

CHANGES IN THE EXPERIENCE OF STUTTERING FOLLOWING INTENSIVE PROLONGED SPEECH AND NON-AVOIDANCE TREATMENTS

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Abstract. Purpose: The main purpose of this study is to apply a multidimensional comprehensive instrument to evaluate the overall impact of stuttering (OASES-A) from the perspective of adults who stutter (AWS) who completed one of two intensive stuttering therapies: The La Trobe prolonged speech program and Van Riper's non-avoidance approach. **Methods:** The OASES-A was applied to evaluate participants' perceptions of their experience of stuttering with the specific aim of compare the changes in the experience of stuttering following two intensive treatments. An essential element in post-treatment evaluation are changes in the speaker's self-reported quality of life. **Results:** OASES-A group results regarding the La Trobe and Van Riper intensive treatment outcomes show positive changes in stuttering experience for 27 AWS in four sections: 1) general information on stuttering; 2) reactions to stuttering; 3) communication in daily situations; and 4) quality of life. **Conclusions:** The article represents the first English-language documentation of the Bulgarian results of OASES-A application of previously conducted intensive treatments. OASES-A outcomes show significantly greater overall improvement and changes in the four sections that relate to the experience of stuttering following two intensive treatments. As a research-based instrument for assessment of quality of life in AWS, the OASES-A was easy to administer and analyze. The OASES-A describes in substantial detail the experience and influence that stuttering exerts on quality of life from the client's perspective. Its application was preferred because it assists speech-language pathology Master's degree students to recognize the speech needs, abilities, preferences, and interests of AWS.

Keywords: stuttering; adults; intensive treatment; speech language pathology

Introduction

Over the last decade, the multidimensional view of stuttering has been promoted by Bulgarian researchers as a framework for evidence-based assessment and

treatment of stuttering. For clinicians and students in the specialty of Speech-Language Pathology (SLP), understanding impaired fluency from the perspective of individuals who stutter represented a new paradigm in both theory and practice. Coincident with this paradigm shift has been the reimagining of SLP (Logopedics) in Bulgaria, which is increasingly viewed as a health profession and less as a pedagogic subspecialty within special education, as had been tradition. Consequently, the WHO's International Classification of Functioning, Disability and Health (ICF) "holds considerable promise for helping clinicians and researchers consider the wide range of changes that may occur during the course of treatment for disorders such as stuttering" (Yaruss & Quesal 2006, p. 93). Commonly applied definitions of stuttering are meaningful for adults who stutter (AWS); these usually include clarifying descriptions of observable behaviors, as well as the reported experience of stuttering (Ingham 2003; Yairi 2016). Recently, researchers such as Tichenor and Yaruss have been discussing the perspectives of AWS in terms of treatment outcome (Tichenor & Yaruss 2019, p. 4358).

Some meta-analysis articles measuring the effects of stuttering treatment defined the authors choice regarding to the intensive treatment selections (Howie et al., 1981; Herder et al. 2006; Onslow et al. 2008). Cordes and Ingham (1998) indicated that researchers have long tried to identify the most effective procedures for achieving positive results after the stuttering therapy. Prolonged speech is one of the most effective fluency shaping technique reducing the degree of stuttering severity through speech restructuring (i.e., rhythmic speech and legato speech) (Packman; Onslow & Menzies 2000). Research has proven the effectiveness of prolonged speech intensive programs for adults not only for reducing disfluencies, improving naturalness, and reducing the frequency of short intervals of phonation (Boberg & Kully 1994; Onslow et al. 1996; Block et al. 2005), but also for improving emotional reactions of the persons who stutter. Comprehensive treatment approaches target both improved speech fluency and its management. According to Blomgren (2010), no single approach to stuttering treatment can claim success with all people.

Many publications, both in Bulgaria and abroad, point out that the Bulgarian health system does not offer any kind of SLP treatment for AWS (Fibiger et al., 2008). This study is describing changes in the experience of stuttering following two intensive prolonged speech and non-avoidance treatments delivered by SLP Master's degree students. During their education they were trained to acquire and maintain the knowledge and skills that are necessary to provide high quality professional services, including knowledge and skills related to the application of the Overall Assessment of the Speaker's Experience of Stuttering (OASES-A) as an effective diagnostic tool.

OASES-A is a multidimensional instrument developed by Yaruss and Quesal (2008) in accord with the ICF model that has been accepted as a gold standard

in evidence-based stuttering assessment. It has been translated from English into several languages as diverse as Dutch (De Sonnevile et al. 2011), Korean (Chon & Yaruss 2015), German (Yaruss & Quesal 2016a), Japanese (Sakai et al. 2017), Persian (Yadegari et al. 2018), European Portuguese (Rocha; Rato & Yaruss 2021), and Swedish (Lindström et al. 2020).

This paper describes the first Bulgarian application of the adult version of the OASES-A (more specifically, the version specifically adapted for adult clients, the OASES-A) for documenting multiple outcomes before and after application of two intensive treatments for AWS.

Purpose of the study

The main purpose of the study is to apply OASES-A, a multidimensional comprehensive instrument to evaluate the overall impact of stuttering from the perspective of AWS who completed one of two intensive stuttering therapies: The La Trobe prolonged speech program (Block & Dacakis 2003) and Van Riper's non-avoidance approach (Van Riper 1973). The specific aims are to document changes in the experience of stuttering following intensive prolonged speech and non-avoidance treatments and to compare the results of the two intensive treatments changes in the experience of stuttering. An essential element in measuring the effectiveness of treatment is the evaluation of the speaker's quality of life (Bloodstein et al. 2021).

By implementing OASES-A in two treatment groups, this study will help to spread the use of this tool by SLP Master's students to enhance their clinical acumen in conducting evidence-based assessment of stuttering treatment outcomes.

Methods

The OASES-A instrument was applied to evaluate participants' perceptions of their experience of stuttering. The OASES-A examines the speaker's experience in four sections: (i) General information regarding speech (S1); (ii) Reactions to stuttering (S2); (iii) Communication in everyday situations (S3), and (iv) Quality of life (S4), (Yaruss & Quesal 2016).

The two intensive therapies used in this study were the La Trobe University prolonged speech intensive treatment (LT) and Van Riper's non-avoidance intensive treatment (VR).

The LT fluency shaping approach has been among the more popular approaches employed in Bulgaria and Eastern European countries, whereas the VR non-avoidance approach represents a lesser-known treatment for stuttering in Bulgaria.

Master's degree SLP students were trained to deliver stuttering therapy under supervision during their educational program. Clinical expertise plays an important role in the treatment process, but it should be noted that, in Bulgaria, speech-language clinicians may practice following completion of a baccalaureate in logopedics.

The LT incorporates a traditional behavioral approach to obtain fluent speech. As mentioned previously, this approach was selected because it is based on the best available evidence (Boberg & Kully 1994; Onslow et al. 1996; Packman et al. 2000; Block et al. 2005). The treatment program was a Bulgarian version of the La Trobe University intensive program of prolonged speech, as adapted for student delivery. The approach was designed with the support of Dr. Susan Block. The LT includes three treatment stages: 1) instatement stage of 3 days, 2) transfer stage of 2 days, and 3) maintenance stage of 7 sessions. The systematic increase of speech rate started from 60 syllables per minute (SPM) and finished at the “comfort” rate of 200 – 210 SPM (Block & Dacakis 2003). In addition, speech naturalness was measured according to a 9-degree scale, developed by the Australian Stuttering Research Center, where the higher scores indicated less natural speech. The LT was implemented during June 2015.

The Van Riper’s (1973) non-avoidance stuttering modification therapy approach was employed. The program included one preparatory day and was followed by: 1) introduction of therapy of 1 day, 2) desensitization of one day, 3) variation/modification of one day, 4) assimilation of one day, and stabilization of one day. One challenge with VR application is the lack of data regarding the effectiveness of non-avoidance approach in general (Blomgren 2005). However, it was selected because non-avoidance approach was totally unknown in the country clinical setting and there was increased interests to the new therapy approach. During the national stuttering conference in Bulgaria, the self-help group of adults with stuttering declare officially its strong desire VR to be presented as option of treatment. The self-help group contacted Dr. Fibiger who was one of the last persons to be trained in Kalamazoo, MI (U.S.A.) for the period of one year by Van Riper. Dr. Fibiger was invited as a consultant to the Stuttering Research Center at South-West University in Bulgaria and he has continued to advise the scientific community for a period of 10 years. VR was adapted for Bulgarian clinical conditions by Georgieva (Georgieva 2014; Georgieva 2015). The VR treatment was employed with the second group of participants for 5 days in May 2010. Changes in fluency were examined by measuring the duration of disfluencies (DDs) in seconds and the index of disfluencies (ID).

The results regarding changes in fluency before and immediately after the LT and VR application as well as 1, 2 and 3 years’ follow-up data have been published few years ago (Georgieva 2014; Georgieva 2015; Georgieva & Stoilova 2018). Prior studies did not report on changes in the impact of stuttering as evaluated by OASES-A. Both studies were conducted within the South-West University’s Stuttering Research Center, Bulgaria.

In this study, a Wilcoxon signed rank test, paired t-test and Chi-Square Test were applied to the OASES-A results.

Participants: A total of 27 AWS participated in the study. They were separated into two groups based on the type of therapy they received. Tables present the

profile of the participants before and after the intensive therapies regarding to the LT speech dysfluencies (Table 1), and VR stuttering severity degree (Table 2). LT – 12 AWS (10 men and 2 women), with an age range of 18 – 29 years (mean 22.5 years). Inclusion criteria were: (i) 18 years and above, (ii) were seeking treatment for stuttering, (iii) reported onset of developmental stuttering occurred before 10 years of age, and (iv) exhibited greater than 2% syllables stuttered at the initial pre-treatment assessment stage.

Table 1. Profile of the participants within La Trobe University therapy and parameters of speech dysfluencies (Georgieva & Stoilova, 2018).

Subjects LT	Sex	% SS before IT – monologue clinic	% SS before IT – dialogue clinic	% SS before IT – telephone talking home	% SS before IT – dialogue home	% SS after IT – monologue clinic	% SS after IT – dialogue clinic	% SS after IT – telephone talking home	% SS after IT – dialogue home
S1	Male	10.8	9.8	8.1	6.3	1.4	0	0	0
S2	Male	11.6	10.8	9.3	8.3	2.4	2.1	2.0	1.6
S3	Male	12.7	11.8	10.4	8.2	2.9	2.6	2.0	1.8
S4	Male	14.9	14.2	12.7	11.2	3.0	2.4	1.8	1.6
S5	Female	13.8	13.3	11.4	8.1	3.0	2.6	1.8	1.4
S6	Male	11.2	10.3	9.2	8.1	2.9	1.7	1.4	1.0
S7	Female	12.4	10.9	10.4	8.3	3.0	2.7	1.9	1.2
S8	Male	11.2	9.8	9.3	6.4	1.8	0	0	0
S9	Male	12.1	10.9	10.8	8.2	2.7	2.3	1.6	1.2
S10	Male	14.3	12.6	11.3	7.8	2.7	2.4	1.6	1.4
S11	Male	13.2	12.2	10.6	8.9	2.6	1.9	1.3	0
S12	Male	11.4	10.2	10.1	7.9	2.8	2.2	1.6	0

Caption: S – subject, % SS – syllables with stuttering, IT – intensive therapy

Table 2. Profile of the participants within Van Riper’s therapy before intensive treatment and immediately after the intensive treatment (Georgieva, 2014; Georgieva, 2015).

Subjects VR	Sex	Initial SSI score	Initial severity	Final SSI score	Final severity
S1	Female	27 (60%)	Moderate	16 (10%)	Very mild
S2	Male	25 (41%)	Moderate	14 (7%)	Very mild
S3	Male	37 (96%)	Very severe	25 (41%)	Moderate
S4	Male	46 (99%)	Very severe	14 (7%)	Very mild

S5	Male	46 (99%)	Very severe	18 (12%)	Mild
S6	Male	27 (60%)	Moderate	16 (10%)	Mild
S7	Male	25 (41%)	Moderate	29 (61%)	Very mild
S8	Male	27 (60%)	Very severe	18 (12%)	Moderate
S9	Male	34 (88%)	Severe	20 (23%)	Mild
S10	Male	35 (89%)	Severe	16 (10%)	Mild
S11	Male	28 (61%)	Moderate	16 (10%)	Very mild
S12	Male	31 (77%)	Moderate	27 (60%)	Very mild
S13	Male	46 (99%)	Very severe	27 (60%)	Moderate
S14	Male	35 (89%)	Severe	18 (12%)	Mild
S15	Male	34 (88%)	Severe	20 (23%)	Mild

Caption: S – subject, SSI – Stuttering Severity Instrument

The average AWS’s group naturalness result was 6 and immediately after the intensive treatment was 2. Subjects 1 to 6 were involved in the first week while subjects 7 to 12 participated in the second week. Each client had two clinician master degree students allocated throughout program.

All participants in the two studies presented free and informed consent declaration and participated voluntarily. The VR study was conducted within the National Science Fund’s project “Evidence-Based Practice in Fluency and Voice Disorders” (project contract DTK 02/33, PI Prof. D. Georgieva). The LT study was delivered within the SWU project “Research-Based Management and Evaluation in Stuttering” (project contract SRP 15/15, PI Prof. D. Georgieva). The South-West University Research Ethics Committee approved the LT study by official permit number 1502-1-1/18 February 2015.

Involvement of SLP students: Twelve SLP students delivered the LT: 9 Master’s students in the final year of their graduate course in the SLP program, 2 in the last year of their undergraduate training in SLP; and one PhD student. Prior to the delivery of the treatment, all students had completed (i) 60 hours of a BA-level course in fluency disorders; and (ii) 60 hours of an MA degree course for stuttering management. In addition, they were trained in LT application for 12 hours by Dr. S. Block, in June 2015. Five Master’s degree SLP students and 3 clinicians delivered the 5-day VR treatment. All students and clinicians were trained by Fibiger through 20 hours’ additional work beyond the SLP curriculum. Dr. Fibiger was also part of the one-week treatment delivered in September 2010.

Results

OASES-A group results regarding to the LT application

A Wilcoxon test showed a significant difference between pre-treatment and post-treatment measures regarding the OASES-A overall results and four constituent sections ($Z = -2.830, p = 0.005$).

OASES-A group results regarding to the VR application

All 15 participants in VR intensive therapy manifested statistical important improvement of their speech behavior after the treatment ($Z = -3.408, p = 0.001$). There was a positive change regarding to the speech dysfluency and its improvement for all 15 AWS regarding to the four OASES-A sections ($n = 15; p = 0.000$).

Discussion

Discussion: OASES-A group results regarding to the LT application

The LT treatment results before and after the intensive therapy are presented on Figure 1.

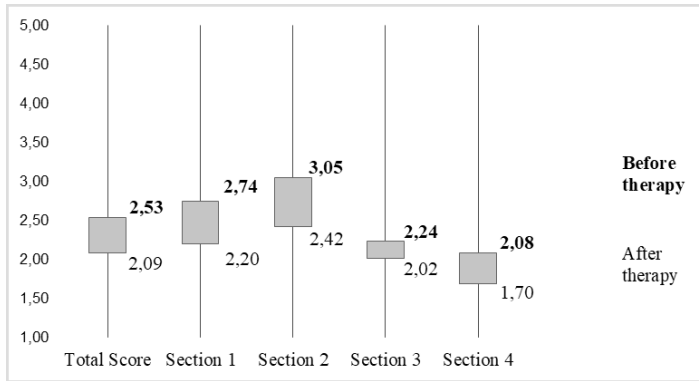


Figure 1. OASES-A (Overall Assessment of the Speaker's Experience of Stuttering – Adults) of group La Trobe therapy results before and after the intensive treatment regarding to the total results and four sections results.

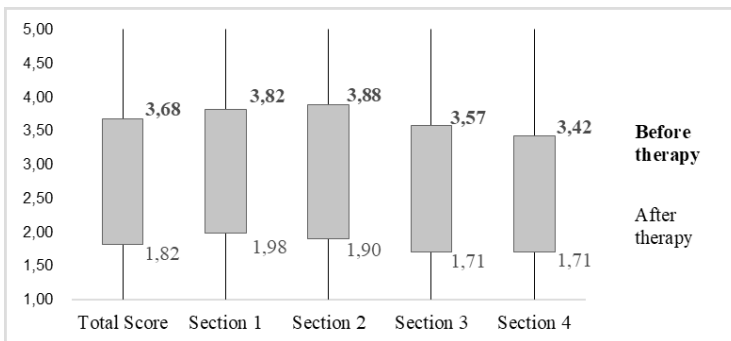


Figure 2. OASES-A (Overall Assessment of the Speaker's Experience of Stuttering – Adults) group Van Riper's therapy results before and after the intensive treatment regarding to the total results and four sections results

Group results: OASES-A' Section I (S I). General information

All 12 AWS who participated in the LT intensive treatment manifest statistically important improvement after the end of the program regarding the section, General information ($Z = - 3.065$, $p = 0.002$). The impact score for all 12 AWS before the LT intensive treatment was 2.74 which refers to moderate impact rating. Their fluency was constantly changing across different days, situations, and/or people. They were uncertain about the discussions related with possible therapies or self-help group participations.

After the LT treatment the impact score for the group of 12 AWS was 2.20 and was rated as a mild-to-moderate impact. They view their speech enough fluent and natural in many of the situations, but there are some that still influence negatively on speech naturalness and fluency. Some days the fluency was varying and AWS experienced some difficulties related with prolonged speech. They have capacity to speak what they want in almost of the communicative situations they were involved. They have general knowledge about stuttering build during the treatment. OASES-A results show that there was a positive change related with the speech fluency. Half of the participants confirmed that they can speak without dysfluencies after the LT intensive therapy. 25% confirmed that they can talk fluently “often”, and another 25% can talk “always” free of stuttering. Ten of the participants in the treatment reported positive changes in their emotions regarding to their speaking capacity. Half of them reported that they felt “somewhat” positive after the LT treatment regarding to their speaking capacity. All of the participants built knowledge about stuttering. 50% of them confirmed that they are familiar with their stuttering, 32% “in some” degree or “little”. Of the AWS, 66% postulated that they know “in some extent” what was happening with them during the stuttering moments. It was possible to conclude that after the LT treatment AWS build knowledge and awareness related with the possible therapeutic options of the different stuttering program. That change could be explained with numerous discussions with AWS during the intensive treatment.

Group results: OASES-A's Section II (S II). Reactions to stuttering

A Wilcoxon test indicated that 10 of the 12 AWS participating in the treatment showed improvement regarding to the Reactions to stuttering ($Z = - 2.833$, $p = 0.005$).

The impact score before the LT was 3.05 and is be referred to moderate-to-severe impact ration of stuttering. There are negative reactions to stuttering as shame, depression helplessness, and lack of confidence. Physical tension was often described during the stuttering moments. There was avoidance of some words and/or communicative situations. was difficult stuttering to be accepted because it limited different aspects of their life.

After the LT treatment, the impact score was reduced to 2.42 and AWS's reactions to stuttering suggesting moderate impact. They still experience emotional

reactions like shame, anxiety, embarrassment and helplessness. Sometimes they exhibit physical tension or struggle during the talking. Avoidance of number of words and /or speaking situations still occurs – they were using fillers or dysfluent words. The confidence related with their communicative capacity was negatively influenced by stuttering. AWS are still not sure if they can make some changes related with their speech and they felt that some aspects of their life were related to their stuttering.

After the IT, 58% of the participants didn't feel that they were in a protective, defensive position when thinking about their stuttering. Of them, 66% did not worry about stuttering moments following treatment. The reduced anxiety and expressivity were reported by 41% of AWS. According to them, even after short intensive therapy, they tended to change positively the way of communication and develop positive answers if stuttering appeared again.

Of the AWS, 41% confirmed that they would not use fillers in the speech and would avoid some speaking situations only very “rarely” or “sometimes”. The evaluation of the 83% of AWS's answers was positive and it could be confirmed that the LT treatment influenced positively their communicative capacity. New therapeutic techniques such as prolonged speech, soft contact, rate regulation, naturalness could have reduced the severity of stuttering.

Group results: OASES-A's Section II (S III). Communication in daily situations

A Wilcoxon test confirmed that there was no statistically important difference before and after the LT treatment regarding to the Communication in daily situations ($Z = -1.179, p = 0.238$). The impact score before the treatment was 2.24 and showed that the impact rating was mild-to-moderate. The impact score after the treatment was 2.02 with an impact rating of mild-to-moderate, such that the description of the section III results before and after the treatment are common. AWS demonstrated specific communication difficulties in different speaking situations at home, work, social milieu but generally were communicating effectively. Positive changes regarding to the section III were observed in 59% of the participants. 41% of AWS do not report positive changes after the LT treatment and they demonstrate some specific communicative difficulties in different situations at home, work, social institutions, but their general communication is fluent and effective. To speak on the phone or to initiate dialogue in a restaurant was still problematic. Communication was more effective in a small group of known people and was easier than to interfere with strangers or authorities. Generally, their communication was not negatively influenced by stuttering and they have capacity to say what they want when they want. 41% of the participants shared that have “some” difficulties to talk in front of the big group of people and present difficulties in working milieu “to some extent”. As positive effect of the LT intensive treatment application was evaluated general impact rating (mild-to-moderate). This means that AWS were feeling comfortable during the treatment and very quickly learned prolonged speech techniques

influencing positively on their communication practice.

Group results: OASES-A's Section IV (S IV). Quality of life.

The Wilcoxon analyses also showed significant improvements in OASES-A section 4: Quality of life in 10 of 12 AWS ($Z = -2.672, p = 0.008$). Before the LT application, the mean impact result for the group of AWS was 2.08, which equates to a mild-to-moderate impact rating. After the end of the LT, the mean impact score for all AWS was reduced to 1.70, though but the impact-rating was still mild-to-moderate. AWS continued to experience negative impact in key aspects of their life, including reduced satisfaction in communication in some situations. The reduced satisfaction in some communication situations, such as phone talking and conversation with unknown or authoritarian persons was reported. Such situations continue to provoke physical tension and some negative reactions as shame and confusions. Some questions in the OASES-A examine difficulties pursuing educational goals. Items in section 4 Quality of life reflected positive change despite the fact that before and after the IT the high value of impact rating like “a lot” and “completely” do not vary. 83% of AWS reported that Quality of life was influenced positively after the IT: they felt satisfied by their communication was different social situations too. For 17% positive changes regarding to the quality of life were not reported. After the IT, 50% of participants showed positive change regarding to the traditional communication with friends, but also with persons outside their family and circle of friends. They also reported that stuttering was disturbing “a little” their ability to manage with educational and life activities. For 75% of them the self-confidence was not negatively influenced. In conclusion, participants reported a meaningful difference following LT as reflected in the statistical results. That is, there was a statistically important improvement in four OASES-A sections. The mean impact-result regarding the all group of 12 AWS increased positively within four OASES-A sections.

Discussion: OASES-A results regarding to the VR application

Group results: OASES-A' Section I (S I). General information

The results give the option to comment that in the beginning of the IT, AWS had very high impact score: 3.81 with severe impact rating. It means that they felt incapable to speak fluently in all speaking situations. They were unable to maintain the fluency over time and cannot use the techniques learned in therapies they used during the years. The physical tension was typical for them during the fluent and dysfluent production of the speech. The negative-affective and cognitive reactions to the stuttering were presented strongly and were influenced by the attitude of the people from their milieu. AWS avoided many of the speech situations and persons who disturbed their communication. Master degree students observed significant restrictions in their capacity to communicate calm and effectively in different speaking and social communications. Their stuttering has a very strong influence

in their everyday decision making process. Unfortunately, as a final result it affects extremely negatively their quality of life. Briefly, AWS functioned very difficult in everyday life. After the VR intensive treatment, the section's I General information impact score was changed significantly and reduced to 1.98 with mild-to-moderate impact rating. Wilcoxon test application show that all 15 AWS participating in VR intensive treatment program demonstrate statistically important improvement regarding the Section I General information ($Z = -3.409, p = 0.001$). AWS view their speech as fluent and natural sounding in many situations (in some situations were observed affected fluency and/or naturalness of speech). They were capable to say what they want in nearly all speaking situations. There was general knowledge about stuttering.

Group results: OASES-A's Section II (S II). Reactions to stuttering

The impact rating of stuttering regarding to the reactions related with this fluency disorder before the IT was severe (the impact score 3.88). After the VR treatment the impact score was reduced to 1.89 and its influence was evaluated as mild-to-moderate. Briefly, AWS will continue sometimes to experience embarrassment and frustration, even anxiety but they can talk fluently and very important – to control their speech. They can expect some physical tension and effort while speaking but the impact will not be strongly expressed in the majority of the speaking situations. There are some negative, affective and cognitive reactions related with dysfluent speech but AWS will rarely avoid speech situations, because they were trained how to control their stuttering through non-avoidance speech techniques like pull-out, cancellation and preparatory set.

Wilcoxon test results support the opinion that all 15 AWS participating in VR treatment program manifest statistically important improvement after the therapy regarding to the section Reactions to stuttering ($Z = -3.409, p = 0.001$).

Group results: OASES-A's Section II (S III). Communication in daily situations

The Wilcoxon test results strongly support opinion that all 15 AWS manifest statistically important improvement after the VR treatment regarding to the Section III Communication in daily situations ($Z = -3.408, p = 0.001$).

The impact score before the intensive therapy was 3.57, meaning that there was moderate-to-severe impact rating regarding to the communication in everyday situations. AWS have perceived themselves as unable to speak fluently or to communicate easily in a big number of communication situations. They reported about strong physical tension, expressed and sometimes painful attempts to get rid of it. There were markedly presented negative affective and cognitive reactions. Unfortunately, the AWS felt dependent and affected by the reactions of surrounding persons. They avoided speech situations, as well some people who are disturbing them in some degree. They were unable to communicate freely at university (the majority of the participants in the IT were students from different higher educational institutions). They replaced some words with another – especially

when they have difficulties to talk fluently. There was a significant limitation in their ability to communicate effectively in different situations, in a new milieu with new unknown persons. This fact complicated the course of their daily activities and duties. Severe stuttering marked difficulties in their functioning. There was strong stuttering influence on decision making process. The fact that after the IT the score was reduced to 1,7053 reflected the success of the VR treatment program. His impact rating was reduced to the most acceptable mild-to-moderate impact rating.

Group results: OASES-A's Section IV (S IV). Quality of life.

Fourteen of the fifteen AWS participating in the VR treatment demonstrated statistically significant improvement after the treatment regarding to the Quality of Life section ($Z = -3.351, p = 0.001$).

The VR treatment results in Figure 2 show that the impact score before the intensive treatment was 3.4228 (i.e., regarding to the section 4 Quality of life AWS perceived the impact rating between moderate-to-severe). After the VR treatment, all AWS showed reduction of the quality of life impact score to 1.7078 which falls within the limits of mild-to-moderate impact rating. In this sample of AWS, 90% of whom were university students, participants reported only minimal limitations of their ability to pursue educational and life goals (e.g., their stuttering do not interfere their educational opportunities and ability to do their job: participating in seminars, scientific sessions, and oral presentations; engaging in group and individual discussions, talking with supervisor and some professors). During the intensive treatment AWS were trained to overcome negative reactions and they knew how to influence and control their disfluent speech, to ignore the negative stuttering impact on long-term socialization process. Even of the good final results' changes regarding to the quality of life, the treatment team realized that after such short term intensive course was not real to expect important durable changes in the AWS's quality of life. Despite of the stuttering severity reduction after VR treatment, including 3 years' post-treatment data, the authors agree with the phenomenological analyses of the experience of stuttering reported by Tichenor and Yaruss who wrote that "...research recognizes that the experience of the stuttering disorder involves more than just speech behaviors, people who stutter experience stuttering behaviors in time as involving more than just the disruption in speech. This finding has implications for both the theoretical understanding of stuttering and the clinical evaluation and treatment of the stuttering disorder" (Tichenor & Yaruss 2019, p. 1180). Generally, the AWS functioned successfully, but they continued to experience minimal limitations in their ability to feel satisfied with their university training. They develop initial sense how to control over their life and stuttering.

Of course no one on the treatment team expected a general change in the quality of life after the short intensive format of the therapy. One of the purposes of the non-avoidance therapy application was to model the frame of the continuing self-

treatment process so that the client may learn how to become his own speech therapist who can continue to control speech fluency. The VR non-avoidance approach needs more time to form well developed speech fluency skills and non-avoidance stereotypes. It should be noted here that effective stuttering treatment does not necessarily affect an AWS's quality of life or overall perception of change. Authors like Blumgart et al. (2010) suggested that OASES-A was related with percent of syllables with stuttering (%SS). They described that %SS affects OASES-A score and to a very high degree the stuttering frequency could strongly influence on OASES-A's sections 1 and 2. The data show also that AWS with high %SS have strong negative impact score on section 1 (general information), section 3 (daily communication), and section 4 (quality of life). According to Caruso et al. (1994) and DiLollo et al. (2003), this conclusion was important from a clinical point of view. Earlier studies have shown the relation between stuttering severity and influence on the personality of persons who stutter (e.g. Blumgart et al. 2010).

Discussion. Comparison of changes in the experience of stuttering following intensive prolonged speech and non-avoidance treatments through OASES-A.

The obtained results of changes in the experience of stuttering show generally positive reactions to the stuttering following application of both intensive therapies. Through the Levene's test for equality of variances the OASES-A outcomes showed significantly greater improvement in overall changes in the experience of stuttering following VR than LT treatment (mean VR improvement total score 1.8600). The same are the VR OASES-A results about changes in the experience of stuttering regarding to the Section I General information (1.8333), Section II Reactions to stuttering (1.9853), Section III Communication in daily situations (1.8707) and Section IV Quality of life (1.7153).

Undoubtedly OASES-A indicated positive changes related with AWS experiences related to stuttering general knowledge and awareness. Positive change was observed in their characteristics and experience to reactions to stuttering and communication in daily situations. AWS reported that they are satisfied by the communication in different social situations too. Quality of life of AWS also undergoing positive change.

Even in light of the statistical significance of changes in OASES-A following VR, the claim that the stuttering experience is better than that following LT. It must also be remembered that the application of both intensive treatments was delivered by students in Master's degree SLP programs who lack enough clinical experience.

This study was based on LT and VR data published earlier regarding long-terms results 3 years after stuttering treatment related with AWS speech, like duration of dysfluencies and percent syllables with stuttering (Georgieva, 2014; Georgieva, 2015). On the other hand, LT long-term outcomes 11 and 18 months after the treatment are within achieved naturalness of speech and percent syllables with stuttering reduction (Georgieva & Stoilova 2018).

VR pays considerable attention to stuttering non-avoidance and reduction of speech fears. The main accent was put on controlled fluency development or also so called acceptable stuttering through 3 main stuttering techniques practicing: pull-out, cancellation and preparatory sets. In this context, AWS are not pressed to achieve fluent speech by all means, rather the purpose of treatment was to control the dysfluent speech.

Trough application of Participant Self-Reported Inventory master degree students have reported positive attitudes regarding LT treatment as very useful for their clinical training (see previous publication, Georgieva & Stoiolva 2018). Regardless of newly acquired skills for speech fluency modeling and OASES-A assessment application the master degree students are at the beginning of their clinical career.

The LT was the preferred treatment, largely because it was not necessary to apply direct control of speech fears of the person who stutters. The changes in the experience of stuttering following LT treatment results were described by master degree student's trough successful OASES-A application.

As the entry-level qualification for the practice of SLP in Bulgaria is the Bachelor's degree, it was important to mention the graduate students exceed the clinical competences and knowledge of the typical clinician, especially with regard to the selected therapy approaches employed in this study. In addition, the recently developed consensus guidelines for clinically meaningful, comprehensive assessment procedures for people who stutter across the lifespan will help reinforce the professional knowledge of Master's degree students (Brundage et al. 2021).

OASES-A application before and after LT and VR intensive treatments was preferred because was helping master degree students to recognize the speech needs, abilities, values, preferences, and interests of AWS. Using OASES-A, they acquire and maintain the knowledge and skills that are necessary to provide high quality professional services, including evaluating changes in the experience of stuttering following intensive prolonged speech and non-avoidance treatments.

As Yaruss stated, "Persons who stutter have the right to get the most effective and evidence-based treatments recommended by professionals which are locally or regionally available." One reason for a lack of Bulgarian outcomes data for the non-avoidance approach was tied to the fact that clinicians have not received previous training on this specific stuttering approach and, they did not previously have access to a reliable means of assessing changes in a speaker's life Yaruss (200, p. 163).

Conclusion

The present article was the first English-language article documenting the Bulgarian results of OASES-A application of previously conducted LT and VR treatment.

The application of OASES-A showed a statistically significant difference before and after two different intensive therapies, and these changes were apparent across each of the four sections of the test. As a research-based instrument for assessment of quality of life in AWS, the OASES-A may be applied in Bulgarian clinical conditions regardless of which therapeutic method was implemented. It was easy to administer and analyze. The OASES-A describes in substantial detail the experience and influence that stuttering exerts on quality of life from client's perspective; both groups of AWS reported that quality of life was improved following treatment.

The LT and VR intensive stuttering treatments delivered by Master degree students has focused not only primarily on the changes in the speech productions of speech dysfluencies of AWS. Both intensive treatments addressed to inclusion of reliable instrument as OASES-A to measure changes of AWS reactions to stuttering.

OASES-A gives to the master degree students in SLP who delivered two different intensive therapies meaningful insights into the AWS experience. The students developed experienced skills that they used actively in the assessment and treatment process in stuttering as fluency disorders. OASES-A application developed master degree student self-confidence and self as professional, professional knowledge and practice on changes in the AWS experience of stuttering following intensive prolonged speech and non-avoidance treatments.

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REFERENCES

- BLOCK, S. & DACAKIS, G., 2003. *La Trobe Fluency Clinic: Student Manual*. Melbourne: La Trobe University.
- BLOCK, S.; ONSLOW, M.; PACKMAN, A.; GRAY, B. & DACAKIS, G., 2005. Treatment of chronic stuttering: Outcomes from a student training clinic. *International Journal of Language and Communication Disorders*, vol. 40, no 4, pp. 455 – 466. <https://doi.org/10.1080/03093640500088161>.
- BLOMGREN, M.; ROY, N.; CALLISTER, T. & MERRILL, R. M., 2005. Intensive stuttering modification therapy: A multidimensional assessment of treatment outcomes. *Journal of Speech Language and Hearing Research*, vol. 48, no 3, pp. 509 – 523. [https://doi.org/10.1044/1092-4388\(2005/035\)](https://doi.org/10.1044/1092-4388(2005/035)).
- BLOMGREN, M., 2010. Stuttering Treatment for Adults: An Update on Contemporary Approaches. *Seminars in Speech and Language*, vol. 31, no. 4, pp. 272 – 282. <https://doi.org/10.1055/s-0030-1265760>.
- BLOODSTEIN, O.; BERNSTEIN RATNER, N. & BRUNDAGE, S. B., 2021. *A Handbook on Stuttering*, 7th ed. San Diego: Plural.
- BOBERG, E. & KULLY, D., 1994. Long-term results of an intensive treatment program for adults and adolescents who stutter. *Journal of*

- Speech and Hearing Research*, vol. 37, no 5, pp. 1050 – 1059. <https://doi.org/10.1044/jshr.3705.1050>.
- BLUMGART, E.; TRAN, Y. & CRAIG, A., 2010. An investigation into the personal financial costs associated with stuttering. *Journal of Fluency Disorders*, vol. 35, no3, pp. 203 – 215. <https://doi.org/10.1016/j.jfludis.2010.03.002>.
- BLUMGART, E.; TRAN, Y.; J. SCOTT YARUSS & CRAIG, A., 2010. Australian normative data for Overall Assessment of the Speaker's Experience of Stuttering. *Journal of Fluency Disorders*, vol. 37, no 2, pp. 83 – 90. <https://doi.org/10.1016/j.jfludis.2011.12.002>.
- BRUNDAGE, S. B.; BERNSTEIN RATNER, N.; BOYLE, M. P.; EGGERS, K.; EVERARD, R.; FRANKEN, M-C.; KEFALIANOS, E.; MARCOTTE, A. K.; MILLARD, S.; PACKMAN, A.; VANRYCKEGHEM, M. & YARUSS, J. S., 2021. Consensus guidelines for the assessments of individuals who stutter across the lifespan. *American Journal of Speech Language Pathology*, vol. 30, no 6, pp. 2379 – 2393. https://doi.org/10.1044/2021_AJSLP-21-00107.
- CARUSO, A.; CHODZKO-ZAJKO, W.; BIDINGER, D. & SOMMERS, R., 1994. Adults who stutter. Responses to cognitive stress. *Journal of Speech Language and Hearing Research*, vol. 37, no 4, pp. 746 – 754. <https://doi.org/10.1044/jshr.3704.746>.
- CHON, H. C. & YARUSS, J. S., 2015. A preliminary study on the development of the Korean version of the Overall Assessment of the Speaker's Experience of Stuttering (OASES) for adults. *Journal of Speech Language and Hearing Disorders*, vol. 24, no. 1, pp. 145 – 155. <http://dx.doi.org/10.15724/jslhd.2015.24.1.012>.
- CORDES, A. K. & INGHAM, R. J. (Eds), 1998. *Treatment efficacy for stuttering: A search for empirical bases*. San Diego: Singular.
- DE SONNEVILLE, C.; VERSTEEGH, M. M. & YARUSS, J. S., 2011. Psychometric evaluation of the Dutch translation of the Overall Assessment of the Speaker's Experience of Stuttering for adults (OASES-A-D). *Journal of Fluency Disorders*, vol. 36, no 3, pp. 222 – 230. <https://doi.org/10.1016/j.jfludis.2011.03.002>.
- DILOLLO, A.; MANNING, W. & NEIMEYER, R., 2003. Cognitive anxiety as function of speaker role for fluent speakers and persons who stutter. *Journal of Fluency Disorders*, vol. 28, no 3, pp. 167 – 185. [https://doi.org/10.1016/s0094-730x\(03\)00043-3](https://doi.org/10.1016/s0094-730x(03)00043-3).
- FIBIGER, S.; PETERS, H.; EULER, H. & NEUMANN, K., 2008. Health and human services for persons who stutter and education of logopedists in East-European countries. *Journal of Fluency Disorders*, vol. 33, no 1, pp. 66-71. <https://doi.org/10.1016/j.jfludis.2007.12.001>.

- GEORGIEVA, D., 2014. Non-avoidance group therapy with adult stutterers: Preliminary results. *CoDAS*, vol. 26, no 2, pp. 112 – 120 <https://doi.org/10.1590/2317-1782/2014009>.
- GEORGIEVA, D., 2015. Intensive Non-Avoidance Group Therapy with Adults Stutterers: Follow up Data. *Procedia Social and Behavioral Sciences*, 10th Oxford Dysfluency Conference, ODC, pp. 108 – 114 [17-20 July, 2014]. Oxford, UK. <https://doi.org/10.1016/j.sbspro.2015.03.249>.
- GEORGIEVA, D. & STOILOVA, R., 2018. A Clinical Training Model for Students: Intensive Treatment of Stuttering Using Prolonged Speech. *CoDAS*, vol. 30, no 5, e20170259; <https://doi.org/10.1590/2317-1782/20182017259>.
- HERDER, C.; HOWARD, C.; NYE, C. & VANRYCKEGHEM, M., 2006. Effectiveness of behavioral stuttering treatment: A systematic review and meta-analysis. *Contemporary Issues in Communication Sciences and Disorders*, vol. 33, pp. 61 – 73. https://doi.org/10.1044/cicsd_33_S_61.
- HOWIE, P. M.; TANNER, S. & ANDREWS, G., 1981. Short- and Long-Term Outcome in an Intensive Treatment Program for Adult Stutterers. *Journal of Speech Hearing Disorders*, vol. 46, no 1, pp. 104 – 109. <https://doi.org/10.1044/jshd.4601.104>
- INGHAM, J. C., 2003. Evidence-Based Treatment of Stuttering: I. Definition and Application. *Journal of Fluency Disorders*, vol. 28, no 3, pp. 197– 206. [https://doi.org/10.1016/S0094-730X\(03\)00038-X](https://doi.org/10.1016/S0094-730X(03)00038-X).
- LINDSTRÖM, E.; NILSSON, J.; SCHÖDIN, I.; STRÖMBERG, N.; ÖSTERBERG, N.; YARUSS, J. S. & SAMSON, I., 2020. Swedish outcomes of the Overall Assessment of the Speaker's Experience of Stuttering in an international perspective. *Logopedics Phoniatrics Vocology*, vol. 45, no 4, pp. 181-189. <https://doi.org/10.1080/14015439.2019.1695930>.
- Onslow, M.; Costa, L.; Andrews, C.; Harrison, E. & Packman, A., 1996. Speech Outcomes of a Prolonged-Speech Treatment for Stuttering. *Journal of Speech Language and Hearing Research*, vol. 39, no 4, pp. 734 – 749. <https://doi.org/10.1044/jshr.3904.734>.
- ONSLow, M.; JONES, M.; O'BRIAN, S.; MENZIES, R. & PACKMAN, A., 2008. Defining, Identifying, and Evaluating Clinical Trials of Stuttering Treatments: A Tutorial for Clinicians. *American Journal of Speech Language Pathology*, vol. 17, no 4, pp. 401 – 415. [https://doi.org/10.1044/1058-0360\(2008/07-0047\)](https://doi.org/10.1044/1058-0360(2008/07-0047)).
- PACKMAN, A.; ONSLOW, M. & MENZIES, R., 2000. Novel speech patterns and the treatment of stuttering. *Disability and Rehabilitation*, vol. 22, no 1 – 2, pp. 65 – 79. <https://doi.org/10.1080/096382800297132>.

- ROCHA, M.; RATO, J. R. & YARUSS, J. S., 2021. The impact of stuttering on Portuguese school-age children as measured by the OASES-S. *Speech Language and Hearing*, vol. 24, no 1, pp. 38 – 47. <https://doi.org/10.1080/2050571X.2020.1751427>.
- SAKAI, N.; CHU, S. Y.; MORI, K. & YARUSS, J. S., 2017. The Japanese version of the overall assessment of the speaker's experience of stuttering for adults (OASES-A-J): Translation and psychometric evaluation. *Journal of Fluency Disorders*, vol. 51, pp. 50 – 59. <https://doi.org/10.1016/j.jfludis.2016.11.002>.
- TICHENOR, S. E. & YARUSS, J. S., 2018. A phenomenological analyses of the experience of stuttering. *American Journal of Speech Language Pathology*, 27(3S):1180-1194. https://doi.org/10.1044/2018_AJSLP-ODC11-17-0192.
- TICHENOR, S. E. & YARUSS, J. S., 2019. Stuttering as defined by adults who stutter. *Journal of Speech Language and Hearing Research*, vol. 62, no 12, pp. 4356 – 4369. https://doi.org/10.1044/2019_JSLHR-19-00137.
- VAN RIPER, CH., 1973. *The treatment of stuttering*. Englewood Cliffs, NJ: Prentice-Hall.
- YADEGARI, F.; SHIRAZI, T. S.; HOWELL, P.; NILIPOUR, R.; SHAFIEI, M.; SHAFIEI, B.; ILKHANI, Z.; SATARIAN, F.; JAFARI, N.; QUESAL, R. W. & YARUSS, J. S., 2018. Persian Overall Assessment of the Speaker's Experience of Stuttering for Adults (OASES-A-P): the impact of stuttering on the Persian-speaking adults who stutter. *Iranian Rehabilitation Journal*, vol. 15, no 2, pp. 131 – 138. <https://doi.org/10.32598/irj.16.2.131>
- YAIRI, E., 2016. *Future Research and Clinical Directions in Stuttering: Global Considerations*. Memphis, TN: Stuttering Foundation.
- YARUSS, J. S., 2001. Evaluating treatment outcomes for adults who stutter. *Journal of Communication Disorders*, 34(1 – 2):163 – 182. [https://doi.org/10.1016/s0021-9924\(00\)00047-2](https://doi.org/10.1016/s0021-9924(00)00047-2).
- YARUSS, J. S. & QUESAL, R. W., 2006. Overall assessment of the speaker's experience of stuttering (OASES): Documenting multiple outcomes in stuttering treatment. *Journal of Fluency Disorders*, vol. 31, no 2, pp. 90-115. <https://doi.org/10.1016/j.jfludis.2006.02.002>.
- Yaruss, J. S. & Quesal, R. W., 2008. *OASES. Overall Assessment of the Speaker's Experience of Stuttering Manual*. Pearson.
- YARUSS, J. S. & QUESAL, R. W., 2016a. Overall Assessment of the Speaker's Experience of Stuttering response forms for school-age children (OASES-S; Ages 7-12), teenagers (OASES-T; Ages 13-17), and adults (OASES-A; Ages 18 and above) [German] (Translated by H. A. EULER, A. KOHMÄSCHER, S. COOK, C. METTEN, K. MIELE) Stuttering

Therapy Resources, Inc. <https://www.StutteringTherapyResources.com/OASES-German>.

YARUSS, J. S. & QUESAL, R. W., 2016. *Overall Assessment of the Speaker's Experience of Stuttering (OASES)*. Stuttering Therapy Resources.

ПРОМЕНИ В ОПИТА ЗА ЗАЕКВАНЕ ВСЛЕДСТВИЕ НА ИНТЕНЗИВНИ ТЕРАПИИ ЗА УДЪЛЖЕНА РЕЧ И НЕИЗБЯГВАНЕ НА НАРУШЕНИЕТО

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Резюме. **Цел:** Основна цел на изследването е приложение на многоизмерен цялостен инструмент (OASES-A) за оценка на цялостното влияние на заекването от позицията на възрастни лица, които заекват и които са преминали две интензивни терапии: програма за удължена реч на Университета La Trobe и метода на Van Riper за неизбягване на заекването. **Метод:** OASES-A е приложен за оценка на възприемане опита на лицата със заекване по отношение на специфична задача: да се сравнят настъпили промени от опита им за заекването след две проведени интензивни терапии. Съществен елемент на следтерапевтичната оценка са настъпили промени в качеството на живота, които те докладват. **Резултати:** OASES-A представя позитивни промени в опита на 27 възрастни лица със заекване по отношение на четири секции: обща информация за заекването; реакции към заекването; комуникация в ежедневни ситуации и качество на живот. **Заключение:** Статията представя първи български резултати от приложение на OASES-A, публикувани на английски език. Резултатите от OASES-A сочат значително изразено цялостно подобрение в плавността на речта и промени в четирите секции на инструмента, които са свързани с придобития нов опит на лицата със заекване вследствие на проведените терапии. Като научно базиран инструмент за диагностика на качеството на живот при възрастни лица със заекване, OASES-A е лесен за администриране и анализ. Инструментът описва важни детайли на опита и влиянието на плавностното нарушение върху качеството на живот на лицата със заекване. Приложението му позволява на студентите от магистърската програма по логопедия да признаят нуждите, възможностите, предпочитанията и интересите на възрастните лица със заекване.

Ключови думи: заекване; възрастни; интензивна терапия; речева и езикова патология

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