DEVELOPMENT AND VALIDATION OF IMPACT OF STUTTERING TREATMENT ON QUALITY OF LIFE (IST-QL): POST-THERAPY ASSESSMENT

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August 2022

CERTIFICATE

This is to certify that this dissertation entitled **"Development and Validation of Impact of Stuttering Treatment on Quality of Life (IST-QL): Post-Therapy Assessment"** is bonafide work submitted in part fulfilment for the degree of Master of Science (Speech-Language Pathology) of the student with Registration Number 20SLP038. 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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August, 2022

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DECLARATION

This is to certify that this dissertation entitled **"Development and Validation of Impact of Stuttering Treatment on Quality of Life (IST-QL): Post-Therapy Assessment"** is the result of my own study under the guidance of Dr. Anjana B Ram, Assistant Professor in Speech Pathology, Department of Speech-Language Science, All India Institute of Speech and Hearing, Mysuru and has not been submitted earlier to any other university for the award of any other Diploma or Degree.

Mysuru **Registration No: 20SLP038**

August, 2022

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CHAPTER 1

Introduction

An individual whose speech is easy and flows from word to word without effort is a fluent speaker. Fluent speech refers to speech that flows quickly and smoothly in terms of both sound and information. According to Van Riper (1982), stuttering is defined as alterations in the continuous flow of speech and difficulty in maintaining the connected rhythm in speech. This may impact a person's life in a variety of ways. The most noticeable aspect of the condition is the interruptions in the forward flow of speech, such as part word repetitions, prolongations, and blocks (Bloodstein & Bernstein Ratner, 2008). According to personal reports, biographical accounts, and empirical research, persons with a stutter may experience feelings of shame, embarrassment, anxiety; difficulty in communication; and a feeling of dissatisfaction with life as a result of stuttering (Corcoran & Stewart, 1998; Craig et al., 2009; Klompas & Ross, 2004; Yaruss et al., 2002; Yaruss & Quesal, 2006). Due to the negative impact that stuttering has on their general vitality and emotional, social, and mental health, those who stutter may have a reduced quality of life (Craig et al., 2009; Yaruss, 2010).

1.1 Quality of life

Most definitions of quality of life (QOL) focus on concepts relating to a person's sense of overall well-being or life satisfaction. Many conceptualizations of quality of life commonly include components such as physical functioning, emotional and mental health, social interaction, vocational experiences, ability to perform expected roles, and ability to attain goals (Spilker, 1990). The World Health Organization (WHO) asserts that an individual's quality of life is influenced by their perception of their place in the culture and value systems in which they live as well as by their own goals, expectations, standards, and concerns (Power & Kuyken, 1998). A person's level of independence,

psychological state, physical health, and social and family relationships can be attributed to the quality of life. When assessing a person's quality of life, several pertinent components of their overall life experiences should be taken into account. Because of this, quality of life can be thought of as a "macro-variable" that includes a variety of individual experiences.

According to the American Speech-Language-Hearing Association (ASHA), speech-language pathologists (SLPs) seek to improve quality of life by lowering impairments of body functions and structures, activity limitations, participation restrictions, and barriers created by environmental factors (Association, 2016). In order to properly understand the experience of persons with communication issues, speech-language pathologists need to address factors determining quality of life. QOL can be evaluated through various methods, including interviews with the patient and their family, health surveys, administration of various tests, and QOL questionnaires.

1.2 Stuttering treatment

Many people seek treatment from speech-language pathologists (SLPs) to deal with the dynamic behavioral, attitudinal, and life-quality effects that can accompany stuttering. Stuttering treatment has traditionally been divided into two categories: fluency shaping and stuttering modification. Eliminating or reducing the behaviors associated with stuttering is the aim of fluency shaping therapy (Onslow et al., 1996; Ryan, 1979; Webster, 1980), while stuttering modification encourages effortless reactions to stuttering (Ingham, 2008).

The capability to generate a specified result or to exert a specific measured influence is termed treatment effectiveness (Dorland, 1988). However, discussions of effectiveness typically include explanations of whether a treatment was successful, and it would appear that judgments of success depend greatly on the person making the

judgment. As a result, this definition is insufficient.

When assessing the effectiveness or success of stuttering treatment, we could look at both subject-independent measures of stuttering (like frequency and duration of instances) and subject-dependent measures of effectiveness (like the beliefs of the client that he or she can talk to anyone at any time)(Conture, 1996). The most frequently utilized stuttering-related outcome measures in treatment studies over the past 20 years have been behavioral and non-behavioral stuttering outcome measures (Karimi et al., 2018).

1.3 Need of the study:

For many, "successful" stuttering therapy is defined as therapy that results in fluency levels that are close to normal. A change in fluency alone does not contribute to therapeutic "success". Therefore, it is important to identify (i) whether the stuttering therapy is successful, (ii) what determines the success of therapy, (iii) whether therapy generally "helps" people who stutter, (iv) and also to compare the preferred clinical outcome and client outcomes of a stuttering therapy program.

1.4 Aim of the study:

To investigate the impact of stuttering treatment on quality of life in persons with stuttering, post-therapy.

1.5 Objectives of the study:

1. To probe into the non-behavioral measures of stuttering, post-therapy, from the client's perspective.
2. Correlating the above with the behavioral measures of stuttering, post-therapy.
3. To probe into the factors determining therapy effectiveness, from the clinician versus client's perspective.

CHAPTER 2

Review of literature

2.1 Impact of stuttering on quality of life

A study was done by Klompas and Ross (2004) to probe into life experiences and effects of stuttering on the quality of life of a group of South African adults. For the study, 16 people who stutter between the ages of 20 and 59 were taken into consideration. Through individual interviews, the life domains of education, social life, employment, speech treatment, family and marital life, as well as identity, beliefs, and emotional concerns were examined. The study's main conclusions revealed that the majority of participants thought their stuttering had an impact on their academic performance and interactions with teachers and peers. Many participants claimed that their stuttering had no detrimental effects on their choice of career, their opportunity to gain work, and their relationship with supervisors and co-workers, despite the opinion that it impaired their work performance and decreased their opportunities for promotion. More than half of the sample believed that speech therapy had improved their quality of life, despite the fact that the majority of respondents viewed their experiences in speech therapy were unsatisfactory. Overall, individuals' family and marital lives did not seem to have been impacted by stuttering. The majority of participants reported that their self-esteem and self-image triggered intense feelings in them and were affected as a result of stuttering.

Hayhow et al. (2002) used a postal questionnaire to investigate how people who stutter perceive the effect of the condition on their lives, the effectiveness of speech and language therapy and alternative treatments, and their expectations for the future of speech and language therapy. All British Stammering Association members who stammered (1058) were sent the questionnaire, and 180 questionnaires were delivered

to speech and language therapists (SLTs). According to the 332 completed questionnaires, stuttering had the most detrimental impact on school life and occupation. The nature of the advantages and particular therapies used were not frequently mentioned in responses, despite the fact that many people found speech and language therapy to be beneficial.

Craig et al. (2009) conducted a study to assess the impact of stuttering in adults who stuttered (AWS). To evaluate the effects of stuttering on 200 individuals who stuttered, this study used the Medical Outcomes Study Short Form-36 (SF-36) as the general quality of life measure. Results showed that stuttering had a detrimental effect on the quality of life on the domains of social functioning, vitality, mental health status, and emotional functioning. Additionally, the results suggested a possible association between increased levels of severity of stuttering and a greater probability of impaired emotional functioning.

Beilby et al. (2013) investigated how stuttering affected people's perception of their quality of life, emphasizing the relationship between the individual and their partner or spouse. The Medical Short Form 36, Overall Assessment of Speakers' Experience of Stuttering, and a semi-structured qualitative interview were all completed by individuals who stuttered and their fluent spouses as part of the study. The findings showed that stutterers and their fluent partners had similar reactions to stuttering and perceived communication challenges. In contrast, there was no relation between the two groups' perceptions of the impact of stuttering on QOL. Qualitative results revealed that the individuals shared life experiences, including reactions to the stuttering, treatments undertaken, and support.

A study was done by Klein and Hood (2004) to examine the impact that stuttering had on job performance and employability. A 17-item survey was completed

by 232 people who stuttered (PWS) were the age of 18 years or older. The findings showed that more than 70% of PWS agreed that stuttering makes it more difficult to get a job or a promotion. More than 33% of PWS reported that their stuttering interfered with their job performance, and 20% had turned down a job or promotion due to their stuttering.

2.2 Speech-Language therapy outcome

The area of speech and language therapy is devoted to using outcome measurement to increase effectiveness and efficiency. Conture (1996) draws the conclusion that people who stutter benefit from therapy but that it is difficult to predict how successful stuttering treatment will be. Speech and Language Therapists (SLTs) in the area have different ideas about what makes a successful therapy outcome. Many treatment approaches also address other aspects of the stuttering disorder, such as the speaker's reactions to stuttering and the overall impact of stuttering on the speaker's ability to communicate. However, the changes in the production of speech disfluencies are the main focus of the evaluation of stuttering therapy outcomes.

One reason for the dearth of information on outcomes for many therapy programs that are frequently recommended is that researchers and therapists previously lacked access to a reliable method of measuring changes in the broader implications of stuttering on a speaker's life. It is therefore stated that an outcome measure for adult stuttering therapy should incorporate measurements of stuttering behaviors, reactions to stuttering, and handicaps caused by stuttering.

2.3 Nonspeech measurement tools in stuttering

2.3.1 Stutterer's Self Ratings of Reactions to Speech Situations (SSR)

SSR was developed in 1943 as Part of Wendell Johnson's thesis (Shumak, 1955). The SSR was created to determine issues a person encountered when speaking

and to highlight counseling priorities. The test consisted of 40 frequently encountered speech circumstances. Each question received four responses, each of which addressed the following: reaction to or enjoyment of speaking in the scenario, avoidance of the circumstance, amount of stuttering in the situation, and frequency of experiencing the issue. There were 160 questions in total that respondents respond to.

2.3.2 Perceptions of Stuttering Inventory (PSI)

Powell invented the PSI in the beginning as part of his thesis in 1962 (Woolf, 1967). Over the past 40 years, it has undergone several modifications, including a revision by Rothenberg (1963) to increase its reliability. The most recent PSI was created by Woolf and is an updated version of Rothenberg's revision (1967). The PSI is a 60-item scale that measures three stuttering-related behavioral changes. It includes avoiding certain words or situations, physical struggle, and expectations of stuttering. There are 20 items in each dimension. The PSI helps the clinician to set the goals for therapy and to track the progress of therapy.

2.3.3 S scale and S24

Erickson (1969) developed the S scale as a 39-item tool for PWS to evaluate their communication attitudes. A group of 100 nonstutterer responses to each of the 466 Communication Inventory items was compared to those of a criteria group of 50 PWS. Based on item responses that differentiated PWS from nonstutterers, a scale of communication attitudes (S-scale) was empirically constructed. The scale was subsequently modified by removing components from it that, in two additional subject groups, failed to demonstrate a significant correlation with the dichotomy of PWS versus nonstutterer. The S-scale provides information about the attitudes of PWS toward interpersonal communication. The S scale was the first developed to exclusively focus on attitudes rather than self-reported behavior; it was created following the PSI

and decades after Johnson's SSR (Brutten & Dunham, 1989; Erickson, 1969).

The S scale was updated to S24 in the 1970s, which was developed by removing 15 items to improve the scale's responsiveness (Andrews et al., 1974). The S scale was given to a control group of 25 nonstutterers on two occasions and a group of 25 PWS on three occasions during a therapy program: before treatment, after the establishment of fluency, and after transfer to everyday conversation. This assessment was done to determine the validity and reliability of the S scale over repeated measures. Those items that couldn't be administered repeatedly were removed after the analysis of the items. It was determined that the resulting 24-item scale was a more valid and reliable measure of change in communication attitudes of PWS.

2.3.4 Speech Situations Checklist (SSC) and Shortened SSC

Brutten and Shoemaker (1970) developed SSC using 51 typically encountered scenarios that PWS find troublesome in order to examine the relationship between negative emotions and stuttering (Hanson et al., 1981). The SSC consists of 51 items that measure two domains for each situation: emotional reaction (speech-related anxiety) and speech disruption. It includes 51 situations (such as ordering food in a restaurant, telephone conversation, etc.) that frequently raise negative emotions in PWS. Each item's level of negative feelings is given a score of 1 (not at all), 2 (a little), 3 (a fair amount), 4 (much), and 5 (very much). In one section, the participant ranks the level of negative emotion in various situations, while in the other section, he ranks the level of speech disruption in the same situations. To measure the overall level of anxiety, only the part that pertains to negative feelings is considered.

The SSC's shortened version was developed by Hanson et al. (1981). The Shortened SSC's goal was to distinguish between PWS and have significant levels of speech-related anxiety and others who do not stutter and do not have any such concern.

2.3.5 Communication Attitude Test (CAT) and Communication Attitude Test-Revised (CAT–R)

There was no specific instrument implemented for children in the 1980s, therefore Brutten and colleagues created a test named CAT. It is a 35-item scale, to investigate children's attitudes toward communication. CAT was performed on 518 children in grades 2 to 8 whose speech was found to be normal. With the exception of the second graders, who had the questionnaire items read to them, the subjects completed the CAT on their own for all other groups. They were told to read all 35 of the declarative statements and circle either the word "True" or "False" in response to each one. They showed few negative attitudes toward speaking, as shown by their average CAT score of 8.24, which considerably decreased from second to eighth grade. Age or sex had no statistically significant impact on test means. It was intended for children who stutter as well as those who exhibited other speech abnormalities (Brutten & Dunham, 1989).

The CAT was modified to the CAT-R (32 items) since three questions in the American version of the scale did not significantly correlate with the Dutch version (Nil & Brutten, 1991). However, the 35-item measure is still in use today.

2.3.6 Locus of Control of Behaviour Scale (LCB)

It was developed by Craig et al. (1984) to measure 'the extent to which subjects perceive responsibility for their problem behavior in terms of whether the control is internalized or externalized. Many behaviors, psychotherapy, and healthy lifestyle programs demand that clients take responsibility for controlling their old unwanted behaviors or for keeping their new desired behaviors once therapy is over. A locus of control scale would be useful if it could identify those who were likely to relapse after seemingly effective treatment. To measure this construct, a 17-item Likert-type scale

was created. It was demonstrated to have satisfactory internal reliability, test-retest reliability in the absence of treatment, be independent of age, sex, and social desirability, and distinguish clinical disorders from normal non-clinical subjects. Furthermore, among treated stutterers, change towards externality (an increase or no change in the LCB score) was demonstrated to indicate relapse 10 months later, while change towards internality (a decreased LCB score) predicted maintenance. Craig et al. (1984) showed that internalized locus of control following therapy predicted less likelihood of relapse.

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

It was developed by Yaruss & Quesal (2006) to measure experiences of stuttering based on the International Classification of Functioning Disability and Health. OASES consists of 100-item that include four categories: general information, communication in daily situations, reactions to stuttering, and quality of life. It is a self-report measure that people with stuttering rate from 1 to 5 on a Likert scale. Twenty questions are included in Section I (General Information), which deals with speakers' perceived fluency and speech naturalness, knowledge about stuttering and stuttering therapy, and overall perceptions about stuttering in general. Thirty questions in Section II (Reactions) probe into speakers' affective, behavioral, and cognitive reactions. Section III (Communication in Daily Situations) has 25 items that determine how difficult it is for speakers to communicate in everyday contexts, such as at work, in social settings, and at home. There are 25 questions in Section IV (Quality of life) about how much stuttering interferes with speakers' satisfaction, their ability to communicate, their relationships, their ability to participate in their lives, and their overall sense of well-being. OASES is made to supplement widely utilized clinician-based measures of speech fluency and naturalness and to convey the speaker's experience of the stuttering

disorder. It can be used in the majority of PWS and might be used to track changes over time in clinical research on stuttering (Yaruss & Quesal, 2006).

2.3.8 Wright & Ayre Stuttering Self-Rating Profile (WASSP)

WASSP was developed by Wright et al. (1998). It covers the client's perceptions of stuttering behaviors, avoidance, feelings, and disadvantage. Before and after each session of therapy, the patients fill out a score sheet. They use a seven-point rating scale, with 1 denoting "none" and 7 denoting "very severe," to score their perceptions of the following aspects of their stuttering.

- Behavior: Frequency of stutters, struggle during stutters, duration or length of stutters, urgency and/or fast speech rate, associated facial and/or body movements, the general level of physical tension, and loss of eye contact during stutters.
- Avoidance: Words, situations, talking about stuttering with others, admitting one's problem to oneself.
- Feelings about stuttering: Frustration, embarrassment, fear, anger, and anxiety.
- Disadvantage: At home, socially, and at work.

WASSP has been effective in the therapy process, in facilitating reflection by the client, giving new knowledge and understanding to the speech and language therapist, and determining what the client may require in the future.

2.3.9 Self-Efficacy Scale for Adult Stutterers (SESAS)

Ornstein and Manning (1985) designed a scale to measure how confident adult stutterers were in their ability to talk fluently and enter different speaking contexts. Twenty adult stutterers were given the Self-Efficacy Scale for Adult Stutterers (SESAS), shortened form of the Erickson Scale of Communication Attitudes, and the Perceptions of Stuttering Inventory. Significant differences between stutterers and

nonstutterers were found in the self-efficacy scores. SESAS scores were correlated with the Erickson Scale (- 0.71) and the Perceptions of Stuttering Inventory (- 0.52). SESAS evaluations and stutterers' assessments of their severity had a correlation of -0.51. The findings imply that self-efficacy scaling may become a valuable tool for assessing one aspect of treatment-related change with further development.

2.3.10 Unhelpful Thoughts and Beliefs about Stuttering (UTBAS)

UTBAS is a self-report measure that was developed by St Clare et al. (2009) to assess unhelpful thoughts and beliefs about stuttering. In phase 1, the items were constructed by collecting the unhelpful thoughts and beliefs expressed by stuttering patients who received cognitive-behavioral therapy (CBT) for social anxiety. It contains 66 items that assess the frequency of unhelpful thoughts and beliefs. Among these 66 unhelpful thoughts and beliefs, 27 specifically mention stuttering, while 39 do not. On a 5-point scale, respondents are asked to rate how frequently they have each of these 66 unhelpful thoughts and beliefs (1= never have the thought, 2= rarely have the thought, 3= sometimes have the thought, 4= often have the thought, 5= always have the thought). The UTBAS scale has scores ranging from 66 to 330, with higher scores suggesting a greater frequency of unhelpful thoughts. In Phase 2 of this study, 57 people (31 non-stuttering and 26 adult participants) took part to compare UTBAS scores between PWS and non-stuttering controls. Even after excluding all items that described stuttering, the two groups (i.e. PWS and Control) had different UTBAS totals. UTBAS score of the PWS group was more than the control group.

2.3.11 A Brief version of Unhelpful Thoughts and Beliefs about Stuttering (UTBAS-6)

UTBAS-6 is a brief version of the full UTBAS scales. It was developed by Iverach et al. (2016). The UTBAS would be useful as a quick screening tool if the

number of items was reduced. Three hundred thirty-seven adults who stutter completed the 66-item UTBAS measures. Item reduction was performed to identify a smaller set of items that could accurately replicate the overall score for entire UTBAS scale. Six items for the brief UTBAS-6 scales were added after item reduction. A reliable estimation of the full UTBAS scores can be found in the decile ranges for the brief UTBAS-6 scores. UTBAS provides information about whether a psychological evaluation is necessary. When the UTBAS total score is in the fifth decile or higher, referral for a psychological evaluation is advised.

2.3.12 Other treatment outcome measures

To evaluate the outcomes of a wide variety of stuttering treatment approaches by measuring changes in speakers' affective, behavioral, and cognitive reactions to stuttering; the effect of stuttering on speakers' functional communication abilities; and the impact of stuttering on speakers' overall quality of life a series of measurement instruments were developed by Yaruss (2001).

2.3.12.1 Speaker's reactions to stuttering

The Stuttering Response Scale (SRS) has five components, each of which focuses on a different aspect of how stutterers may feel, behave, or think about their stuttering. Twenty feelings associated with stuttering are listed in Part I, with 15 of them being generally negative emotions (frustration, embarrassment, fear, anger, and annoyance), and five being generally positive emotions (acceptance, confidence, and satisfaction). An early version of the test asked the participants to rate how often they felt each emotion. A revised version added a second question (How strongly do you feel this way about your stuttering?) for each emotion category in response to the first responders' comments that they felt some emotions more intensely than others. The present edition of the instrument, therefore, tries to establish the frequency and intensity

of a number of emotions that are assumed to be relevant to the stuttering disorder in PWS. In Part II, respondents are asked how frequently they indicate 20 distinct behavioral reactions common to stutterers, such as excessive physical tension or avoidance of words or situations due to stuttering. In Part III, participants are asked to rate their agreement with a list of twenty generic statements regarding stuttering in order to assess how persons who stutter think about themselves and their speaking abilities (cognitive reactions). Part IV assesses speakers' general attitudes toward stuttering. In this part, the respondents are asked "how do you feel about ..." a set of 15 items related to stuttering and communication (e.g., ... stuttering in general, ... your speaking ability, ... speech therapy in general, etc.). Responses are provided in a range from very negative to very positive. The last section, Part V, evaluates respondents' overall knowledge about stuttering, stuttering treatment, and stuttering support groups.

2.3.12.2 Functional communication and stuttering (FCS)

The FCS is intended to investigate the extent to which stuttering interferes with speakers' capacity to carry out specific daily activities related to communication in social or occupational settings. A person's daily communication is examined in each of the three sections of the revised FCS. Respondents rate how much stuttering interferes with their ability to carry out various communication-related activities in each section (scale ranging from none to a lot). The first 15 questions in part I focus on overall communication (such as talking under time pressure, giving a presentation, talking with friends, and introducing oneself when meeting a new person). The ten items in parts II and III are all about the speaker's communication in occupational settings (e.g., talking during a job interview, making phone calls at work, "talking with clients or customers") and social settings (e.g., participating in social events, telling stories or jokes, asking for directions or help, ordering food at a restaurant).

2.3.12.3 Quality of life and stuttering (QOL-S)

The purpose of the QOL-S instrument is to assess the overall impact of stuttering on speakers' ability to pursue goals in a variety of domains, such as social interaction and economic independence. Two sections of the QOL-S are dedicated to the speaker's overall quality of life and the specific ways in which stuttering has impacted their lives. Part I of the questionnaire asks participants to rate how much their stuttering, their reactions to it, and other people's reactions to it have impacted their overall quality of life, sense of well-being, and satisfaction with their lives. In Part II, participants rate the extent to which stuttering has interfered with their social relationships, occupation, and emotional, physical, and spiritual well-being.

2.3.13 Quality of life questionnaire for the Indian population

A study was carried out by Bajaj et al. (2014) with an aim of developing a questionnaire to evaluate the quality of life (QOL) of PWS in the Indian population. A questionnaire was constructed with 37 questions covering six domains, targeting speech-related fear and anxiety, interpersonal and social relationships, behavioral reaction to stuttering, educational status, employment and job opportunity, and the effect of speech therapy. Each domain had a collection of questions under it. There were nine questions in domain one (speech-related fear and anxiety) that dealt with speech-related fear, avoidance, and anxiety in various speaking contexts. Four items in domain two (interpersonal and social relationships) assessed the speaker's difficulty in communicating in social situations, at home, and with friends. Each of the seven items in domain three (behavioral reaction to stuttering) examined a speaker's secondary behaviors, such as facial movement, clenching of the fist, labored breathing, effortful breathing, etc. Five items in domain four (educational status) evaluated the difficulties the speaker had in class, with teachers, and in academics. Eight items in domain five

(employment and job opportunity) examined how difficult it was for a speaker to choose a job and the difficulty faced by the speaker in the working environment. Four items in domain six (the effect of speech therapy) evaluated the current status of stuttering and whether the fluency of speech has improved or remained the same post-therapy. Response scales were designed for each of the questionnaire's items so that higher scores indicated a greater degree of the negative impact (2 for almost always) associated with stuttering, while lower scores indicated a lesser negative impact (1 for sometimes and 0 for not at all). For the study, a total of 30 people with stuttering between the ages of 18 and 30 enrolled. All participants who had been diagnosed with mild-to-moderate stuttering were given a copy of the questionnaire and instructed to complete it themselves using the provided options (2-almost always, 1-sometimes, and 0-not at all). All of the domains and questions in the developed questionnaire displayed good content validity. Adults who stuttered seemed to have issues in several domains, though these issues were not found to be significantly different from those seen in QOL data from other cultural settings.

CHAPTER 3

Method

This chapter provides details of the methodology of the study which includes participants, inclusion and exclusion criteria, data collection, and the method of analysis undertaken for the present study.

3.1 Research Design

A descriptive study was done to explore the impact of stuttering treatment on the quality of life in persons with stuttering, after therapy.

3.2 Participants

A total of 20 adults above the age of 18 years and diagnosed as persons with stuttering during a detailed evaluation (SSI-4) and 20 Speech-Language Pathologists (SLP) with an experience of a minimum of 3 years in therapy for stuttering were considered for the study. Both males and females participated in the study.

3.2.1 Participant inclusionary criteria

Participants considered for the study includes;

- Persons with stuttering severity ranging from mild to severe.
- Persons with stuttering who had attended more than 25 sessions of stuttering therapy.
- Those who had access to the internet.
- SLPs with an experience of a minimum of 3 years in stuttering therapy.

3.2.2 Participant exclusionary criteria

- Participants diagnosed with other neurological conditions such as (Dysarthria, Aphasia) were excluded.

3.3 Sample selection

Persons with stuttering were selected randomly from the database of AIISH and

SLPs were selected from AIISH, who had a minimum of 3 years of experience in stuttering therapy.

3.4 Ethical consideration

Requests for participation in the study were made through telephonic conversations. The participants were informed about the purpose of the study, the procedure, and the estimated duration to complete the questionnaire. Oral consent was taken from all participants.

3.5 Procedure

The present study was conducted in five phases:

Phase 1: Development of the questionnaires

Phase 2: Validation of the questionnaires

Phase 3: Administration of the questionnaires

Phase 4: Administration of Stuttering Severity Index-4 (SSI-4)

Phase 5: Statistical analysis of the data

3.5.1 Phase 1: Development of questionnaires

A questionnaire was developed for the clients to assess the effectiveness of their therapy program and its impact on their quality of life. The questionnaire consisted of 25 questions that probed into the speaker's perception of stuttering post-therapy, ease of use of therapy techniques in daily situations, reactions of self or others towards their modified speech, and other factors affecting the quality of life, post-therapy. Both open-ended and close-ended questions were incorporated into the questionnaire.

Another questionnaire was developed for the SLPs, to probe into their understanding of the effectiveness of the stuttering therapy program. The questionnaire consisted of 18 questions that probed into the success of the therapy program, factors determining treatment efficacy, long-term follow-up of clients post-therapy, and their

perception of the impact of stuttering therapy on the client's quality of life.

3.5.2 Phase 2: Validation of the questionnaires

Content developed for the questionnaires was validated by 5 Speech-Language Pathologists from AIISH with an experience of a minimum of 5 years and 2 adults with stuttering, who had completed speech therapy at AIISH. Suitable modifications were done before circulating the respective questionnaires to PWS and SLPs.

3.5.3 Phase 3: Administration of the questionnaires

The validated questionnaires were shared with the persons with stuttering and SLPs as a google form link through WhatsApp messenger.

3.5.4 Phase 4: Administration of Stuttering Severity Index-4 (SSI-4)

The researcher of the study administered the Stuttering Severity Index-4 to identify the behavioral measures of stuttering, post-therapy, for correlation with the client's perspective of therapy effectiveness (non-behavioral measures). Data collection was carried out through online modes (such as Google meet/Zoom/WhatsApp video calls).

3.5.5 Phase 5: Statistical analysis of the data

The data extracted from the questionnaire was subjected to appropriate statistical analysis to arrive at results using Statistical Package for Social Sciences-SPSS software (Version 26.0).

CHAPTER 4

Results & Discussion

The present study was carried out to investigate the impact of stuttering treatment on the quality of life in persons with stuttering, post-therapy. The objectives of the study were to probe into the non-behavioral measures of stuttering post-therapy from the client's perspective, correlate the non-behavioral with the behavioral measures of stuttering post-therapy, and probe into the factors determining therapy effectiveness from the clinician versus the client's perspective.

4.1 Demographic profile of the clients

A total of 20 individuals participated in the study, of which 18 (90%) were males, and 2 (10%) were females. Hence, the gender ratio of the participants in the study was found to be 9:1. The respondents attended stuttering therapy in various modes (online, offline, and both). Among the participants, 50% of the participants attended both online and offline therapy, 30% attended only online, and 20% attended only offline therapy. They also attended various types of therapy (Individual therapy, both individual and group therapy). Among them, 85% attended individual therapy, and 15% attended both individual and group therapy.

4.2 Client questionnaire profile

The questionnaire consisted of 25 questions that were targeted to understand the speaker's perception of stuttering, post-therapy, ease of use of therapy techniques in daily situations, reactions of self or others towards their modified speech, and other factors affecting the quality of life. Both open-ended and close-ended responses were collected.

Q1: Reason for attending stuttering therapy

Some of the common reasons for attending therapy, as stated by the participants

were to overcome their problems, reduce emotional feelings and fear related to speaking, attend interviews, give oral presentations, attend meetings, and speak well in front of a crowd. Some of the participants reported that suggestions from relatives and some significant others were the reasons for attending therapy. In a study by Hearne et al. (2008) on adolescents, some of the participants stated that intentions for their careers motivated them to seek therapy. Only one participant stated that his parents had encouraged him to take therapy.

Q2: Speech change with stuttering therapy

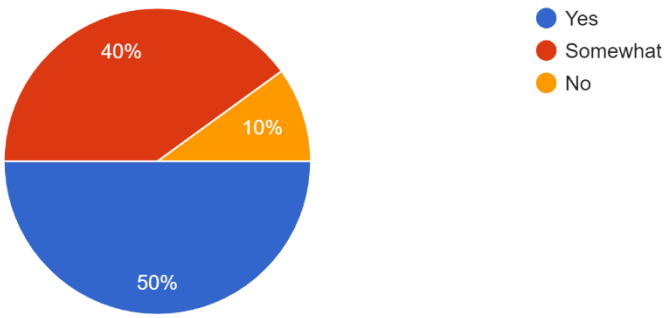
In the present study, 45% of PWS reported that their speech changed with stuttering therapy, and 55% reported that their speech changed somewhat after stuttering therapy. It is significant to note that none of the participants said their speech did not change after therapy.

Q3: Improvement in fluency after therapy

As shown in Figure 4.1, 50% felt their fluency improved after therapy, 40% reported their fluency somewhat improved, and 10% reported no improvement in fluency after therapy.

Figure 4.1

Improvement in fluency after therapy



This is in consensus with a study done by Bajaj et al. (2014), where 56.7% of PWS almost always felt that their speech had improved after therapy, and 43.3% of

PWS sometimes felt that their speech had improved after therapy. However, Klompas and Ross (2004), found that among 15 participants, 14 participants reported that speech therapy was not helpful to them, and only one participant reported that speech therapy was helpful in terms of enhancing fluency. In a study done by Silverman and Zimmer (1982), most of the participants reported that their therapy experiences were not perceived to be helpful during elementary school through high school. However, after high school, therapy was perceived to be helpful.

Q4: Better understanding of the problem

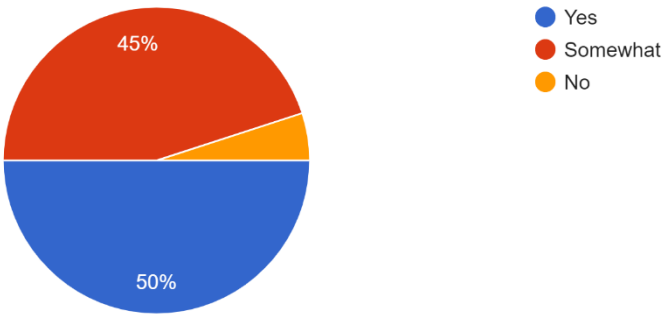
Among the participants, 80% reported that stuttering therapy gave them a better understanding of their problem, and 20% reported it as somewhat. Hence stuttering therapy aids in a person understanding his speech better which will in turn help in better management. In a study done by Klompas and Ross (2004), 12.5% of the participants indicated that speech therapy changed their view and understanding of stuttering.

Q5: Managing speech in day-to-day life

As shown in Figure 4.2, 50% reported that stuttering therapy techniques helped to manage their speech in day-to-day life, 45% reported that it was somewhat helpful, and 5% reported that it was not helpful to manage their speech in day-to-day life.

Figure 4.2

Managing speech in day-to-day life

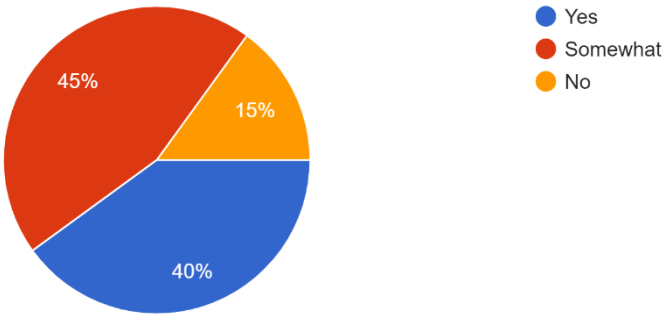


Q6a: Feeling different even after attending stuttering therapy

Among the participants, 40% reported that even after attending therapy they felt different, 45% reported feeling somewhat different, and 15% reported that they did not feel different after attending therapy (Figure 4.3).

Figure 4.3

Feeling different even after attending stuttering therapy



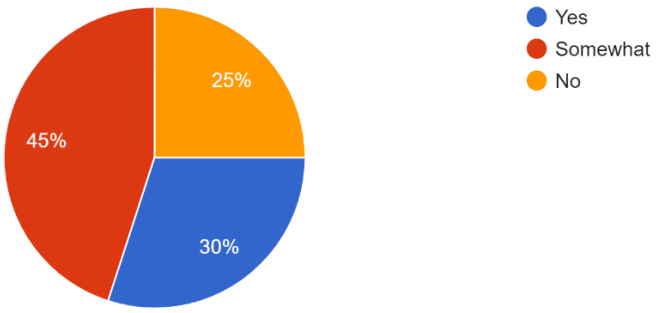
In response to how they felt different, one of the participants stated that people did not treat him like a normal person and every time he spoke to his neighbor, his confidence went down. One participant reported that when he loses confidence while speaking, he feels different even after taking therapy. Another participant reported that they gained confidence, but his fluency almost remained the same, even after taking therapy. Other participants reported that he continued to stutter on some words. One of the participants felt difficulty in explaining the projects at work and talking to new persons. Another participant reported a positive difference by stating that he could speak more often and did not have much fear while speaking.

Q7a: Difficulty in using the therapy techniques

During instances of stuttering, 30% found difficulty in using the therapy techniques, 45% reported somewhat difficulty, and 25% reported no difficulty in using the therapy techniques (Figure 4.4).

Figure 4.4

Difficulty in using the therapy techniques



During instances of difficulty in using the techniques, 25% reported that they were managing the moments of stuttering by avoiding feared situations/persons/words, 40% reported that they were substituting difficult words with easier ones, and 5% reported that they were using both options to manage the moments of stuttering. One of the participants responded "I will stutter until I finish" while managing a stuttering instance. These results were similar to those documented by Klompas and Ross (2004). Out of 16 participants, 13 participants used several strategies for coping with stuttering. Among the participants, 38.46% varied their speaking rate, 30.77% used changing words or phrases, 23.08% used advertising stuttering, 23.07% took a deep breath, 15.38% avoided certain words, 7.69% avoided eye contact, and 7.69% avoided certain situations for coping with stuttering.

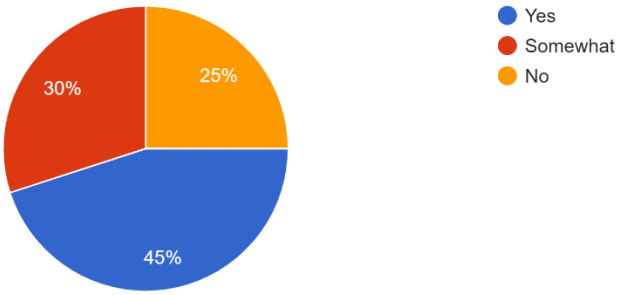
A study conducted by Bajaj et al. (2014) documented that 56.7% sometimes were able to use the techniques appropriately and 43.3% almost always were able to use the techniques appropriately.

Q8a: Stuttering as a barrier to one's achievements

As shown in Figure 4.5, 45% reported that even after taking therapy, stuttering was a barrier to their achievements, 30% reported it being somewhat still a barrier, while 25% reported that stuttering was not a barrier to their achievements after taking therapy.

Figure 4.5

Stuttering as a barrier to one's achievements



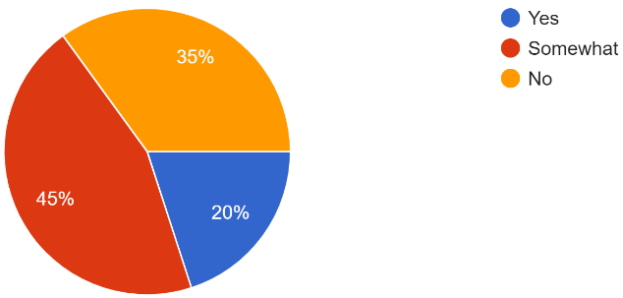
In response to how stuttering was a barrier, one of the participants stated that their job demanded perfect communication skills to coordinate with customers and employees. Another participant reported that with therapy techniques they were not able to reach the level where they could speak with ease. One person stated that even with therapy in certain uncomfortable situations stuttering was still a barrier. Another person reported that when he was speaking very slowly with the therapy techniques people were ignoring him. Hence their speaking style was still a barrier for communication.

Q9: Feeling uncomfortable while using the therapy techniques

As shown in Figure 4.6, 45% felt somewhat uncomfortable while using the therapy techniques, 35% didn't feel uncomfortable, and 20% felt uncomfortable while using the therapy techniques.

Figure 4.6

Feeling uncomfortable while using the therapy techniques



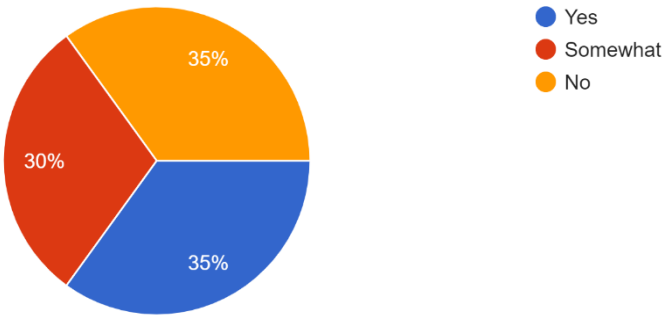
This could be due to the induced fluency lacking speech naturalness due to which PWS may hesitate to use the techniques outside the therapy settings.

Q10: Feeling guilty when not using the therapy techniques

Among the participants, 35% felt guilty when they were not able to use the therapy techniques, 30% felt somewhat guilty, and 35% didn't feel guilty on failing to use the therapy techniques (Figure 4.7).

Figure 4.7

Feeling guilty when not using the therapy techniques



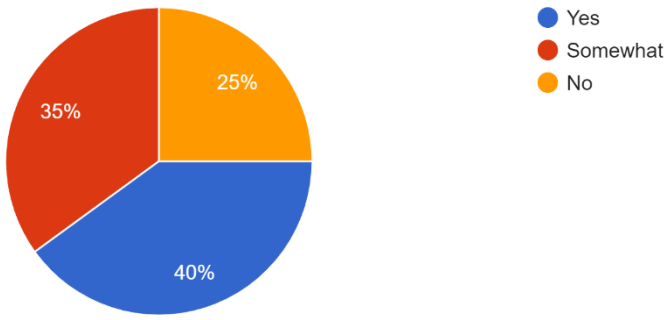
Many times, PWS have a good understanding of their problem and the therapy techniques. However, they may fail to effectively manage moments of stuttering, where they may still feel their speech to be out of control. The feeling of not being able to use the techniques though they know how to use it may result in more negative reactions, guilt, and anxiety which may precipitate more stuttering.

Q11: Feeling of speech being out of control

As shown in Figure 4.8, 40% responded that they felt their speech was out of control after taking therapy, 35% reported as somewhat being out of control, and 25% didn't feel their speech was out of control after taking therapy. This suggests that it is important to work on moments of stuttering rather than just inducing artificial fluency. When clients are taught ways to effectively troubleshoot their moments of fluency breakdown, there are less chances of them feeling that their speech is out of control.

Figure 4.8

Feeling of speech being out of control

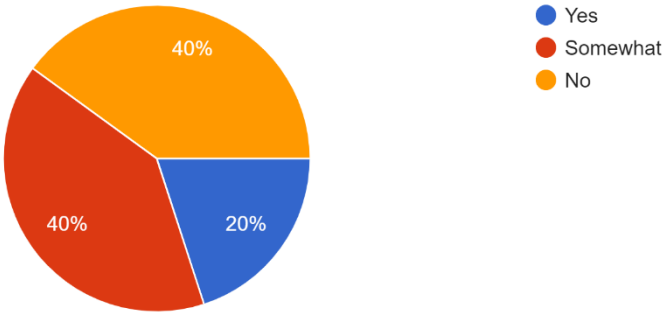


Q12: Physical tension while using the therapy techniques

As shown in Figure 4.9, 40% reported that they somewhat experienced physical tension, other 40% reported that they didn't experience physical tension while using the therapy techniques, and the remaining 20% said that they experienced physical tension (effort).

Figure 4.9

Physical tension while using the therapy techniques



The definition of fluency asserts the importance of speech being effortless. However, the major focus of therapy gets biased towards improving continuity in speech rather than reducing effort. It is imperative to work on making speech effortless as much as to maintain continuity. If effort (both physical and mental) is still reported even while using the techniques, it suggests the need to work on strategies to reduce effort and then work on continuity. The importance of stutter easily thus becomes

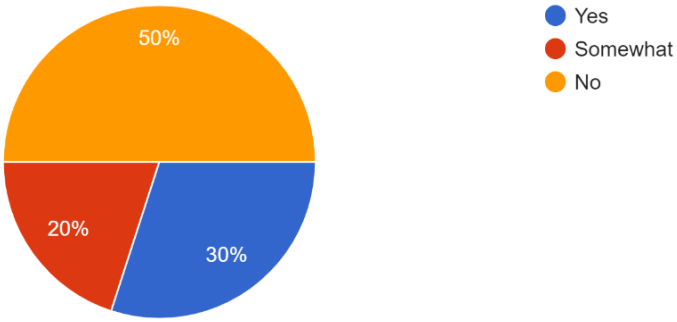
significant during the remedial process. Rather than focussing on good fluency skills, therapy should be targeted to reduce speech effort (both with and without stuttering).

Q13: Breaking eye contact or avoiding looking at the listener while speaking

Among the participants, 50% denied breaking eye contact with the listener while speaking, 30% reported that they often break eye contact or avoid looking at their listener while speaking, and 20% reported it as somewhat (Figure 4.10).

Figure 4.10

Breaking eye contact or avoiding looking at the listener while speaking



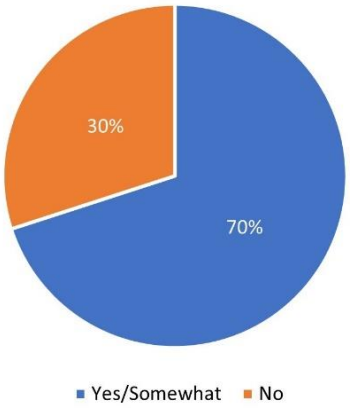
Breaking eye contact is an indicator of secondary or coping behaviors during moments of stuttering. Working on reducing effort in stuttering might help in reducing the secondary behaviors as well.

Q14: Listener perception about one's speaking style

As shown in Figure 4.11, 70% reported that their listeners felt their speaking style to be somewhat or totally awkward even after taking stuttering therapy. The remaining 30% reported that their listeners did not show any signs of awkwardness while they were speaking using therapy techniques.

Figure 4.11

Listener perception about one's speaking style



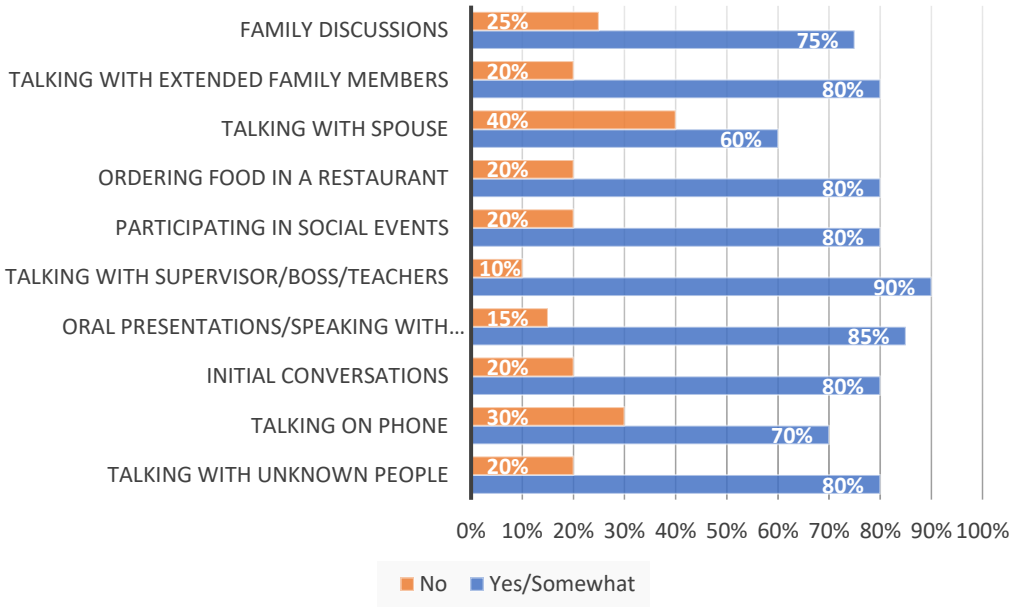
A study was done by Douglass et al. (2019), where one of the participants stated that when he was using easy onsets, his friends made fun of him and imitated like, how he was using easy onsets, and he felt guilty about it.

Q15: Difficulty in speaking across situations/persons

As shown in Figure 4.12, 90% of PWS felt difficulty or somewhat difficulty in talking with their supervisor/boss/teacher. Among the participants, 85% of them felt difficulty or somewhat difficulty in giving oral presentations or speaking in front of other people at work. Other 80% of PWS felt difficulty or somewhat difficulty in talking with unknown people, initiating conversations with other people, participating in social events, ordering food in a restaurant, and talking to their extended family members. Other 75% of PWS felt difficulty or somewhat difficulty in taking part in family discussions, 70% felt difficulty or somewhat difficulty in talking on the phone, and 60% felt difficulty or somewhat difficulty in talking with their spouse.

Figure 4.12

Difficulty in speaking across situations/persons

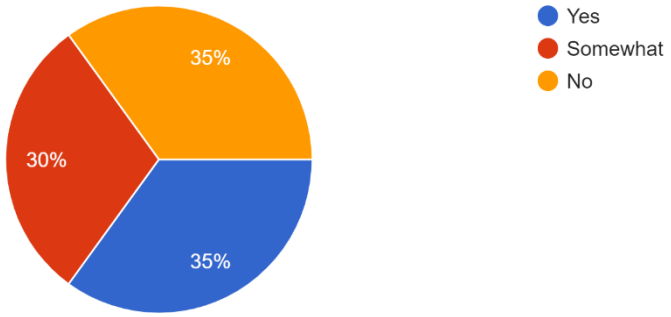


Q16: Fluency improvement in all languages

Among the participants, 35% reported that their fluency improved in all languages that they spoke, 30% reported that their fluency somewhat improved, and 35% reported that there was no improvement in fluency in all languages that they spoke (Figure 4.13). This shows that therapy has a positive impact on fluency in all languages that an individual speaks.

Figure 4.13

Fluency improvement in all languages

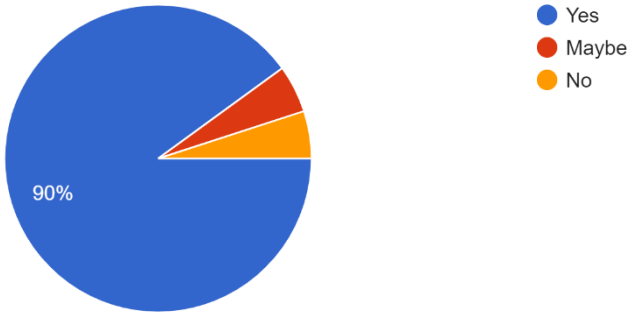


Q17: Recommending speech therapy for stuttering

As shown in Figure 4.14, 90% reported that they would recommend speech therapy for stuttering to others, 5% reported they may recommend, and 5% reported that they will not recommend speech therapy for stuttering to others. Thus majority of the participants feel that speech therapy may help other persons with stuttering.

Figure 4.14

Recommending speech therapy for stuttering

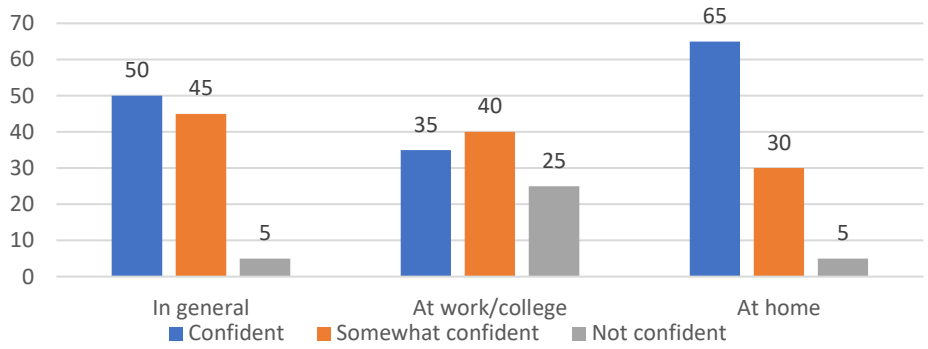


Q18: Confidence after taking therapy

As shown in Figure 4.15, 50% reported that they had confidence while speaking in general situations after taking therapy, 45% reported that they were somewhat confident, and 5% reported that they lacked confidence. In college/workplace, 35% reported that they were confident, 40% reported that they were somewhat confident, and 25% reported that they lacked confidence after taking therapy. At home, 65% reported that they were confident, 30% reported that they were somewhat confident, and 5% reported that they lacked confidence while speaking post-therapy.

Figure 4.15

Confidence after taking therapy



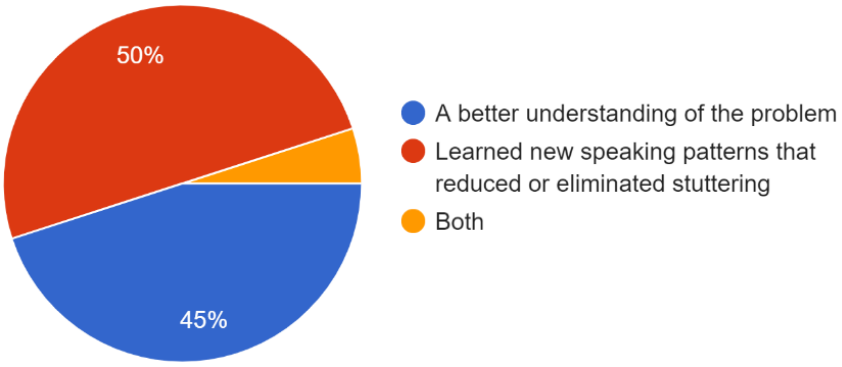
These results were similar to those reported by Yaruss and Quesal (2001), where improvements in fluency often increase a speaker's sense of confidence and ability to communicate easily. Klompas and Ross (2004c) conducted a study where 18.75% reported that speech therapy enhanced their confidence and self-esteem.

Q19: Benefits after taking therapy

Among participants, 50% reported that they learned new speaking patterns that reduced or eliminated stuttering, 45% of the participants reported better understanding of the problem after taking therapy, and 5% reported both these aspects as benefits of taking stuttering therapy (Figure 4.16).

Figure 4.16

Benefits after taking therapy



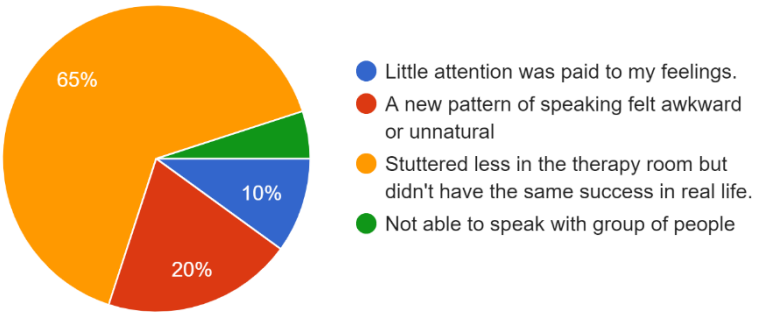
In a study done by Yaruss et al. (2002b), they found learning techniques to control stuttering was the most beneficial aspect of taking therapy, followed by learning to fear stuttering less, meeting other individuals who stutter, a better understanding of the disorder, and learning new speaking patterns that reduced or eliminated stuttering.

Q20: Disappointing /troublesome aspects during therapy

As shown in Figure 4.17, 65% responded that they stuttered less in the therapy room but didn't have the same success in real life, which was a big disappointing factor during therapy. Other 20% reported that a new pattern of speaking felt awkward or unnatural, and 10% reported that little attention was paid to their feelings during therapy. Only 5% reported disappointment at not being able to speak with a group of people even after taking therapy.

Figure 4.17

Disappointing /troublesome aspects during therapy



Yaruss et al. (2002b) found that most of the participants did not maintain their fluency post-therapy. They were not able to achieve the same fluency in real life as they did in the therapy room, they felt that the new speaking pattern was awkward or unnatural, the treatment did not address their feelings about their speech, were asked to do things that did not feel comfortable to them, and they felt that their therapist did not have enough experience with stuttering. In a study conducted by Hearne et al. (2008) on adolescents, the participants reported that the transferring and maintenance of

treatment gains in the real world is the most crucial component.

Thus for successful generalization and maintenance of the therapy program, it is important to ensure treatment is focused on preserving naturalness. Also, for the clinician it becomes important to understand the client's personality and feelings and how he views stuttering and the speech that is modified with therapy. Client satisfaction is the prime factor in the remedial procedure for stuttering.

Q21: Type of therapy preferred

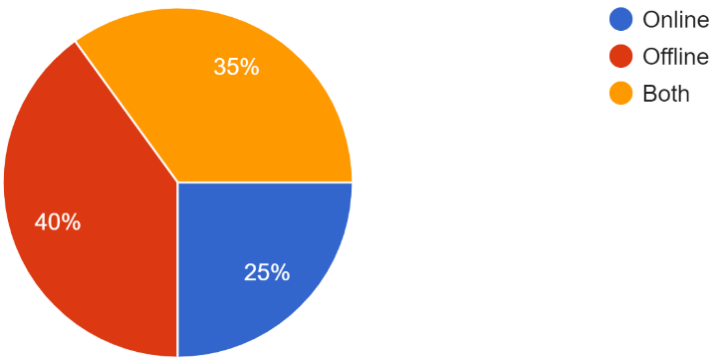
Among the participants, 60% preferred individual therapy for stuttering, 35% preferred both individual and group therapy, and 5% preferred group therapy for stuttering. These findings were similar to those reported by Silverman and Zimmer (1982), where most of the participants preferred individual therapy when compared to group therapy and a combination of both individual and group therapy. However, in contrast to these findings, Hearne et al. (2008) found the participants preferred group therapy, and they felt effective being with other people of the same age and with the same interests and felt that this was a better representation of the real world.

Q22: Mode of therapy preferred

Among participants, 40% preferred offline therapy, 35% preferred both online and offline, and 25% preferred online mode of therapy for stuttering (Figure 4.18).

Figure 4.18

Mode of therapy preferred



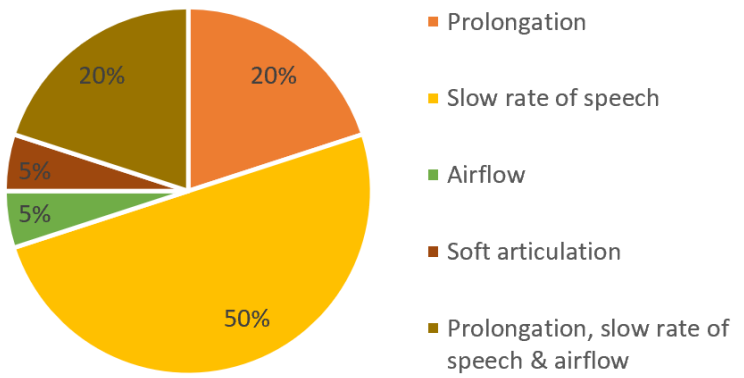
In a study done by Eslami Jahromi et al. (2021), they found that the participants were interested in the application of tele-speech therapy because it would improve accessibility and provide them the chance to select the best therapists. Thus online modalities of therapy have to be explored more. A combination of both online and offline therapy would be more accessible, feasible, and practical for the client and can help in rendering more intensive treatment for stuttering.

Q23: Stuttering therapy technique demonstrated

As shown in Figure 4.19, 50% reported that the slower rate of speech was the therapy technique demonstrated by the clinician, 20% reported that the prolongation technique was demonstrated, and the other 20% reported that all three (Prolongation, slower rate of speech and airflow) techniques were demonstrated by the clinician during therapy. Airflow technique was taught to 5% of the participants, and the remaining 5% were taught soft articulatory contacts. From this, it is clear that the majority of the participants were taught fluency shaping approaches rather than stuttering modification approaches.

Figure 4.19

Stuttering therapy demonstrated



This result is in consensus with the study done by Yaruss et al. (2002), where most of the participants practiced fluency shaping approaches than stuttering modification approaches, avoidance reduction approaches, and a combined approach

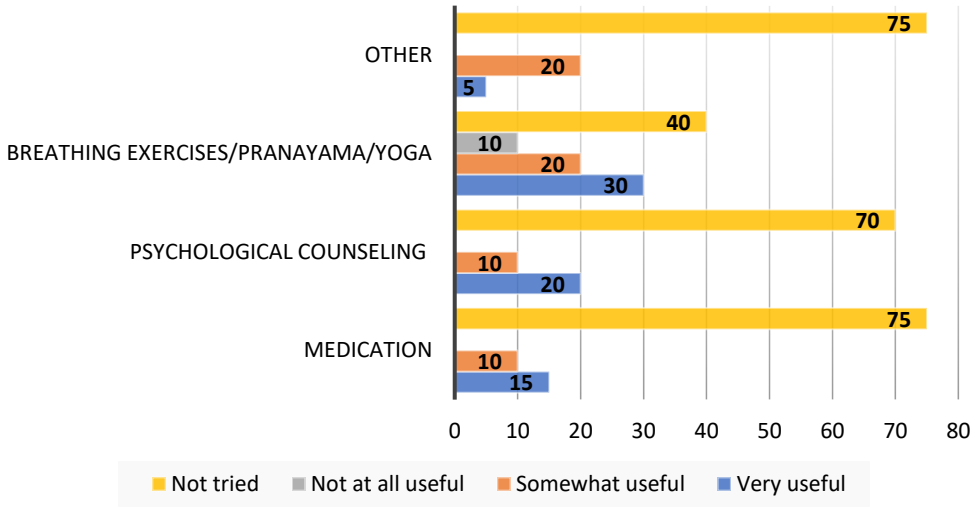
that addresses both fluency and stuttering. They also found that few participants were exposed to a treatment that involved counseling with little emphasis on speech. In a study by Douglass et al. (2019), out of six participants, two participants were taught fluency shaping approaches (soft contacts, airflow, continuous phonation), three were taught stuttering modification, and one participant was given a hybrid approach. In a study done by Hayhow et al. (2002), most of the participants practiced rate control approaches such as prolongation and slowed speech. However, stuttering modification approaches also been shown to have their own benefits. Yaruss et al. (2002) reported that the PWS benefited from stuttering modification techniques. Everard et al. (2018) found that increased self-awareness and communicative confidence, reduced use of avoidance strategies, affective, behavioral, and cognitive changes, and lower impact of stuttering on quality of life with stuttering modification therapy.

Q24: Alternate treatments for stuttering

While probing into other possible treatments clients might have undergone, they reported that they didn't try medication, psychological counseling, and any other treatments for stuttering. Among the participants, 30% reported that breathing exercises/pranayama/yoga was very useful, 20% reported it as being somewhat useful to them, and 10% reported that it was not useful to them (Figure 4.20).

Figure 4.20

Alternate treatments for stuttering



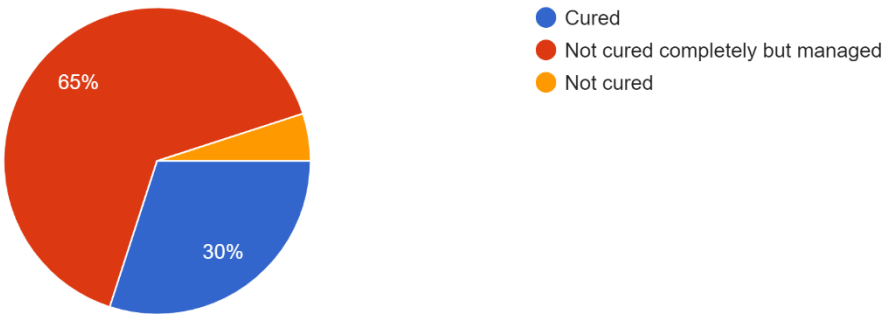
A study done by Yaruss et al. (2002) found that participants tried alternative treatments such as psychiatry or counseling and altered feedback devices (delayed auditory feedback, frequency altered feedback, and masking devices), hypnosis, medication, pacing devices (e.g., metronomes), and motivational courses, and vitamins/herbal remedies. Among these, most of the participants reported alternative treatments were psychiatry or counseling and altered feedback devices (delayed auditory feedback, frequency altered feedback, and masking devices); 50% reported that these two treatments were mildly successful. Most of the participants reported that medication was not at all effective for stuttering. Participants reported that, overall these approaches were unsuccessful.

Q25: Complete cure for stuttering

Among the participants, 65% reported that stuttering was not cured completely but managed, 30% reported that it was cured, and 5% reported that stuttering was not cured (Figure 4.21).

Figure 4.21

Complete cure for stuttering



These results are in contrast with the study by Al-Khaledi et al. (2009), where 86% of parents reported that stuttering can be cured, 4% reported that it's not cured, and 10% were unsure about it. This shows that there is more chance of complete cure in children than in adults.

4.3 Correlation of non-behavioral and behavioral measures of stuttering, post-therapy

Based on the responses obtained from the questionnaire, an impact score, to determine therapy effectiveness was calculated. A score of 1 was given to questions 2, 3, 4, 5, 16, 17, 18a, 18b, and 18c if the answer was yes. A score of 1 was give to the questions 6, 7, 8, 9, 10, 11, 12, 13, 14, 15a, 15b, 15c, 15d, 15e, 15f, 15g, 15h, 15i, and 15j if the answer was no. These denoted the positive responses to the questions asked. Spearman rank order correlation was performed to probe into the correlation between the impact score and SSI-4 score post-therapy. The impact score reflected the non-behavioral measure of stuttering, while SSI-4 score revealed behavioral measure of stuttering. In the present study, the correlation between the impact score and the SSI-4 scores of the clients was obtained and is as shown in Table 4.1.

Table 4.1

Correlation of non-behavioral and behavioral measures

			Impact Score	SSI 4 Score
Spearman's rho	Impact Score	Correlation Coefficient	1.000	-.615**
		Sig. (2-tailed)	.	.004
		N	20	20
	SSI 4 Score	Correlation Coefficient	-.615**	1.000
		Sig. (2-tailed)	.004	.
		N	20	20

**. Correlation is significant at the 0.01 level (2-tailed).

A negative correlation was observed (rho= -0.615, $p<0.01$) between the impact score and the SSI-4 scores. The correlation was statistically significant ($p<0.01$), revealing that as the SSI scores increased, the impact scores reduced. Thus showing that the client's perspective of therapy effectiveness inversely varied with his/her stuttering severity.

4.4 Factors determining therapy effectiveness, from the clinician's perspectivess

A total of 20 SLPs with an experience of a minimum of 3 years in stuttering therapy participated in the study. They were aware of stuttering therapy techniques such as pause and talk, response cost, prolongation, modified airflow, slow rate of speech, soft articulatory contact, MIDVAS, Shadowing, pull-outs, easy onset, and gradual increase in length and complexity of utterance (GILCU). Out of 20 SLPs, 80% used fluency and stuttering modification techniques such as prolongation, modified airflow, slow rate of speech, pull out, MIDVAS, shadowing, GILCU, soft contact, pause and talk, cancellation, and response cost, during their stuttering treatment session. Majority of the SLPs in the study used prolongation and airflow techniques, and 55% of them rated the stuttering therapy program to be very successful.

While probing into factors that determine the success of the therapy program,

60% of the SLPs reported increased confidence, 25% reported reduced effort in speaking while 10% reported increased continuity as factors contributing to success of stuttering treatment. Only 5% reported that all three make the stuttering therapy successful. In a study done by Connery et al. (2021), one of the SLP stated that improvement in fluency, psychological well-being, and participation in daily life were the factors that determine the success of the therapy program. Ortega (2013) found that the effectiveness of a treatment program can be attributed to a variety of factors, including how it is being carried out by the clinician, clients' attitude toward therapy, the clinician, and themselves, as well as the techniques and treatments used. Wampold (2001) found that the client-clinician bond, clinical competence, and clinician allegiance are the common variables for success of the treatment. According to Manning (2006), the most important element for the success of the therapy program includes the speaker's preparedness for change and the therapist's expertise and experience.

The majority of the SLPs (95%) measured the outcomes of the stuttering treatment using SSI-4, OASES and calculating percentage dysfluency. Most of the participants (70%) did not use any attitude scales to measure stuttering therapy outcomes, and 30% reported that they used attitude scales such as UTBAS and CAT to measure stuttering therapy outcomes. It is important to consider both behavioral and non-behavioral measures while considering therapy effectiveness.

Most of the SLPs (70%) reported that speech therapy for fluency disorder was very effective. Also, 70% of the SLPs reported that helping speakers communicate easily regardless of whether or not they continue to stutter was the most important goal of stuttering therapy. In a study done by Sønsterud et al. (2020), they found that improving speech fluency, improving emotional functioning, improving activity and

participation, and improving understanding of stuttering were the goals in stuttering reported by the clients. Goals of treatment have been a topic of intense controversy for many years. In a study done by Yaruss and Quesal (2004), where some clinicians reported that the goal of stuttering therapy is to teach the speaker how to speak fluently and stop stuttering, while other clinicians contend that the goal is to improve the speaker's ability to communicate, whether or not they still stutter. Others have argued for combining the two objectives.

While probing into reason for persistence of stuttering even after therapy, 65% reported that the possible reason could be that the clients were not using the techniques correctly, 20% reported that clients want to correct their speech but are not able to do so for some reason, and 5% reported that the clients are not satisfied with the therapy approach. This result is in consensus with the study done by Arya and Geetha (2013), where the participants who relapsed reported that they were not practicing the therapy techniques correctly following treatment. Sheehan and Martyn (1966) found that client's dissatisfaction with the new speech mode, unsuccessful establishment and transfer of new speaking modes, failure to suppress social avoidance behavior, and variability in the speech production mechanisms were the factors contributing to relapse.

All the clinicians reported that they were aware of the perceptions and reactions of parents and SLPs towards stuttering. Half of them were aware of perceptions of teachers, spouses, and co-workers towards stuttering. Knowing the reactions of significant others in the client's environment is an important aspect of counseling. This would aid in ensuring a positive speaking environment to the client, by working on improving the listener strategies when he/she is talking to a person who stutters.

Among the participants, 45% were aware of the long-term effects of stuttering

therapy in terms of the relapse or persistence of stuttering. It is important that the clinicians do not restrict the treatment success to within therapy settings, but also be able to determine the long-term prognosis and maintenance of client's modified speech. The focus should also be given to self-management outside the therapy settings, to ensure better sustenance of easy stutter-free speech.

With respect to the question whether they preferred intensive or gradual treatment for stuttering, 95% of the SLPs preferred gradual treatment for stuttering. However, several studies have shown that intensive treatment programs are effective in PWS. A study done by Louis and Westbrook (1987) found that intensive programs were particularly helpful at treating PWS and assisting them in developing fluency at an early stage. Irani et al. (2012) reported that an intensive program was most beneficial for the PWS when they received 75 hours of therapy that concentrated on a combination of fluency shaping and stuttering modification techniques.

While comparing modes of therapy (offline and online), 60% of SLPs preferred offline mode of therapy, and 35% preferred both offline and online mode of therapy. While considering the type of therapy, 65% preferred both individual and group therapy for stuttering. Euler et al. (2014) found that group therapy was more effective than individual therapy. Rosenthal (2004) stated that the advantages of group therapy include, reduced client's feeling of loneliness, other group members functioning as a co-therapist, group offering illustrations of fearless risk-taking that results in favorable transformation. Also and in a group, transference and countertransference becomes more apparent and manageable.

Counseling is an important part of building client's confidence. When the SLPs were asked the question whether they were confident in counseling PWS, 75% of them reported that they were confident in counseling persons who stutter, and the remaining

25% were somewhat confident in counseling.

There has been a notion that stuttering is a faulty speaking habit that the client has developed. When the SLPs were asked the question whether stuttering is something that happens to a person or something that the person is doing, 65% of them believed that stuttering is something that happens to a person and the remaining 35% believed that stuttering is something that the person is doing. Understanding this will help in being more empathetic with the person during therapy, rather than reprimand him for his faulty speaking habit.

Regarding the question whether stuttering is managed or cured, most of the SLPs (95%) reported that stuttering was managed, and only 5% reported that stuttering can be cured.

The above was an account of the factors determining therapy effectiveness from clinician's perspective. Now, looking at the same from client's perspective the following factors were obtained.

4.5 Factors determining therapy effectiveness, from the client's perspectives

When clients were asked about the effectiveness of the therapy program, majority of the clients (60%) responded that therapy they took was somewhat effective. Only 30% were confident about the therapy effectiveness. However, as noted earlier 55% of the SLPs feel therapy to be completely effective. Thus there is a gap between the perceptions of therapy effectiveness between the clients and the clinicians. Better therapy outcome can be expected when this gap is reduced.

Among the PWS, 65% reported that stuttering could not be cured completely but managed. As seen earlier, 95% of clinicians were aware of this. However, 30% of clients still believe stuttering is completely cured which may not be realistically possible. This highlights the importance of counseling PWS about realistic outcomes

of stuttering therapy. Therapy can be more effective if PWS are taught to manage their problem rather than completely cure it, as there is no complete cure for stuttering. Stuttering can be only managed effectively.

While considering the preference of clients regarding the mode of therapy, 40% of them preferred offline therapy, and 35% preferred both offline and online modes of therapy for stuttering. This result is in consensus with the clinician, where 60% of them preferred offline, and 35% preferred both offline and online modes of therapy for stuttering. In fact, online therapy might be more beneficial to clients because of better accessibility.

With respect to the preference of the type of therapy, 60% of the clients preferred individual therapy, and 35% preferred both individual and group therapy for stuttering. While considering the SLP's preference, 65% of SLPs preferred both individual and group therapy for stuttering.

The majority of the clients (80%) reported a better understanding of stuttering with therapy which highlights the importance of speech therapy for stuttering. Most of the clients (85%) felt different or somewhat different even after attending therapy, 75% reported difficulty using therapy techniques, 75% felt stuttering is still a barrier to their achievements. Most of the clients (65%) felt uncomfortable using the technique outside, and 60% still faced tension while using the therapy techniques. Greater than 70% still faced difficulty in different situations. Hence, it is important to probe into some factors that may be the reason for these. Some of those factors with respect to the clients may be the understanding of treatments, confidence and motivation level of the clients, and trust in the SLP. The shift in focus of therapy from fluent or stutter-free speech to stuttering or speaking easily might prove more beneficial. If effort in speaking is targeted, clients could have a better hold on their speech. Factors with respect to the

clinicians could be the technique and treatment being used, passion for working with PWS, motivation that the SLP provides to the client, counseling the PWS, and listener strategies used by the SLP.

CHAPTER 5

Summary and Conclusion

The current study aimed to investigate the impact of stuttering treatment on quality of life in persons with stuttering, post-therapy. The objectives were to probe into the non-behavioral measures of stuttering post-therapy from the client's perspective, correlate the non-behavioral with the behavioral measures of stuttering post-therapy, and probe into the factors determining therapy effectiveness from the clinician versus the client's perspective.

A total of 20 adults above the age of 18 years and diagnosed as persons with stuttering during evaluation (SSI-4) and 20 Speech-Language Pathologists (SLP) with an experience of a minimum of 3 years in stuttering therapy participated in the study. The procedure involved five phases including the development of questionnaires, validation of the questionnaires, administration of the questionnaires, administration of SSI-4, and statistical analysis of the data.

In the present study, most of the PWS reported positive effect of stuttering therapy in terms of fluency improvement, a better understanding of their problems, managing speech in day-to-day life, and improved confidence while speaking in various situations. Hence stuttering therapy aids in a person understanding his speech better, which will in turn help in better management. Therapy also has a positive impact on fluency in all languages that an individual speaks.

However, the clients with stuttering who participated in the study also stated that even after taking therapy, stuttering was a barrier to their achievements, their speech seemed still out of control, and their listeners felt their speaking style to be awkward. Most of the participants felt somewhat uncomfortable while using the therapy techniques. A possible reason could be that stuttering management is largely targetted

towards only improving fluency and reducing core behaviors of stuttering without focusing much on making the modified speech effortless and natural sounding.

Also most of the PWS somewhat experienced physical tension while using the therapy techniques. This suggests that rather than focussing on good fluency skills, therapy should be targeted to reduce speech effort (both with and without stuttering). When speech is modified in a way that it exerts least amount of physical and mental effort, better long-term success can be expected from therapy.

More than half of the PWS felt somewhat difficulty in talking with their supervisor/boss/teacher, talking with their spouse, talking to members of their extended family, and taking part in family discussions even after taking therapy. Thus to determine therapy success, it is important to consider effective management outside therapy settings. Within therapy success might be an easy goal to achieve. However, it is imperative to work on factors that may be hindering PWS to use their modified speech in their various day-to-day circumstances. The modified speech would still be sounding different from normally fluent speech, and would result in less social acceptability.

Majority of the participants reported that stuttering was not cured completely but managed. This shows that clients had a realistic understanding of therapy, which is a positive prognostic indicator for stuttering management.

In the present study, the correlation between the impact score and the SSI-4 scores of the clients was obtained. The result revealed that as the SSI-4 scores increased the impact scores reduced. Thus the client's perspective of therapy effectiveness inversely varied with his/her stuttering severity.

Majority of the SLPs in this study used a combination of both fluency shaping and stuttering modification techniques. Among these techniques, most of the SLPs used

prolongation and airflow techniques.

While probing into factors that determine the success of the therapy program, most of the SLPs reported that increased confidence contributes to success of stuttering treatment. They all rated the stuttering therapy program to be very successful. However, majority of the clients reported that the therapy they took was only somewhat effective. Thus there is a gap between the perceptions of therapy effectiveness between the clients and the clinicians. Bridging this gap will assure better therapy success.

The majority of the SLPs measured the outcomes of the stuttering treatment using SSI-4, OASES and calculating percentage dysfluency, but they did not use any attitude scales to measure stuttering therapy outcomes. It is important to consider both behavioral and non-behavioral measures while considering therapy effectiveness.

All the clinicians were aware of the perceptions and reactions of parents and SLPs towards stuttering. Knowing the reactions of significant others in the client's environment (listener reactions) is an important aspect of counseling.

Majority of the SLPs preferred offline mode of therapy, and a combination of both individual and group therapy for stuttering. While most of the clients preferred offline mode and individual type of therapy for stuttering. In fact, online therapy might be more beneficial to clients because of better accessibility. Thus online modalities of therapy have to be explored more. A combination of both online and offline therapy would be more accessible, practical, and feasible for the client and can help in rendering more intensive treatment for stuttering.

There has been a notion that stuttering is a faulty speaking habit that the client has developed. In the present study, most of the clinicians believed that stuttering is something that happens to a person. Few of them believed that stuttering is something that the person is doing. Understanding this will help in being more empathetic with

the person during therapy, rather than reprimand him for his faulty speaking habit.

Majority of the SLPs and the clients reported that stuttering could not be cured completely but managed. However, few of the clients still believe stuttering is completely cured which may not be realistically possible. This highlights the importance of counseling PWS about realistic outcomes of stuttering therapy.

It is important to probe into some factors determining therapy effectiveness from the clinician and the clients perspectives. Some of those factors may be the understanding of treatments, confidence and motivation level of the clients, trust in the SLP, technique and treatment being used, passion for working with PWS, motivation that the SLP provides to the client, counseling the PWS, and listener strategies used by the SLP.

5.1 Implications of the study

The study has helped in probing into

- Factors for treatment (for stuttering) effectiveness from client's point of view.
- Factors for treatment (for stuttering) effectiveness from clinician's point of view.
- Similarities and differences between client's and clinician's perspectives towards efficacy of stuttering treatment.
- Factors that enable insight beyond observable measures of stuttering (stuttering severity measures), post-therapy.

5.2 Limitations of the study

- The sample size considered in the study was small. A better estimate of therapy effectiveness can be obtained by employing larger sample of clients with stuttering and clinicians familiar with stuttering therapy.

- Data collection was carried out via online mode. Face-to-face interview may yield more information on speaker responses towards their stuttering.

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APPENDIX A

IMPACT OF STUTTERING TREATMENT ON QUALITY OF LIFE (IST-QL): POST THERAPY ASSESSMENT-Client's perspective

You are invited to the research study titled " DEVELOPMENT AND VALIDATION OF IMPACT OF STUTTERING TREATMENT ON QUALITY OF LIFE (IST-QL): POST THERAPY ASSESSMENT". The questionnaire has 25 questions and will take 10-15 minutes to fill out. It would be beneficial if you could complete the following questionnaire.
Safeguarding Privacy: Your participation in this study is voluntary. The information you will share with us will be kept entirely confidential.

* Required

1. I am participating in this study with my full consent *

   Mark only one oval.

   - ◯ Yes
   - ◯ No

Demographic details

2. Name *

_____

3. Age & Gender *

_____

4. Languages Known *

_____

5. Education level *

_____

6. Occupation *

_____

7. Age at onset of stuttering *

_____

8. Contact number *

_____

9. Mail ID *

_____

Therapeutic details

10. Number of therapy sessions attended at AIISH *

Mark only one oval.

- ◯ 25 days
- ◯ 25-30 days
- ◯ more than 30 days
- ◯ Other: _____

11. Number of days per week *

Mark only one oval.

- ◯ 2 days per week
- ◯ 3 days per week
- ◯ Other: _____

12. Mode of therapy *

Mark only one oval.

- ◯ Online
- ◯ Offline
- ◯ Both

13. Type of therapy *

Mark only one oval.

- ◯ Group therapy
- ◯ Individual therapy
- ◯ Both

14. 1) What made you take stuttering therapy? *

_____

15. 2) Has your speech changed with stuttering therapy? *

Mark only one oval.

- Yes
- Somewhat
- No

16. 3) Do you feel your fluency has improved after therapy? *

Mark only one oval.

- Yes
- Somewhat
- No

17. 4) Has stuttering therapy given you a better understanding of your problem? *

Mark only one oval.

- Yes
- Somewhat
- No

18. 5) Were the speech therapy techniques helpful for managing speech in your day-to-day life? *

Mark only one oval.

- Yes
- Somewhat
- No

Now that you have completed 25 sessions of speech therapy for stuttering,

19. 6) Do you still feel different even after attending stuttering therapy *

Mark only one oval.

- ◯ Yes
- ◯ Somewhat
- ◯ No

20. If yes/somewhat, how? *

_____

21. 7) Do you find it difficult to use the therapy techniques during instances of stuttering? *

Mark only one oval.

- ◯ Yes
- ◯ Somewhat
- ◯ No

22. If yes/somewhat how you are managing your moments of stuttering? *

Mark only one oval.

- ◯ Avoiding feared situation/person/words
- ◯ Substituting difficult words with easier ones
- ◯ Other: _____

23. 8) Do you think stuttering is still a barrier to your achievements even after taking stuttering therapy? *

Mark only one oval.

- ◯ Yes
- ◯ Somewhat
- ◯ No

24. If yes/somewhat, how? *

_____

25. 9) Do you feel uncomfortable while using the therapy technique outside? *

Mark only one oval.

- ◯ Yes
- ◯ Somewhat
- ◯ No

26. 10) Do you feel guilty when you are not able to use the therapy techniques? *

Mark only one oval.

- ◯ Yes
- ◯ Somewhat
- ◯ No

27. 11) Do you still feel your speech is out of control? *

Mark only one oval.

- Yes
- Somewhat
- No

28. 12) Do you experience physical tension (effort) while using the therapy techniques? *

Mark only one oval.

- Yes
- Somewhat
- No

29. 13) Do you often break eye contact or avoid looking at your listener while speaking? *

Mark only one oval.

- Yes
- Somewhat
- No

30. 14) Do you think your listeners feel your speaking style to be awkward even after taking stuttering therapy? *

Mark only one oval.

- Yes
- Somewhat
- No

15) Do you still feel difficulty in

31. a) talking with people you do not know well *

Mark only one oval.

- Yes
- Somewhat
- No

32. b) talking on the phone *

Mark only one oval.

- Yes
- Somewhat
- No

33. c) initiating conversations with other people? *

Mark only one oval.

- Yes
- Somewhat
- No

34. d) giving oral presentations or speaking in front of other people at work? *

Mark only one oval.

- Yes
- Somewhat
- No

35. e) talking with your supervisor/boss/teacher? *

Mark only one oval.

- Yes
- Somewhat
- No

36. f) participating in social events (making small talk at parties)? *

Mark only one oval.

- Yes
- Somewhat
- No

37. g) ordering food in a restaurant? *

Mark only one oval.

- Yes
- Somewhat
- No

38. h) talking to your spouse? *

Mark only one oval.

- Yes
- Somewhat
- No

39. i) talking to members of your extended family? *

Mark only one oval.

- ◯ Yes
- ◯ Somewhat
- ◯ No

40. j) taking part in family discussions? *

Mark only one oval.

- ◯ Yes
- ◯ Somewhat
- ◯ No

41. 16) Has fluency improved in all language you speak? *

Mark only one oval.

- ◯ Yes
- ◯ Somewhat
- ◯ No

42. If no/somewhat, why? *

_____

43. 17) Would you recommend speech therapy for stuttering to others? *

Mark only one oval.

- ◯ Yes
- ◯ Maybe
- ◯ No

44. 18) How confident are you after taking therapy? *

Mark only one oval per row.

	Confident	Somewhat confident	Not confident
In general	◯	◯	◯
At work/college	◯	◯	◯
At home	◯	◯	◯

45. 19) What aspects did you find beneficial after taking therapy? *

Mark only one oval.

- ◯ A better understanding of the problem
- ◯ Learned new speaking patterns that reduced or eliminated stuttering
- ◯ Other: _____

46. 20) What aspects were disappointing during therapy? *

Mark only one oval.

- ◯ Little attention was paid to my feelings.
- ◯ A new pattern of speaking felt awkward or unnatural
- ◯ Stuttered less in the therapy room but didn't have the same success in real life.
- ◯ Other: _____

47. 21) What type of stuttering therapy did you prefer? *

Mark only one oval.

- ◯ Individual therapy
- ◯ Group therapy
- ◯ Both

48. 22) What mode of therapy did you prefer? *

Mark only one oval.

- ◯ Online
- ◯ Offline
- ◯ Both

49. 23) What were the stuttering therapy techniques demonstrated to you? *

Mark only one oval.

- ◯ Prolongation
- ◯ Airflow
- ◯ Slow rate of speech
- ◯ Other: _____

50. 24) What kinds of other treatment have you tried for stuttering? *

Mark only one oval per row.

	Not tried	Very useful	Somewhat useful	Not at all useful
Medication	◯	◯	◯	◯
Psychological counseling	◯	◯	◯	◯
Breathing exercises/pranayama /yoga	◯	◯	◯	◯
Any other	◯	◯	◯	◯

51. 25) According to you, can stuttering be *

Mark only one oval.

- ◯ Cured
- ◯ Not cured completely but managed
- ◯ Not cured

APPENDIX B

IMPACT OF STUTTERING TREATMENT ON QUALITY OF LIFE (IST-QL): POST THERAPY ASSESSMENT-Clinician's perspective

You are invited to the research study titled " DEVELOPMENT AND VALIDATION OF IMPACT OF STUTTERING TREATMENT ON QUALITY OF LIFE (IST-QL): POST THERAPY ASSESSMENT". The questionnaire has 18 questions and will take 10-15 minutes to fill out. It would be beneficial if you could complete the following questionnaire.
Safeguarding Privacy: Your participation in this study is voluntary. The information you will share with us will be kept entirely confidential.

1. Name

_____

2. Email ID

_____

3. Age & Gender

_____

4. Contact number

_____

5. Class

Mark only one oval.

- ◯ I MSc
- ◯ II MSc

6. Years of experience in stuttering therapy

Mark only one oval.

- ◯ 3 years
- ◯ 4 years
- ◯ >4 years

1) How many stuttering therapy techniques are you aware of?

7. a) Number of techniques

_____

8. b) Specify the techniques

_____

9. 2) Which therapy program did you use?

Mark only one oval.

- ◯ Fluency shaping
- ◯ Stuttering modification
- ◯ Both

10. Specify the techniques

_____

11. 3) How do you rate the success of the therapy program?

Mark only one oval.

- ◯ Very successful
- ◯ Partially successful
- ◯ Not at all

12. 4) Are you measuring the fluency outcomes after therapy?

Mark only one oval.

- ◯ Yes
- ◯ No

13. If yes, how?

_____

_____

_____

_____

_____

14. 5) According to you what is the goal of the stuttering therapy?
a) To help the speaker learn to speak fluently and eliminate stuttering
b)To help speakers communicate easily, regardless of whether or not they continue to stutter (Arrange the answers in order of importance)

Mark only one oval.

- ◯ a>b (a is more important than b)
- ◯ b>a (b is more important than a)

15. 6) According to you what makes the stuttering therapy successful?
a) Increased speech continuity b)Increased confidence while speaking
c)Reduced effort while speaking

Mark only one oval.

- ◯ a
- ◯ b
- ◯ c
- ◯ Other: _____

16. Arrange the above answers in order of importance (E.g: a>b>c , b>a>c, a>c>b, b>c>a, c>a>b, c>b>a etc.)

_____

17. 7) Did you follow up with the clients post therapy?

Mark only one oval.

- ◯ Yes
- ◯ No

18. If yes, specify the duration

Mark only one oval.

- ◯ after 3 months
- ◯ after 6 months
- ◯ after 1 year
- ◯ Other: _____

19. 8) In general, do you believe that speech therapy for fluency disorder is:

Mark only one oval.

- ◯ Very effective
- ◯ Somewhat effective
- ◯ Not at all effective

20. 9) If a person continues to stutter even after therapy, is it because

Mark only one oval.

- ◯ a) The client is not using the techniques
- ◯ b) The client wants to correct his speech but is not able to do so for some reason
- ◯ c) The client is not satisfied with the therapy approach
- ◯ Other: _____

21. 10) Do you think stuttering can be

Mark only one oval.

- ◯ Cured
- ◯ Managed
- ◯ Not cured

22. 11) Do you use attitude scales to measure stuttering therapy outcomes?

Mark only one oval.

- ◯ Yes
- ◯ No

23. If yes mention

_____

24. 12) Are you aware of perceptions of others towards stuttering?

Mark only one oval per row.

	Yes	No
Parents	◯	◯
SLPs	◯	◯
Teachers	◯	◯
Spouses	◯	◯
Co-workers	◯	◯

25. 13) Which do you prefer

Mark only one oval.

◯ a) Intensive treatment for stuttering (more no. of hours per session). Eg: 40 hours for 15 days

◯ b) Gradual treatment for stuttering. Eg: Weakly 3 days [45min] for 3 months)

26. 14) Do you think a team approach is important in stuttering management?

Mark only one oval.

◯ Yes

◯ Somewhat

◯ No

27. 15) Are you confident in counseling persons who stutter?

Mark only one oval.

- Yes
- Somewhat
- No

16) Which mode and type of therapy do you prefer for stuttering?

28. a) Mode of therapy

Mark only one oval.

- Online
- Offline
- Both

29. b) Type of therapy

Mark only one oval.

- Individual
- Group therapy
- Both

30. 17) Are you aware of long-term effects of stuttering therapy?

Mark only one oval.

- Yes
- Somewhat
- No

31. 18) Which one of the following do you believe?

Mark only one oval.

- a) Stuttering is something that happens to a person
- b) Stuttering is something that the person is doing
- Other: _____