indian population with variety of persons with stuttering. This may lead to other researches and its use in clinical settings.

Future Directions

- The questionnaire could be standardised in various Indian languages
- Performance on OASES based on gender difference may be investigated
- OASES can be investigated to document the efficacy of therapy.
- OASES can be studied by considering large sample size in the study

"Men who have achieved in this world have been guided by inspiration, by vision, by faith in themselves and by faith in the unknown"

-Wedberg

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APPENDIX

Appendix - A Consent form

All India Institute of Speech and Hearing
(An Autonomous Institute Under Ministry of Health & Family Welfare, Govt.of India)

Manasagangothri,

Mysore 570006

Dear Sir/Madam,

I would request you to kindly provide consent for the following study which is a part of dissertation work titled "OASES- In Adults with Stuttering: An Exploratory Study".

The test duration would not exceed more than 50 minutes. Your responses to the questionnaire would be kept absolutely confidential. The information obtained would be purely used for scientific research purposes.

Thank you Signature of the investigator

Informed Consent

I have understood that the project aims at gaining an insight into various domains of stuttering disorders and to apply the Overall Assessment of the Speaker's Experience of Stuttering (OASES) clinically.

I have clearly understood the purpose of the study and interested to participate in the study without any bias.

Date: Signature of the participant

(Name:)

Appendix-B

OASES Questionnaire

All India Institute of Speech and Hearing
(An Autonomous Institute Under Ministry of Health & Family Welfare, Govt.of India)

Overall Assessment of the Speaker's Experience of Stuttering (OASES)

Name: XYZ Age: 23 Years Sex: M / F Date: 19-12-12

Instructions. This test consists of four sections that examine different aspects of your experience of Stuttering. Please complete each item by circling the appropriate number. If an item does not apply to you, leave it blank and move on to the next item.

Section I: General Information

A. General information about your speech.	Always	Frequently	Sometimes	Rarely	Never
1. How often are you able to speak fluently?	1	2	3	✓	5
2. How often does your speech sound "natural" to you (i.e., like the speech of other people)?	1	2	3	✓	5
3. How consistently are you able to maintain fluency from day to day?	1	2	✓	4	5
4. How often do you use techniques, strategies, or tools you learned in speech therapy?	1	✓	3	4	5
5. How often do you say exactly what you want to say even if you think you might stutter?	1	2	✓	4	5

B. How knowledgeable are you about...?	Extremely	Very	Somewhat	A Little	Not At All
1. Stuttering in general	1	✓	3	4	5
2. Factors that affect stuttering	1	✓	3	4	5
3. What happens with your speech when you stutter	✓	2	3	4	5
4. Treatment options for people who stutter	✓	2	3	4	5
5. Self-help or support groups for people who stutter	1	2	✓	4	5

C. Over all, how do you feel about ...?	Very Positively	Somewhat Positively	Neutral	Somewhat Negatively	Very Negatively
1. Your speaking ability	1	2	✓	4	5
2. Your ability to communicate (i.e., to get your message across regardless of your fluency)	1	2	3	✓	5
3. The way you sound when you speak	1	2	3	✓	5
4. Techniques for speaking fluently (e.g., techniques learned in therapy)	1	✓	3	4	5
5. Your ability to use techniques you learned in speech therapy	1	✓	3	4	5
6. Being a person who stutters	1	2	✓	4	5
7. The speech therapy program you attended most recently	✓	2	3	4	5
8. Being identified by other people as a stutterer/person who stutters	1	✓	3	4	5
9. Variations in your speech fluency in different situations	1	2	3	✓	5
10 Self-help or support groups for people who stutter	1	2	✓	4	5

Section II: Your Reactions to Stuttering

A. When you think about your stuttering, how often do you feel…? (Note : please complete both columns in this section)											
	Never	Rarely	Sometimes	Often	Always		Never	Rarely	Sometimes	Often	Always
1. helpless	1	2	✔	4	5	6. depressed	1	2	✔	4	5
2. angry	1	✔	3	4	5	7. defensive	1	2	3	✔	5
3. ashamed	1	2	✔	4	5	8. embarrassed	1	2	3	✔	5
4. lonely	✔	2	3	4	5	9. guilty	1	✔	3	4	5
5. anxious	1	2	3	✔	5	10. frustrated	1	2	✔	4	5

B. How often do you …?	Never	Rarely	Sometimes	Frequently	Always
1. Experience physical tension when stuttering	1	✔	3	4	5
2. Experience physical tension when speaking fluently	✔	2	3	4	5
3 Exhibit eye blinks, facial grimaces, arm movements, etc., when stuttering	1	✔	3	4	5
4. Break eye contact or avoid looking at your listener	1	✔	3	4	5
5. Avoid speaking in certain situations or to certain people	1	2	3	✔	5
6. Leave a situation because you think you might stutter	1	2	3	✔	5
7. Not say what you want to say (e.g. avoid or substitute words, refuse to answer questions, order something you do not want because it is easier to say)	1	2	3	✔	5
8. Use filler words or starters (e.g. "um" clearing throat), or change something about your speech (e.g., use an accent) to be more fluent. (Note : this does not refer to techniques you may have learned in therapy).	1	2	3	4	✔
9. Experience a period of increased stuttering just after you shutter on a word.	1	2	3	✔	5
10. Let somebody else speak for you.	1	2	3	✔	5

C. To what extent do you agree or disagree with the following statements.	Strongly Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Strongly Agree
1. I think about my stuttering nearly all the time.	1	2	3	✔	5
2 People's opinions about me are based primarily On how I speak.	1	2	✔	4	5
3. If I did not stutter, I would be better able to achieve my goals in life.	1	2	3	✔	5
4. I do not want people to know that I stutter.	1	2	3	✔	5
5. When I am stuttering, there is nothing I can do about it.	1	2	✔	4	5
6. People should do everything they can do to keep themselves from stuttering.	1	✔	3	4	5
7. People who stutter should not take jobs that require a lot of speaking.	1	2	✔	4	5
8. I do not speak as well as most other people.	1	2	✔	4	5
9. I cannot accept the fact that I stutter.	1	✔	3	4	5
10. I do not have confidence in my abilities as a speaker.	1	2	✔	4	5

Section III: Communication in Daily Situations

(In this section, indicate how much difficulty you experience in these situations, not how fluent you are.)

A. How difficult is it for you to communicate in the following situations ?	Not at all Difficult	Not Very Difficult	Somewhat Difficult	Very Difficult	Extremely Difficult
1. Talking with another person "one-on-one"	1	✓	3	4	5
2 Talking while under time pressure.	1	2	✓	4	5
3. Talking in front of a small group of people.	1	✓	3	4	5
4. Talking in front of a large group of people.	1	2	3	✓	5
5. Talking with people you do know well (e.g., friends).	✓	2	3	4	5
6. Talking with people you do not know well (e.g., strangers).	1	2	3	✓	5
7. Talking on the telephone in general.	1	2	3	4	✓
8. Initiating conversations with other people (e.g., introducing yourself)	1	2	3	4	✓
9. Standing up for yourself verbally (e.g. defending your opinion, challenging someone who cuts in line in front of you)	1	2	✓	4	5
10. I do not have confidence in my abilities as a speaker.	1	2	3	✓	5

B. How difficult is it for you to communicate in the following situations at work?	Not at all Difficult	Not Very Difficult	Somewhat Difficult	Very Difficult	Extremely Difficult
1. Using the telephone at work.	1	2	3	✓	5
2. Giving oral presentations or speaking in front of other people at work.	1	2	3	4	✓
3. Talking with co-workers or other people you work with 9e.g., participating in meetings).	1	2	✓	4	5
4. Talking with customers or clients.	1	✓	3	4	5
5. Talking with your supervisor or boss.	1	2	3	✓	5

C. How difficult is it for you to communicate in the following social situations?	Not at all Difficult	Not Very Difficult	Somewhat Difficult	Very Difficult	Extremely Difficult
1. Participating in social events (e.g., making "small talk" at parties)	1	2	3	✓	5
2. Telling stories or jokes.	1	2	✓	4	5
3. Asking for information (e.g., asking for directions Or other people's opinions)	1	2	✓	4	5
4. Ordering food in a restaurant.	1	2	✓	4	5
5. Ordering food at a drive-thru..	1	2	✓	4	5

D. How difficult is it for you to communicate in the following situations at home?	Not at all Difficult	Not Very Difficult	Somewhat Difficult	Very Difficult	Extremely Difficult
1. Using the telephone at home.	1	2	3	✓	5
2. Talking to your spouse / significant other	1	2	3	4	5
3. Talking to your children.	1	2	3	4	5
4. Talking to members of your extended family.	1	2	✓	4	5
5. Talking part in family discussions.	1	2	✓	4	5

Section IV: Quality of Life

(In this section, indicate how much difficulty you experience in these situations, not how fluent you are.)

A. How much is your overall quality of life negatively affected by...?	Stuttering negatively affects my quality of life				
	Not At All	A Little	Some	A Lot	Completely
1. Your stuttering.	1	✓	3	4	5
2. Your reactions to your stuttering.	1	2	✓	4	5
3. Other people's reactions to your stuttering.	1	✓	3	4	5

B. Overall, how much does stuttering interfere with your satisfaction with communication...?	Stuttering interferes with my communication satisfaction				
	Not At All	A Little	Some	A Lot	Completely
1. In general.	1	✓	3	4	5
2. At work.	1	✓	3	4	5
3. In social situations.	1	2	✓	4	5
4. At home.	✓	2	3	4	5

C. Overall, how much does stuttering interfere With your...?	Stuttering interferes with my relationships				
	Not At All	A Little	Some	A Lot	Completely
1. Relationships with family.	✓	2	3	4	5
2. Relationships with friends.	1	✓	3	4	5
3. Relationships with other people.	1	2	✓	4	5
4. Intimate relationships.	1	2	✓	4	5
5. Ability to function in society.	1	✓	3	4	5

D. Overall, how much does stuttering interfere with your...?	Stuttering interferes with my career				
	Not At All	A Little	Some	A Lot	Completely
1. Ability to do your job.	1	✓	3	4	5
2. Satisfaction with your job.	✓	2	3	4	5
3. Ability to advance in your career.	✓	2	3	4	5
4. Educational opportunities.	✓	2	3	4	5
5. Ability to earn as much as you feel you should.	✓	2	3	4	5

E. Overall, how much does stuttering interfere with your...?	Stuttering interferes with my career				
	Not At All	A Little	Some	A Lot	Completely
1. Some of self-worth or self-esteem	✓	2	3	4	5
2. Overall outlook on life.	1	✓	3	4	5
3. Confidence in yourself.	1	✓	3	4	5
4. Enthusiasm for life.	✓	2	3	4	5
5. Overall health and physical well-being.	✓	2	3	4	5
6. Overall stamina or energy level.	✓	2	3	4	5
7. Sense of control over your life.	✓	2	3	4	5
8 Spiritual well-being.	✓	2	3	4	5

Appendix-C

OASES Scoring Sheet

Overall Assessment of the speaker's Experience of Stuttering (OASES)
Scoring Summary

Instructions: Calculate **Impact scores** for each of the 4 section on the OASES by (a) totaling the number of points in each section and (b) counting the number of items completed in each section. Multiply the number of each items Completed by to obtain the total points possible for each section. The impact score for each section is equal to 100 times the points in eac section divided by the total points possible for that section.(impact score will always range between 20 and 100 .) determine **Impact Ratings** for each section based on the impact scores in the table at the bottom of the page.

Name: XYZ Age: 23 Years. Sex: M / F Date: 19-12-12

Section I : General Information (20 Items Total)

Section I Points : 53 Items Completed in section I : 20
Section I Points Possible (Section I items Completed × 5) : 100

Section I Impacted Score : 53 **Impact Rating :** Moderate

Section II :Reactions to Stuttering (30 Items total)

Section II Points : 92 Items Completed in section I : 30
Section II Points Possible (Section I items Completed × 5) : 150

Section II Impacted Score : 61.3 **Impact Rating :** Moderate to Severe

Section III : Communication in Daily Situation (25 Items Total)

Section III Points : 77 Items Completed in section I : 23
Section III Points Possible (Section I items Completed × 5) : 115

Section III Impacted Score : 66.9 **Impact Rating :** Moderate - to - Severe

Section IV : Quality of Life (25 Items Total)

Section IV Points : 42 Items Completed in section I : 25
Section IV Points Possible (Section I items Completed × 5) : 125

Section IV Impacted Score : 33.6 **Impact Rating IV :** Mild - to - moderate

TOTAL IMPACT SCORE (100 Items Total)

Total Points : 264 Total Items Completed : 98
(Total Points = Section I Points + Section II Points + Section IV Points)
(Total Items Completed = Section I Items Completed + Section II Items Completed + Section III Items Completed + Section IV Items Completed)

Total Points Possible (Total Items Completed × Items Completed × 5): 490

Total Impact Score : 53.8 **Impact Rating :** Moderate

Impact Rating	Impact Score
Mild	20.0-29.9
Mild to Moderate	30.0-44.9
Moderate	45.0-59.9
Moderate-to-Severe	60.0-74.9
Severe	75.0-100

Appendix-D

Locus of control of behaviour scale

XYZ.

Locus of Control of Behaviour Scale*

Directions: Below are a number of statements about how various topics affect your personal beliefs. There are no right or wrong answers. For every item there are a large number of people who agree or disagree. Could you please put in the appropriate space the choice you believe to be true?
Answer all the questions.

0	1	2	3	4	5
Strongly disagree	Generally disagree	Somewhat disagree	Somewhat agree	Generally agree	Strongly agree

Transposition

2 →1. 3 I can anticipate difficulties and take action to avoid them
2. 0 A great deal of what happens to me is probably just a matter of chance
3. 0 Everyone knows that luck or chance determine one's future
4. 0 I can control my problem(s) only if I have outside support
1 →5. 4 When I make plans, I am almost certain that I can make them work
6. 0 My problem(s) will dominate me all my life
0 →7. 5 My mistakes and problems are my responsibility to deal with
0 →8. 5 Becoming a success is a matter of hard work, luck has little or nothing to do with it.
9. 0 My life is controlled by outside actions and events.
10. 0 People are victims of circumstance beyond their control.
11. 4 To continually manage my problems I need professional help
12. 0 When I am under stress, the tightness in my muscles is due to things outside my control.
0 →13. 5 I believe a person can really be a master of his fate.
14. 0 It is impossible to control my irregular and fast breathing when I am having difficulties.
15. 4 I understand why my problem(s) varies so much form one occasion to the next.
1 →16. 4 I am confident of being able to deal successfully with future problems.
17. 0 In my case maintaining control over my problem(s) is due mostly to luck

4 8

Total Score = 4+8 = 12

*For more information, please use the following source:

Craig, A. R., Franklin, J. A., & Andrews, G. (1984). A scale to measure locus of control of behavior. *British Journal of Medical Psychology, 57*, 173-180.

Appendix- E

NIMH SOCIO-ECONOMIC STATUS SCALE

NIMH SOCIO-ECONOMIC STATUS SCALE, REVISED VERSION (2011)

Highest Education	
1.	Illiterate
2.	Primary/Secondary School
3.	Matriculation
4.	***Graduation***
5.	Post Graduation & Above
Occupation	
1.	Unskilled labor/Unemployed/Daily Wager
2.	Semi-skilled Worker/Class IV Service
3.	Skilled/Technical/Class III Service
4.	***Professional/Class II Service/Blue Collared Jobs***
5.	Specialized/Class I Services/White Collared Jobs

From "*Socio Economic Status Scale -2011*", by Venkatesan, S., 2011,

Mysore: AIISH.

Adapted with permission.