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Acceptance and Commitment Therapy Integrated with Stuttering Management: A Case Study

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The case study investigated the efficacy of Acceptance and Commitment Therapy (ACT) in integration with stuttering management. Mr A. A was 17 years old, presented with developmental stuttering. Assessment measures that were used included Stuttering Severity Instrument (Riley, & Bakker, 2009); Acceptance and Action Questionnaire (Bond et al., 2011), Drexel Defusion Scale (Forman, et al., 2012), Mindful Attention Awareness Scale (Brown,West, Loverich, & Biegel, 2011) and Overall Assessment of the Speaker's Experience of Stuttering (Yaruss & Quesel, 2010). Stuttering management focused to improve stuttering symptoms. ACT targeted psychological inflexibility to teach willingness to experience fear of speaking and act in accordance with value of communication. Total 12 weekly sessions and 3 follow up were conducted. Post therapy evaluation indicated reduction stuttering symptoms as well as psychosocial impact that maintained progress at follow up. ACT is found to be effective as a psychosocial intervention in integration with speech management. Client was able to develop the acceptance of stuttering, distancing from unhelpful thoughts, feelings and committed action of applying the controlled speech in his communication and set achievable life goals to live meaningful life. The current study has important implications in the management of stuttering in the indigenous context.

Keywords: Stuttering, acceptance and commitment therapy (act), mindfulness

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Fluency of the speech is one of the important aspects of communication that involve coordination of the speech as well psychological processing (Blomgren, 2009). The involuntary disruption in the speech fluency is marked by excessive physical, behavioral and emotional tension during communication. Yaruss and Quesel (2006) illustrated the experience of stuttering in five segments: i.e. 1) the etiology of the stuttering, 2) the overt manifestation of symptoms, 3) the constellations of maladaptive emotional, behavioral and cognitive responses during stuttering moment, 4) the listener's reactions and communication impairment in different situations and, 5) quality of life. It has been found that individuals with stuttering experience emotional distress in communication demanding situations and succumb to less desirable social behaviors (Kraaimaat et al., 2012), tend to have social anxiety (Manning & Beck, 2013) that has strong association with negative communication experiences and received social response (Ezrati-Vincour & Levin, 2004). In advanced stuttering, there are the complex pattern of behaviors (physical concomitants & social avoidance), emotions (anxiety, anger, embarrassment etc.), and cognitions (anticipation of stuttered speech, self-evaluation as inept speakers etc). According to Guitar (2014) complex patterns demand to target all the factors for the effectiveness of treatment. Latest trend suggests that combination of stuttering therapy with other evidence based treatments is effective in maintaining cognitive and emotional change (Caughter & Dunsmuir, 2017; Scheurich, Beidel & Vanryckeghem, 2019).

The psychotherapeutic component in speech management focuses on speakers' maladaptive thought patterns, feelings and behaviors associated with stuttering (Westbrook & Kirk, 2005). Substantial empirical evidences advocate the desirable outcome when cognitive approaches were combined the stuttering management (Brown, Millard & Zebrowski, 2014; Irani, Gabel, Daniels, & Hughes, 2012). Acceptance and Commitment Therapy (ACT) is mindfulness based contextual cognitive behavior approach that addresses psychological flexibility (Twohif, 2012). It refers to the ability of contacting the present moment and inner experiences and leading to behavioral change consistent with

valued based goals (Hays, Luoma, Bond, Masuda & Lillis, 2006). The ACT model fosters the willingness to accept and experience the unhelping feelings and defusing the self-defeating thoughts. Furthermore, ACT develops patterns of committed action based on values to spend rich and meaningful life while being mindful in present moment. Subsequently, psychological flexibility helps to adopt behavioral change and response to the distressing experiences. Researchers have shown that ACT is found promising in enhancing psychological flexibility toward stuttering by improving psychological functioning in terms of acceptance, defusion of negative thoughts, commitment to workable actions (Ansari, 2018). Moreover, researchers found effectiveness to improve psychosocial adjustment to stuttering and cognitive appraisal, emotional regulation and communication attitude toward stuttering (Beilby, Byrens & Yaruss, 2012; Kordell, 2015).

There was found a scarcity of an indigenous literature on combined speech and psychotherapeutic intervention to improve the impact of stuttering on speakers' communication, psychological reactions and quality of life. The success of a therapy is determined by the client's need that reflects the emotional maladjustment, and psychological complications associated with stuttered speech as well. Guitar (2014) emphasized that advanced stuttering is coupled with secondary symptoms of cognitive behavior and emotional reactions. Subsequently, stuttering appear in a vicious cycle and impair the psychosocial functioning. There is a need to develop tailor made therapy plan with inculcation of psychotherapeutic component and provide empirical evidence of the integrated therapy. The present study would provide evidence based efficacy of therapy integrated with Acceptance and commitment therapy specifically for the persons who stutter. ACT is aligned with stuttering modification as emphasis on acceptance by counter experiential avoidance. Stuttering alleviates in intensity, and speakers unacceptance of non-curable stuttering lead to adopt maladaptive speech and social avoidance. Stuttering modification goal is to develop acceptance of stuttering by replacing the avoidance behaviors with stuttering

modification strategies (Breitenfeldt & Lorenz, 1999). The core component of psychological flexibility was employed to counter experiential avoidance of speech situations and build mindful-awareness and acceptance to experience the stuttering moment. Furthermore, psychological distancing from fusion thoughts, feelings and engaging in committed actions of speech techniques was targeted to break the emotional, behavioral and cognitive reactions conditioned with stuttering. The study has provided clinical implication to provide guidance for the role of psychotherapy approach for the persons with advanced stuttering to achieve robust therapeutic effects by managing their stuttering as well psychological reactions to it.

Case Description

Mr A. A was 17 years old, male in his late teen. He was last born among six siblings and a student of first year. He reported stuttering with onset during early childhood and noticed at 5 years of age when he started schooling. His account revealed disfluent speech was frequently manifested in the form of repetition, unbroken words, glottal attack and noisy breathing. During effort to speak fluent, he experienced stretching in neck muscles, jaw opining, and hand movements to struggle with jammed articulators. He adopted avoidance strategies to escape and prevent from stuttering such as circumlocutions, brief answers, restricted social interaction, and avoidance of eye contact etc. During school in class 9^{th}, his speech problem started bothering when he could not avoid interaction. He had to answers in the class, and recalling a lesson orally was often made him disfluent excessively. The teacher's spanking and apathy in misunderstanding him made him, felt frustrated. The speech impediments became troublesome in college. In school, his friends supported him a lot and class fellows were familiar and in the last year teachers also got an idea about his speech problem. College was unfamiliar environment with new class fellows and teachers. His one friend joined the same college and served a speaker for him. He recalled response to attendance call was anxious moment as heightened the palpitation, and leg shaking. He started refrained from class participation to avoid the

laughter and mocking of class fellows. He felt helpless and nervous when observed others bewildered or restless on inability to listen him clearly. Often he experienced the negative responses of listeners such as interruption and imitation of his stuttered speech. The episodes of teasing made him viewed as worthless and overwhelmed with anticipated speech failure. He was trapped in preoccupied thoughts of failure as a speaker and fusion of sabotaging thoughts about self-worth such as "*I cannot be a good speaker*", "*I cannot achieve in life*" and "*I am nervous and so incapable to be considered for friendship*". He was brought to the government hospital to seek the treatment for his speech anxiety that considered by family a cause of stuttering. He was referred to the researcher on his consent to volunteer for the participation in the study.

Method

Research Design

The current case study aims to investigate the efficacy of Acceptance and Commitment Therapy (ACT) in integration with stuttering management for stuttering behavior.

Assessment

The assessment of client was done by employing following measures:

Stuttering Severity Instrument (SSI-4)

It was used to formally screen the stuttering severity of the participant and confirm the diagnosis of stuttering. The total scores summed up of sections (duration, frequency, physical concomitants, % stuttered syllable) give a stuttering level from very mild to very severe (Riley, & Bakker, 2009).

Acceptance and Action Questionnaire (AAQ II)

It assessed the core concept of ACT (psychological flexibility). It consists of 7 items measured on five point likert scale with high score depicted the greater psychological inflexibility and experiential avoidance. Instructions were modified to elicit responses in accordance with stuttering after seeking formal permission from author (Bond et al., 2011).

Drexel Defusion Scale (DFS)

It was used to measure the defusion skill i.e distancing from thoughts. Defusion is another important principle in hexaflex of psychological flexibility. The scale is comprised of 10 statements that inquired ability to defusion from thoughts or feelings with high scores means diffusion skills (Forman, et al., 2012).

Mindful Attention Awareness Scale (MAAS-A)

It was used to evaluate the attention skills and awareness of the actions while performing the tasks. In this study, adolescent version was used, which consists of 14 statements. High scores mean dispositional mindfulness. This scale was administered to assess the mindfulness awareness so as to teach mindfulness as a skill in an experiential exercise of the ACT (Brown, West, Loverich, & Biegel, 2011).

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

It assessed the impact of stuttering on four domains: general knowledge about stuttering, speaker's reactions (emotional, behavioral, & cognitive), communication in daily lives and quality of life and overall impact. This questionnaire gives total impact scores as well as on each individual domain with both total scores and severity range from mild to severe impact (Yaruss & Quesl, 2010).

Outcomes of Assessment

Speech related assessment by SSI-4 showed very severe level of stuttering. There was found moderate to severe overall impact and on each domain respectively suggesting the sabotaging effect of stuttering on his awareness about stuttering, maladaptive emotions, behaviors and thoughts, frequent communication difficult situations and impaired quality of life. Similarly, scores on ACT related measures reflected psychological inflexibility, ineffective diffusion and mindfulness skills.

Case Formulation

It was based on model of ACT theorized by Hayes, explaining both psychological flexibity and psychological inflexibility (Harris, 2009; Hayes, Luoma, Bond, Masuda, & Lillis, 2006). Participant manifested primary symptoms of stuttering and secondary symptoms of word substitution, speech and social avoidance, lack of eye contact and speech related anxiety. This explains the speech as well psychological complexity of maladaptive thoughts of participant, emotions and behaviors in maintaining the stuttering severity episodes. Subsequently, it affected his overall experiences toward stuttering and quality of life. Conceptualization of the case is based on the linking speech impediments with inflexible psychological functioning in response to stuttering. Psychological inflexibility is viewed along the hexaflex explaining the six processes operating in maladaptive ways i.e loss of contact, experiential avoidance (non-acceptance of negative emotions & overwhelmed state), cognitive fusion (unhelpful thoughts), lack of values and unclear goals, non-committed action (incompatible with values) and conceptualized self. Hexaflex was illustrated with present case specifically to stuttering, such as preoccupation with anticipatory speech anxiety and losing contact with speech situation, fusion with unhelpful thoughts, experiential avoidance of anxiety and embarrassment after speech failure, disengaging with values of meaningful life, adopting non-committed secondary speech behaviors reinforcing

stuttering symptoms and conceptual self with worthlessness (Cheasman, Simpson & Everard, 2013).

Intervention

In this case study, the interventions were designed with both speech techniques as well as psychotherapeutic component.

Stuttering Therapy

The focus of the speech intervention was primary and secondary symptoms of stuttering. Both fluency shaping and stuttering modification techniques were applied to improve frequency of stuttered words and develop controlled normal speech rate. Integrated approach of Blomgren (2009) was used with formal permission. Fluency shaping included three speech techniques of prolongation, soft contact and gentle onset with goal of controlled speech rate to reduce disfluent speech. Session was started to slow speech with prolongation of syllables for 2 seconds and gradually practicing from 1 second to half a second as a controlled speed. Slow speech was practiced on words, phrases and then connected speech in conversation. Participant was given topics to speak with learned techniques and maintain slow speech of half a second prolongation. Stuttering modification was taught to work on his secondary behaviors (word substitution, facial grimaces, speech and social avoidance etc). Stuttering modification comprised of three phases, identification, block modification and life style changes. Identification was taught parallel to fluency shaping with purpose to reduce speech related anxiety while teaching eye contact, advertising and tallying the frequency of stuttering. In block modification, cancellation, pull out and preparatory set were taught to equipped the participant to manage stuttering after, during and before the disfluent speech. In last two sessions, focus on teaching life style changes to improve self-concept.

Acceptance and Commitment Therapy (ACT)

In the present study treatment approach of Harris (2009) for Acceptance and Commitment Therapy was employed. The therapist (researcher) received two months certified online training of ACT to polish the therapeutic skills within therapeutic framework of ACT. The aim of ACT was to teach dealing with unhelpful thoughts and feelings related to stuttering effectively to lessen its impact and influence. ACT techniques such as experiential mindfulness, metaphors and exposure were used for acceptance, defusion and observing self. Mindfulness of breathing and hands were taught to stay anchor in anticipated speech situation and aware of the bodily, emotional symptoms and fusion thoughts. Metaphors were visualized to teach defusion (bus passenger, cloud, cars passing by etc.) so, as to view thoughts with emotional distancing as merely words, created by mind machine. Acceptance was also taught by mindfulness exercise of quick sand to help to learn about the adverse effect of experience avoidance of negative emotions. During session exposure to speech situations was done while practicing mindfulness of breathing, and defusion. Value clarification was also done and goal setting for committed action was taught and emphasis was on connecting communication as a value with stuttering modification and controlled speed as committed actions. In last session, self-image was improved by changing perspective from conceptualized self to observing self. The speech therapy and ACT components were assimilated in each session; the detailed session plan is given below in Table 1.

Procedure

First of all, the questionnaires that were used were translated in Urdu with the permission of the respective authors. For SSI, reading paragraphs were designed in Urdu to measured stuttered syllable. Researcher completed 2 months online training of acceptance and commitment therapy. Both speech therapy and ACT therapy manuals were translated with permission. Participant was selected based on severity of stuttering and impact score on

OASES. Therapy was of 12 week program comprising of individual sessions (12 individual and 3 follow up). Sessions time was of 90 minutes with 45 minutes assigned for each speech and psychotherapy. Homework assignments were given to maximize the application of learned techniques in speech situations and ACT techniques to build adaptive psychological processes to manage stuttering (acceptance, defusion, values, committed action & observing self). Outcome of technique was assessed in next session on general conversation. The session plan is given below in Table 1. Integrity of therapy was ensured by audio recording with the consent of the participant. All ethical considerations were followed regarding consent of the participant, debriefing the study, number of therapy sessions, confidentiality and right to leave therapy etc.

Table 1

Session Plan Showing the Integration of Act and Stuttering Management

Session No.	Session Goal & Techniques
1	*Pre Treatment Assessment (Formal & Informal Assessment)* Identification of the unhelpful thoughts, feelings and behaviors. Dissecting the Problem Worksheet was filled to help to understand the stuttering related unhelpful thoughts (self-worthlessness, self-evaluation as an inept speaker), feelings (nervousness, fear of speaking, embarrassment), unworkable actions (speech avoidance, limited social interaction, word substitution etc.) *Home work.* Fusion thought Chart was given to fill after explaining with examples of participants of fusion thoughts elicited in session such as *I cannot be a good speaker, I cannot achieve etc*.
2	*Speech Intervention* Psycho-education about primary and secondary symptoms of stuttering and speech production mechanisms. *Fluency shaping*. 2 seconds prolongation on words *Homework.* Practice on feared stuttered words with 2 seconds prolongation *ACT.* Psycho-education through case formulation based on ACT to psychological flexibility and inflexibility with the help of Hexaflex of psychological processes in both alternate with stuttering related behavioral disengagement, fusion thoughts, speech anxiety and avoidance as on working action and conceptualized self.
3	*Speech Intervention.* *Fluency Shaping.* 2 seconds prolongation and gentle onset practice on phrases.

	Homework. Practice of 2 seconds prolongation and gentle onset on list of phrases. *ACT*. Hierarch of speech situation with frequent stuttering was made *Contact with Present Moment*. Building skills of focusing and connecting with thoughts, emotions that triggered in speech situations and staying steady while experiencing the physical and emotional state *Technique.* Mindfulness of Breathing
4	*Speech Intervention* *Fluency Shaping.* 1 second prolongation and gentle onset and soft contact practice on phrases. *Stuttering Modification*. Eye Contact with mirror conversation while using 1 second prolongation, gentle onset and soft contact. *Homework.* Reading of eye contact handout with 1 sec prolongation, soft contact and gentle onset in front of family and filling stuttering log. *ACT* *Acceptance*. To foster the willingness to experience intense feelings (speech anxiety, fear of ridicule) and experience the setback of experiential avoidance of stuttering *Techniques.* Mindfulness of pushing away paper (Metaphors) to emphasize the experiential avoidance and rationale of acceptance in session. Exposure to speech situation (conversation to a stranger) and later Mindfulness of breathing to observe, focus, expand, allow and normalizing of stuttering related thoughts. *Homework.* To practice acceptance after speech situation given for exposure and filling *Fusion Thought Chart*.
5	*Speech Intervention* *Fluency Shaping.* ½ second prolongation and gentle onset and soft contact practice on phrases. *Stuttering Modification.* Advertising to help combat fear of stuttering by self disclosure. Exposure to speech situation (advertising own stuttering to the listener in session with ½ sec prolongation and soft contact) *Homework.* Continue practice of ½ second prolonged speech in daily conversation and filling stuttering log. *ACT* Practice of mindfulness of breathing to teach stay anchor after exposure with awareness of manifested symptoms instead of maladaptive or avoidance speech behaviors *Technique.* Rationale of Diffusion through experiential exercise thoughts as Hands. *Homework*. Speech situation of advertising to a teacher and practice of mindfulness of breathing.
6	*Speech Intervention* *Fluency Shaping*. Controlled speech continued with ½ seconds prolongation and gentle onset and soft contact practice on paragraph.

	Stuttering Modification. Tally to teach monitoring of stuttering blocks and counter speech fear. Exposure continued speech situation (talking on a given topic in presence of a co-therapist in session while practicing tally and advertising) *ACT* Diffusion techniques explained (Metaphors of passengers on bus) on identified one fusion thought "*I should not answer to teacher, class will laugh*". *Homework.* To speak with controlled speech in daily situation and defuse the defeating discouraging thoughts and filling the defusion chart.
7	*Speech Intervention* *Fluency Shaping*. Controlled speech continued with slow speed set on conversation *Stuttering Modification.* Practicing prolongation on attacking feared (stuttered) words in conversation with no word substitution and maintain eye contact and filling stuttering log *ACT* Diffusion Techniques continued (metaphors of Clouds, cars passing by leaves on the streams and demonstration by participant on another fusion thought "*I cannot be a good speaker*"
8	*Speech Intervention* *Fluency Shaping.* Controlled speech continued with slow speed set on conversation *Stuttering Modification.* Continuation of practicing prolongation on attacking feared (stuttered) words in conversation with no word substitution and maintain eye contact and filling stuttering log *ACT* *Value*. Introducing Communication as a value. *Technique*. Join the Dots worksheets in a session to teach how far the actions from values in each area of life (education, social, family relations, Health and wellbeing etc). *Homework.* To fill another join the dots sheets and identified values of his life.
9	*Speech Intervention* *Stuttering Modification (Phase 2: Cancellation)*. To teach stuttering block correction after its occurrence with prolongation and soft contact. Purpose was to enhance the speech control by block modification *ACT* *Committed Action.* Setting the goal in accordance with Values of communication related to speech situation (class participation) *Technique.* SMART Goals worksheet: S (specifying goal of answering a teacher; M (meaning ful as class participation will help to practice controlled speech) A (Adaptive as helping to maximize social interaction and deal with speech anxiety) R (realistic on contrary to speech avoidance) Time bound (once in a lecture). *Homework.* Setting goal and action plan of speaking on talking to a group of fellows.

10	*Speech Intervention* *Stuttering Modification* (Phase 2: Pull out) To teach correction during block with prolongation and soft contact. Purpose was to enhance the speech control by block modification at its initiation. *Exposure in a session* (Conversation with an opposite gender in a session while using both cancellation and pull out) *ACT* *Self-compassion as a Value and Committed Action*. To build self-worth *Technique*. Worthlessness/ Compassion was explained along with principles of Fusion/ Diffusion, Compassion as a Value, Goal setting for compassionate acts toward self (positive self-talk, self-care acts and normalizing having a stuttering). *Homework.* Practice of speech techniques in daily speaking situation and engaging in self compassion.
11	*Speech Intervention* *Stuttering Modification* (Phase 2: Preparatory set) To teach correction before block with prolongation and soft contact. Purpose was to enhance the speech control with breathing, relaxed articulators and speech utterance with prolongation and soft contact initiation. Introducing life style changes to broaden the self-change in other areas (socialization, self-grooming, organization) *Homework.* Practice of all three block modification during daily conversation. *ACT* *Observing self*. To get aware of the difference of conceptualized self and observer self and develop nonjudgmental self-concept. Practice in session on one self-downing thought "*I am not a good speaker*"
12	*Therapy Blue Print*. Revision of taught techniques of speech intervention and ACT.

The table 1 explains the detailed integration of management of stuttering with Action and Commitment Therapy (ACT).

Results

Scores on each measure was calculated on pre-treatment, post-treatment and follow up to see the therapy progress of the client.

Table 2

Pre and Post treatment and Follow up scores on Stuttering Frequency and Severity

Measures	Pre-treatment	Post-treatment	Follow Up
Stuttered Syllable (% SS)	39.21	15.5	10.6
Stuttering Severity Index (SSI-4)	45	31	30
Severity	Very Severe	Severe	Moderate

Posttreatment scores show reduction in stuttering symptoms. % SS scores on posttreatment show reduction in stuttering frequency and similarly severity of stuttering was reduced from very severe to severe.

Table 3

Pre and Post treatment and Follow up Scores on Acceptance and Commitment therapy measures

Measures	Pre-treatment	Post-treatment	Follow Up
Acceptance & Action Questionnaire	40	31	15
Drexel Diffusion Scale	45	32	35
Mindful Attention Awareness Scale	47	54	78

In comparison, post treatment scores suggested that participant's acceptance of negative emotions, and low scores indicate psychological flexibility to stuttering. Low scores on DDS, showed emotional distancing (diffusion) from unhelpful thoughts was increased. On MAAS, posttreatment scores are increased, indicate enhancement of mindfulness skills. Scores of follow up on all the measures also depicted the progress in improvement.

Table 4

Pre and Post Treatment and Follow up Scores on Overall Assessment of the Speaker's Experience of Stuttering

Section	Pre-treatment	Impact	Post-treatment	Impact	Follow Up	Impact
GI	3.07	Moderate-Severe	2.73	Moderate	2.20	Moderate
SR	3.64	Moderate-Severe	2.68	Moderate	2.24	Moderate
CD	3.1	Moderate-Severe	2.00	Mild-Moderate	1.35	Mild to Moderate
QOL	2.4	Moderate	2.15	Mild-Moderate	2.00	Mild-Moderate
OI	3.08	Moderate-Severe	2.38	Moderate	1.95	Mild to Moderate

Note. GI= General Information, SR= Speakers Reactions, CD= Communication in daily situations, QOL= Quality of Life, OI=Overall Impact

The findings showed a significant improvement on each section of overall assessment of the speaker's experience of stuttering in comparison to pretreatment level. It implies that after therapy, participant reported have moderate influence on feelings and reactions toward stuttering (Section, I & II), experience less communication difficulty (Section III) and less negative influence on quality of life. Overall impact score with moderate rating at post level, reduced negative influence and reactions of stuttering. Similarly, consistency in improvement was also noticed at follow up.

Discussion

The findings showed a significant improvement in stuttering severity and psychological impact and highlighted the evidenced based efficacy of integrated therapy approach. Stuttering debilitate the social and emotional functioning. Individuals with stuttering face a speech anxiety which interfere with social relationship, education and professional performance and thus multidimensional therapy needs attention of clinician. In present case, participant reported high speech anxiety, worthlessness, social avoidance and fear of ridicule with very severe stuttering. Speech management targeted primary stuttering symptoms as well

as secondary symptoms (substitution of words, body movements, and speech avoidance).

The client discussed in current study had very severe stuttering issue. The targeted therapy was based on the reduction in severity level, and improvement in psychological functioning to combat the impact of stuttering. Participant's stuttered syllable decreased in frequency, and severity of stuttering reduced from very severe to moderate. In this case integrating both fluency shaping and stuttering modification gave desire able outcome as dealing with primary and secondary symptoms. Previous studies also support this study outcome and emphasized the combined speech intervention for long term therapy effect (Blomgren, Roy, Collister & Merril, 2005; Sanju, Choudhry & Kimar, 2018).

The study also provided an evidence of effectiveness ACT as psychotherapeutic intervention for the stuttering related psychological impact. Therapy sessions assimilated ACT techniques with speech associated problem (fear of speaking, fear of ridicule, fusion of negative thoughts, emotions, unworkable actions (word substitution, losing eye contact, speech and social avoidance) to counteract maladaptive pattern toward fluent speech failures and adopting psychological flexibility in speech situations. The vicious cycle of experiential avoidance in form of all sorts of avoidance behaviors were helped to break by teaching participant to accept the negative emotions and stay anchor. Metaphor pushing away paper and mindfulness of breathing was reported to be effective for the participant to deal with speech related anxiety and distress with normalizing instead of struggling in reducing and overwhelming them. Mindfulness of thoughts as hand was taught by him to learn the fusion with self-defeating and anticipatory thoughts and disengaging in speaking situation. Participant, found the use of metaphor passengers of bus, leaves on the stream to defuse the unhelpful thoughts in stuttering moment. Previous studies are aligned with the positive effect of ACT techniques of acceptance, mindfulness in managing impact of stuttering (Kordell, 2015; Sheehan, 2018). Repeated exposure to speech situation in a session and assigned homework also helped to engaging in communication as a guided value with committed action of learned

speech techniques to manage fear of speaking and fear of ridicule by others. He was able to speak to a stranger, group, authority figure (teacher etc.) and opposite gender with minimum stuttering episodes. One promising finding gave substantial support for exposure with ACT techniques in managing public speech anxiety and specifically for stuttering related speech anxiety (Azadeh, Kazemi-Zahrani & Besharat, 2016; Scheurich, Beidel, & Vanryckeghem, 2019).

Self as a context helped him to observe conceptualized (worthless) and enable to develop the acceptance of all shades of self and make it a source of self-improvement. Participant reported to have a worthwhile self and judgmental self-image of stuttering was learned as conceptualized self-incompatible with observing self. Post treatment scores on measures related to ACT showed effective learning and application in diffluent situations with less interfering anxiety. On overall assessment of the speaker's experience of stuttering, impact score at post treatment indicted by moderate category and mild to moderate at follow up, depicted less reactions and influence of stuttering. Empirical evidence had also showed that stuttering modification was effective in improvement of stuttering frequency, decrease in stuttering severity and perception of the impact of stuttering (Tsiamtsiouris & Krieger, 2010). Other previous studies also found robust therapeutic effect of psychotherapeutic intervention as an integrated approach (Brown, Millard & Zebrowski, 2014; Scheurich, Beidel & Vanryckeghem, 2019). Similarly, substantial support of previous study gave the evidence of the effectiveness of ACT with speech therapy in enhancing psychosocial functioning and psychological well-being (Beilby, Byrens &Yaruss, 2012; Irani, Gabel, Daniels, & Hughes, 2012). This infer that ACT has provided a change in developing psychological flexibility toward stuttering, learning to be mindful, acceptance of the distressed emotions, distancing from unhelpful thoughts, setting life goals guided by values and committed action. Limitation of this single case is the limited generalization of results and so future comparative research needs to be done on sample including both experimental and control

group to test the effective of ACT integrated with speech intervention.

Conclusion

The findings of this case study showed effectiveness of speech management in improvement of stuttering severity. Acceptance and Commitment Therapy (ACT) is also proved to give desired outcome to improve perception of impact of stuttering by fostering psychological flexibility, behavior change with willingness to experience fear of speaking, defusing the unhelpful thought, setting goals align with communication as value and committed action to imply learned speech techniques. Implications of the current study signify the application of integrated speech and psychosocial intervention in regular practice.

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