



---

# Stuttering therapy; What works for whom?

---

Minding the body in speech - a multifaceted, individual approach to stuttering therapy.

Hilda Sønsterud

Thesis submitted for the degree of Ph.D.

Department of Psychology

Faculty of Social Sciences

University of Oslo

2019





## List of contents

Acknowledgements .....	5
List of papers .....	7
Summary .....	8
Abbreviations .....	10
Introduction .....	11
Stuttering and relevant research studies .....	11
Making speech less effortful in communication .....	12
Brain function and the psychosocial aspects of stuttering.....	13
Stuttering and anxiety.....	14
Stuttering therapy based on an integrative approach.....	15
The individual therapy approaches.....	17
Evidence-based practice in stuttering therapy .....	20
The working-alliance in stuttering therapy.....	23
Theoretical and clinical background .....	24
The theoretical background .....	24
The pluralistic approach .....	25
Clinical work within the frame of ACT .....	27
Stuttering management through awareness-based work .....	29
The Multidimensional Individualized Stuttering Therapy-approach .....	30
Aims of the thesis .....	33
Material and methods .....	34
Research design: Multiple single-case-design.....	34
Mixed methods design.....	34
Description of the procedure .....	35
Participants .....	37
Measures and instruments .....	40
Assessment of therapy goals and personal preferences.....	40
Assessment of stuttering severity, communication and quality of life .....	41
Assessment of anxiety and depression .....	42
Assessment of speech fluency and stuttering severity.....	43
Inter and intra-rater agreement .....	44
Participants' evaluation of therapy elements - Therapy Preferences Form (TPF) .....	45
General clinical considerations regarding the approach.....	45
Methodological considerations.....	46
Reflections on design .....	47

Reflections on recruitment process .....	48
Reflections on measurements and evaluation procedures .....	50
Reflections on statistical validity.....	54
Reflections on qualitative analysis .....	56
Ethical considerations.....	57
<b>Results .....</b>	<b>59</b>
Summary of the main findings .....	59
Paper 1: What do people search for in stuttering therapy: Personal goal-setting as a gold standard? .....	60
Paper 2: The working alliance in stuttering treatment: A neglected variable?.....	61
Paper 3: What works for whom? Multidimensional Individualized Stuttering Therapy.....	62
Clinical considerations regarding the five focus areas in the approach.....	62
<b>Discussion .....</b>	<b>65</b>
The individual perspective .....	65
Subgroup perspective .....	68
Behavioral awareness and speech work - interactions with broader outcome goals.....	69
Clinical implications.....	70
The working alliance and the role of the clinician .....	70
Goal-led therapy .....	71
Purposeful use of measures in stuttering therapy .....	71
The Multidimensional Individualized Stuttering Therapy-approach in comparison with ‘standard treatment’ .....	73
Strengths and limitations .....	76
<b>Overall considerations and the future.....</b>	<b>78</b>
Suggestions for future research .....	80
Final remarks.....	81
<b>References .....</b>	<b>83</b>
<b>Papers I-III.....</b>	<b>94</b>
Paper I .....	95
Paper 2.....	134
Paper 3.....	184

## Acknowledgements

The research presented here was conducted at the Department of Psychology, Faculty of Social Science at the University of Oslo and at Statped's Department of speech and language disorders. I am thankful that the Department of Psychology acknowledged my project. Further, the study would not have been possible without NIFS (the Norwegian Association of stuttering and cluttering) and the financial support from Stiftelsen Dam (the Norwegian Extra Foundation for Health and Rehabilitation), for which I am deeply grateful. I would also like to express my gratitude and respect to all the participants for the time, efforts and insights which they have shared.

These years of clinical research have been invaluable. During this period, I have broadened my horizons, and I now understand stuttering therapy from a much broader perspective. Moreover, I have learned to think and analyze information scientifically, and have increased my knowledge of both speech-language therapy and psychology. By improving my knowledge of psychology, I feel I have improved my skills as a speech-language therapist.

Several people have contributed to the completion of this thesis and have supported me along the way. I am indebted to my mentor David Ward at the University of Reading (England), department of Speech Research Laboratory, whose enthusiasm and knowledge have impressed and inspired me for many years. His working capacity, presence as a mentor, and capacity to rapidly give relevant feedback are what every research fellow wishes for. David has proven that distance is a minor challenge in supervision. I also want to sincerely thank my three supervisors here in Norway. A huge thank you to all of them for their willingness to be part of this PhD-project, and for responding so positively to my initial requests for their assistance. Many thanks to Margrethe Seeger Halvorsen, at the University of Oslo, Department of Psychology, who dared to be my supervisor even though stuttering was not her primary research interest. Her research experience and knowledge of psychology have been of great value for the present study's interdisciplinary approach. I would like to thank Melanie Kirmess at the University of Oslo, who has been a key person in the collaboration with the Department of Special Needs Education at the University of Oslo, and who has been a valuable support particularly in the analyses of the qualitative data. A heartfelt thank you to Kristin Billaud Feragen, at the Centre for Rare Disorders at the Oslo University Hospital, for

her scientific guidance, statistical advice and for being an anchor when it was essential for the project. Thank you all for sharing your time and support during the entire process.

A special thanks to my 'favorite' colleague and dear friend, Kirsten Howells, who has been willing to support me and the project in so many different ways. Thank you for the opportunity to share exciting discussions, and have fun and enjoy life together when meeting and presenting at conferences worldwide. Another colleague who deserves special thanks for his help, technical skills and competence is Cliff Baluyot.

All my colleagues at Statped southeast, Department of speech and language disorders, deserve thanks for making my life richer both professionally and socially. A warmhearted thank you to Tone Særvold, who believed in me and my work, and to Øydis Hide, who put time and effort into being my 'opponent' at the midterm evaluation. Thank you to Åse, Karoline, Ane, and Kristin for sharing topics within the field of fluency disorders, for enjoyable social activities, and for allowing me the time to do the work which was needed. I also wish to thank the former and present leadership at Statped southeast, and in particular Anne Berit Andreassen, Mari Kalvø and Veronika Reistad, for allowing me to do this project and providing optimal working conditions.

A special, warm thank you to two of my colleagues and friends, Marianne Lind and Line Haaland-Johansen, who believed in me and my competence, who encouraged me to do the PhD research, and who cheered me along the road.

I wish to express my gratefulness to my beloved friends Ellen, Hanne, Toril, Jorid, Tove, Hege, Cecilie, Aase, Camilla, and Lise; for being my friends, and for sharing laughter and joy with me throughout the years. I also would like to express my gratitude to my family, who have always been there for me, and who know me so well.

Finally, and most importantly of all, I want to thank the most important person in my life, my loving and caring wife Ingjerd. Thank you Ingjerd, for valuable discussions throughout this project, for sharing your statistical competence, and for your support, understanding and patience. You mean the world to me and, together with Donna, you bring me so much joy and energy. Thank you for reminding me that research is only a small part of my life.

Oslo, September 2019

## List of papers

This thesis is based on the following papers, referred to in the text by their Roman numerals:

- I. Sønsterud, H., Feragen, K. B., Kirmess, M., Halvorsen, M. S., & Ward, D. (2019). What do people search for in stuttering therapy: Personal goal-setting as a gold standard? *Journal of Communication Disorders*, Online version.  
doi:10.1016/j.jcomdis.2019.105944  
**Status:** Published
  
- II. Sønsterud, H., Kirmess, M., Howells, K., Ward, D., Feragen, K. B., & Halvorsen, M. S. (2019). The working alliance in stuttering treatment: A neglected variable? *International journal of language & communication disorders*, 54(4), 606-619.  
doi:https://onlinelibrary.wiley.com/doi/10.1111/1460-6984.12465.  
**Status:** Published
  
- III. Sønsterud, H., Halvorsen, M. S., Feragen, K. B., Kirmess, M., & Ward, D. (2019). What works for whom? Multidimensional Individualized Stuttering Therapy.  
**Status:** In review



## Summary

**Background:** Stuttering is a neurodevelopmental disorder that impacts motor system functioning and is characterized by abnormally high frequencies and/or duration of stoppages in the flow of speech. With a prevalence of 0.7-1% in the general population, we can presume that approximately 50 000 Norwegians stutter.

Although varying individually and contextually, stuttering can have a negative impact on education, career, and social life, and can significantly influence both communication and quality of life. Lack of belief in one's ability to speak can lead to avoidance behaviors and social withdrawal. Research has shown considerable individual variation in response to a large number of stuttering therapy approaches, and treatment programs with many hours of contact do not necessarily seem to offer different outcomes to those with fewer. As the present study confirms, there are multiple factors which may influence a person's reasons for seeking stuttering therapy, their goals for therapy, and the outcomes of that therapy. To date, there is only limited empirical evidence demonstrating that issues that the individual considers personally significant are fully addressed in stuttering therapy.

Supported by Stiftelsen Dam (the Norwegian Extra Foundation for Health and Rehabilitation), this study is a wider-ranging treatment study of individualized stuttering management tailored to the participants' personal goals and preferences.

**Aim:** The overall aim of this thesis was to explore the extent to which the Multidimensional Individualized Stuttering Therapy-approach has the potential to help a whole range of people who stutter. The aim of the present study is threefold: a) To explore individual aspects of people who stutters' motivation for treatment and improvement goals, b) to investigate the role of the therapeutic alliance within stuttering treatment, and c) to evaluate the extent to which the individualized stuttering therapy has a positive impact on overall speaking ability, confidence in communication, avoidance behaviors, and quality of life.

**Methods:** An A-B-A multiple case study design was used to address the research questions. This design provides an appropriate framework from which to evaluate the procedures used in stuttering therapy and to determine its potential. Twenty-one adults, aged between 21- 61 years, took part in a pretherapy interview. Eighteen adults went on to engage in the explorative, individualized approach, entitled *Multidimensional Individualized Stuttering Therapy* (MIST). The approach combines awareness-based elements from Acceptance and Commitment Therapy (ACT) with stuttering and speech modification interventions. The

multifaceted, individual approach addresses five areas of focus: 1) Awareness of general breathing patterns and body tension, 2) Awareness of breathing patterns during speech production, 3) Awareness of vocal features in speech production, 4) Awareness of affective and mindfulness-based strategies, and 5) Awareness of general communication and/or presentation skills. It comprises a total of 10 hours of face-to-face therapy time spread over four treatment sessions, with follow-ups up at 1-, 3-, 6-, and 12 months post-therapy.

**Results:** All participants who commenced the therapy approach completed it. Findings indicated that the majority of participants wished to focus on both physical and psychological aspects of therapy, and 95% of participants regarded the goal ‘to gain a sense of control over the stuttering’ as important. Qualitative data identified four primary areas in which participants wanted to improve: speech fluency, emotional functioning, daily life activity and participation, and understanding of stuttering. Participants’ perspectives on their speaking ability and stuttering interference in communication were identified as central factors, particularly in social and professional settings. Analyses demonstrated significant associations between the working alliance, client motivation and treatment outcomes. When the values reflecting the quality of the working alliance were high (indicating a positive working alliance), scores reflecting treatment outcomes associated with improved speech, communication and social activity were indicating a positive change. The *Multidimensional Individualized Stuttering Therapy* (MIST) was associated with a significant effect on improved speaking ability, and a significant difference was found between improved speaking ability and reduced stuttering severity. The findings confirm strong associations between the speaking abilities experienced by the person who stutters, confidence in communication, avoidance related behaviours, and quality of life. When the relationship between participants’ satisfaction with the MIST-approach and therapy outcomes was investigated, strong associations were found between the participants’ levels of satisfaction and improved speaking abilities.

**Conclusion:** The findings in the present study indicate that the *Multidimensional Individualized Stuttering Therapy* is a useful treatment approach in stuttering management, highlighting the value of incorporating personal values in flexible therapy approaches that integrate both speech changes and awareness-based skills in stuttering management. As demonstrated in this study, the nature of a multi-faceted, individualized approach means that the relative weighting of different subcomponents in therapy needed to vary from individual to individual.

## Abbreviations

ACT	Acceptance and Commitment Therapy
CPST-E	Client Preferences for Stuttering Therapy-Extended version
GAD-7	General Anxiety Disorder
HADS	Hospital Anxiety and Depression Scale
IR	Impact Rating
IQR	Interquartile range
M	Mean
MSCD	Multiple single case design
OASES-A	Overall Assessment of Speakers' Experience of Stuttering-Adult version
SD	Standard Deviation
SLT	Speech-language therapist
SSI-4	Stuttering Severity Instrument - 4 <sup>th</sup> version
TPF	Therapy Preferences Form
WAI-SR	Working Alliance Inventory -Short version Revised
WASSP	Wright & Ayre Stuttering Self-Rating Profile

## Introduction

### Stuttering and relevant research studies

*Stuttering* is a neurodevelopmental disorder (Logan, 2015; Ward, 2018) that impacts motor system functioning and is characterized by abnormally high frequencies and/or duration of stoppages in the flow of speech. These can manifest as repetitions of sounds, syllables or words, prolongations of sounds, and ‘blocks’ of airflow or voicing in speech. Core behaviours are often accompanied by accessory behaviours, such as facial and bodily gestures, interjection of extra sounds and linguistic adaptations. Stuttering has been recognised throughout the ages and is a particularly unpredictable and multifaceted disorder. The onset of stuttering generally occurs between ages two and five (Yairi & Seery, 2015) and, for those where stuttering persists into adulthood, there are more males than females who stutter. Within this study, stuttering is considered with regard to both its overt features (audible and visible speech characteristics) and covert features (feelings and thoughts). “*When the disorder persists, it expands to acquire additional characteristics reflected in dynamic, multidimensional patterns of overt body tensions, motor-physiological adaptations, as well as emotional, cognitive, and social reactions*” (Yairi & Seery, 2015, p. 19). With a prevalence of 0.7-1% (Guitar, 2014; Ward, 2018) in the general population, it is presumed that approximately 50 000 Norwegians stutter.

Research on the efficacy of interventions for stuttering is of primary importance. Baxter et al. (2015) found that individual variability in response to different stuttering approaches was substantial across therapy studies. According to Baxter et al., there remains a lack of research regarding stuttering approaches that are based on individual variations in both response and effectiveness. In this regard and especially within speech related research, more work has to be done. Tailoring the right approach for each person's individual needs remains a challenge. As Ward (2018, p. 301) phrases it: “[...] *there is still no empirical data to indicate which client will benefit in the long term from which approach*”. Furthermore, how and to what degree intervention outcomes were related to communication and daily life of persons who stutter was unclear in most of the research studies. As Nye and colleagues suggest, “... *there is a need to recognize the different subtypes of individuals who stutter and deal with them in differential ways*” (Nye et al., 2013, p. 930).

The factors an individual who stutters regards as significant in therapy are unlikely to be reflected in stuttering intervention studies, and have, so far, not been demonstrated

empirically (Bothe & Richardson, 2011; Ingham, Ingham, & Bothe, 2012). In this regard, the individual-in-context perspective is highly relevant, and the term *personal significance* is therefore employed as a key concept in this thesis. Inviting and actively utilizing the person's own evaluations is an essential constituent in evidence-based practice including within treatment for stuttering (Bothe & Richardson, 2011; Ingham, Ingham, et al., 2012). This thesis highlights the value of flexible treatments, that can be adjusted to address elements that are especially significant for the individual. Within this frame of understanding, the present study made it possible to assess changes in behavioral, social and emotional aspects.

Research in the field of psychotherapy demonstrates that individually centred treatment and self-managed training can be efficiently implemented by a trained clinician, e.g. Benum, Axelsen, and Hartmann (2013); Nissen-Lie et al. (2013); Oddli and Halvorsen (2014); Oddli and McLeod (2016). Clinical experience and research has also demonstrated that quality of life and psychological health can be significantly improved in adults who stutter when therapy is tailored to their specific needs (Baxter et al., 2015; Beilby, Byrnes, & Yaruss, 2012; Craig, Blumgart, & Tran, 2009; Langevin, Kully, Teshima, Hagler, & Narasimha Prasad, 2010), yet there has, to date, been little focus on the multiplicity of factors which can potentially influence treatment outcomes. Aiming to further increase knowledge in this area, this thesis has taken a context-sensitive and individualized perspective, investigating some of these factors in more detail.

### Making speech less effortful in communication

Communication is multifaceted, and much of our communication is achieved through non-verbal means or expressed through prosodic factors such as tone of voice. According to DeVore and Cookman (2009), only about 7% of our meaning is conveyed through the words we use, while tone of voice conveys 38% of meaning, and body language the remaining 55%. Nevertheless, it seems that the focus for many people who stutter is the level of fluency they experience when speaking words and sentences. It is essential to keep this perspective in mind when working with people who stutter.

Finding our most natural or most efficient voice is an important factor in speech and communication. Breath is integral to voice production, and the vocal folds cannot vibrate without it. According to DeVore and Cookman (2009), our bodies are designed for breathing from low in the torso, using the abdominal muscles to access a more efficient flow of air and

enabling us to better control exhalation for speech. Effective speech production requires coordination between three interrelated motor speech subsystems: the respiratory system (lungs), the phonatory system (larynx) and the articulatory system (oral and nasal cavities, tongue, lips, teeth and soft palate) (DeVore & Cookman, 2009).

Moments of stuttering can cause heightened tension in the body, larynx and jaw, and this tension is a familiar sensation for many individuals who stutter. Breathing can become shallower, faster and dysrhythmic, resulting in increased tension that further inhibits breathing. As a consequence, the individual may lack sufficient breath or breath control for effortless speech, and this pattern increases the likelihood of muscle tension in the neck and laryngeal area. At the respiratory source of the processes involved in speech, fluency can be aided by effective relaxed and calm breathing - breathing deeply and easily despite the stuttering. Changes or adjustments in one part of the motor speech system are likely to lead to changes in other parts of the system. In this way, different strategies used in stuttering management may differ in terms of where the speaker chooses to focus his or her attention when speaking (Logan, 2015).

### [Brain function and the psychosocial aspects of stuttering](#)

Stuttering has been associated with less efficient connectivity between neurological structures serving motor speech control and motor speech timing (Connally, Ward, Howell, & Watkins, 2014; Ingham, Ingham, Euler, & Neumann, 2018). These findings are supported by the work of Chang and colleagues (2015), who found changes in white matter connectivity in younger children who stutter, as well as in adults. These findings in children suggest that neurobiological differences may underpin stuttering rather than arising as a result of stuttering (Chang, Zhu, Choo, & Angstadt, 2015; Ward, 2018). There is current debate as to the extent that there might be structural brain differences between adults who stutter and those who do not (Gough et al., 2018).

However, for many individuals who stutter, stuttering is much more than just a motor speech difficulty. For some, the disorder can significantly affect their social experiences in daily life, and, potentially, affect their psychosocial and psychological adjustment. Many experiences their stuttering as a loss of control, resulting in frustration and negative thoughts. Loss of control and loss of the belief that one can speak in social situations can subsequently lead to avoidance behaviors and social withdrawal as a means of protection. Although varying

individually and contextually, stuttering can have a negative impact on education, working career, and social life, reducing the individual's communication and/or quality of life to a greater or lesser extent (Bricker-Katz, Lincoln, & Cumming, 2013; Craig et al., 2009; Erickson & Block, 2013; Manning & Beck, 2013a; S. O'Brian, Jones, Packman, Menzies, & Onslow, 2011; St. Louis & Tellis, 2015; Steine & Inglingstad, 2013; Yaruss, 2010).

### Stuttering and anxiety

Social anxiety can be regarded as an intense fear of being judged, negatively evaluated or rejected in a social situation (Iverach, Menzies, O'Brian, Packman, & Onslow, 2011). There is body of evidence indicating that stuttering and social anxiety are related (Iverach et al., 2017; Iverach & Rapee, 2014; Menzies et al., 2019; Yairi & Seery, 2015). Regardless of whether they stutter or not, people vary in how often they experience anxiety, and in which kinds of situations they experience it. There are differing opinions regarding anxiety in the literature (Aderka et al., 2012; Craig & Tran, 2014; Iverach & Rapee, 2014; Messenger, Onslow, Packman, & Menzies, 2004). Some researchers regard severe speech related anxiety in people who stutter as social anxiety disorder even when social anxiety is only experienced in relation to stuttering. According to Yairi and Seery (2015), more specific research supports the impression that persons who stutter tend to experience significant anxiety as a result of stuttering. Symptoms of anxiety can influence stuttering and speech behavior in general in many ways (Craig, Hancock, Tran, & Craig, 2003; Craig & Tran, 2014; Iverach & Rapee, 2014; Messenger et al., 2004). In clinical work with people who stutter it is important to be aware of these interactions, and to consider if any anxiety symptoms is linguistic, social, situation-specific or more generalized related.

Stuttering treatment requires careful clinical management of both the stuttering itself and its associated psychological consequences in order to prevent the development of psychological difficulties (Iverach et al., 2017). In clinical practice, one can often observe that a focus on stuttering and speech modification approaches can contribute to a reduction in the level of fear, and an increase in self-esteem and acceptance of self as a person who stutters. Similarly, a reduction in the level of fear and an increase in self-esteem can facilitate speech enhancing work (Jørgensen, Sønsterud, & Reitz, 2008). As Bloodstein and Bernstein Ratner (2008) state, anxiety and tension can be difficult to separate.

Although anxiety was not a primary focus in this thesis, I decided to include screening measures related to anxiety and depression in order to evaluate the presence and degree of these phenomena in the participants more generally. The concept of anxiety is of interest because anxiety can hinder positive therapy outcomes (Menzies, O’Brian, et al., 2008), which is in accordance with my own clinical experiences within stuttering therapy.

### Stuttering therapy based on an integrative approach

Stuttering therapy can be defined as any professional intervention that aims to reduce or change the stuttering, and/or negative thoughts and feelings which may be related to stuttering (Guitar, 2014). Many treatment approaches have been developed with these aims in mind, and it appears that different elements in stuttering therapies may work very differently for different people (Baxter et al., 2015). In general, stuttering therapies have been anchored within behavioral and cognitive psychology (Ward, 2018). The stuttering literature often divides stuttering treatment into two main traditions, ‘Fluency Shaping Therapy’ and ‘Stuttering Modification Therapy’, which are based upon seemingly different theoretical foundations. They are further distinguished on the basis of treatment goals (behavioral or affective), procedures and structure (Guitar, 2014; Shapiro, 2011). At the same time, a number of therapy approaches combine various elements from the two therapy traditions mentioned above, and some authors have called such combined therapy approaches for ‘integrated’ or ‘integrative’ approaches (Guitar, 2014; Logan, 2015; Shapiro, 2011; Ward, 2018). In these combined therapy approaches the principle that stuttering treatment should be tailored to each person’s needs and wishes are often highlighted. Despite this, we still find examples in the literature that clinicians are divided into the two main treatment traditions: Fluency shaping- or stuttering modification approaches. Approaches such as fluency shaping therapy and stuttering modification therapy have been combined with strategies for coping with the stuttering itself and the associated emotional reactions in a variety of ways (Logan, 2015; McCauley & Guitar, 2010; Shapiro, 2011; Ward, 2018; Yairi & Seery, 2015). Integrative or combined therapy approaches are already established within the field of fluency disorders, and many people who stutter benefit from a mixture of behavioral and emotional-/cognitive-based approaches (Beilby et al., 2012; Langevin et al., 2010; Menzies et al., 2019). However, the relative weighting given to particular elements in combined approaches needs to vary from individual to individual in order to optimise therapy outcomes (Manning, 2010c; Shapiro, 2011; Ward, 2018).



It is generally expected that a reduction in stuttering severity may improve the daily life of the individual who stutters across a range of different social situations. However, one of the most critical phases is stuttering treatment usually occurs when a client works on transferring their speech work from a clinic (or similar) environment into daily life. Another critical phase is maintaining these changes over time (Yairi & Seery 2015). According to Ward (2018), there are virtually unlimited variants on stuttering therapies that can be highly effective in reducing moments of dysfluency in the short term, but these changes are more difficult to maintain in the longer term. Stuttering- and speech modification elements explored in therapy might therefore be used differently and in flexible ways, if the aim is to change the speech and communication behaviour permanently or to maintain the changes for a longer time period (Euler, Lange, Schroeder, & Neumann, 2014).

For several decades, there has been ongoing debate regarding which criteria should be used when measuring the outcomes of stuttering treatment. Originally, the debate was centered around clinicians' or researchers' perceptions of what people who stutter should focus on, based on the therapist's scientific or philosophical standpoint. More recently, however, including the one presented in this thesis, the debate has shifted toward the client's own choice of focus.

As Shapiro (2011) explains, spontaneous or controlled fluency is the ultimate goal of pure fluency shaping therapy approaches, with no attempt made to address fear, avoidance, or to influence attitudes to stuttering. In stuttering modification approaches, there is a greater focus on the emotional aspects of stuttering (Shapiro, 2011; Venkatagiri, 2009). This dichotomy is explored in Venkatagiri's (2009) paper, entitled "What do people who stutter want? -Fluency or Freedom?". This thesis goes on to question whether this binary distinction remains valid in today's clinical contexts, and questions how such an approach reflects the consensus within the field of fluency disorders.

Within stuttering therapy, adults who stutter are often regarded as a group which is difficult to treat. There has been relatively little research into the phenomenon of relapse, but Craig and Hancock (1985) found that about 70 % of 152 participants who received speech-restructuring therapy experienced relapses (an increase in physical or psychological symptoms associated with stuttering or anticipation of stuttering ) within 1 year of completing their therapy programme. Indeed, the challenges of relapses are widely acknowledged and are so common that 'refresher courses' are routinely integrated in several stuttering therapy programs (Bloodstein & Bernstein Ratner, 2008; Craig & Andrews, 1985). As relapse is such

a common occurrence, a focus on transfer- and maintenance work at each phase of therapy is a critical element, regardless of the nature of the approach. This awareness of relapse is important so that provision can be made for longer-term support and refresher courses/intervention for those who feel they would benefit.

In my own clinical practice, I have often experienced that a combined approach, which includes fluency shaping-, and stuttering modification therapy, is appropriate and useful. This study provides further support for this notion and aligns with the work of other researchers and clinicians (Guitar, 2014; Shapiro, 2011; Ward, 2018; Yairi & Seery, 2015). Furthermore, several researchers consider non-judgemental awareness and self-acceptance an essential component of therapy for stuttering (Boyle, 2011; Cheasman, Simpson, & Everard, 2015; Ward, 2018; Yairi & Seery, 2015). One of the main reasons for incorporating awareness-based elements into *Multidimensional Individualized Stuttering Therapy*, was to facilitate stuttering management at both psychosocial and sensory-motor levels, in order to improve the participants' abilities to cope with and manage stuttering. The concept of awareness was incorporated in different ways, which will be described in more detail below.

### The individual therapy approaches

The individual therapy approach utilized is integrated, combining various elements to form a multi-faceted and individual approach to stuttering therapy. Reflecting this integrated approach which incorporates both stuttering-, and speech-related elements, a range of terminology is used throughout this thesis. The most frequently-used terms include 'stuttering and speech modification therapy' referring to the individualized stuttering management as a whole, while 'speech work' refer to the elements of the approach which directly and primarily target speech production, with regard to the respiratory, phonatory, and/or articulatory systems. In addition to the physical aspects described above, the study incorporates awareness-based elements which are described in more details below (see also paper III for more detailed information). The value-based focus in the approach is anchored within the pluralistic, goal-led therapy, and within the ACT- perspective, maintained and enhanced by participants' awareness of personal values (Harris, 2019; Hayes, Strosahl, & Wilson, 2012).

A simplified model of the approach used in this thesis, is seen in Figure 1.

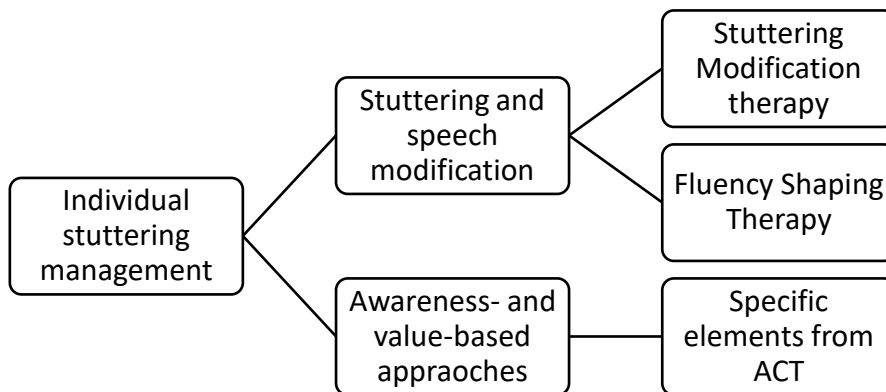


Figure 1. A simplified model of the Multidimensional Individualized Stuttering Therapy - approach.

For many people who stutter, daily life with a speech disorder that potentially affects their social interactions can exact a psychosocial and psychological toll. According to Craig, Blumgart, and Tran (2011), there are three unique contributors to adaptive outcomes: self-efficacy, social support and healthy social functioning. Clinical experience suggests that the individual's general social functioning might be a decisive factor which may affect therapy outcomes, along with, among others, the degree of awareness, social skills, overall speaking ability and self-discipline. Intensity of therapy, the types and degree of obstacles experienced in daily life, and the individual's level of motivation and willingness to invest time in independent training are also influential, as are the structures of the therapy process. For example, some therapeutic elements may need to be introduced and established within the clinic setting before they can be successfully transferred to other environments.

Carter et al., (2017) found that self-efficacy emerged as a strong positive predictor of quality of life for adults living with stuttering, while a study by Hayhow, Cray, and Enderby (2002) found that gaining control over stuttering was highly valued by the majority of participants in their cohort. Lack of control as perceived by the speaker has often been associated with stuttering (Helgadottir, Menzies, Onslow, Packman, & O'Brian, 2014). There is also some evidence suggesting that the subjective experience of speech control can be a significant predictor for a positive therapy outcome (Craig & Andrews, 1985; De Nil & Kroll, 1995). The individual's experience of their own ability to communicate is an important factor

and, according to Karimi et al. (2018, p. 82), the person's satisfaction with communication in everyday speaking situations is a primary therapy outcome reflecting '*a fundamental treatment gain that overarches all stuttering treatments*'. In order to address these issues as part of treatment, the SLT needs to explore speaking situations that matter the most to the client.

A prerequisite for change is that the individuals themselves perceive the therapy approach as appropriate, effective and meaningful (Binder, Holgersen, & Nielsen, 2010; Bothe & Richardson, 2011; Collier-Meek, Fallon, & Gould, 2018; Ingham, Ingham, et al., 2012). However, according to Lambert, Whipple, and Kleinstäuber (2018), clinicians tend to hold overly optimistic views of their clients' treatment progress in relation to measured change. In an effort to counter this, they recommended Routine Outcome Monitoring (ROM), whereby client progress is regularly measured with standardized self-report scales throughout therapy, thus providing clinicians with this information *during* the therapy process (Lambert et al., 2018). Contextualized feedback suggests that the value of client feedback through session-by-session assessments is the way in [...] *which the information provided goes beyond what a clinician can observe and understand about client progress without such information* (2018, p. 521). Egan (2014) suggests that one way to collect information about how clients perceive therapy, is simply to ask regularly whether the help is really helping. This may also help facilitate and validate clients' awareness of their values, preferences and needs regarding their treatment plans and goals. This also fits well with individualized oriented therapy approaches which emphasize that each individual should receive the best therapy related to the individual's own goals, and further contributing to positive changes in the person's daily life and communication settings (Baxter et al., 2015; McLeod, 2018). The identification of therapy elements which can be meaningful and context-sensitive for each participant was regarded as an important focus in this thesis. The pluralistic therapy approach (McLeod, 2018) (see information below) used emphasizes the importance of working collaboratively and regards the client as an active researcher in his/her own condition and everyday life. As McLeod (2018) suggests, the client is also active in investigating the therapy process itself and in developing opinions on what has been helpful or unhelpful in treatment sessions. This was incorporated into the present thesis where each participant was his/her own control and had the opportunity to give both written and oral feedback throughout the therapy process. Where the expected outcome was not achieved during the therapy

sessions, I was able to modify or withdraw therapy elements based on the participant's feedback.

The evidence-base around stuttering therapies that are responsive to individual variations in both response and effectiveness remains limited (Baxter et al., 2015). I believe that a greater focus on this research is warranted. In many ways, I believe that tailoring the right approach for each person's individual needs is a major challenge in the field of fluency disorders. In creating individually tailored therapies, a broader definition of what constitutes 'improvement' is required. Indeed, we need to be more careful in defining exactly what entails 'improvement' for each individual in general (Ward, 2018). With regard to stuttering management, Bloodstein (1997) highlights that it is not for the SLT to disparage a person's goals and choices, but that the person him/herself is competent to weigh the costs and benefits when considering therapy (Curlee & Siegel, 1997).

It is generally recognized that speech-fluency skills are difficult to maintain over a longer period (Craig & Andrews, 1985; Ward, 2018). It is therefore assumed that newly developed speech and communication skills may reduce significantly over time if the stuttering-, and speech modification elements are not implemented in the person's daily life, or if the person does not incorporate his/her altered speech behaviour into daily communication situations which matter the most. Therefore, individual stuttering approaches require a substantial amount of self-discipline and home-based practice over time in order to maintain the positive changes.

### Evidence-based practice in stuttering therapy

There is a substantial body of evidence available assessing the efficacy of stuttering approaches (Bothe, Davidow, Bramlett, & Ingham, 2006; Nye et al., 2013). However, the evidence base is weakened by poor methodological quality of many studies, high numbers of dropouts from cohorts, small sample sizes, lack of long-term follow-up, and the existence of relapses (Baxter et al., 2015; Bothe et al., 2006; Ingham, Bothe, Wang, Purkhiser, & New, 2012). In the stuttering field, prolonged speech and speech restructuring therapy are regarded as the standard or traditional treatment for adults who stutter (Bothe et al., 2006; Ingham, Bothe, et al., 2012; Neumann et al., 2019). Yet, in my own clinical work, I recognize that the choices many clients make do not correspond so well with this. Indeed, the evidence-base is still limited by factors such as publishing bias and what the research has focused on so far,

and may illustrate some of the main challenges. Furthermore, still there are significant challenges to resolve what is defined as positive therapy outcomes when interpreting research studies. We also risk to be confused by statistical significance with genuine clinical significance (Alm & Dahlin, 2015; Simmons, 2011). Within the field of stuttering, there remain challenges to find suitable and reliable tools for measuring stuttering, as well as clinical and ‘personal’ outcomes. Regardless of the variables selected, therapy outcomes measurement in stuttering must consider the range of speech and psychological variables, and the potentially confounding effects of other changes, such as for example increasing communicative confidence = reducing situation avoidance = perhaps more speaking (and for some, = more stuttering). Bothe and Richardson (2011) regard a combination of self-ratings of the personal significance of treatment-induced changes, and professionally objective and defensible data on variables selected by the client as the ideal client-centered evidence-base for clinical research.

The American Psychological Association Policy Statement on Evidence-Based Practice in Psychology (APA 2005 Presidential Task Force), was the result of a collaboration including scientists and practitioners from a wide range of clinical fields, health services researchers, public health experts and consumers. The statement clarified the definition of evidence-based practice as follows: “*Evidence-based practice in psychology (EBPP) is the integration of the best available research with clinical expertise in the context of patient characteristics, culture, and preferences.*” (Levant & Hasan, 2008; Rønnestad, 2008). As Ratner (2005) points out, evidence-based practice in stuttering therapy involves integrating ‘best evidence’, clinical expertise and the client’s values. Many clinicians within health and education in Norway have considered aligning themselves with the APA’s Policy Statement (Rønnestad, 2008), which acknowledges the way in which various forms of research contribute valuable knowledge. Within this perspective, it is emphasized that clinical research on the effectiveness of therapy approaches must be supplemented by research on the therapeutic process, including the role of the working alliance (Rønnestad, 2008).

One way to incorporate the three perspectives of evidence-based practice, is to base the concept in a more context-sensitive frame (Manning, 2010c; McLeod, 2018; Oddli, Nissen-Lie, & Halvorsen, 2016; Swift, Langevin, & Clark, 2017; Wampold, 2015). I support Baxter et al. (2015) who state that there is a need to consider evidence-based practice in stuttering therapy in the context of clinical research ideas. Haaland-Johansen (2007) describes how SLTs must base their work in known theory, research, knowledge and experiences, but

that it is in the meeting between the client and clinician that evidence-based practice is created. Greenhalgh, Howick, and Maskrey (2014) argue that, although research has had many benefits, it also has limitations: “*There is a lack in discussions on how to interpret and apply evidence to real cases and the sharing of collective knowledge and expertise*” (2014, p. 5). The authors go on to describe how the challenges of self-management are not always about making therapy choices, but rather about the practical and emotional work involved in implementing those choices. For example, evidence-based guidelines might not always map individual needs and/or complex multimorbidity (Greenhalgh et al., 2014). The authors offer an agenda for the ‘movement’s renaissance’, refocusing to provide useable evidence that can be combined with context and professional expertise so that individuals engage in optimal treatment. Greenhalgh et al. (2014) claim that a ‘real evidence-based’ therapy has the care of individuals as its top priority, asking: What is the best course of action for this particular person, in these circumstances, at this point in their condition? This perspective is shared by several authors (Kelly, Heath, Howick, & Greenhalgh, 2015; Kerry, Eriksen, Lie, Mumford, & Anjum, 2012; McLeod, 2018; Wieten, 2018). It also mirrors ideas in pluralistic therapy (McLeod, 2018), and accords with the work of Bothe and Richardson (2011) and Ingham, Ingham, et al. (2012), who consider the individual or personal perspective highly relevant in work with individuals who stutter. This feels like a clunky shift from the literature back to this thesis. What about, “This thesis has incorporated these ideas about evidence-based practice in a context-sensitive and individualized approach to treatment”. Both its methodology and the approach itself reflect the findings and views of the APA’s Policy Statement (Levant & Hasan, 2008; Rønnestad, 2008).

Another way to consider causality, is to understand it from a dispositionalist stance (Kerry et al., 2012; Low, 2017). A dispositional account emphasizes the importance of participants’ background conditions in understanding causes, recognizing that the intervention is not only the factor which influences outcomes. According to Kerry et al. (2012, p. 1008), ‘*causation is what is added to a situation that interferes and changes the outcome*’, and, within the frame of dispositionalism, the added factor is causally powerful only when the factor is causally related to at least some of the factors already involved. Kerry et al. state further that the greatest causal work can be seen in single-instance cases, and within this causal relation the real nature of causation is witnessed: ‘*The interaction between causal agents; subtractive and additive forces tending towards and away from an effect*’ (2012, p. 1011). For example, an individual’s fear of evaluation might influence the person’s avoidance

behaviours, which again might hinder the speaking abilities in social settings or having a consequence of social withdrawal. For Greenhalgh et al. (2014), the challenges of self-management are not always about making therapy choices, but rather the practical and emotional work involved in implementing those choices. Within the frame of dispositionalism, the added factor is causally powerful only when the factor is causally related to at least some of the factors already involved. Kerry et al. (ibid.) state further that the greatest causal work can be seen in single-case studies, and within this causal relation the real nature of causation is witnessed. For example, how effective is a particular clinician with a particular client at a specific time-point? As stated by the Miller, Hubble, Duncan, and Wampold (2010, p. 424), clinicians should not know ahead of time what approach to use, but rather to understand whether the current relationship “*is a good fit and, if not, be able to adjust the treatment and accommodate the client’s experience and goals*”.

### The working-alliance in stuttering therapy

The quality of the working-alliance is one of the causal agents which may influence therapy outcomes. The concept of the working alliance has its roots in psychodynamic theory (Wampold, 2015), and can be formally described as a proactive collaboration between clients and therapists across treatment sessions (Flückiger, Del Re, Wampold, & Horvath, 2018). It was Bordin (1979) who first named the relationship between a person seeking support and a clinician as the ‘working alliance’. It has been suggested that the working alliance has its foundation in the following three processes: a) the emotional *bond* between the client and clinician, b) the extent to which the client and clinician agree on the *goal* of treatment, and c) the extent to which the client and clinician consider the treatment tasks as relevant (*task*).

According to Flückiger and colleagues (2018, 2019), it has been demonstrated that a client’s opinion of treatment as effective or ineffective is influenced by their experience of the collaborative process in clinic (Flückiger et al., 2018; Flückiger et al., 2019). According to Zebrowski and Kelly (2002), individual stuttering therapy “*allows the SLT and client to develop rapport –a trusting, cooperative, and respectful relationship that facilitates disclosure and change*” (2002, p. 41). It was therefore reasonable to believe that the therapeutic alliance also is of importance in stuttering therapy. Process evaluations in stuttering therapy should incorporate considerations of the clinician-client relationship, and perhaps in particular from the perspective of the client. Much national and international work has been done to highlight these values within psychological therapy, and several qualitative



and quantitative studies have been completed, e.g. Halvorsen, McLeod, Benum, and Haavind (2016); Horvath, Del Re, Fluckiger, and Symonds (2011); Oddli and Halvorsen (2014); Oddli, McLeod, Reichelt, and Rønnestad (2014); Wampold (2015). Evidence from the field of psychotherapy indicates that a strong working alliance between the clients and the clinicians contributed to positive outcomes (Flückiger et al., 2019). There has been some related work within the speech and language therapy literature (Berg, Askim, Balandin, Armstrong, & Rise, 2017; Lawton, Haddock, Conroy, Serrant, & Sage, 2018; Lawton, Sage, Haddock, Conroy, & Serrant, 2018; Miciak, Mayan, Brown, Joyce, & Gross, 2018) but, to date, relatively little attention has been paid to the working alliance within clinical work and research associated with management for stuttering (Manning, 2010c; Manning & Beck, 2013a; Plexico, Manning, & Dillo, 2010).

It is assumed that a wide range of factors related to individual clients, clinicians, support (or lack of) from others, social and environmental aspects, the quality of the therapeutic alliance, etcetera, can influence the treatment process and outcomes for people who stutter. Therefore, one main aim of the present study was therefore to incorporate clients' considerations of the working alliance to see whether the quality of the working alliance was likely to influence treatment outcomes for people who stutter.

## Theoretical and clinical background

### The theoretical background

Researchers commonly engage in activities that are rational in the sense that we are including research aims which reflect our values. Although the work of this thesis is grounded in humanitarian goals, it was also an opportunity to satisfy a clinical curiosity I have had for many years, and to see whether the research could fill a gap between practice-based evidence and evidence-based practice within the field of fluency disorders. The thesis is developed from sources of philosophical knowledge which combine both aspects of pragmatism and contextualism (Benton, 2011). Pragmatism can be regarded both as a philosophy and as method, and the term is often taken to refer to a compromise of aims or principles. Nola and Sankey (2006) make a number of philosophical assumptions, and some are as follows: Beliefs have practical relevance since they lead to actions which have consequences. Human beings actively intervene in the natural world and are responsive to feedback from this intervention in both cases of satisfaction and frustration. Methodological pragmatism is compatible with

clinical research and takes into account the realities of social life settings. According to Ramnerö and Törneke (2008), the pragmatic tradition, in which the value of knowledge is determined by its usefulness, also includes behaviorism. They define two factors as central for describing, understanding and influencing behavior: “[...] *the function of a particular behavior and the context within which it occurs. Understanding the function is to understand the purpose of a behavior - that is, its consequences. And consequences occur in the context*” (2008, p. 8).

Contextualism highlights the ‘act in context’, where any event or ongoing act must be seen and analyzed in its current environmental or historical context (Ramnerö & Törneke, 2008). A contextualistic world view mirrors in many ways ideas associated with the pragmatism. The pragmatism is developed by among others, Peirce, James, and Dewey (Benton, 2011). Dures (2012) states that pragmatism is often associated with mixed methods designs. Contextualism emphasizes the practical application of ideas by acting on them to be able to test the nature of knowledge, concepts, meaning and science in human experiences in real world settings (Benton, 2011; Ramnerö & Törneke, 2008). Contextualism claims that the truth cannot be understood outside of the environmental context. Analyses based on contextualism are stated to be true or valid insofar as they lead to effective action or achievement of some goal in the context concerned. The philosophical approach the Functional Contextualism emerges from contextualism (Ramnerö & Törneke, 2008). The functional contextualism is intended to be a holistic approach, where *the whole* is understood in relation to context rather than assembled from elements (Hayes, Strosahl, et al., 2012). In functional contextualism, the truth is regarded as local and pragmatic and the truth for one person does not need to be the truth for another person. The aim for many clinicians is to best serve the people who seek help. When clients approach a clinic, they usually want to change something in their lives, and whatever best serves this purpose can be considered as the truth in this helping process (Ramnerö & Törneke, 2008). This aspect is highly relevant in clinical and scientific work within stuttering, and the main question in the thesis entitled ‘Stuttering therapy; What works for whom?’, focuses on these considerations at an individual level.

### The pluralistic approach

McLeod (2018) argues that what is true is what works for each person, and what is best for people will vary, depending on personal and contextual factors. Pluralism within a philosophical context refers to the idea that “*there is no single correct answer to central*

*questions of human existence.*”(McLeod, 2018, p. 13). Within this thesis, the term ‘pluralistic’ is used to recognize that there exist many different ingredients (in nature and in society) that together constitute a reality. Within pluralism, an absolute or fundamental truth does not exist. Instead, there are different sources of knowledge which have value, and all sources may have validity (McLeod, 2018). According to McLeod (2018), a pluralistic approach can be regarded as an integrative approach, seeking to combine ideas and methods drawn from several approaches. Pluralism includes a wide set of intellectual resources and covers different fields within ethics, philosophy, sociology, politics, theology and psychology. I am hereby adding speech-language therapy into this list. The present thesis is grounded in the idea that persons who stutter are the real heroes and heroines, and that the clinician is just a guide or a provider of some resources, which a client might benefit from at a specific time during his or her life journey, as stated so beautifully by for example McLeod (2018). The stuttering therapy is based on a fundamental aim to find strategies, tasks or elements that works best for a client at a particular timepoint in his or her everyday life. This builds on shared decision-making around tasks and personal goals, and the clinician and clients together exploring the available possibilities and combining elements in a way that best fit the clients’ goals and preferences. The approach involves a “*direct linkage between goal identification, and what happens on a moment-by-moment basis in therapy*” (McLeod, 2018, p. 95). In line with the pluralistic approach, the present study emphasis the client experience of exploring elements and options and evaluating which of these are helpful. In this way, the clients have become active individuals and researchers in their own lives. The client and the clinician are constructing something meaningful together, reflecting the collaborative perspective in the pluralistic approach (McLeod, 2018). Within the pluralistic perspective, therapists are regarded as improvisers, crafters, artists or designers who can learn from clients and improvise. In a collaborative manner, the client and therapist observe communication and/or life to gain a sense of possibilities that exist, using this collaborative space to improve, for example, overall speaking ability, confidence in communication, or general wellbeing in life. The therapist must work flexibly, and therapy is considered successful if clients have achieved their goals or are satisfied with what they have achieved. The idea that clients decide what constitutes successful therapy is highlighted in the alliance theory and research (Flückiger et al., 2018; Nissen-Lie et al., 2013; Nissen-Lie, Monsen, & Rønnestad, 2010; Nissen-Lie, Havik, Høglend, Rønnestad, & Monsen, 2015; Oddli et al., 2016; Wampold, 2015).

A pluralistic approach within stuttering therapy is value-based in terms of maintaining and enhancing the clients' awareness of personal values. Participants can work toward increasing their awareness and participation in daily life rather than being preoccupied with trying to be 'stutter free' or to hide their stuttering from the world (Beilby et al., 2012). It may therefore be necessary for the SLT to create an environment where the person who stutters carries out a specific task, action or change whilst simultaneously observing their own thoughts, feelings and physiological experiences in the moment. During the clinical trial described in this study, rather than providing detailed verbal instructions of changes the participants could make or experiment with, the SLT encouraged participants to observe and feel their own experience and to continue practicing and developing this awareness of self both in and beyond clinic. However, for an individual to be consciously aware of physical sensations while remaining present and responsive within their social environment, requires a high degree of skill. This reflects the work of Gilman (2014), who identified a difference between 'outside in' and 'inside out' learning, regarding both processes as important contributors.

### Clinical work within the frame of ACT

One approach which seems to be increasing in popularity within field of stuttering is Acceptance and Commitment Therapy (ACT). Acceptance and Commitment Therapy (ACT) is built upon functional contextualism and is part of the 'third wave' of behavioral therapies, along with dialectical behavior therapy (DBT), mindfulness-based cognitive therapy (MBCT), compassion focused therapy (CFT), and functional analytic psychotherapy (FAP) among others. ACT places a major emphasis on acceptance, mindfulness, and compassion interventions in addition to traditional behavioral interventions (Harris, 2019; Hayes, Barnes-Holmes, & Wilson, 2012).

ACT combines acceptance and mindfulness processes with behavior change processes (Beilby et al., 2012; Boyle, 2011; Cheasman, Simpson, & Everard, 2013; Cheasman et al., 2015; Harley, 2015). The main goal of ACT is to foster psychological flexibility through six core processes: 1) contact with the present moment, 2) values, 3) committed action, 4) self as context, 5) defusion, and 6) acceptance. A central concept is that by developing a more psychologically flexible stance, there seems to be a greater chance to be aware of uncomfortable experiences, whilst at the same time focusing on what one wants life to be about. To facilitate psychological flexibility, the six core elements in ACT can be worked

on in any order, and the person can decide on his/her own priorities. ACT is intended to help the person accept that which cannot be controlled and commit to action that will enrich life (Harris, 2019; Hayes, 2005). The pragmatic perspective in ACT places the emphasis on specifying values and truth by defining what works. According to the founders of ACT, all therapeutic interactions are considered in the way they relate to the clients' chosen values and goals, and the primary consideration is whether the actions or thoughts are working in practice (Hayes, Strosahl, et al., 2012). I support the suggestion of Cheasman et al. (2015), in that improved awareness, desensitization and externalization can be developed, and an individual may develop better tools to cope with stuttering – including over the long term.

Humans use language in both public and private domains, and within ACT, the public use of language includes forms such as talking, gesturing, writing, painting, singing, dancing and acting, while private use of language includes forms such as thinking, imagining, daydreaming, visualizing, planning, fantasizing and worrying (Harris, 2019; Hayes, 2005). In ACT the mind is regarded as human language, and the mind is neither friend nor enemy. The aim of ACT is to create a rich, and meaningful life where, even in periods with tremendous pain and suffering, there is an opportunity to find meaning, purpose and vitality (Harris, 2019). ACT is founded in the Functional Contextualism (Hayes, Barnes-Holmes, et al., 2012; Ramnerö & Törneke, 2008). Within the frame of ACT, different ways of thinking or speaking have different consequences, and cognitive flexibility is guided by workability, not by the demand for consistency. According to the founders of ACT, ACT focuses on the process of thinking, and both clinicians and clients are advised to examine thoughts as they unfold, and then consider “*its practical workability in any given situation*” (Hayes, Strosahl, et al., 2012, p. 36). ACT has an empirical base (Davies, Niles, Pittig, Arch, & Craske, 2015; Eustis, Hayes-Skelton, Roemer, & Orsillo, 2016; Wetherell et al., 2011) that addresses individual and life values, and has the ability to contact the present moment more fully as a conscious person (ibid.). Psychological flexibility is one of the key components of ACT therapy, and this flexibility is worthwhile to develop for all of us, including persons who stutter.

In this study, evaluation of symptoms formed the foundation of assessment and management of stuttering. I am aware that this aspect is not a necessary element in the Acceptance and Commitment therapy (ACT), where reducing or eliminating symptoms is not a specific goal (more information about ACT is seen below). It might, therefore, seem paradoxical to work toward reducing stuttering while simultaneously focusing on increasing the participants' acceptance and awareness of stuttering. Various researchers have debated

this issue (Beilby et al., 2012; Cheasman et al., 2015; Nippold, 2012; Yaruss, Coleman, & Quesal, 2012). Beilby and colleagues (2012) concluded that it is possible to work towards both of these goals, and that the two goals can complement one another. In ACT, acceptance means opening up, making room for and allowing painful feelings, sensations, or emotions to be as they are (Harris, 2019; Hayes, Strosahl, et al., 2012). Within the framework of ACT, accepting the existence of stuttering does not necessarily mean liking or wanting it, but rather making room for the stuttering and fostering curiosity about it. As the word *acceptance* can carry negative, non-therapeutic connotations for some people who stutter, in line with the suggestions of Hayes et al. (2012) in the ACT approach, Cheasman et al. (2015) recommends introducing the concept of acceptance in terms such as ‘friendly curiosity’, ‘making space for’, and ‘willingness’ rather than using the word ‘acceptance’ itself within therapy. In the ACT process of clarifying values, the overall question is to ask ourselves whether a particular action or behavior is taking us *towards* or *away* from living the life we really want (Hayes, 2005). In this way, several elements of ACT add important aspects to the work presented in this thesis. Combined with stuttering and speech modification therapy, this constitutes the individual stuttering management program. The present thesis provides outcomes from a stuttering approach that combines awareness-based elements from ACT with stuttering-, and speech modification elements.

### Stuttering management through awareness-based work

Many stress management programs teach body awareness and deep breathing as a primary technique for stress reduction, relaxation and general well-being. Mindfulness-based approaches have become popular interventions in the stuttering field (Boyle, 2011; Cheasman et al., 2013). Based on Kabat-Zinn’s definition of the term mindfulness (Kabat-Zinn, 2003), mindfulness means paying attention in a particular way, that is deliberate, in the present moment and non-judgmental. According to Boyle (2011), mindfulness practice might decrease avoidance behaviour and increase emotional regulation.

Mindfulness has been described and defined by lots of clinicians and researchers (Kabat-Zinn, 2003; Teasdale, Segal, & Williams, 2003). Based on Kabat-Zinn’s definition (Kabat-Zinn, 2003), mindfulness means paying attention in a particular way - on purpose, in the present moment and nonjudgmentally. Aiming to further develop and improve the precision and specificity of a definition for clinical research, Bishop et al. (2004) developed an operational definition of mindfulness. Mindfulness begins by bringing awareness to current

experiences, and attending and observing thoughts, feelings and bodily sensations from moment to moment by regulating the focus of attention. According to Bishop et al. (2004), the self-regulation of attention also fosters non-elaborative awareness of thoughts, feelings and sensations as they arise. Rather than getting caught up in ruminative thoughts about one's experiences, implications and associations, mindfulness involves a direct experience of events in the mind and body. Instead of instructing the client to produce a particular state or to change what he or she is feeling, the client is instructed to *'make an effort to just take notice of each thought, feeling, and sensation that arises in the stream of consciousness'* (Bishop et al., 2004, p. 231). Bishop et al. proposed a model of mindfulness that involves adopting orientation toward one's experiences in the present moment; an orientation that is fostered by curiosity, openness, and acceptance (Hayes, Strosahl, et al., 2012). According to Bishop et al. (2004), mindfulness is a process of self-observation, and differs from a mindfulness-  
meditation technique. The authors (ibid.) further consider that mindfulness is rather a mode of awareness that is evoked when attention is regulated. The interventions in the present study does not include any mindfulness-meditation techniques, but rather aim to improve awareness skills towards different aspects of body and/or mind (and regardless if you intend to speak or not).

### The Multidimensional Individualized Stuttering Therapy-approach

The elements in the stuttering therapy approach which were systematically explored in this thesis, are elements with which I have been familiar for several years. Striving to improve clinical practice in the field of speech-language therapy, particularly with regard to stuttering therapy, in particular between 2009 – 2013, I was privileged to do a lot of exploratory speech work together with persons who stutter. This *proactive collaborative work* was carried out within a clinical setting at the Bredtvet kompetansesenter (now Statped, department of speech and language disorders) in Oslo, Norway. Unfortunately, during these years, I did not find sufficient time to run a study with an appropriate level of scientific rigor. I did, however, manage to complete some case-studies, and, in May 2011, presented a case report at a Nordic conference for SLTs which took place in Bergen, Norway. There, I shared some of my clinical experiences related to stuttering therapy and explorative speech work. Later, together with Jorid Løvbakk who has specialist competence working with voice disorders, I published a related paper in the Norwegian journal for speech-language therapists, writing about speech work, breathing management and stuttering modification interventions (Sønsterud &

Løvbackk, 2012). The participant in the case study (male, aged 39 years) indicated that the preferred therapy elements were: a) ‘anchoring’ the breath deeper in the body to improve speech control, b) flexible speech rate (including increasing awareness of slowing body movements in general), and c) conscious exhalation (‘breathing-out’). According to the participant, the ‘breathing-out’ maneuver was particularly valuable in helping him improve his ease of speaking. The therapy interventions experienced and described in the period 2009 to 2013 were extended, but were not yet properly structured. The present study can therefore be regarded as an extension and deeper exploration of the therapy interventions which I explored previous. Following feedback from the participants in the present study regarding their therapy preferences, the elements were further categorized and systematized. These components within individualized stuttering management were subsequently entitled the *Multidimensional Individualized Stuttering Therapy* (the ‘MIST’-approach).

The approach includes a combination of awareness-based elements with stuttering and speech modification approaches. The elements were further systematized partly in accordance with the three interrelated motor speech subsystems termed respiratory, phonatory and articulatory subsystems (DeVore & Cookman, 2009), and partially from ACT and general presentation skills used in clinic (see below for more details). A five-sided polygon (pentagon) was used to conceptualize the individualized nature of the approach, with the relative weighting of different subcomponents varying from individual to individual. As can be seen in Figure 2, internal pentagons (in blue) can vary according to dimensions and forms.

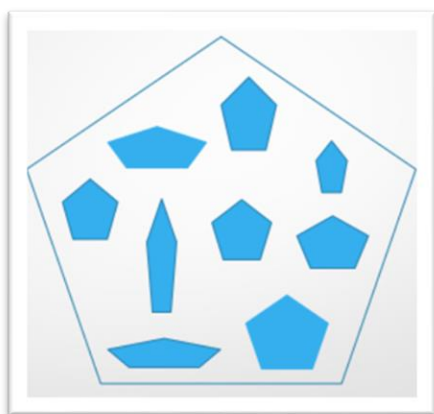


Figure 2. A pentagon with internal, individual pentagons in blue.



During the therapy period, multiple therapy elements were introduced and explored in collaboration with the participants, including but not limited to awareness, breath support, exhalation, phonation, block release and presentation skills. Based on the participants' feedback, the therapy elements were categorized into five components or areas of focus. This focus represents only one alternative way to categorize the therapy elements from a SLT perspective. This organizational work was done after the 12 months follow-up, and was wanted for reporting purposes. Furthermore, the participants were naive to the general and specific decision-making principles which the study was based on. Neither were they aware of any structure of therapy elements when participating in the study. The approach encompassed the five following main areas of focus:

1) *General breathing patterns and body tension*

As an example, this might involve the introduction of slower body movements or practicing mindful attention to the breath, with the aim of improving proprioceptive awareness or for general stress management.

2) *Breathing patterns during speech production*

As an example, this might involve monitoring changes in abdominal wall positioning during speech, considering breath support while speaking, or experimenting with calm, smooth breath flow (passive or active) when speaking, with the aim of attaining relatively steady exhalation and general low levels of respiratory effort and tension during speech.

3) *Vocal features in speech production*

Examples include experimenting with stretched/prolonged speech, gentle onset, continuous phonation, softer articulatory contacts, pitch return, voice volume, and other speech modification such as a pull-out from a moment of stuttering. The main aim of this area was to make the speech and communication less effortful or to use less energy when speaking.

4) *Affective and mindfulness-based strategies*

Examples include the following: use of the 'dropping anchor' exercise (1) acknowledge your inner experience, 2) come back 'into your body' and 3) 'engage with the world' (Harris, 2019); observing or paying attention to inner experiences ('the observing self') and where you are (engaging with the 'world around'); work with 'the choice point' (described by Harris (2013) among others, where the person defines *away* and/or *towards* move); developing in-the-moment awareness ('the being mind' as opposed to 'the doing mind'); exploring kindness, self-compassion, and value-focused perspectives; developing greater states of calmness and accepting thoughts without judgements attached.

### 5) *General communication and/or presentation skills*

Examples include individually tailored use of pauses, flexible rate, intonation or prosody; flexible use of stress within sentences to emphasize words; eye contact adapted to contexts; and/or body posture.

Areas could sometimes overlap, particularly focus areas 1 and 4 dependent on the participant's focus. Highlighting the value of awareness work and its interaction with physical processes within stuttering therapy, this multifaceted, individual approach become known as the *Multidimensional Individualized Stuttering Therapy* (the 'MIST'-approach).

## Aims of the thesis

By now, few studies have focused on whether an individual stuttering therapy approach, such as the one presented in the current study, have the potential to help a whole range of people who stutter. The study investigated the extent to which the procedures had clinical and personal significance for each individual within his or her daily life, and whether they contributed to improved speech, communication and quality of life in the longer term. The overall aims of the current study were threefold:

- 1) To explore individual aspects of people who stutters' motivation for treatment and improvement goals, and to shed light on how individual variations regarding goal-setting related factors in people who stutter may influence outcome goals.
- 2) To investigate the role of the therapeutic alliance within stuttering treatment, including but not limited to the person's belief in the treatment process, degree of motivation, and expectation of positive outcome.
- 3) To evaluate whether the Multidimensional Individualized Stuttering Therapy approach reduces the impact of stuttering and stuttering severity (over the short and long term), and to evaluate whether the approach has a positive impact on overall speaking ability, confidence in communication, avoidance behaviors, and quality of life.

## Material and methods

### Research design: Multiple single-case-design

In this study, a multiple case study design (Gast & Ledford, 2014) was used for collecting data before therapy, during therapy, and at one-, three-, six- and twelve months post-therapy. The multiple single case experimental design helps illustrate the relationships between individual and interactional aspects and is a good design for controlling internal validity (Tate et al., 2016). A single-case design is appropriate to use when investigating the usefulness of a novel or untested treatment (Gast & Ledford, 2014). The multiple case study design enabled us to consider that the measured speech behavior and/or emotional and social changes resulted from the specific intervention. The design of this project incorporates both short- and long-term outcome data. The single-case design provides the methodology for confidently answering such questions as: “Is John himself benefiting from this particular stuttering treatment approach?” Within this frame of understanding, we were able to assess outcomes in terms of behavior, social elements, and emotional aspects. If the expected outcomes were not being achieved, we were able to adjust and modify aspects of the stuttering therapy based on the participant’s feedback throughout the treatment sessions.

### Mixed methods design

A mixed method design was used to address the first research question in Paper I, which concerned individual goals in therapy. Mixed method designs within the field of health and education appear to be increasing in number, perhaps reflecting a change in research emphasis regarding the nature of client and clinician interactions (Fetters, Curry, & Creswell, 2013). Data for the sub-study reported in Paper I were collected from the first meeting pretherapy. In order to explore motivational and goal-setting factors, a convergent parallel mixed method design (Fetters et al., 2013) was applied. Qualitative methods were used to explore participants’ therapy goals and wishes and to evaluate the validity of the quantitative findings, with the quantitative data helping to shed further light on the qualitative findings.

In this study participants were invited to describe their own motivations and goals for the therapy. One of the measurements included an open-ended text unit, designed specifically to elicit responses regarding personal goals for therapy (see the measurement section below). All participants were required to first give a written response to the question in the open-text

section, in order to minimize unintentional clinical bias. The participants' considerations regarding priorities and goals for therapy are presented in Paper I.

## Description of the procedure

The timeline and data collection are presented below in Figure 3.

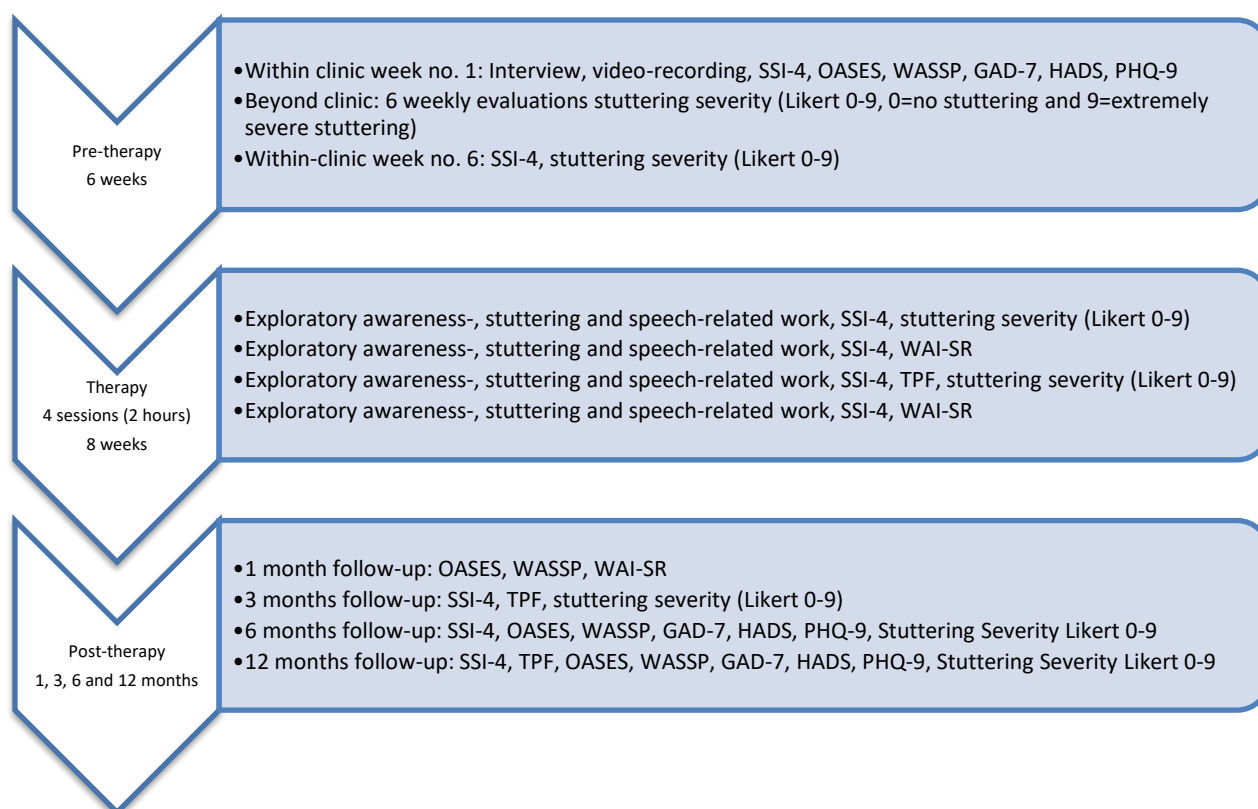


Figure 3. The timeline pre-therapy, during therapy and post-therapy up to 12 months.

The therapy format in the present study was grounded in practice-based evidence, in considerations of ‘*what makes a difference to a particular client at a particular point in time*’ (McLeod, 2018, p. 33). The therapy sessions were individually tailored, and is described in more detail in Paper 3. Anyhow, a short summary of the procedure is presented below.

Participants underwent a pre-clinic assessment phase lasting for six weeks. The first evaluation took place within a clinic setting during the first week. With the aim of measuring stuttering variance over time, each participant was instructed to evaluate their own stuttering severity on a weekly basis outside the clinic visits. After six weeks, the participants' stuttering

severity was measured again within the clinic setting. Therapy started immediately after the pre-therapy phase and consisted of four therapy sessions within a period of eight weeks, scheduled during weeks 1, 2, 4 and 8 of the therapy periods (This means that the time-interval in between face-to-face contacts extended from one to two weeks, and then four weeks). The average duration of each therapy session was two and a half hours (minimum 1 hour, maximum 3 hours). Therapy sessions were carried out in a clinical setting at Statped, the Department of speech and language disorders.

Individual therapy elements were initially explored and considered first in clinic. If the participant considered a particular element meaningful, workable and sufficiently useable in clinic settings, the participants were invited to transfer or implement it in personal communication situations in daily life settings. For maintenance reasons, elements such as increasing awareness of body sensations, vocal features, breathing patterns and general airflow management, and/or general communication and presentation skills, etcetera, were likely to be further adopted to a greater degree into the participants' own environments and/or communication settings. The participants were invited to practice in settings outside the clinic, such as at work, at home, at school, etcetera, and make notes regarding their observations and experiences.

As early as the second and/or third therapy session, participants were invited to reflect on how the elements introduced during therapy sessions were working in daily life contexts outside of the clinic. Based on the individual's reports and opinions, awareness-based elements were used flexibly and combined with other stuttering and speech modification elements. In this study, the goal of stuttering and speech modification work was not to teach the participants specific fluency techniques or skills, but rather to facilitate a greater awareness of tension in the body, breathing, and voice mechanism and to undo unhelpful tension by finding alternative and less effortful ways to speak.

While developing a multifaceted, individualized treatment plan, the different elements and strategies incorporated in the therapy process were registered and summarized in the individual Therapy Preferences Form (TPF), which is a form described in more detail below. The elements in the TPF were continually explored and reviewed in daily life settings by the participants themselves.

## Participants

In Norway, people who stutter do not have to pay for stuttering therapy, and therapy was also free of charge for participants in the present study. The organization of stuttering therapy in Norway differs from municipality to municipality, and there are large differences between stuttering therapy provision for children and adults. Children will often receive free therapy in kindergarten or at school, or at an SLT clinic. In some cases, this office is part of the state Pedagogical Psychological Counselling Service, but state-funded stuttering therapy provided by private SLTs is on the increase. In some municipalities, adult therapy is offered through a state service, but far more common is stuttering therapy provided by private SLT practices, mostly funded by the state. In general, health- and educational support is free of charge in Norway, and private individuals do not need to pay for stuttering therapy, regardless of whether it is state-employed or private SLTs providing the support.

The participants in this study were recruited through the Facebook pages of the Norwegian Association of Stuttering and Cluttering, via the public webpages of the Statped's department of speech and language disorders<sup>1</sup>, and via student and professional networks at the University of Oslo.

A total of 29 adults were recruited. Inclusion criteria were as follows: Adults aged 18 or older who stuttered; stuttering onset during preschool years or early childhood (developmental stuttering); no stuttering therapy in the three months prior to enrollment in the study; no other known speech or hearing problems; acceptance of speech-language therapy as the main approach for management of stuttering during the intervention period and throughout the 12 months follow-up. With the exception of one participant who had access to a *SpeechEasy* device, none of the participants had engaged in any speech therapy for at least three years prior to enrollment in the study. Due to practical problems related to long distance travel for therapy and evaluations, eight responders living in the Western and Northern part of Norway were excluded.

The sample at pretherapy therefore comprised 21 adults who stuttered, all of whom expressed an interest in engaging in therapy and participating in the study (Paper I is based on the data of these 21 participants). With an age of 21 to 61 years ( $M = 34.9$ ,  $SD$

---

<sup>1</sup> Statped is a national service for special needs education, defined for different core areas, including services for speech and language disorders.

=12.2), sixteen participants were male and five were female. Seventeen participants indicated no history of psychological- and/or other speech disorders, while two reported mild to moderate dyslexia, one reported a moderate attention deficit/hyperactivity disorder, and two reported anxiety-related disorders. According to these two participants, the anxiety was very much related to their stuttering. Demographics and other relevant background variables are presented in Table 1.

Table 1. Client demographics for the 21 participants.

<i>Background variables</i>	<i>%</i>	<i>n</i>
<i>Male gender</i>	76.2	16
<i>Stuttering in family</i>	47.6	10*
<i>Higher academic education ≥3 years</i>	38.1	8
<i>Vocational rehabilitation</i>	9.5	2
<i>Received SLT treatment as children</i>	57.1	12
<i>Received SLT treatment as adults</i>	13.3	3
<i>Not received stuttering treatment at all</i>	28.6	6

Data are presented as percentage (%) and frequency (n). \*1 unknown

During the pre-therapy phase, two participants withdrew due to challenging personal working and health circumstances and one participant was excluded due to identification of a cluttering disorder in combination with stuttering. A total of 18 adults were therefore able to receive the individualized stuttering therapy in this study. The final therapy sample comprised 15 males and 3 females ( $n=18$ ) with an age range of 21 to 61 years ( $M = 35.8$ ,  $SD = 12.2$ ).

Table 2. Client demographics for the 18 participants.

<i>Background variables</i>	<i>%</i>	<i>n</i>
<i>Male gender</i>	83.3	15
<i>Stuttering in family</i>	44.4	8
<i>Higher academic education ≥ 3 years</i>	33.3	6
<i>Vocational rehabilitation</i>	11.1	2
<i>Received SLT therapy as children</i>	61.1	11
<i>Received SLT therapy as adults</i>	16.7	3
<i>Received no stuttering therapy at all</i>	22.2	4

Data are presented as percentage (%) and frequency (n).

Based on participants' responses on the OASES-A (Yaruss & Quesal, 2006), all the participants were diagnosed with moderate to severe stuttering prior to enrollment in the study. The participants' self-reported impact scores on the OASES-A included the mean score of the overall impact of stuttering and the four subscales. A year prior to recruitment for this study, the OASES-A was translated from American English into Norwegian, and Bodil Nordbø, at the Department of Special Needs Education at the Faculty of Educational Sciences

(UiO), together with me and some colleagues at Statped, were involved in the translation work and also establishing the Norwegian norms (Nordbø, Sønsterud, & Kirmess, 2018). The Norwegian reference sample ( $n=62$ ) was used to compare means on the five impact scores (overall impact score and four sub-scores) with results from the present study. As seen in Table 3, the findings indicated that, as a group, the participants in this study ( $n=18$ ) had a slightly higher degree of negative impact associated with stuttering compared to the reference group.

Table 3. Overall Assessment of Speakers' Experience of Stuttering-Adult version (OASES-A): Overall impact- and sub-scores for the study sample prior to therapy compared with Norwegian norms.

Sections OASES-A	Study sample		Reference group		<i>p</i>
	Mean	SD	Mean	SD	
Overall stuttering impact	2.80	0.61	2.61	0.61	.220
General information	3.04	0.42	2.66	0.51	.003*
Reactions	2.91	0.65	2.77	0.63	.393
Communication	2.75	0.79	2.66	0.73	.643
Quality of life	2.54	0.80	2.31	0.82	.266

Mean, Standard Deviation (*SD*) and *p*-value (Note: \* $p < .050$ ).

As can be seen in Table 3, the only statistically significant difference between the two groups was for the subscale 'General information', indicating that participants from the study sample did have a more negative perception of their speech and overall speaking abilities than the reference group.

Based on the OASES-A's overall stuttering impact scores, the distribution of the stuttering Impact Rating (*IR*) scores at baseline were as follows: Three participants had an *IR* score within the mild/moderate range (1.50-2.24), seven had an *IR* score within the moderate range (2.25-2.99), seven had an *IR* score within the moderate/severe range (3.00-3.74), and one had an *IR* score within the severe range (3.75-5). No participants in the sample returned a mild *IR* score (ranging from 1.00-1.49).

Based on a pre-therapy screening aiming to measure the level of anxiety (HADS-A) and depression symptoms (HADS-D<sup>2</sup>), eight participants were found to be 'possible cases' (HADS-A), while three were above the cut-off scores, which can indicate moderate to severe symptoms of anxiety (HADS-A). HADS-D identified two participants within the level of 'possible cases' of depression symptoms. HADS-Total identified three participants as

<sup>2</sup> The Hospital Anxiety (HADS-A) and Depression Scale (HADS-D). See method section for more information.



‘possible cases’, and two with scores within the range of moderate to severe symptoms (‘definite cases’) of anxiety and depression (see Table 4).

Table 4. HADS scores, and number of individuals in the three categories (non-cases, possible cases and definite cases) pre-therapy.

Scale-scores	Anxiety			Scale-scores	Depression		
	Non-cases	Possible cases	Definite cases		Non-cases	Possible cases	Definite cases
0 - 7	7			0 - 7	16		
8 - 10		8		8 - 10		2	
11 - 21			3	11 - 21			0

Before the therapy, the participants were invited to categorize themselves within one of four profiles of stuttering, based on the work of Tomaiuolo, Del Gado, Spinetti, Capparelli, and Venuti (2015). The four categories are as following: a) a mild overt and a mild covert component, b) a mild overt and a moderate or severe covert component, c) a moderate or severe overt and a mild covert component, and d) a moderate or severe overt and a moderate or severe covert component. In the present study, two participants self-categorized with mild overt and mild covert stuttering, eight with mild overt and moderate/severe covert stuttering, five with moderate/severe overt and mild covert stuttering, and three with moderate/severe overt and moderate/severe covert stuttering.

## Measures and instruments

The study incorporates both self-evaluations and standardized measures, as well as two independent external evaluators. When determining treatment outcomes for a person who stutters, cognitive processes such as motivation, self-monitoring skills, and goal-oriented behavior are of clinical significance. Our aim was to employ measures relevant to the participants’ aims, and including reliable and valid measures of speech behaviour, and emotional state, as well as measures of the ability to communicate in a variety of social, academic, and professional situations in daily life. Outcomes were evaluated for all participants using the same measurement and evaluation procedures.

## Assessment of therapy goals and personal preferences

The original Client Preferences for Stuttering Therapy (CPST) (McCauley & Guitar, 2010) gives a brief overview of the following factors related to stuttering therapy: therapy goals, the speaker's subjective evaluation of fluency, ease of participation in different speaking situations, and sense of control. Items are rated on a Likert scale ranging from 1 (not at all important) up to 5 (very important).

Together with some colleagues at the Team for fluency disorders at Statped, Department for speech and language disorders, we received permission from McCauley and Guitar to develop an extended version of the CPST form to support the work of this thesis. This developed version is known as the Client Preferences for Stuttering Therapy - Extended version (CPST-E) and includes two new sections. The first of these two new sections contains questions regarding personal characteristics, including aspects related to the participants' motivation, and is based on Seo et al.'s 'work motivation' model (2010). The questions explore how persistent the participants are in general, how motivated they are to work actively with their stuttering, how much time they are willing to set aside for independent training, how much help and support they expect during the therapy period, and their anticipations of the therapy outcome. All the quantitative items are measured on Likert scales, ranging from 1 (not at all or nothing) to 5 (very much or completely). The second new section in the CPST-E is based on qualitative information and contains open text units where clients write down their own goals and wishes for the therapy, what they need in order to achieve their goals, and other factors they consider important in the collaboration. The 21 participants completed the CPST-E during the first meeting pre-therapy, including writing down their personal goals in the open-text units in the form in response to the written instruction: '*Describe, using your own words, your goals and wishes for the therapy*'.

The internal consistency was good to excellent for the section 'Goals of treatment' ( $\alpha = .81$ ), 'Motivation and expectations' ( $\alpha = .92$ ), and for the summarized sections ( $\alpha = .89$ ) (Sønsterud, Howells, & Baluyot, 2017).

#### Assessment of stuttering severity, communication and quality of life

The research aims were addressed using multi-factor repeated measures. The study included internationally recognized measurements, encompassing both a short-term and longer-term outcome perspective for measuring the impact of stuttering, reactions to

stuttering, changes in communication, avoidance behaviours and quality of life over time. Both covert and overt aspects of stuttering were considered.

The Wright and Ayre Stuttering Severity Self-Rating Profile (WASSP) was completed four times by each participant at the following stages: pre-treatment, and at 1-, 6-, and 12 months post-treatment (Yaruss & Quesal, 2010). The WASSP contains 26 questions spread across five domains: 1) stuttering behaviors, 2) negative thoughts related to stuttering, 3) negative feelings about stuttering, 4) avoidance behaviors, and 5) disadvantages due to stuttering. Of these, nine questions are related to behavior, and seventeen are related to cognitive and affective experiences (Wright and Ayre 2000). Each item is scored on a 7-point Likert scale, with higher scores indicating greater negative impact associated with stuttering. The WASSP has demonstrated strong internal reliability with  $r > .80$  on each of the five sections (Wright & Ayre, 2000).

The Overall Assessment of Speakers' Experience of Stuttering - Adult version (OASES-A) was completed at the same time points as the WASSP. OASES-A consists of 100 items, each scored on a Likert scale ranging from 1 to 7. For each item in the OASES-A, response scales are organized so that higher scores indicate a greater degree of negative impact associated with stuttering. The questionnaire is divided into 4 sections: 1) general information about stuttering and self-awareness of stuttering behaviors, 2) affective, behavioral and cognitive reactions to stuttering, 3) communication difficulties in daily situations, and 4) impact of stuttering on quality of life (Yaruss, 2010; Yaruss & Quesal, 2006). The OASES-A has demonstrated good test-retest reliability ( $r = 0.90-0.97$ ) and concurrent validity ( $r = 0.68-0.93$ ). Each of the four sections of the instrument has also revealed very strong internal reliability ( $r = 0.92-0.97$ ) (Yaruss & Quesal, 2010).

#### Assessment of anxiety and depression

A number of instruments are available to assess aspects related to anxiety and depression. The Hospital Anxiety and Depression Scale (HADS) is a screening tool for screening both anxiety (HADS-A) and depression (HADS-D) (Zigmond & Snaith, 1983). The internal consistency of the HADS-A and the HADS-D showed coefficient alpha of 0.89 and 0.86 respectively, and has been found to be excellent in samples from general practice (Olsson, Mykletun, & Dahl, 2005). The HADS is a self-administered scale consisting of 14 items split across anxiety and depression subscales, each with a four-point ordinal response

format (e.g. 'not at all', 'occasionally', 'quite often', or 'very often'). It has demonstrated good psychometric properties and, according to a literature review, is effective in measuring anxiety and depressive symptoms in clients with various diagnoses and in the general population (Bjelland, Dahl, Haug, & Neckelmann, 2002). For the purpose of this study, the first line in the introduction to the form was removed as it included the word 'Hospital', which was inappropriate for the setting of this study. Recommended cut-off scores are  $\geq 8$  on each subscale for 'possible cases' and  $\geq 11$  for 'definite cases', and  $\geq 15$  and  $\geq 19$  on the HADS total, respectively (Zigmond & Snaith, 1983).

GAD-7 (General Anxiety disorder) (Spitzer, Kroenke, Williams, & Löwe, 2006) is a 7-item anxiety scale, aiming to identify probable cases of generalized anxiety disorder. GAD-7 is a valid and reliable tool, with internal consistence at Cronbach  $\alpha = .92$ , which indicates a strong consistency. As there is a high comorbidity of anxiety and depressive disorders (Bjelland et al., 2002), the Patient Health Questionnaire (PHQ-9) was included too (Kroenke, Spitzer, & Williams, 2000). More heterogeneity is found in the PHQ-9, which showed a low sensitivity, but a good specificity (Manea, Gilbody, & McMillan, 2015).

#### Assessment of speech fluency and stuttering severity

Several tools were used to measure the dimension of stuttering severity, including the SSI-4 (Stuttering Severity Instrument - 4<sup>th</sup> version) protocol and software (Riley 2009). The SSI-4 examines stuttering severity across three parameters: frequency, duration, and physical concomitants (distracting sounds, facial grimaces, head movements or movements of arm, hand, foot-tapping etc.). Outcome data for physical speech characteristics were obtained from seven video-recordings; six within-clinic tasks, and one beyond-clinic speaking task (talking in a restaurant, park, or another outdoor area). Video recordings were taken at eleven data points during the project period, seven of which were used as bases for the evaluations with SSI-4. Of these videos, two were filmed during the pre-therapy phase, two during the therapy phase (after the first and fourth therapy sessions), and three in the post-therapy phase (at 3-, 6, and 12 months post-therapy). Each video recording included both a reading task and a spontaneous speaking task as per the SSI-4 protocol.

However, although it is widely used within research, reliability values across the sub-scores, total score and final severity rating of the SSI Instrument are by some regarded as inadequate (Davidow & Scott, 2017). Other measurements were therefore included.

*Likert scale 0-9*, where 0 is no stuttering or exertion associated with stuttering, and 9 is extremely severe stuttering or physical and psychological exertion associated with stuttering. A very simple self-evaluation measuring the person's subjective experience of the degree of exertion associated with stuttering. This scale has demonstrated good reliability (Bosshardt, Packman, Blomgren, & Kretschmann, 2016; Davidow & Scott, 2017), and is very similar to self-report measures using a 1-10 scale, which has been found to be highly correlated with objective measures of stuttering rate, stuttering severity and struggle (Huinck & Rietveld, 2007). In this study, the scale was completed six times pre-therapy (once a week for a minimum of six weeks in the pre-therapy phase). In addition, the study was supposed to add the Likert scale 0-9 minimum three times between each treatment sessions, and a minimum of six times during the follow-up phase. Unfortunately, only some of the participants rated their stuttering using this Likert scale (0-9), and several forgot to use the measure. Therefore, the reporting of this particular evaluation was withdrawn in the reporting process.

#### Inter and intra-rater agreement

Speech fluency and stuttering severity measured on the SSI-4 were evaluated by two external, independent evaluators who were not otherwise involved in any aspect of the therapy. Prior to rating the original data set, the evaluators used video recordings of persons who were not participants in the study, in order to train a common understanding of stuttering identification and to facilitate acceptable levels of intra-, and interrater reliability.

Relationship of agreement in SSI-4 Total Scores were based on percentage agreement and Cohen's Kappa (McHugh, 2012) on both the training data set and the original data set.

Following the training period, the evaluators achieved intra-rater reliability scores of respectively 96% and 100% when evaluating a number of previously unseen recordings, indicating an almost perfect intra-rater agreement (Value of Kappa: > .90).

Time and resources were invested in the external evaluation procedures. Seven samples were evaluated for each participant, with the exception of one participant who was abroad for 3 months and could not attend at the three-months follow-up. This resulted in a total of 125 video recordings (126-1) for evaluation. The evaluators were blinded to session number, therapy elements, and the different phases (pre-, immediately post first-, and fourth therapy session, and at 3-, 6- and 12 months follow-up). As the total set of videos for all participants were presented in randomized order, recordings were not rated consecutively or in comparison to one another. Using the SSI-4 protocol, the first evaluator rated speech

characteristics including stuttering frequency, stuttering duration, concomitant physical movements, and speech rate. Speech naturalness was also measured, but is not included in the total scores, as recommended by G. D. Riley (2009). Following a further randomization, the second evaluator rated 20% of the video recordings to control for reliability. For the total dataset measured by SSI-4, the percent agreement based on the total scores across the two evaluators was 78%, which indicates strong agreement ( $Kappa = 0.81$ ).

### Participants' evaluation of therapy elements - Therapy Preferences Form (TPF)

A participant's therapy preferences were identified through ongoing dialogue between the participant and me, the SLT, and were used to design an individualized therapy plan. The *Therapy Preferences Form* (TPF) was developed to document preferred elements and the effect of the therapy elements or strategies adopted. The elements for each participant were captured in the participants' TPF and the document was subsequently reviewed by participants at the end of the third therapy session and at the follow-ups at 3- and 12-months post-therapy. Although three time points (data points) of evaluations might not be regarded as regular in psychotherapeutic contexts, the use of the TPF in this study can be regarded as 'routine' outcome monitoring, as described in the work of for example Lambert et al. (2018).

The participants were asked to rate each element across two dimensions: (1) How useful they found the specific element (Likert scale ranging from 1 = not at all useful, up to 7 = extremely useful), and (2) How often they were using the elements in their homebased practice/training (Likert scale ranging from 1 = not at all/never, up to 7 = always). A furthermore general question was included in the form, with a similar Likert scale to those described above: '*Overall, how useful do you consider the therapy in general, and how actively have you been training?*'. So far, I have been only reporting the result of the first part of this twofold question. However, I find it clinically relevant to report the result of the second part of this important question. Anyhow, this may fit the format of a short research paper, and is planned to be published after the public defense of this PhD.

### General clinical considerations regarding the approach

A range of relevant strategies which were regarded by the participants as useful and relatively easy to transfer into daily life have been described. Different participants selected and benefitted from different areas of focus and combinations of elements to address their specific needs and achieve their goals. The different elements and strategies incorporated in

the therapy process were recorded and summarized in each participant's TPF, and the elements were further explored and evaluated in daily life settings by the participants themselves.

From the first session, participants were invited to carry out short exercises to observe their breathing patterns and/or other physical sensations. They were invited to identify and localize physical sensations that occurred in different situations, including situations where they were speaking and those where they were not. For most, but not all participants, the awareness work was combined with speech work. If the participants found the exercises helpful, they were also then invited to practice these exercises at home, or in social-, work- or educational settings.

### Methodological considerations

This study is adopting a flexible and pragmatic approach based on the idea that data collection methods should be related to the specific research questions, rather than me, as a researcher, is having a predetermined preference neither for qualitative nor quantitative approaches. For me, it was important to base the research design on the research questions rather than the other way around. This view is in accordance with Dures (2012), who states that qualitative elements of the research ask 'what' and 'how' in order to explore more deeply and gain insight into underlying issues, while quantitative elements ask 'how many' and 'how strong' in order to measure, predict and correlate. The mixed method approach is, therefore, able to go some way toward meeting the multidimensionality of everyday lives. I therefore consider this method as suitable for the research questions specified in this thesis.

This study has provided a considerable amount of qualitative data and quantitative that are highly relevant to research on stuttering and treatment of stuttering. Four master theses have been conducted based on related data or data from this research project, and six master degree students have so far been involved (Furusetth & Bolstad, 2017; Hoft, 2017; Muus, 2018; Nordbø et al., 2018; Nordhassel, 2017). Associations between stuttering and language variables (initial consonants, sentence position, position within the word, word length etc.) have been investigated in previous research (language factor analyses), but to most part on English speakers who stutter. The study of Muus (2018) confirmed findings from previous research, but also showed a more nuanced picture with regards to part of speech and stress.



## Reflections on design

An advantage of the multiple case study design is the flexibility to tailor the evaluation to the individuals themselves and to their individualized therapy, from pre-therapy, through to post-therapy. The single-subject design involves evaluation before, during and following therapy, and is therefore useful when considering the value of an untested individualized therapy approach (Gast & Ledford, 2014). Several direct inter-subject or inter-group replications using the same A-B-A design could be conducted in the future to increase confidence in therapy efficiency. The experimental effect could be further evaluated and replicated by extending the study with other participants or by involving other SLTs. When an A-B-A analysis is supported by systematic replications, confidence in the intervention's influence on behavior is enhanced (Gast & Ledford, 2014). Multiple-single-case-designs control for threats to the internal validity of a study by including several baseline dependent variables, introducing an intervention, and then documenting the effect of that intervention with repeated measurements.

This study incorporated both objective and subjective measures and facilitated the identification of useful and less useful elements as well as the opportunity to make appropriate adjustments to the therapy through collaborative decision making. The multi-faceted therapy was applied in such a way that it was applicable to daily life settings.

Repeated measures single-case design studies often require a minimum of at least 3 data points per phase to facilitate predictions and observations of trend or lack of trend. Such repeated measures are particularly important given the natural variability of overt features of stuttering. Measurements during the baseline phase are essential, as this serves as the control. However, according to scientific guidelines presented at the European Symposium on Fluency Disorders in Antwerp in March 2018 by Katrin Neumann (<http://www.ecsf.eu/news-and-events/european-symposium-on-fluency-disorders-2018/keynote-speakers>, uploaded July 10<sup>th</sup> 2019), a minimum of 2 datapoints are to be required in each phase. This corresponds with Riley who recommends at least 2 datapoints in the pre-therapy phase when measuring frequency and severity of stuttering based on the SSI-4 manual (G. D. Riley, 2009). As this study involves an A-B-A design, the number of data points over the three phases had to be sufficient to predict any trend during the phases. Some of the statistical trends identified are included in the Paper III. This strengthens the internal validity of the study, because it makes it possible to robustly answer questions about the usefulness of the approach.



Although 18 participants are regarded as a small sample when group data are analyzed, it is sufficiently high to make reporting on each subject challenging, at least given the space constraints in journals and the difficulty getting reports on an individual level published. We were analyzing both individual and group data across three phases (at pre-, 6- and 12- months post-therapy), with the idea of using each participant as his or her own control. These analyses were necessary in order to explore *individual outcomes*. Most of the data presented in the papers to date have been group data, but individual data are included both in Appendices B and C in this thesis, and as appendices in Paper III.

The original intention had been to include a control group, drawn either from a waiting list or a group of adults who were receiving ‘standard’ stuttering treatment, but it was difficult to recruit enough participants, so multiple measures were taken during the baseline to provide control data instead.

#### Reflections on recruitment process

Recruitment procedures in the present study aimed to draw as large and representative sample as possible. Close collaboration with relevant institutions and organizations, such as networks of people who stutter within the Norwegian Association of Stuttering and Cluttering, were prioritized, as well as SLTs working within the field of fluency disorders via Regional Associations of Speech-Language Therapy, Statped’s professional networks in the Southeast region of Norway, and professional networks at the University of Oslo. All were informed about the study based on one announcement (see appendices). The process lasted for two months, and 21 adults aged between 21-61 years of age were recruited, 18 of whom were included in the treatment study. The broad recruitment process was designed to ensure a representative sample, consisting both of adults who had previously experienced stuttering therapy and those (29%) who had not participated in speech therapy, either as children or as adults. The majority of participants recruited (86%) were not members of the Norwegian Association of Stuttering and Cluttering. Participants were diverse with regard to age, gender, work- and educational status, stuttering pattern, and stuttering severity, which can be regarded as a strength of the study.

In research, it is common to include selection criteria, as was the case with the present study. Originally the proposal aimed to investigate the usefulness of individual-based stuttering treatment for adults aged 18 to 50 years. To control for the effects of comorbidity, exclusion criteria were set and included other known speech, language or hearing problems. Although it is a common requirement of stuttering therapy studies that participants’ speech

must include either > 5% (> 3%) of syllable stuttered, this selection criterium was not adopted in the present study. This decision followed, a preliminary discussion with my mentor David Ward and was founded on a curiosity regarding who would take contact during the recruitment process, and also a desire to include a cohort which could be considered as representative. The decision was also based on ethical principles. In clinic, it is common to serve persons with overt stuttering (observable features/disrupted speech output) and/or overall covert patterns of stuttering (person using strategies to hinder overt stuttering to occur) and, based on the Declaration of Helsinki (*World Health Organization*, 2001), an individual's well-being should take precedence over the interests of science. The tradition of using the criterium of 5% or 3% stuttering syllables in stuttering research studies means that people with lower levels of stuttering frequency or a more covert pattern of stuttering have been excluded in previous research. To my knowledge, people with more covert patterns of stuttering have, as a group, never been investigated in previous stuttering treatment studies. Including participants with overt stuttering frequencies lower than 5% stuttering syllables would be a way to explore such patterns and, potentially, covert stuttering. Although the term 'covert stuttering' is fairly widely known, I believe that this can apply to people with predominantly overt patterns of stuttering as well as those with predominantly covert patterns of stuttering as many people who stutter may try to hide or cover the stuttering. I prefer to use the term 'interiorized stuttering' to refer to a pattern which is predominantly covert (Cheasman et al., 2013), but this term is not yet as common within the stuttering field, as the term 'covert'.

Threats to history refers to events that occur during an experiment or follow-up that are not related to planned changes but that may influence outcomes. For example, one participant's spouse wished to initiate a separation around the time of the 6-months follow-up. This participant's (participant number 5) stuttering and related thoughts and feelings were very much affected by this situation or event, and also anxiety levels, measured by HADS, were increasing. The negative impact could also be observed on SSI-4, WASSP and OASES-A, representing a big change from the positive changes seen at the 6-month follow-up (see Appendices B and C).

There is a possibility that the Hawthorne Effect may affect the generalizability of the study. The Hawthorne Effect describes a situation whereby participants' observed behavior may not be representative of their natural behavior (Gast & Ledford, 2014). This aspect can be a threat to validity based on participants' knowledge that they are participating in a

research study. The risk in this situation is that rather than being directly attributable to the therapy, changes in behavior or outcomes might be related to the awareness of being in a research study (Sedgwick, 2012). It is, therefore, important to probe the generalizability of the findings in regular clinical settings without the tightly controlled framework of a research study impacting recruitment, implementation and follow-up.

### Reflections on measurements and evaluation procedures

There are always threats to the validity of research. As I was both the primary researcher and the SLT working with the participants, the risk of bias was a highly relevant threat. It was therefore particularly important to involve external evaluators in the assessment and reporting procedures. In this sense, it was important to make a clear distinction between the measurements and the evaluation. The measurement procedures were based on my own therapeutic or clinical decisions as to what data would be collected, but the evaluation can be regarded as the analyses or comparisons of all the data collected during the project period. Some of the data was collected using formal procedures and external evaluators. The involvement of these external evaluators, as well as four SLP master degree students at the Faculty of Education, Department of special needs education, University of Oslo (UiO), who were not otherwise involved in the study was a way to reduce the threat of bias. As part of the data collection, the students conducted semi-structured, qualitative interviews with the participants after the 6-months follow-up. The aim of these interviews was to identify and explore what the participants themselves considered relevant in their own therapy process. The students were naïve towards the decisions made in therapy, and it was expected that the students were neutral and unbiased when interacting with the participants. They worked in pairs and were expected to follow specific, standard procedures when conducting the interviews. I was actively involved in the development of the interview guide, but was not involved in either the interviews themselves or the qualitative analyses and the reporting phase of the responses. In these tasks, the students were supported by a different, external supervisor at the UiO. This qualitative dataset was regarded as independent work and generated two master theses. The findings of these sub-studies were therefore not included in the PhD-thesis.

Percentage agreement between two independent observers or evaluators is the most common technique for determining the degree of threat to a study's internal validity (Gast & Ledford, 2014). The external evaluators were two independent SLTs who work with people

who stutter and who had worked together to develop their competence in measuring stuttering with the SSI-4. They were not otherwise involved in any aspect of the therapy. The evaluators were blinded to session number, therapy, and phase from pre-therapy through to 12 months follow-up. Using the SSI-4 protocol, the first evaluator rated speech characteristics including stuttering frequency, stuttering duration, concomitant physical movements and speech naturalness. Following a further randomization, the second evaluator rated 20% of the video recordings to control for interrater reliability. For the total dataset measured by SSI-4, the percent agreement across the two evaluators was 78%, which indicates strong agreement ( $Kappa = 0.81$ ). Further details can be found in the Method section.

Testing is a threat in any study in that it requires participants to respond to the same measures repeatedly during baseline, intervention and follow-ups. Thoughts and feelings are regarded as covert, private behavior in ACT (Hayes, Strosahl, et al., 2012), and when considering whether we have been measuring behaviors of importance in a way that captures the participants' construct of interest, I do believe that the answer is: 'Yes, for the most part'. The matter of measurements was an issue in which we invested much time early in the project. As stuttering is regarded from both covert and overt perspectives in this research project, it was important to consider both audible, visible speech characteristics such as stuttering frequency, and thoughts and feelings related to stuttering, in addition to broader factors such as speaking abilities, confidence in communication, avoidance behaviors and also quality of life. I consider the present study strengthened by including measures which captured both overt and covert aspects of stuttering. Further, most of the measures used in the present study are also frequently used in stuttering therapy research internationally.

The reliability and validity of measurements is an important consideration in research, and a measurement is considered reliable if it provides consistent results in consistent conditions. Internal consistency and test-retest reliability appear to be the most frequently used indicators of reliability, which means that a measure can be depended on to be accurate. This means that a person should get the same score on a questionnaire if a person completes it at two different time points in time. Due to the limited time frame in this therapy study, I was unable to run a test-retest reliability test for the measures prior to the recruitment phase. Internal consistency is the degree to which a set of items measure the same underlying characteristic. Cronbach's alpha ( $\alpha$ ) uses values from 0 to 1 to indicate the degree of internal consistency. Field (2018) questions which values should be regarded as acceptable for internal consistency, highlighting that this value may vary within different research contexts. Field

suggests that a value of 0.7 to 0.8 is an acceptable value for Cronbach's alpha ( $\alpha$ ), and the measurements used in this thesis define as above 0.7 as reliable. Internal consistency calculated for the OASES-A and WASSP for the Norwegian sample in the present study reached values higher than 0.7. These findings are not published yet, and a separate research paper which will compare the measures for internal consistency for the OASES-A, the WASSP and the SSI-4 is planned. The internal consistency on the CPST-E (Sønsterud et al., 2017) was found to be good to excellent, as seen in the sections 'Goals of treatment' ( $\alpha = .81$ ), 'Motivation and expectations' ( $\alpha = .92$ ), and for the summarized sections ( $\alpha = .89$ ) (see Paper I, section 2.4.1 for more information). Cronbach's  $\alpha$  was also calculated for HADS, GAD and PHQ-9 ( $\alpha = .86 - .92$ ) and for the WAI-SR ( $\alpha = .87$ ).

Another issue to be considered, is the extent to which the conditions under which data are collected, represent reality. One very important issue to be considered in this sense, is whether the severity and/or frequency of stuttering during and after the therapy sessions are representative of that experienced by the participants in their daily life. Here the present study has to rely on subjective evaluations from the participants only, which may be regarded as a limitation of the study. With the exception of the fourth therapy session which took place in a non-clinical setting such as a café or a park, stuttering severity and stuttering frequency were evaluated from video footage taken within a clinical setting. Generally, there was a standard format for the measuring procedures within the clinical setting. In the settings beyond clinic, the format was changing in the sense of places (ex. park/café etcetera). Instructions were given in a similar format, and the various measures were presented in the same order. As OASES-A and WASSP are measures which require the participants to consider the impact of stuttering related to their communication in daily life settings (at home, at work, in social settings etc.), it is reasonable to assume that the participants' evaluation reflects their perception of reality in daily living situations.

The TPF provided valuable information which can be regarded as 'internal data' based on each participant's evaluation. Both the CPST-E and the TPF were included with the intention of capturing the way in which each participant defined his or her own priorities and goals in therapy, and how each person viewed their response to the various therapy elements. This is in many ways a scientific challenge, but at the same time is an example of how SLTs can be prepared to adapt certain therapies to meet the needs and goals of a specific client. The use of the CPST-E and TPF has facilitated the investigation of such adaptations. Previous clinical and research experience with the CPST (McCauley & Guitar, 2010) has indicated the

need for a broader perspective on goals and motivation for therapy. An extended version was therefore developed, the Client Preferences for Stuttering Therapy - Extended version (CPST-E). In the CPST-E (Sønsterud et al., 2017), an item ('To have more positive feelings associated with stuttering') was added in the section 'Goals for treatment', and the section 'Motivation and expectation' was included, see Paper I where more details are described. The section 'Motivation and expectations' addressed five questions probing: a) A person's persistence (the maintenance of an initially chosen course of action over time), b) how motivated they are to work actively with their stuttering, c) the amount of time a client is willing to set aside for independent training, d) how much help and support they expect during the therapy period, and e) their anticipations of the outcome. This section was based on Seo et al.'s (2010) 'work motivation model', as pointed and described further in Paper I.

With the aim of measuring stuttering variance over time, each participant was asked at the first pre-therapy meeting to evaluate their own stuttering severity on a weekly basis outside the clinic visits. A Likert scale ranging from 0-9 provided a simple self-evaluation form to measure the person's subjective exertion (both physical and psychological) associated with stuttering and was completed six times pre-therapy (once a week for a minimum of six weeks), between treatment sessions (minimum 3 datapoints), and a minimum of six times during the follow-up period. The Likert scale from 0 to 9 has demonstrated good reliability (Bosshardt et al., 2016; Davidow & Scott, 2017), and is very similar to self-report measures on a scale from 1-10, which have been found to be highly correlated with objective measures of stuttering rate, severity and struggle (Huinck & Rietveld, 2007). Originally, we intended to include ratings from a "significant other" (spouse, partner, close friend etc.), using a similar Likert scale from 0-9. However, as more than 50% of the participants had a pattern of predominantly covert stuttering, it was difficult to carry out this evaluation from a significant other in a meaningful or systematic way. Ratings from significant others were, therefore, withdrawn from this report.

Previously, there were no standardized stuttering measures available for SLTs in the Norwegian language. This lack of measures in Norway might also have influenced the stuttering therapy and stuttering evaluation and have had some negative consequences, both in general and in terms of the present study. In previous years, there has been little tradition for Norwegian SLTs to measure stuttering, at least not for adults who stutter. This developmental work to establish standardized measurements was, therefore, prioritized as a prerequisite and the therapy project was postponed by almost a year while this was undertaken. Supported by Statped and colleagues, the majority part of the work to standardizing a suitable measure of

stuttering was carried out during the period 2014-2016. Bodil Nordbø focused her master thesis on the assessment OASES-A, collecting data to establish norms for a Norwegian population of adults who stutter (Nordbø et al., 2018). Her thesis and the work of developing and translating the OASES-A was part of the preliminary work for this thesis. The purpose of comparing the present study sample ( $n=18$ ) to Norwegian norms (population data=62), was to consider the representativeness of the sample in the present study. I believe that the difference between the reference group and the study sample matters, and this aspect is stated in Paper I.

### Reflections on statistical validity

The study contains statistical analyses commonly used in research, and were guided by the research aims. Descriptive analyses were used when presenting results from the WASSP, OASES-A, SSI-4, HADS, WAI-SR, CPST-E, and the TPF, with no missing data. Clinical and demographic data were presented as percentages (%), frequencies ( $n$ ), Means ( $M$ ) and Standard Deviations ( $SD$ ), or Medians with interquartile ranges ( $IQR$ ) when data were skewed. Normality was assessed by obtaining skewness and kurtosis values, and skewness values within  $+1.96/-1.96$  were defined as indicating a normal distribution (Field, 2018). A normal distribution was found on the OASES-A, WASSP, HADS and TPF, while a few subscale scores of the SSI-4 and the CPST-E did not show a normal distribution, see further details in the papers (paper 1 and Paper III). In Paper 1 (Table 4), results from the CPST-E (section ‘Motivation and expectations’), are therefore presented both with Median and Means (and corresponding interquartile range ( $IQR$ ) and Standard Deviation ( $SD$ ), so that readers may assess the difference between the two approaches themselves.

The research aims were addressed by comparing stuttering impact scores (OASES-A, total impact score and subscores) and stuttering severity (WASSP, total score and subscores) of all 18 participants at pre-therapy, and at follow-ups after 6- and 12 months. Changes in communication, avoidance behaviors and quality of life were regarded as dependent variables and were measured with the OASES-A and the WASSP. Paired-samples t-tests and repeated measures ANOVA were conducted to compare data across different time frames.

Based on self-evaluations (OASES-A and WASSP), evaluations of the external evaluators (SSI-4), and evaluations by the SLT, which seemed to be in the major part consistent, participants were categorized into two main groups: those with predominantly covert stuttering features ( $n=11$ ), and those with predominantly overt stuttering features

( $n=7$ ). Outcome measurements for stuttering severity and stuttering frequency (SSI-4) were therefore presented both for the whole group ( $n=18$ ) and as a sub-group ( $n=7$ ), containing seven individuals with predominantly overt stuttering. The group with overall covert stuttering features ( $n=11$ ) is not yet separately analyzed. All analyses were performed at both group and individual levels. By comparing each individual's stuttering, thoughts and feelings related to stuttering before and after therapy, we were able to use each individual's pre-therapy outcomes as control data.

To compare the mean scores on selected continuous variables on a group-level, the SSI-4 evaluations were conducted based on video footage taken at two points pre-therapy, two points during therapy, and three points post-therapy. However, in order to restrict the length of Paper III, group data were included in the paper, while the individual data were presented as appendices. Boxplot analyses were included to present the trend and spread of the data pre-therapy, during therapy and throughout the 3-, 6- and 12 months follow-up. Contrasts were employed to test for significance immediately after the first therapy session, and at 6- and 12- months post-therapy. The average scores for these were used to provide an overall baseline figure pre-therapy (pre 1 + pre 2 divided). The same individuals were tested again after the first and fourth therapy sessions, and at 3-, 6-, and 12 months post-therapy. More datapoints including videorecordings were made, but there were no economical resources to use external evaluators except for the datapoints previously mentioned, and included in Paper III.

To explore the strength of the relationships between pre- and post-therapy results on the OASES-A, WASSP, HADS and SSI-4, associations were calculated using Pearson's correlation coefficient ( $r$ ). Therapy outcomes were measured using the relative delta scores ( $\Delta$ ) which indicate changes between two scores, given as a percentage ( $(A-B)/Ax100$ ).

Results from the WAI-SR were presented in Paper II. Associations were calculated using Pearson's correlation coefficient ( $r$ ), exploring the strength of the relationships between subscales and total scores of the WAI-SR, and pre- and post-intervention results of the OASES-A, the WASSP, and the HADS. Associations were also calculated between the WAI-SR and the section of the CPST-E which covers aspects related to the client's motivation for treatment and expectations regarding support and treatment outcomes. Treatment outcomes were measured using the relative delta scores ( $\Delta$ ) on the OASES-A, WASSP and HADS. Delta scores indicate changes between two scores, given as a percentage ( $(A-B)/Ax100$ ).

Multiple linear regression analyses were used to determine whether levels of motivation and willingness to set aside time for self-training could predict (a) perceived



strength and quality of the relationship between the participant and the SLT (WAI-SR *task* subscale), and (b) treatment outcomes (OASES-A). We wished to control for possible effects of initial stuttering severity and general distress, which could impact on coping abilities and treatment outcomes, and test whether levels of anxiety (HADS-A) and total impact scores (OASES-A) were influencing the variables.

When considering effects within the dimensions of Applied Behaviour Analyses (ABA), there are several issues to be aware of. According to Gast and Ledford (2014, p. 86), the term ‘effective’ related to treatment is described when the ‘*effects of the intervention are large enough to be of practical value to the participant or society, i.e. social validity*’, and that the effect the intervention has on behaviour is ‘believable’. This means that a cause-effect relation has to be demonstrated (internal validity). Anyhow, for most part in the reporting, I preferred to use the terms ‘useful’ or ‘meaningful’ rather than ‘effective’. As long as ABA recommends reporting on effect sizes for all statistical reports, some calculations of effect sizes were therefore conducted in this study too. The Cohen’s *d* (Cohen, 1988) and Partial Eta Squared ( $\eta^2$ ) (Richardson, 2011) were used for considering effect sizes in the present study. Those two effect sizes are common both in psychology and educational research. It seems that the interpretation is not straightforward. However, even though Cohen himself introduced cut-offs such as small (0.2), medium (0.5) and large (0.8) when interpreting the effect of an intervention, he also presented them with a strong caution that this might be an ‘operation fraught with many dangers’ (Cohen, 1988). Even though the present study highlights the importance of interpreting the findings within a practical, clinical, and/or personal significance perspective, we have chosen to follow the same general guidelines when considering the effect sizes in the treatment study (see Paper III).

### Reflections on qualitative analysis

Qualitative data were used to explore the participants’ considerations of treatment goals and wishes, and to evaluate the validity of the quantitative findings. Of the qualitative data included in the project, only the written text material on personal goals and wishes for stuttering therapy were analyzed and included in this thesis. Data were analyzed in accordance with the principles of thematic analysis outlined by Clarke and Braun (2016). As many key utterances as possible were identified from the written text units from participants’ responses on the CPST-E in the first phase. Written responses (in Norwegian) were typed into a word-document, and subsequently translated by an external native English speaker who also speaks Norwegian. The written text material on personal goals and wishes for stuttering

therapy were included with the purpose of looking for commonality among meaning units. Reliability was secured by including one of the co-authors reviewing the Norwegian data units before they were translated into English, and all the authors had access to the English data set (de-identified) during the reporting process. The procedures on the qualitative analysis and participants' responses are described in a detailed form in Paper 1.

## Ethical considerations

Optimal stuttering therapy requires reliable knowledge both for the clinicians and clients, and new knowledge is provided by research and made accessible via publications. To avoid biased decisions and data manipulation, researchers have an overall responsibility to conduct themselves honestly and ethically.

Voluntary participation was secured and written informed consent was obtained in accordance with the revised Declaration of Helsinki (*World Health Organization*, 2001). The Declaration of Helsinki is aiming to protect rights and welfare of the participants, as with the informed consent procedures in the present study. An important principle in the Declaration of Helsinki is that groups which are underrepresented in research should be provided appropriate access to participation. Acknowledging this principle, the recruitment criteria for this study were quite wide (ref. age and stuttering pattern). All participants were informed about the voluntary principles and of the right to refuse to participate in the study or to withdraw consent to participate at any time without reprisal. All participants gave permission for their data to be recorded for inclusion in the study.

As far as we are aware, there is no burden or negative risk involved for participants in this study. This is in accordance with the Norwegian Directorate of Health, §22, who state that research shall not '*involve risks and burdens to the human being disproportionate to its potential benefits*' (<https://www.helsedirektoratet.no/english/about-the-norwegian-directorate-of-health>, July 8<sup>th</sup> 2019). To my knowledge, apart from the time spent in therapy and follow-up sessions there have not been any 'burdens' on the participants in this study. For the participants who needed to travel over longer distances to attend the sessions, travel costs were largely covered by the project fund (Norwegian Extra Foundation for Health and Rehabilitation).

Ethical approval was given by the Regional Committee for Medical Research Ethics in May 2015 (2015/1275), with an additional approval for the qualitative study involving the

master's students. All data were de-identified, and participants were given either a number or alias-names in the manuscripts. During the pre-therapy, one of the participants (number 8) was referred to another SLT because of comorbid disorders, as described in Paper III. Data collected at the pre-, during and post-therapy were entered into a data file in the statistical program SPSS. No personal identifications were registered into this data file. The key variable that was used to match the variables was numbers from 1 to 21. The numbers 1 to 7 and 9 to 19 were used in the therapy study. Two persons (number 20 and 21) had to withdraw due to challenging personal working and health circumstances, leaving a total of 18 adult participants (n=18), as described in Paper III.

Every researcher is responsible for the choices he or she makes (Benton, 2011), and I, as the primary researcher is responsible for decisions and choices made. The ethical stance was reflected in the expectation that I (as a SLT) was open to learning from the participants. I wished to create an 'ethical space' in which each participant could feel safe, respected, in control, and *'as free as possible to engage as fully as possible'* in the treatment (McLeod, 2018, p. 29). According to McLeod, this concept can be regarded as a form of 'positive' ethics, because the aim was to make positive contributions to the quality of the clinical work in general. McLeod further states that this concept has become known as *relational ethics* because it takes account of the context or environment, in which the individual stuttering therapy was conducted. Nevertheless, a potential limitation in the study is the participants' relationship with me, the SLT, and the primary researcher who implemented the treatment. Although I was blinded to the evaluations related to the working alliance (WAI-SR) during the treatment period, there is a risk that participants may have underreported negative experiences and over-reported positive experiences with the conscious or subconscious aim of protecting their relationship with the clinician. Although the participants' evaluations seemed to be honest, authentic and representative. other, objective measures were taken and analysed by independent external evaluators to reduce this risk.

Despite the positive outcomes reported for the majority of participants, some would probably have benefitted from a more intensive and longer lasting therapy approach. Furthermore, to establish a 'partnership' usually takes time in the collaborative process. It is worth noting, however, that all participants who commenced the therapy approach completed it. There were no dropouts, suggesting that the intervention did not involve any undue burden for participants. After the 12 months follow-up, I was assisting two participants who did not

respond positively enough to the treatment in finding additional professional support within the service of psychotherapy.

Video recording is a useful tool in clinic and in clinical research, and is often used within stuttering therapy. The purpose of including video recordings in the present study was to document the features and severity of individual patterns of stuttering, and to optimize the reliability of the SSI-4 measurement procedures (see the Measurement section for more details). In managing the video recordings, safeguarding the consent, privacy and confidentiality of participants was paramount. Additional information was therefore included in the consent form. The video recordings were stored on an external, encrypted hard disk in a locked and secured safe, to which only the primary researcher (SLT) had access. Video recordings (from the seven datapoints beginning with the initial pre-therapy session and ending with the 12-months post-therapy follow-up session) were placed in random order (randomized using a free web-based program found at <https://www.randomizer.org/>) and made accessible to the primary external evaluator. A second randomization was carried out when the first evaluation was completed, and the first 20% of video recordings in this randomization made available to the second external evaluator. Video recordings were no longer available to the external evaluators once they had carried out their evaluations.

## Results

### Summary of the main findings

This project generated a large amount of data. The participants' self-set goals generally revolved around coping in daily life settings. The motivation for treatment, and the degree of mutual agreement regarding meaningful *tasks* to achieve the desired *goals* or changes, seemed to be important predictors for positive therapy outcomes. Findings indicate that the *Multidimensional Individualized Stuttering Therapy*-approach is useful in managing stuttering in adults as reflected in measures of stuttering, confidence in communication and quality of life. A positive finding was that the approach significantly reduced avoidance behaviors and anxiety levels. The main findings are presented in three papers and summarized below. Although we recognize that positive therapy outcomes resulted from a non-linear interplay of multiple factors, it seemed that awareness of body tension and awareness of breath support in speech were regarded as particularly important for 16 of 18 participants (89%) in the study.

## Paper 1: What do people search for in stuttering therapy: Personal goal-setting as a gold standard?

The main aim of this sub-study was to explore in more detail individual aspects of motivation for treatment and to shed light on how individual variations regarding goal-setting related factors in people who stutter may influence outcome goals.

The study identified multiple factors which influenced participants' therapy goals, with a majority of participants describing how both physical and psychological aspects matter in stuttering treatment. Treatment goals were related to the participants' personal contexts in daily life settings, and the qualitative data identified four main themes as follows: improving speech fluency, emotional function, activity and participation, and participants' understanding of their stuttering. The quantitative data analyses demonstrated that the majority of participants wished to focus on both physical and psychological aspects of therapy, and that 95% regarded the goal 'to gain a sense of control over the stuttering' as important.

Findings indicated that participants' descriptions of goals primarily revolved around coping in real life settings, particularly in social and professional settings. Several participants reported that they felt stuttering could be a challenge that limited their participation in some situations and activities. The aim of the study was not to examine hypotheses or theoretical relationships at the outset but rather to identify a set of explanatory variables that gave a strong correlation without reference to pre-existing theoretical explanations. In this inductive reasoning approach, we have made many observations and, based on the qualitative and quantitative data, have identified a pattern. However, in order to optimize the generality of the findings, we also attempted to replicate results of earlier studies. We considered the studies of Karimi et al. (2018) and Siew et al. (2017) of particular relevance, particularly as the Siew et al. study also included the OASES-A. As can be seen, our findings are, indeed, consistent with those of a number of studies, such as those described by Hayhow et al. (2002), Siew, Pelczarski, Yaruss, and Vitevitch (2017), and Karimi et al. (2018), in that improving the sense of control in speech and communication was a goal for a majority of participants.

Results from the present study demonstrated a strong congruence between participants' experienced challenges or limitations, and their desire or search for improving ease of participation in communication situations. Avoidance behaviours were common among many of the participants regardless of whether their stuttering was associated with primarily overt or covert stuttering. The findings indicate that people who stutter might

struggle with negative emotional and social impact of stuttering and that they may develop a myriad of social- and linguistic-related avoidance behaviors.

## Paper 2: The working alliance in stuttering treatment: A neglected variable?

To our knowledge, this is the first published study which has investigated the working alliance in relation to a stuttering management study. Results indicated that the working alliance is relevant in the evaluation of treatment outcomes, and that the working alliance between the SLT and the person who stutters matters. This finding provides support for similar conclusions within other fields of speech and language therapy, physiotherapy, and psychology (Berg et al., 2017; Bright, Kayes, McCann, & McPherson, 2011; Caughter & Dunsmuir, 2017; Flückiger et al., 2018; Fourie, 2009; Lawton, Haddock, et al., 2018; Sønsterud, Kirmess, et al., 2019). Based on Bordin's (1979) model of the working alliance which includes the dimensions of agreement of therapy goals, therapy tasks, and the bond between client and clinician, our findings indicate that the dimensions of goals and tasks were particularly relevant. The clients' motivations for treatment, and agreement regarding meaningful tasks for achieving change, may be important predictors of successful treatment outcomes.

Using the Working Alliance Inventory (WAI-SR) (Horvath & Greenberg, 1989), we examined whether the therapeutic alliance correlated across the goal, task, and bond subscales, and whether the working alliance was decreasing or increasing in quality throughout the treatment period. Subsequently the relationships between the working alliance, motivation and willingness to set aside time for training, and perceived improvements in communication, and quality of life were explored.

Of the three subscales in the WAI-SR, the *bond* subscale had the most stable scores. Significant correlations were found most notably on WAI-SR items related to either *task* or *goal*. The relationships between variables related to participants' motivation and the working alliance evaluated early in treatment, demonstrated a strong correlation, particularly between the WAI-SR task subscale and motivation, time set aside for self-training, persistence, expectation of a positive outcome, and expectations of support, respectively. To further explore the influence of 'Time set aside for training' on the outcome variable OASES-A, we performed a regression analysis. The results indicated that time set aside for training significantly explained treatment outcomes ( $F(3, 14) = 0.660, p = .011$ ). At a group level, all

the presented relationships between the WAI-SR and the outcome variables demonstrated a linear trend; the higher perceived quality of the working alliance, the higher delta scores measured by the OASES-A, WASSP and the HADS-A.

The quality of the working alliance remained high throughout the treatment period. This may indicate an initial strong therapeutic alliance between the participants and the clinician, maintained throughout the treatment period at both the individual and group level.

### Paper 3: What works for whom? Multidimensional Individualized Stuttering Therapy

This paper is a result after an investigation of the usefulness of an approach that integrated certain elements of ACT with stuttering-, and speech modification therapy. The relative weighting between the five subcomponents (the five focus areas) varied across individuals and were specified in the Therapy Preferences Form (TPF). The *Multidimensional Individualized Stuttering Therapy* approach was associated with significant statistical and clinical improvements. There was a significant effect on improved speaking ability with less struggle and stuttering, and strong associations were found between improved speaking ability, confidence in communication, reduction in avoidance behaviors, and improved quality of life. Individually, variabilities in response to the different stuttering- and speech modification elements combined with awareness-based elements were considerable for several participants. At a group-level, participants with a high degree of avoidance behaviors at baseline demonstrated significantly fewer avoidance behaviors post-therapy. A reduction in anxiety was also observed for the majority of the participants, measured by the HADS (Anxiety subscale).

The purpose of the TPF was to provide a specific focus for individualized and goal-directed tasks or activities, including the elements that the participant had agreed to work on during the face-to-face sessions and/or between sessions. The use of the TPF in this way can be regarded as outcome monitoring described in the work of for example Lambert et al. (2018). The variables in the TPF (individual therapy elements within the focus areas 1 to 5) were based on a Likert scale (ranging from 1=not at all useful, up to 7=to a great extent useful). Only elements regarded as useful (Mean  $\geq 4$ ) by the participants were included for reporting purposes, see a detailed report in Paper III, section 3.5. The five areas of focus are presented both in Paper III and are also described in more detail below.

### Clinical considerations regarding the five focus areas in the approach

### *Area 1: Awareness of general breathing patterns and body tension*

This area of focus was regarded as valuable by 16 of the 18 participants. Although the concept and experience of awareness appeared to be experienced differently by different participants, the awareness work was mainly experiential, and most participants reported noticing or becoming more aware of their breathing patterns and/or physical sensations more during the therapy process. Some preferred to focus on general relaxation of the body and breathing patterns while they were either sitting on a chair or walking purposely or slowly. Of the 16 participants, 9 found the contrast between ‘low breathing’ and ‘high breathing’ useful, and several adopted the idea ‘anchoring’ the breath deeper in the body during therapy. Six participants reported finding guidance on using exhalation as a relaxation tool useful. The exercises were explorative and involved experimenting with changes in exhalatory breath flow during speech and silence. Five participants requested simple breathing exercises consisting of prolonged oral exhalations (with added lip friction) and nasal inhalations. Three participants reported enjoying practicing slower and more conscious body movements. This skill was linked to settings where these participants were working towards giving a verbal presentation to a group.

### *Area 2: Awareness of breathing patterns during speech production*

As with the previous focus area, 16 of the 18 participants found one or more elements from this area useful. Up to 12 participants enjoyed identifying and exploring experiences of their breathing patterns when speaking. Several participants consciously began to purposefully exhale when they recognized increases in physical tension or predicted a moment of stuttering. These participants also chose to employ the same strategy during a stuttered block as a means to release the block (‘pulling out of’ disfluent words) and then progress with speech. This strategy mirrors the ‘pull-out’<sup>3</sup> of Van Riper (1973), hence, instead of releasing the blocks by smoothing out via phonations (‘voicing-out’) some of the participants were focused on easing or smoothing out during blocks by releasing the airway through conscious exhalation (‘breathing-out’). Five participants specifically wished to improve their awareness and ability to use ‘low breathing’ or ‘steady (relaxed) breathing’ when they were speaking. It is important to be aware that breathing for speech is not always

---

<sup>3</sup> Van Riper’s ‘pull-out’ can be regarded as a modification strategy to release a stuttering event during its occurrence.



calm and relaxed. The physical factors creating that sensation of calm or relatively steady exhalation were for some of the participants more difficult to achieve.

### *Area 3: Awareness of vocal features in speech production*

Vocal features explored with participants included pitch and volume. The majority of participants reported finding a focus on increasing awareness of their use of phonation useful, including ‘pitch-return’ (decreasing pitch level) in voicing, soft consonant contacts/light articulatory contacts, and/or ‘pulling out of’ disfluent words (pull-out). Eight participants incorporated pitch-return in their speech practice both within and beyond the clinic setting, with one participant even having an image of a tuning fork tattooed onto his arm to help maintain his awareness of pitch. Two participants found awareness work related to vocal volume useful, which seemed to be consistent with the use of light articulatory contacts. One of the two wished to use continuous phonation as an additional speech strategy.

In the present study, additional elements of purposeful prolongation were introduced to some of the participants. With the exception of one participant who found continuous phonation useful, nobody in the cohort chose to utilize prolonged speech segments within their therapy process. This aspect of prolonged speech was therefore not further explored or analyzed for reporting purposes.

### *Area 4: Awareness of affective and mindfulness-based strategies*

Incorporating a range of mindfulness-based skills, focusing on connecting with chosen values in life, self-care, and/or context-sensitive exposure exercises, this was considered a valuable area of focus by 16 of the 18 participants. Eight participants selected their breathing patterns as a target for increased awareness. Eleven participants chose to utilize exposure exercises in work-, educational and/or social settings with the aim of enhancing their psychological flexibility for participation activities. For some participants, there was considerable overlap between Areas 1 and 4, associated with increasing mindfulness of particular body systems, such as breathing patterns or body tension. In general, such overlapping of focus areas was not uncommon, but was rather dependent on the participants’ perspectives on goals, choices and on what they specifically wished to focus.

### *Area 5: Awareness of general communication and/or presentation skill.*

Valuable elements were identified in this area by 14 participants. Flexible rate and increased awareness of use of pauses were the most popular elements. Three participants

wished to work on their awareness of and ability to resist time pressure in communication settings, while two participants elected to explore the effects of emphasizing particular words in utterances.

## Discussion

The study considered the extent to which the *Multidimensional Individualized Stuttering Therapy*-approach had clinical or personal significance for each individual within his or her daily life. By exploring and evaluating an individualized stuttering therapy approach, this study highlights the limitations of ‘one-size-fits-all’ approaches within stuttering therapy. It also highlights the existence of multiple variables which may influence treatment outcome, some of which were documented in this study, see appendices regarding the focus areas. I do, however, agree with Baxter et al. (2015), who emphasize the need for outcome measures that can be used in research to evaluate and compare the effectiveness of different interventions. The study incorporated, therefore, internationally recognized standardized measurements, to facilitate the comparison of results from the present study with other therapy studies. The TPF and the CPST-E were also included with the aim of capturing individual responses and feedback regarding therapy goals and activities. The forms CPST-E and TPF were particularly important when considering individualized aspects in the study. Individual variations in response to the therapy procedures were investigated and this variation in response would benefit from further consideration.

### The individual perspective

It is interesting to consider whether the goals and wishes expressed by participants at the pretherapy phase can be regarded as specific therapy goals or more general life goals. To some extent, they might be considered as means rather than goals. Early in the treatment, many participants articulated goals and wishes directly related to their stuttering and/or speaking abilities, while their goals were later modified and related to coping in everyday situations in order to increase social activity or improve communication skills. Goals were often related to the participants’ ability to speak more effortlessly or to improve their sense of control during verbal exchanges (see Paper I).

According to McLeod (2018) and Wampold (2015), participants’ goals can be stated, but cannot always be easily evaluated because they may need to be broken down into specific, meaningful and measurable sub goals or tasks which contribute towards the larger goal. These different levels of goal can be classified as *process goals* and *outcome goals*. For example, as

reported in Paper I, a participant might initially state that his or her goal is to improve speech fluency, reduce stuttering or even get rid of stuttering altogether. In such cases, I as the SLT probed further, asking what would happen or what would be different for them if they achieved this goal. Some participants then nuanced or expanded their goal, responding with, “*If I was stuttering less, I would be able to reach my academic potential*”, or “*Improving the fluency of my speech would help me to improve social life*”, or “*If it was not for my stuttering, it would be easier to find a partner*”. In these examples, the goals in their initial form were related to their stuttering. Based on the responses of the majority of the participants, increased speech fluency or to gain a sense of control over the stuttering were regarded as highly relevant goals. Goals such as these might be defined as process goals rather than outcome goals, since several participants felt that increasing speech fluency or reducing stuttering would contribute to the attainment of broader goals such as optimizing educational achievement or increasing social participation.

It is interesting to consider the extent to which participants characterize the therapy process as interacting with their relationships and social participation. For example, can positive changes in ways of relating to others be observed? Can a reduction in general symptoms or positive changes in communication contribute to a more rich or meaningful life? Based on feedback from former psychotherapy clients, Binder et al. (2010) reported interrelationships between good outcomes and components clustering around four themes: establishing new ways of relating to others; reduced symptomatic distress or changes in behavioural patterns contributing to suffering; increased self-understanding and insight; and accepting and valuing oneself. Ideally, clinical outcome measures within stuttering therapy would reflect what the participants themselves regard as significant outcomes. The individual experience of goal achievement was described by participants as taking place in a variety of life domains but, when explored through discussion and shared reflections, all related to a general wish to experience and participate in life more fully. Based on responses from participants throughout the project period, it seemed that several did experience the attainment of broader outcome goals. Examples included the person who avoided telephone calls, but now uses the phone almost every day; the grandparent who did not enjoy talking and avoided social settings as often as possible, but is now much more socially active and interacts much more actively with the grandchildren; the employee who chose to avoid situations or strive to be as ‘invisible’ as possible, but is now feeling more positive about speaking situations; the parent who has started reading bedtime stories aloud for his children; the person who has

started to enjoy socializing; and the person who previously felt unable to pursue higher education due to stuttering, but is now studying at one of Norway's most prestigious universities.

Those adults who stutter and seek speech therapy usually have ideas about what they want to gain from the therapy process. During initial discussions, the SLT can begin to form a general sense of the person's speech, stuttering, personality and communication style, and also gather information about how the person functions in his or her various environments. This gathering of information includes observation of both verbal and non-verbal information, formal measures and informal talks and interviews to form an impression of what is important and meaningful for the individual. The SLT should spend time identifying the person's goals and developing an understanding of what these goals really mean to the person. At the same time, I believe it is important to give the person a feeling that the work of change can start as soon as possible, both to give the person something concrete to work upon, and to facilitate the person's motivation for therapy. All these aspects are considered important because they 'anchor' the therapy process, and help create a sense of collaboration and shared purpose (McLeod, 2018).

As already mentioned, this thesis uses a pentagon to conceptualize individual variation, see figure 2 above. Within each area of focus are several sub-elements which can be further specified, exemplified and personalized. This structure corresponds with McLeod (2018), who states:

*“To make progress in relation to goals, it is necessary to break them down into constituent sub-goals or tasks. The concept of task plays a key role in therapy, because it represents a way of joining up goals with the techniques, activities or methods employed by therapist and client in their work within a session”* (McLeod, 2018, p. 99).

Paper III describes the value of participants committing to activities which they regard as relevant. According to McLeod (2018), a clinician who operates from a pluralistic perspective will always welcome client suggestions on how to work with challenges and will engage in joint decision-making on these issues. One way of facilitating collaboration and joint decision-making, is for the SLT to suggest tasks or activities for the person to explore with and subsequently evaluate the elements to see whether it might be helpful within everyday life. Exploring, experimenting with, trying out and practicing adjustments, changes or new skills in real-life situations are also important for successful transfer and maintenance

of skills. Ultimately, what matters most is the client's general well-being and ability to live life more fully and in accordance with his or her values (Hayes, Strosahl, et al., 2012; McLeod, 2018).

### Subgroup perspective

A known characteristic of stuttering is its heterogeneity, and stuttering can, therefore, mean very different things to different people who stutter (Shapiro, 2011; Ward, 2018). Findings from the present study can be analysed in the context of the recent work on subgrouping of stuttering (Howells, Baluyot, & Sønsterud, 2018). By identifying individual variation in the impact ratings and severity ratings produced by the measurements, and in the relationship between for example the two measures OASES-A and SSI-4, there might be a need to consider stuttering within a sub-group perspective. Alternatively, the work of Tomaioli et al. (2015) can be used to classify persons who stutter into subgroups. In the present thesis, several of the participants had more severe impact ratings on the OASES-A than on the SSI-4, with a relatively low frequency of observable stuttering combined with a high degree of negative impact on the OASES-A. For example, on an individual level, a discrepancy in severity rating across the SSI-4 and OASES-A was found on several cases, where the average score on the SSI-4 was in the mild range, while the average impact score on OASES-A was in the moderate to severe range (Howells et al., 2018). These data were presented separately at the joint ISA/IFA/ICA (International Stuttering, Fluency- and Cluttering Associations) conference in Hiroshima in July 2018 (Howells et al., 2018)

There is broad agreement that stuttering is more than just the visible and audible features of stuttering, and *'people who stutter may well be more fluent than people who do not, but at the same time perhaps a whole lot more anxious'* (Ward, 2018, p. 4). Constantino, Manning, and Nordstrom (2017) describe how the *'act of stuttering is distinct from the feeling of stuttering [...] if they did not produce disfluent speech, they still felt the underlying loss of control that accompanies the stutter'* (2017, p. 31). The findings in the present study support those of Constantino et al. (2017) and others, emphasizing that the way persons who stutter perceive their own stuttering does not necessarily correlate with the severity of overt stuttering. The sample in this study included both participants with a pattern of stuttering that was primarily covert (*'passing as fluent'*) (Constantino et al., 2017), as well as those whose pattern of stuttering was primarily overt. Based on my own observations, the participants' self-categorizations, and objective evaluation of overt stuttering severity carried out by external evaluators, the sample was divided into two groups: participants with primarily overt

stuttering (n=7) and participants with primarily covert stuttering (n=11). Interestingly, the *Multidimensional Individualized Stuttering Therapy* approach seemed to be relevant, useful and meaningful for participants in both these groups.

The findings of this study support the recommendations made by the authors of the OASES-A (Yaruss & Quesal, 2006) and the SSI-4 (G. D. Riley, 2009), who state that their assessments are to be used alongside other measures of stuttering, so that both subjective and objective features of stuttering are evaluated. Identification of individual variation in the impact and severity ratings produced by the measurements and monitoring the relationship between these two ratings (OASES-A and SSI-4) throughout the therapy process may provide a framework for the future classification of subgroups. It might also have important implications for developing individually-tailored therapy plans (Howells et al., 2018; Sønsterud, Kirmess, et al., 2019), and is, therefore, worthy of further investigation. The ICF model provides a useful framework for issues related to a person's function in real-world settings (Logan, 2015; Yaruss & Quesal, 2004, 2006), and the model is equally appropriate for those passing as fluent as for those with a primarily more overt pattern of stuttering.

#### Behavioral awareness and speech work - interactions with broader outcome goals

Behavioral awareness in this context refers to the extent to which an individual can feel and be consciously aware of what he or she is physically doing when speaking and/or stuttering. Work in this area involves supporting the person in improving awareness of factors such as breathing patterns, voicing, and/or physical sensations in the body. The process might involve experimenting with and purposefully adjusting airflow, tension, and/or voicing, remembering at all times to acknowledge that the individual is best placed to decide what they find optimal. In this study, these subjective responses and decisions were recorded via the Therapy Preferences Form (TPF). Use of the TPF in this way can be regarded as *routine outcome monitoring*, as described in the work of Lambert et al. (2018). As Logan (2015) explains, clinicians have to be prepared to adapt therapy approaches to meet the needs and goals of individual clients, and to carefully consider the effect of such adaptations by collecting information monitoring how each client is responding on specific elements in therapy.

As a form of behaviour therapy which addresses emotions, ACT can involve committed action by the individual in work-, educational, or social settings. ACT also incorporates exposure-based strategies, and several participants in the present study chose to

combine exposure to communication situations with integrated stuttering-, and/or speech-modification elements in their training. Their choice to explore and transfer speech and/or awareness-based actions into daily life settings seemed to be linked to their broader outcome goals, for example, reading bedtime stories for their children, increasing social activity, or starting a meaningful education. According to Logan (2015, p. 469), people “*function most effectively when their daily activities are aligned with the goals or destinations that they hope to reach*”.

## Clinical implications

What I can state within the perspective of individual stuttering therapy, is that clinicians need to be sensitive to client features, needs, motivations, values, responses and individual therapy outcomes (McLeod, 2018; Shapiro, 2011; Wampold, 2015; Ward, 2018). There are several ways to cope with stuttering, and some people cope very well with stuttering, and have no need for professional support. However, many adults who stutter are seeking support. Some have successfully developed a relationship with an SLT, often with support and encouragement from others, but there are still many who have not been able to establish a supportive collaboration with a SLT. There are many reasons for this, including but not limited to the individual’s location, limited local provision of SLT services, and access to such services. There may also be individuals who do not trust SLTs or who have had previous negative experiences with therapy for stuttering. There may also be some adults who are unaware that they have a legal right, anchored within Norwegian legislation, to be supported by SLT services at no cost to themselves.

## The working alliance and the role of the clinician

Fortunately, over recent years, there has been increasing interest in the therapeutic relationship as an evidence-based component of interventions in speech and language therapy (Lawton, Haddock, et al., 2018; Manning, 2010c; Plexico et al., 2010). It is likely that the quality of the working alliance between persons who stutter and SLTs affects the course of therapy and its outcomes. The working alliance is important - it matters. The findings in the present study support the use of the WAI-SR as a tool for evaluating elements of this relationship within stuttering therapy. It is quick and easy to use, and explores the working alliance across the three domains of bond, goal and task, in which has been suggested that the working alliance has its foundation (Flückiger et al., 2018; Flückiger et al., 2019; Flückiger,

Horvath, Del Re, Symonds, & Holzer, 2015; Horvath et al., 2011). It is possible that the working alliance and, in particular, the shared understanding of goals and agreement on tasks, training and activities relevant to those goals, might be among the most critical elements for successful treatment. Pre-existing evidence suggests that the clients of clinicians who are better able to form alliances, have better outcomes than the clients of clinicians who are less skilled in forming alliances (Wampold, 2015). Incorporating evaluations gained from tools such as the WAI-SR at an early stage in the therapeutic process may help ensure that context-sensitive goals and meaningful tasks are in place and could enable SLTs and persons who stutter to more easily identify and repair challenges should they arise. However, the WAI-SR has been identified as a useful tool for assessing the working alliance in the client-clinician relationship with a cohort of adults who stutter. Research is required to investigate whether the same tool is appropriate for use with an extended number of people who stutter.

### Goal-led therapy

Despite the fact that adults who stutter in Norway are eligible for free speech-language service, access to SLTs may be limited and it seems that some adults who stutter are not aware of their right to access therapy services. It also seems that therapy provision may generally be more available for children and adolescents who stutter than for adults who stutter. It is interesting to question whether this imbalance in service provision is due to differences in demand or is based in a lack of competence or confidence on the part of speech therapy services.

The SLT's own competence and professional trust play a big part within the frame of a goal-directed therapy (Manning, 2010b; Plexico, Manning, & Dillo, 2005). Although there is consensus that SLTs should openly and honestly discuss an individual's goals and expectations for therapy, personal motivation for therapy and the impact of the working alliance for people who stutter have rarely been investigated. Goal-led therapy might be reaching a gold standard only if the client and the clinician are constructing something meaningful together. Within the pluralistic perspective (McLeod, 2018), clinicians are regarded as improvisers, crafters, artists or designers who can learn from clients and improvise. These examples fit very well with clinicians working with clients when a more individualized and flexible therapy procedure is needed.

### Purposeful use of measures in stuttering therapy



In both clinical practice and clinical research there are several advantages to using recognized, standardized, international measurements in stuttering therapy. For example, measures of the working alliance indicate whether a client's subjective experience of the relationship early in the therapy process has any bearing on the process and outcomes. Findings in the present study demonstrating significant associations between the quality of the working alliance and treatment outcomes. Future research could further explore this by ensuring that data is collected regarding the client-clinician process and the perceived impact of interventions (Baxter et al., 2015). WAI-SR is easy to administrate and allows for monitoring of the working-alliance over time, and for making comparisons with other people or with specific populations.

Today there is consensus in the field of fluency disorders that multiple outcome measures are needed to document therapy outcomes, and, for this reason, more measurements are needed in therapy research. Today, SLTs in Norway have access to several of the measurement tools used in this study, including the OASES-A and the WASSP. In addition to the stuttering severity and the impact of stuttering, both of these tools investigate variables such as thoughts, feelings, confidence of communication and quality of life.

Another advantage of using other standardized, internationally recognized measures such as HADS and GADS in addition to specific stuttering measures, is the opportunity to understand whether, prior to therapy, an individual is experiencing challenges such as anxiety, depression or distress. It is reasonable that anxiety may be higher among people seeking stuttering therapy than those who do not seek therapy. As with other clinicians and researchers in the field, I acknowledge that stuttering may, for some people and to some extent, be accompanied by social anxiety (Craig, 2014; Iverach & Rapee, 2014; Menzies et al., 2019), but I do believe it is crucial to consider the concept of anxiety more thoroughly. Anxiety can manifest in so many different ways. Based on my own experiences in clinic, it is important to consider the concept of linguistic anxiety (word avoidance) in addition to social anxiety, and to consider to what extent linguistic anxiety might be a factor in some cases identified as social anxiety. Within stuttering therapy, it is useful to include measures which can capture different forms of anxiety, including linguistic anxiety, social anxiety and general anxiety. This aligns with Menzies et al. who argue that concomitant psychological problems (particularly social anxiety) are known to interfere with the therapy outcome (Menzies, O'Brian, et al., 2008; Menzies et al., 2019). Although they do not assess social anxiety specifically, the HADS and the GAD were included in this thesis as short screening tools. The

sample in this study is too small for generalizing, yet it is possible that the pre-therapy anxiety levels of two participants (Participants 10 and 13) had an influence on therapy outcomes. As seen in the Paper III, the same two participants did respond positively across the outcome measures, but only on a minor level. It is possible that for clients whose anxiety level is high prior to the commencement of stuttering therapy, there would be benefit to highlighting and discussing the issue with the individual and considering inviting support from a psychologist, either as an alternative to or in parallel with speech-language therapy.

We are tempted to claim that overt stuttering measures such as those incorporated in SSI-4, make only a limited contribution to the evaluation of therapy outcomes (see Paper III). The findings mirror the concerns described by Davidow and Scott (2017, p. 1), who state that clinicians and researchers who use the SSI-4 '*should carefully consider the limitations of the instrument*'. In fairness, it is important to note that authors of both the OASES-A (Yaruss & Quesal, 2006) and the SSI-4 (G. D. Riley, 2009) state that their assessment is to be used alongside other measures of stuttering. The present study suggests that for both clinical work and research, there is value in including both subjective and objective measures of stuttering and its impact. Discrepancies in severity rating across the SSI-4 and OASES-A on an individual level were demonstrated, with the average impact score on the OASES-A pre-therapy being in the moderate to severe range while the average score on the SSI-4 was in the mild range. As an example, Participant 13's responses on OASES-A indicated a severe impact rating, but the same participant had a score so low on SSI-4 that it did not meet the criteria for a stuttering severity rating. As already stated, identifying individual variation in impact ratings and severity ratings produced by different measurements, and in the relationship between the two ratings pre-therapy through post-therapy, might allow for the consideration of sub-groups of people who stutter (Howells et al., 2018).

#### The Multidimensional Individualized Stuttering Therapy-approach in comparison with 'standard treatment'

Comparisons with results reported in other stuttering intervention studies on the same age group are possible, but some of the studies are challenging to compare with due to limitations in information. For example, prolonged speech approaches are often delivered via highly intensive programs where the clients are instructed often in a programmed, criterion-dependent manner, to prolong speech segments in spoken utterances (Bloodstein & Bernstein Ratner, 2008). According to Bloodstein and Bernstein Ratner (2008) several relevant therapy programs, such as the Camperdown program in Australia, could not report on up to 50% of

participants at follow-up, due either to participants not completing the program or being lost to follow-up (Sue O'Brian, Onslow, Cream, & Packman, 2003). Anyhow, a recent study by Menzies et al. (2019) which combined speech restructuring therapy with an internet-based Cognitive Behavioural Therapy approach suggested that the combination resulted in improved speech outcomes for one of the two-arm randomized experimental trial, compared with the other arm where the participants were receiving speech-restructuring therapy alone. When considering the speech restructuring therapy in the Menzies et al.' study, which was based on stages 1 and 2 of the Camperdown program (Sue O'Brian et al., 2003; Sue O'Brian, Packman, Onslow, & Menzies, 2012), we note that interpretation of the Camperdown program data (Menzies et al., 2019) is complicated by the fact that approximately 30% of participants dropped out of the program. According to Menzies et al., the OASES-A Total Impact Mean score at 6 months post-therapy for both the experimental group and the control group was similar to that of the present study: Mean = 2.4, SD = 0.6 and Mean = 2.41, SD = 0.6 respectively. The results in the Menzies et al. at 12 months post-therapy changed to Mean = 2.2 (SD = 0.6) for the experimental group and Mean = 2.6 (SD = 0.6) for the control group, whereas the values in the present study remained stable at 12 months post-therapy (Mean = 2.46, SD = 0.65).

Other well-documented approaches include the Comprehensive Stuttering Therapy program (Langevin et al., 2010) conducted at the Institute for Stuttering Treatment and Research (ISTAR) in Canada, and the integrated approach of Beilby and colleagues in Australia (Beilby et al., 2012). As with the present study, the study of Beilby et al., combined ACT with speech restructuring therapy, although comparison is made more difficult by the fact that they did not specify which elements of speech restructuring were involved. Interestingly, Beilby et al. demonstrated more positive changes in OASES-A scores (all four subscales) at 3 month post-therapy compared to the present study. Anyhow, Beilby et al study does not contain long term follow-up data. This may be partially explained by the increased contact hours in the Beilby et al. study, which included almost twice as many hours of face-to-face contact as this study. Nevertheless, this is a noteworthy difference and worthy of further consideration. When outliers (participants 1 and 10) are excluded in the present study, the mean scores on the OASES-A come closer to the results of Beilby et al. (2012). This provides further incitement to evaluate client factors pre-therapy, and consider whether the approach can be regarded as appropriate for people with high levels of anxiety symptoms. Another possibility is that the *Multidimensional Individualized Stuttering Therapy* may still

be a useful approach for such individuals, but that more hours of contact may be required if the person is to benefit.

Although we cannot claim that the *Multidimensional Individualized Stuttering Therapy*-approach is a more effective approach than therapy approaches which can be regarded as ‘standard’ stuttering treatments, we can regard the approach as useful. Furthermore, stuttering frequency and severity in some of the ‘standard’ treatment studies increased significantly at 12 months follow-up, but in this study there was not a similar significant increase in stuttering severity after 12 months (see for example Paper III where the approach is compared to the Menzies et al.’ study). In addition, the absence of dropouts from the present study may indicate that the participants viewed the *Multidimensional Individualized Stuttering Therapy*-approach positively. This study confirmed that there are many factors which may influence treatment outcomes, and this does create challenges when comparing therapy programs. As Baxter et al. (2015) concluded in their meta-review, a significant proportion of participants benefitted from a range of different types of intervention. They also claimed that, although the range of interventions and volume of research have grown considerably, the evidence remains unclear as to ‘*who will gain most from which programme*’ (Baxter et al., 2015, p. 688). This study aimed, in many ways, to fill this gap, and therefore the project was entitled ‘Stuttering therapy: what works for whom?’. We support Bloodstein and Bernstein Ratner (2008, p. 383/384), who claim that clinicians and researchers need to be sensitive to the person’s individual profile, needs, values, motivations, and responses. They further state that ‘*clinicians will need to be able to appraise best therapy ‘fit’, establish therapeutic alliance, and troubleshoot different patterns of response if they wish to achieve a positive and durable therapeutic outcome*’.

Differentiating therapy elements or strategies is somewhat challenging because respiratory, laryngeal and articulatory musculature in major part function as a single coordinative structure during speech. Inspired by Logan (2015), one of the ways in which the present study differs from others is in its flexibility in allowing each participant to choose where he or she wished to focus attention when speaking. The participants’ preferences grew out of ongoing dialogue, and these preferences were reported and systematized in the Therapy Preferences Form (TPF). According to Logan (2015), discussions with the clients about therapy preferences can offer important insights into the person’s experiences with stuttering.

Effect is found in a large number of stuttering interventions. However, it seems that interventions with many hours of contact do not necessarily offer different outcomes to those

with fewer (Baxter et al., 2015). The intervention in the present study consisted of only four therapy sessions of maximum 2,5 hours per session. Compared to other stuttering programs, this is quite a low amount of contact time, yet it proved effective for many participants. Evidence-based practice can support cost-effective services which will differ due to their unique contextual factors (Swift et al., 2017).

### Strengths and limitations

In the published and submitted papers, I have been meticulous in describing the limitations, as well as the strengths, related to each sub-study. The current study was based on a multiple case study design, with a convergent mixed method design, where both qualitative and quantitative data were collected and analyzed within the same timeframe to facilitate the comparison of datasets. The study is strengthened by this design as it explores the interactions between individual- and contextual aspects, even though only parts of the qualitative data are included in this thesis. This design was considered particularly appropriate for the research questions and for investigating aspects which have not previously received much attention within stuttering research. Nevertheless, although large for a multiple case study design, the sample size remains a limitation of the present study, as does the lack of a control group or control participants. As the participants were responsible for making the initial contact in response to promotion of the study, they are regarded as self-selecting and motivated for therapy. A strength is that participants were diverse with regard to age, gender, stuttering pattern, work- and educational status, degree of anxiety, and stuttering severity.

A potential limitation of the study is the participants' relationship with me as the SLT who was implementing the treatment. Although I was, as far as possible, blinded to some of the outcome measures (for example the WAI-SR) during the therapy process, there was a risk that, in order to protect the relationship with me as the clinician, some participants may have under-reported negative experiences and over-reported positive experiences in some of the subjective measures. To my knowledge, however, participants' evaluations were honest, authentic and representative. Another critical element in the study, is the fact that I was combining two roles; being the SLT and also the head researcher. Furthermore, there is a risk that the follow-up ratings in the present study may have influenced the result post-therapy in such a way that the follow-up ratings for some were seen as a way to keep the participants focused and motivated for self-training. In this sense, only 6-, and 12- months follow-up ratings would have limited this threat. Nevertheless, important data were gathered at both 1-

and 3-months post-therapy. I therefore believe that the number of datapoints post-therapy can be regarded as both a limitation and a strength, depended on the perspective of the research questions. For example, data from the participants' third evaluation of the working alliance (I was advised to have minimum 3 datapoints for the WAI-SR) and preferred therapy elements at 3 months post-therapy (TPF) would not be collected without the 1- and 3-months post-therapy.

One of the outcome measures originally incorporated in the study involved the collection of pre-therapy data over six datapoints, using the *Likert scale 0-9*, which is a very simple self-evaluation form to measure the person's subjective struggle associated with stuttering. Participants rated their stuttering using a Likert scale from 0 to 9, where 0 is no stuttering or struggle associated with stuttering, and 9 is extremely severe physical and/or psychological struggle associated with stuttering. This measure was completed six times pre-therapy (once a week for a minimum of six weeks pre-phase), between treatments sessions, and a minimum of six times during the follow-up sessions. All participants registered the six datapoints pre-therapy, but this same measure was not included regularly or systematically during the intervention and post-therapy phases. The measure was therefore withdrawn from the reporting process and has not yet been analyzed and prepared for publication. This can be regarded as a limitation, and needs to be reviewed and reconsidered to improve measurement procedures in future research. Another issue related to this particular measure was the way some participants with a primarily covert pattern of stuttering found it difficult to use to rate their stuttering experience based on this measure.

A further limitation of the study is a lack of specific, quantifiable measures of mindfulness that would be useful for measuring change in this area. Mindfulness skills, both within and between participants, seemed to vary greatly, yet such variation was not measured systematically.

Other challenges included the inaccuracies of wording used to describe, for example, relaxed breathing. A focus for some participants was modifying breathing patterns to utilize what we termed "relaxed and calm". However, breath for speech is, necessarily, not always calm and relaxed. The phrase was therefore used as a shorthand for a more complex description related to 'steady breathing' or 'low breathing'. The physical factors associated with this sensation include, among others, relatively steady exhalation, inhalation before the lungs are empty, and low levels of respiratory effort and tension. Although the phrase was

used by some of the participants, I am aware that the term does not capture the complexities of the physical and psychological processes.

Another strength is the study's interdisciplinary approach, involving the integration of elements from both psychology and speech-language therapy. In some ways this may be regarded as innovative. To a great extent, it seemed that the integrative approach fit well with the participants' wishes and goals. In many ways, I have increased my knowledge of both speech-language therapy and psychology, and by improving my knowledge of psychology, I feel I have improved my skills as a speech-language therapist.

Again, the findings with this small sample are promising, but replication with larger samples is warranted. My hope is that the results presented here will encourage others to replicate and expand the research with larger and more heterogeneous samples to establish the robustness of the present findings.

## Overall considerations and the future

I do believe that further research is needed to crystallize further directions and implications in stuttering therapy. This study has demonstrated that multiple factors can influence the motivation, goal descriptions and therapy outcomes. The quotation "*Knowing what works in therapy represents a major step forward.*" is borrowed from Miller et al. (2010). According to them, without a reliable and feasible way to deliver what works in therapy, the advance in science will have little value to practitioners and consumers. Speech-language therapy is a field which in many ways mirrors issues within psychotherapy. Structured and regular use of standardized measurements provide evidence of value, and using formal feedback from clients to inform, guide, and evaluate therapy is strongly recommended by Miller et al. (2010). Purposeful collection of outcome data can increase the potential for therapeutic change within the field of speech-language therapy. An important and common topic is how to assess progress in therapy. Gaining informal and formal feedback from clients and including subjective and objective tools for measuring changes induced through therapy for stuttering is very important, both within clinical work and clinical research. However, this requires access to useful measurements. Prior to startup of this PhD-project, there was little use of such measures for evaluating progress in stuttering therapy here in Norway. Based on our own initiative, work, and important support from colleagues in the field of fluency disorders here in Oslo, we managed to develop, translate and rewrite measures which have subsequently become accessible to all SLTs in Norway. Over time, a growing tradition of

using measures regularly in stuttering therapy will make it easier to include control samples in clinical and scientific work in the future – also here in Norway.

Studies which are tracking the therapy outcomes of clinicians and clients, have confirmed that clinicians play a significant role in the outcome of therapy (Miller et al., 2010). Based on the findings in the present study, we now know that the SLT plays a significant role in the outcome of stuttering therapy (Sønsterud, Kirmess, et al., 2019). Nevertheless, as Miller et al. explain, still too little is known about successful therapists. I doubt that ‘the best SLT’ or ‘the best stuttering therapy’ exists, but the present thesis has rather documented multiple factors which may influence therapy outcome including factors related to the SLT. From a perspective of dispositionalism (Kerry et al., 2012), the greatest causal work can be seen in single-instance cases. For example, how effective is a particular clinician with a particular client at a specific time-point? As stated by Miller et al. (2010, p. 424), clinicians do not need to know ahead of time what approach to use, but rather be able to recognise if the current relationship *“is a good fit and, if not, be able to adjust the treatment and accommodate the client’s experience and goals”*.

Therapy should be continually assessed and integrated into what matters for each client (Duncan, Miller, Wampold, & Hubble, 2010). In the fields of both psychology and speech-language therapy it has become evident that the contrasts between treatment approaches do not account for all the outcomes. It is worthwhile considering that sometimes the therapy itself may account for less than the common factors where therapy outcomes are concerned. Some meta-analyses have indicated that clinician variability in the working alliance potentially has a greater influence on therapy outcomes than client variability. For example, we know that the SLT’s competence and the degree of professional trust play an important role within the framework of goal-directed therapy. Although the findings in the present study (see Paper II) identified significant associations between the quality of the working alliance and treatment outcomes, strong associations between client features and treatment outcomes, in particular participants’ motivation and willingness to set aside time for self-training, were also found. Indeed, one can speculate that the critical elements for successful therapy might result from an interplay of a range of factors, including the intervention itself, characteristics of both the client and clinician, and aspects of the interaction between me and the participants. There is a multiplicity of factors which can potentially influence treatment outcome, and the findings of this study provide further support for this concept. It is also interesting to note our finding of an overall strong association



between how useful the participants considered the therapy tasks, and the therapy outcome. One of the strongest associations was found between the delta score on the OASES-A subscale 'General Information'. This subscale measures the speaker's perception of his or her stuttering and speaking ability. If we consider in a wider perspective the findings in the substudy regarding goals (see paper I) with the findings in the treatment study, we might see a pattern. The goals that the participants regarded as important during the pre-therapy phase, for example to participate more easily in speaking situations and to increase speech fluency. These two issues are in major part covered in the subscale 'General information' from the OASES-A. The delta scores on the subscale 'General information' correlated more strongly to the outcome measure Total impact of stuttering (OASES-A) compared to for example the delta scores on the subscale 'Communication' on the same measure.

This study found that the individually tailored approach made a difference, not only to speech behaviour, but also to cognitive and emotional aspects for some adults who stutter. The additional deliverable will, to some extent, be a contribution to the gap between the evidence-based treatment and the practice based evidence for fluency disorder. However, its impact will be especially obvious in managing stuttering treatment for adults, an age-group that is reported as difficult to treat. Maybe the most important outcome of this clinical research project is to gain more hope and support for adults who stutter in the future.

### Suggestions for future research

Previous research investigating a range of stuttering treatment programs has not identified exactly which factors account for therapeutic change. This thesis attempted to explore such factors in more detail, identifying several factors which influenced therapy outcomes. These included participants' motivation, the quality of the working alliance, and the intensity of home-based training among others. It is assumed that the therapy approach itself was also influential, but the extent to which this is the case needs to be further investigated. Due to the limited number of participants in this study, further research is required with other cohorts or on a larger scale. If an A-B-A analysis is supported by systematic replications, confidence in the influence of the therapy approach itself can be enhanced. To further probe the generalizability of the findings, it is also important to implement the therapy with other SLTs.

When considering resources, therapy elements, training implications, and clinician effects, there remains much to understand. For example, Baxter et al. (2015) point to the need to debate how a significant reduction in frequency and severity of stuttering might influence the everyday functioning of a person who stutters, and we support this concern. Furthermore, a number of approaches have been shown to be successful in the short term, but the true test of any therapy lies in the extent to which the changes can be integrated over a longer term and across a range of speaking situations. Longer-term follow-up is important to monitor potential relapses during an extended period, yet many effect studies within stuttering treatment have been carried out over only a short time-period or without longer-term follow-ups, as with for example the study of Beilby et al. (2012). The present study includes 6-, and 12 months follow-up, but including a follow-up after 24 months would strengthen the study. Another avenue for future clinical research is independent, home-based training, as the person's willingness to invest time in this was a significant factor in the present study.

Findings from the present study can be analysed in the context of recent work on subgrouping of stuttering. In the present study, several of the participants had more severe impact ratings on the OASES-A than on the SSI-4, and their speech production indicated relatively low levels of overt stuttering (Howells et al., 2018). However, adults with a primarily covert pattern of stuttering are usually excluded from therapy research, so relatively little is known about this group. It would therefore be interesting and important to investigate the concept of covert stuttering further.

Exploring the extent to which the procedures have personal significance for individuals within their daily life, and whether such changes can contribute to improved quality of life is of great value. The inclusion of qualitative data, in addition to quantitative data, is appropriate in evaluating how the *Multidimensional Individualized Stuttering Therapy* (the MIST-approach) is functioning in a meaningful and context-sensitive way for each individual. We also wish to consider whether this approach may be relevant for a younger age group. For example, would similar results be observed for adolescents and young adults in the age between 13 to 18, and between 18 to 25 years?

## Final remarks

In a range of stuttering treatment programs, it remains unclear which factors account for the observed therapeutic changes. However, the findings of this thesis indicated that there

were several factors which influenced therapy outcomes, including the participants' motivation, their views on the working alliance, and the therapy itself.

This study also explored different ways in which therapy elements can be used and combined. The extent to which the participant managed to integrate the therapy elements into practice appeared to be crucial for a positive outcome. Although no single therapy can be useful for everybody, the consistency of the changes reported across participants in this study is noteworthy. A person's wishes and goals in therapy may change over time, as well as the readiness for treatment. Therapy should, therefore, always include consideration of the client's current expectations and goals through collaborative exploration and reflection. By identifying the stuttering-, and speech modification-, and/or awareness-based elements which appeared meaningful for each individual, it is hoped that this study has made a positive contribution to the further development of suitable therapy approaches for people who stutter.

## References

- Ackerman, S. J., & Hilsenroth, M. J. (2003). A review of therapist characteristics and techniques positively impacting the therapeutic alliance. *Clinical Psychology Review, 23*(1), 1-33. doi:10.1016/S0272-7358(02)00146-0
- Aderka, I. M., Hofmann, S. G., Nickerson, A., Hermesh, H., Gilboa-Schechtman, E., & Marom, S. (2012). Functional impairment in social anxiety disorder. *Journal of Anxiety Disorders, 26*(3), 393-400. doi:<http://dx.doi.org/10.1016/j.janxdis.2012.01.003>
- Albrigtsen, A., Stauri, T., & Wright, M. A. (2017). *Ord til besvær: Livet med stamming*. Oslo: Abstrakt forlag.
- Alm, P., & Dahlin, K. (2015). Hög eller låg evidens, vad betyder det? Tankar om riktlinjer för logopediskt arbete inom stamning och andra diagnoser. *Tidskriften Logopeden, 4*, 20-23.
- Anderson, T., Ogles, B. M., Patterson, C. L., Lambert, M. J., & Vermeersch, D. A. (2009). Therapist effects: facilitative interpersonal skills as a predictor of therapist success. *Journal of Clinical Psychology, 65*(7), 755-768. doi:10.1002/jclp.20583
- Azrin, N. H., & Nunn, R. G. (1974). A rapid method of eliminating stuttering by a regulated breathing approach. *Behaviour Research and Therapy, 12*(4), 279-286. doi:10.1016/0005-7967(74)90002-3
- Baldwin, S. A., Wampold, B. E., & Imel, Z. E. (2007). Untangling the alliance-outcome correlation: exploring the relative importance of therapist and patient variability in the alliance. *J Consult Clin Psychol, 75*(6), 842-852. doi:10.1037/0022-006X.75.6.842
- Bandler, R., Keay, K. A., Floyd, N., & Price, J. (2000). Central circuits mediating patterned autonomic activity during active vs. passive emotional coping. *Brain Research Bulletin, 53*(1), 95-104. doi:[https://doi.org/10.1016/S0361-9230\(00\)00313-0](https://doi.org/10.1016/S0361-9230(00)00313-0)
- Baxter, S., Johnson, M., Blank, L., Cantrell, A., Brumfitt, S., Enderby, P., & Goyder, E. (2015). The state of the art in non-pharmacological interventions for developmental stuttering. Part 1: a systematic review of effectiveness. *International Journal of Language and Communication Disorders, 50*(5), 676-718. doi:10.1111/1460-6984.12171
- Beilby, J. M., Byrnes, M. L., & Yaruss, J. S. (2012). Acceptance and Commitment Therapy for adults who stutter: Psychosocial adjustment and speech fluency. *Journal of Fluency Disorders, 37*(4), 289-299. doi:10.1016/j.jfludis.2012.05.003
- Benton, T. (2011). *Philosophy of social science : the philosophical foundations of social thought* (2nd ed. ed.). Basingstoke: Palgrave Macmillan.
- Benum, K., Axelsen, E. D., & Hartmann, E. (2013). *God psykoterapi : et integrativt perspektiv*. Oslo: Pax.
- Berg, K., Askim, T., Balandin, S., Armstrong, E., & Rise, M. B. (2017). Experiences of participation in goal setting for people with stroke-induced aphasia in Norway. A qualitative study. *Disability and Rehabilitation, 39*(11), 1122-1130. doi:10.1080/09638288.2016.1185167
- Bernstein Ratner, N. (2005). Evidence-based practice in stuttering: Some questions to consider. *Journal of Fluency Disorders, 30*(3), 163-188. doi:10.1016/j.jfludis.2005.04.002
- Binder, P.-E., Hølgersen, H., & Nielsen, G. H. (2010). What is a "good outcome" in psychotherapy? A qualitative exploration of former patients' point of view. *Psychotherapy Research, 20*(3), 285-294. doi:10.1080/10503300903376338
- Bishop, S. R., Lau, M., Shapiro, S., Carlson, L., Anderson, N. D., Carmody, J., . . . Devins, G. (2004). Mindfulness: A Proposed Operational Definition. *Clinical Psychology: Science and Practice, 11*(3), 230-241. doi:10.1093/clipsy.bph077
- Bjelland, I., Dahl, A. A., Haug, T. T., & Neckelmann, D. (2002). The validity of the Hospital Anxiety and Depression Scale: An updated literature review. *Journal of Psychosomatic Research, 52*(2), 69-77. doi:10.1016/S0022-3999(01)00296-3

- Bloodstein, O., & Bernstein Ratner, N. (2008). *A handbook on stuttering* (sixth edition. ed.). Clifton Park NY: Delmar.
- Bordin, E. S. (1979). The generalizability of the psychoanalytic concept of the working alliance. *Psychotherapy: Theory, Research and Practice*, 16(3), 252-260.
- Bosshardt, H.-G., Packman, A., Blomgren, M., & Kretschmann, J. (2016). Measuring Stuttering in Preschool-Aged Children across Different Languages: An International Study. *Folia Phoniatrica et Logopaedica*, 67(5), 221-230. doi:10.1159/000440720
- Bothe, A. K. (2003). Evidence-based treatment of stuttering: V. The art of clinical practice and the future of clinical research. *Journal of Fluency Disorders*, 28(3), 247-258. doi:[http://doi.org/10.1016/S0094-730X\(03\)00042-1](http://doi.org/10.1016/S0094-730X(03)00042-1)
- Bothe, A. K., Davidow, J. H., Bramlett, R. E., & Ingham, R. J. (2006). Stuttering Treatment Research 1970–2005: I. Systematic Review Incorporating Trial Quality Assessment of Behavioral, Cognitive, and Related Approaches. *American Journal of Speech-Language Pathology*, 15(4), 321-341. doi:10.1044/1058-0360(2006/031)
- Bothe, A. K., & Richardson, J. D. (2011). Statistical, practical, clinical, and personal significance: definitions and applications in speech-language pathology. *American Journal of Speech-Language Pathology*, 20(3), 233-242. doi:10.1044/1058-0360(2011/10-0034)
- Boyle, M. P. (2011). Mindfulness training in stuttering therapy: A tutorial for speech-language pathologists. *Journal of Fluency Disorders*, 36(2), 122-129. doi:10.1016/j.jfludis.2011.04.005
- Boyle, M. P., & Fearon, A. N. (2017). Self-stigma and its associations with stress, physical health, and health care satisfaction in adults who stutter. *Journal of Fluency Disorders*. doi:<https://doi.org/10.1016/j.jfludis.2017.10.002>
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77-101. doi:10.1191/1478088706qp063oa
- Bricker-Katz, G., Lincoln, M., & Cumming, S. (2013). Stuttering and work life: An interpretative phenomenological analysis. *Journal of Fluency Disorders*, 38(4), 342-355. doi:<https://doi.org/10.1016/j.jfludis.2013.08.001>
- Bricker-Katz, G., Lincoln, M., & McCabe, P. (2009). A life-time of stuttering: how emotional reactions to stuttering impact activities and participation in older people. *Disability and Rehabilitation*, 31(21), 1742-1752. doi:10.1080/09638280902738672
- Bright, F. A. S., Kayes, N., McCann, C. M., & McPherson, K. (2011). Understanding Hope After Stroke: A Systematic Review of the Literature Using Concept Analysis (Vol. 18, pp. 490-508). Abington: Taylor & Francis Ltd.
- Cahana-Amitay, D., Oveis, A. C., Sayers, J. T., Pineles, S. L., Spiro, A., & Albert, M. L. (2015). Biomarkers of “Linguistic Anxiety” in aphasia: A proof-of-concept case study. *Clinical Linguistics & Phonetics*, 29(5), 401-413. doi:10.3109/02699206.2015.1014572
- Carter, A., Breen, L., Yaruss, J. S., & Beilby, J. (2017). Self-efficacy and quality of life in adults who stutter. *Journal of Fluency Disorders*, 54, 14-23. doi:<https://doi.org/10.1016/j.jfludis.2017.09.004>
- Cartwright, N., & Hardie, J. (2012). *Evidence-based policy : a practical guide to doing it better*. Oxford: Oxford University Press.
- Caughter, S., & Dunsmuir, S. (2017). An exploration of the mechanisms of change following an integrated group intervention for stuttering, as perceived by school-aged children who stutter (CWS). *Journal of Fluency Disorders*, 51, 8-23. doi:<https://doi.org/10.1016/j.jfludis.2016.10.003>
- Chang, S.-E., Zhu, D. C., Choo, A. L., & Angstadt, M. (2015). White matter neuroanatomical differences in young children who stutter. *Brain*, 138(3), 694-711. doi:10.1093/brain/awu400
- Cheasman, C., Simpson, S., & Everard, R. (2013). *Stammering therapy from the inside : new perspectives on working with young people and adults*. Guildford: J & R Press.
- Cheasman, C., Simpson, S., & Everard, R. (2015). Acceptance and Speech Work: The Challenge. *Procedia - Social and Behavioral Sciences*, 193, 72-81. doi:<https://doi.org/10.1016/j.sbspro.2015.03.246>

- Clarke, V., & Braun, V. (2016). Thematic analysis. *The Journal of Positive Psychology*, 1-2. doi:10.1080/17439760.2016.1262613
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed. ed.). Hillsdale, N. J: Laurence Erlbaum.
- Collier-Meek, M. A., Fallon, L. M., & Gould, K. (2018). How Are Treatment Integrity Data Assessed? Reviewing the Performance Feedback Literature. *School Psychology Quarterly*, 33(4), 517-526. doi:10.1037/spq0000239
- Conelea, C. A., Rice, K. A., & Woods, D. W. (2006). Regulated breathing as a treatment for stuttering: a review of the empirical evidence. *The Journal of Speech-Language Pathology and Applied Behavior Analysis*, 1(2), 94.
- Connally, E. L., Ward, D., Howell, P., & Watkins, K. E. (2014). Disrupted white matter in language and motor tracts in developmental stuttering.(Author abstract). *Brain and Language*, 131, 25.
- Constantino, C. D., Manning, W. H., & Nordstrom, S. N. (2017). Rethinking covert stuttering. *Journal of Fluency Disorders*, 53, 26-40. doi:10.1016/j.jfludis.2017.06.001
- Cooke, K., & Millard, S. K. (2018). The Most Important Therapy Outcomes for School-Aged Children Who Stutter: An Exploratory Study. *American Journal of Speech-Language Pathology*, 27(3s), 1152-1163. doi:10.1044/2018\_ajslp-odc11-17-0195
- Cox, W. M., & Klinger, E. (2004). *Handbook of Motivational Counseling: Concepts, Approaches, and Assessment*: John Wiley & Sons, Ltd.
- Craig, A. (2014). Major controversies in Fluency Disorders: Clarifying the relationship between anxiety and stuttering (Vol. 40, pp. 1-3).
- Craig, A., & Andrews, G. (1985). The Prediction and Prevention of Relapse in Stuttering: The Value of Self-Control Techniques and Locus of Control Measures. *Behavior Modification*, 9(4), 427-442. doi:10.1177/01454455850094002
- Craig, A., Blumgart, E., & Tran, Y. (2009). The impact of stuttering on the quality of life in adults who stutter. *Journal of Fluency Disorders*, 34(2), 61-71. doi:10.1016/j.jfludis.2009.05.002
- Craig, A., Blumgart, E., & Tran, Y. (2011). Resilience and Stuttering: Factors that Protect People from the Adversity of Chronic Stuttering. *Journal of Speech, Language, and Hearing Research*, 54(6), 1485-1496. doi:10.1044/1092-4388(2011/10-0304)
- Craig, A., Hancock, K., Tran, Y., & Craig, M. (2003). Anxiety levels in people who stutter: a randomized population study. *Journal of Speech, Language, and Hearing Research*, 46(5), 1197.
- Craig, A., & Tran, Y. (2014). Trait and social anxiety in adults with chronic stuttering: conclusions following meta-analysis. *Journal of Fluency Disorders*, 40, 35-43. doi:10.1016/j.jfludis.2014.01.001
- Curlee, R. F., & Siegel, G. M. (1997). *Nature and treatment of stuttering: New directions* (2nd ed. ed.). Boston, Mass: Allyn and Bacon.
- Davidow, H. D., & Scott, K. A. (2017). Intrajudge and Interjudge Reliability of the Stuttering Severity Instrument-Fourth Edition *American Journal of Speech-Language Pathology*, April 2017, 1-15.
- Davies, C. D., Niles, A. N., Pittig, A., Arch, J. J., & Craske, M. G. (2015). Physiological and behavioral indices of emotion dysregulation as predictors of outcome from cognitive behavioral therapy and acceptance and commitment therapy for anxiety. *Journal of Behavior Therapy and Experimental Psychiatry*, 46, 35-43. doi:<https://doi.org/10.1016/j.jbtep.2014.08.002>
- De Nil, L. F., & Kroll, R. M. (1995). The relationship between locus of control and long-term stuttering treatment outcome in adult stutterers. *Journal of Fluency Disorders*, 20(4), 345-364. doi:[https://doi.org/10.1016/0094-730X\(95\)00024-2](https://doi.org/10.1016/0094-730X(95)00024-2)
- Del Re, A. C., Flückiger, C., Horvath, A. O., Symonds, D., & Wampold, B. E. (2012). Therapist effects in the therapeutic alliance–outcome relationship: A restricted-maximum likelihood meta-analysis. *Clinical Psychology Review*, 32(7), 642-649. doi:<https://doi.org/10.1016/j.cpr.2012.07.002>
- DeVore, K., & Cookman, S. (2009). *The Voice Book. Caring for Protecting, and Improving Your Voice* (1st Ed. ed.). United States of America: Chicago Review Press, Incorporated

- Duncan, B. L., Miller, S. D., Wampold, B. E., & Hubble, M. A. (2010). *The heart and soul of change: Delivering what works in therapy*: American Psychological Association.
- Dures, E. (2012). *Mixed Methods: the Best of Both Worlds?* : Oxford University Press.
- Dures, E., Rumsey, N., Morris, M., & Gleeson, K. (2011). Mixed Methods in Health Psychology: Theoretical and Practical Considerations of the Third Paradigm. *Journal of Health Psychology, 16*(2), 332-341. doi:10.1177/1359105310377537
- Egan, G. (2014). *The skilled helper : a client-centred approach* (10th edition. ed.). Hampshire: Cengage Learning.
- Emanuel, E. J., Wendler, D., & Grady, C. (2000). What Makes Clinical Research Ethical? *Journal of the American Medical Association, 283*(20), 2701-2711. doi:10.1001/jama.283.20.2701
- Erickson, S., & Block, S. (2013). The Social and Communication Impact of Stuttering on Adolescents and Their Families. *Journal of Fluency Disorders., 38*(4), 311-324.
- Euler, H. A., Lange, B. P., Schroeder, S., & Neumann, K. (2014). The effectiveness of stuttering treatments in Germany. *Journal of Fluency Disorders, 39*, 1-11.
- Euler, H. A., Wolff von Gudenberg, A., Jung, K., & Neumann, K. (2009). Computergestützte Therapie bei Redeflussstörungen: Die langfristige Wirksamkeit der Kasseler Stottertherapie (KST) [Computer-assisted therapy for speech disfluency: The long-term effectiveness of the Kassel Stuttering Therapy (KST)]. *Sprache Stimme Gehör*(33), 1-10.
- Eustis, E. H., Hayes-Skelton, S. A., Roemer, L., & Orsillo, S. M. (2016). Reductions in experiential avoidance as a mediator of change in symptom outcome and quality of life in acceptance-based behavior therapy and applied relaxation for generalized anxiety disorder.(Report). *Behaviour Research and Therapy, 87*, 188. doi:10.1016/j.brat.2016.09.012
- Everard, R. A., & Howell, P. (2018). We Have a Voice: Exploring Participants' Experiences of Stuttering Modification Therapy.(Research Article). *American Journal of Speech-Language Pathology, 27*(3SI), 1273. doi:10.1044/2018\_AJSLP-ODC11-17-0198
- Fetters, M. D., Curry, L. A., & Creswell, J. W. (2013). Achieving Integration in Mixed Methods Designs- Principles and Practices. *Health Services Research, 48*(6 Pt 2). doi:10.1111/1475-6773.12117
- Field, A. (2018). *Discovering statistics using IBM SPSS Statistics* (5th edition. ed.). Los Angeles: SAGE.
- Flückiger, C., Del Re, A. C., Wampold, B. E., & Horvath, A. O. (2018). The Alliance in Adult Psychotherapy: A Meta-Analytic Synthesis. *Psychotherapy, 55*(4), 316-340. doi:10.1037/pst0000172
- Flückiger, C., Hilpert, P., Goldberg, S., Caspar, F., Wolfer, C., Held, J., & Vöslä, A. (2019). Investigating the Impact of Early Alliance on Predicting Subjective Change at Posttreatment: An Evidence-Based Souvenir of Overlooked Clinical Perspectives. *Journal of Counseling Psychology, Advanced online* doi:10.1037/cou0000336
- Flückiger, C., Horvath, A. O., Del Re, A. C., Symonds, D., & Holzer, C. (2015). Importance of working alliance in psychotherapy. *Psychotherapeut, 60*(3), 187-192. doi:10.1007/s00278-015-0020-0
- Fourie, R. J. (2009). Qualitative study of the therapeutic relationship in speech and language therapy perspectives of adults with acquired communication and swallowing disorders. *International Journal of Language and Communication Disorders, 44*(6), 979-999. doi:10.3109/13682820802535285
- Furusetth, A., & Bolstad, M. (2017). *Den terskelen som er størst, det er å øve på å gi faen:En kvalitativ undersøkelse av erfaringer med stammebehandling sett i lys av kontroll og aksept.* . Master thesis
- Institutt for spesialpedagogikk, UiO. Oslo.
- Gast, D. L., & Ledford, J. R. (2014). *Single case research methodology : applications in special education and behavioral sciences* (2nd ed. ed.). New York: Routledge.
- Goldfried, M. R. (1980). Toward the delineation of therapeutic change principles. *American Psychologist, 35*(11), 991-999. doi:10.1037/0003-066X.35.11.991



- Gough, P. M., Connally, E. L., Howell, P., Ward, D., Chesters, J., & Watkins, K. E. (2018). Planum temporale asymmetry in people who stutter. *Journal of Fluency Disorders*, 55, 94-105. doi:<https://doi.org/10.1016/j.jfludis.2017.06.003>
- Greenhalgh, T., Howick, J., & Maskrey, N. (2014). Evidence based medicine: a movement in crisis? *BMJ*, 348, g3725. doi:10.1136/bmj.g3725
- Guitar, B. (2014). *Stuttering: An integrated approach to its nature and treatment* (4th ed. ed.). Philadelphia, Pa: Lippincott Williams & Wilkins.
- Haaland-Johansen, L. (2007). Evidensbasert praksis - av interesse for norsk logopedi? *Norsk Tidsskrift for Logopedi*, 53(2), 5-9.
- Halvorsen, M. S., McLeod, J., Benum, K., & Haavind, H. (2016). Conceptualizing the Complexity of Change in Psychotherapy: The Case of "Cora". *Pragmatic Case Studies in Psychotherapy*, 12(3), 224. doi:10.14713/pcsp.v12i3.1979
- Harley, J. (2015). Bridging the Gap between Cognitive Therapy and Acceptance and Commitment Therapy (ACT). *Procedia - Social and Behavioral Sciences*, 193, 131-140. doi:<https://doi.org/10.1016/j.sbspro.2015.03.252>
- Harris, R. (2013). *Getting unstuck in ACT : a clinician's guide to overcoming common obstacles in acceptance and commitment therapy* *Getting unstuck in acceptance and commitment therapy*
- Harris, R. (2019). *ACT made simple: An easy-to-read primer on acceptance and commitment therapy* (Second ed.). Oakland, California: New Harbinger Publications.
- Hatcher, R. L., & Gillaspay, J. A. (2006). Development and validation of a revised short version of the Working Alliance Inventory. *Psychotherapy Research*, 16(1), 12-25. doi:10.1080/10503300500352500
- Hayes, S. C. (2005). *Get out of your mind & into your life: The new acceptance & commitment therapy*. Oakland, Calif: New Harbinger Publications.
- Hayes, S. C. (2016). Acceptance and Commitment Therapy, Relational Frame Theory, and the Third Wave of Behavioral and Cognitive Therapies - Republished Article. *Behaviour Therapy*, 47(6), 869-885. doi:10.1016/j.beth.2016.11.006
- Hayes, S. C., Barnes-Holmes, D., & Wilson, K. G. (2012). Contextual Behavioral Science: Creating a science more adequate to the challenge of the human condition. *Journal of Contextual Behavioral Science*, 1(1-2), 1-16. doi:<http://dx.doi.org/10.1016/j.icbs.2012.09.004>
- Hayes, S. C., Strosahl, K. D., & Wilson, K. G. (2012). *Acceptance and commitment therapy: The process and practice of mindful change* (2nd ed. ed.). New York: Guilford Press.
- Hayhow, R., Cray, A. M., & Enderby, P. (2002). Stammering and therapy views of people who stammer. *Journal of Fluency Disorders*, 27(1), 1-17. doi:[https://doi.org/10.1016/S0094-730X\(01\)00102-4](https://doi.org/10.1016/S0094-730X(01)00102-4)
- Hearne, A., Packman, A., Onslow, M., & Quine, S. (2008). Stuttering and its treatment in adolescence: The perceptions of people who stutter. *Journal of Fluency Disorders*, 33(2), 81-98. doi:<https://doi.org/10.1016/j.jfludis.2008.01.001>
- Helgadottir, F. D., Menzies, R. G., Onslow, M., Packman, A., & O'Brian, S. (2014). Safety Behaviors and Speech Treatment for Adults Who Stutter. *Journal of Speech, Language, and Hearing Research*, 57(4), 1308-1313. doi:10.1044/2014\_JSLHR-S-13-0041
- Herder, C., Howard, C., Nye, C., Vanryckeghem, M., & Herder, C. (2006). Effectiveness of Behavioral Stuttering Treatment: A Systemic Review and Meta-Analysis. *Contemporary Issues in Communication Science and Disorders*, 33(1), 61-73.
- Hoft, R. (2017). Overføring av behandlingselementer for personer som stammer - Fra logopedkontoret til personens hverdag.
- Horvath, A., Del Re, A. C., Fluckiger, C., & Symonds, D. (2011). Alliance in individual psychotherapy. *Psychotherapy*, 48(1), 9-16. doi:10.1037/a0022186
- Horvath, A., & Greenberg, L. (1989). Development and Validation of the Working Alliance Inventory. *Journal of Counseling Psychology*, 36(2), 223-230.



- Howells, K., Baluyot, C., & Sønsterud, H. (2018, July 13th to 16th ). *Exploring the relationship between subjective and objective measures of stuttering: OASES-A and SSI-4*. Paper presented at the The Joint World Conference on stuttering and cluttering (IFA, ICA and ISA), Hiroshima, Japan.
- Huinck, W., & Rietveld, T. (2007). The Validity of a Simple Outcome Measure to Assess Stuttering Therapy. *Folia Phoniatrica et Logopaedica*, 59(2), 91-99. doi:10.1159/000098342
- Ingham, R. J., Bothe, A. K., Wang, Y., Purkhiser, K., & New, A. (2012). Phonation interval modification and speech performance quality during fluency-inducing conditions by adults who stutter. *Journal of Communication Disorder*, 45(3), 198-211. doi:10.1016/j.jcomdis.2012.01.004
- Ingham, R. J., Ingham, J. C., & Bothe, A. K. (2012). Integrating functional measures with treatment: A tactic for enhancing personally significant change in the treatment of adults and adolescents who stutter. *American Journal of Speech-Language Pathology*, 21(3), 264-277. doi:10.1044/1058-0360(2012/11-0068)
- Ingham, R. J., Ingham, J. C., Euler, H. A., & Neumann, K. (2018). Stuttering treatment and brain research in adults: A still unfolding relationship. *Journal of Fluency Disorders*, 55, 106-119. doi:10.1016/j.jfludis.2017.02.003
- Iverach, L., Jones, M., Lowe, R., O'Brian, S., Menzies, R. G., Packman, A., & Onslow, M. (2018). Comparison of adults who stutter with and without social anxiety disorder. *Journal of Fluency Disorders*, 56, 55-68. doi:<https://doi.org/10.1016/j.jfludis.2018.03.001>
- Iverach, L., Lowe, R., Jones, M., O'brian, S., Menzies, R. G., Packman, A., & Onslow, M. (2017). A speech and psychological profile of treatment-seeking adolescents who stutter. *Journal of Fluency Disorders*, 51, 24-38. doi:10.1016/j.jfludis.2016.11.001
- Iverach, L., Menzies, R. G., O'Brian, S., Packman, A., & Onslow, M. (2011). Anxiety and Stuttering: Continuing to Explore a Complex Relationship. *American Journal of Speech-Language Pathology*, 20(3), 221-Language Pathology, 2011, Vol.2020(2013), p.2221-2232. doi:10.1044/1058-0360(2011/10-0091)
- Iverach, L., & Rapee, R. M. (2014). Social anxiety disorder and stuttering: current status and future directions. *Journal of Fluency Disorders*, 40, 69-82. doi:10.1016/j.jfludis.2013.08.003
- Jørgensen, M., Sønsterud, H., & Reitz, L. (2008). *Å bygge bro mellom McGuire-programmet og den logopediske stammebehandlingen*. Paper presented at the Nordic Conference on stuttering and cluttering, Nyhavn, Danmark
- Kabat-Zinn, J. (2003). Mindfulness-Based Interventions in Context: Past, Present, and Future. *Clinical Psychology: Science and Practice*, 10(2), 144.
- Karimi, H., Onslow, M., Jones, M., O'Brian, S., Packman, A., Menzies, R., . . . Jelčić-Jakšić, S. (2018). The Satisfaction with Communication in Everyday Speaking Situations (SCESS) scale: An overarching outcome measure of treatment effect. *Journal of Fluency Disorders*, 58, 77-85. doi:<https://doi.org/10.1016/j.jfludis.2018.10.002>
- Kayes, N. M., & McPherson, K. M. (2012). Human technologies in rehabilitation: Who and How we are with our clients. *Disability and Rehabilitation*, 2012, Vol.34(22), p.1907-1911, 34(22), 1907-1911. doi:10.3109/09638288.2012.670044
- Kelly, M. P., Heath, I., Howick, J., & Greenhalgh, T. (2015). The importance of values in evidence-based medicine. *BMC Med Ethics*, 16(1), 69. doi:10.1186/s12910-015-0063-3
- Kerry, R., Eriksen, T. E., Lie, S. A. N., Mumford, S. D., & Anjum, R. L. (2012). Causation and evidence-based practice: an ontological review. *Journal of Evaluation in Clinical Practice*, 18(5), 1006-1012. doi:10.1111/j.1365-2753.2012.01908.x
- Klein, J. F., & Hood, S. B. (2004). The impact of stuttering on employment opportunities and job performance. *Journal of Fluency Disorders*, 29(4), 255-273. doi:<https://doi.org/10.1016/j.jfludis.2004.08.001>
- Kroenke, K., Spitzer, R., & Williams, J. (2000). A new measure of depression severity: The PHQ-9. *J. Gen. Intern. Med.*, 15, 78-78.
- Lambert, M. J. (2013). *Bergin and Garfield's handbook of psychotherapy and behavior change* (6th ed. ed.). Hoboken, N.J: Wiley.

- Lambert, M. J., Whipple, J. L., & Kleinstäuber, M. (2018). Collecting and Delivering Progress Feedback: A Meta-Analysis of Routine Outcome Monitoring. *Psychotherapy, 55*(4), 520-537. doi:10.1037/pst0000167
- Langevin, M., Kully, D., Teshima, S., Hagler, P., & Narasimha Prasad, N. G. (2010). Five-Year Longitudinal Treatment Outcomes of the ISTAR Comprehensive Stuttering Program. *Journal of Fluency Disorders, 35*(2), 123-140. doi:10.1016/j.jfludis.2010.04.002
- Lawton, M., Haddock, G., Conroy, P., Serrant, L., & Sage, K. (2018). People with aphasia's perception of the therapeutic alliance in aphasia rehabilitation post stroke: a thematic analysis. *Aphasiology, 32*(12), 1397-1417. doi:10.1080/02687038.2018.1441365
- Lawton, M., Sage, K., Haddock, G., Conroy, P., & Serrant, L. (2018). Speech and language therapists' perspectives of therapeutic alliance construction and maintenance in aphasia rehabilitation post-stroke. *International Journal of Language and Communication Disorders, 53*(3), 550-563. doi:10.1111/1460-6984.12368
- Levant, R. F., & Hasan, N. T. (2008). Evidence-based practice in psychology.(Author abstract)(Report). *Professional Psychology, Research and Practice, 39*(6), 658. doi:10.1037/0735-7028.39.6.658
- Logan, K. J. (2015). *Fluency disorders*. San Diego, CA: Plural Publishing.
- Low, M. (2017). A novel clinical framework: The use of dispositions in clinical practice. A person centred approach. *Journal of Evaluation in Clinical Practice, 23*(5), 1062-1070. doi:10.1111/jep.12713
- Lowe, R., Helgadottir, F., Menzies, R., Heard, R., O'Brian, S., Packman, A., & Onslow, M. (2017). Safety Behaviors and Stuttering. *Journal of Speech, Language, and Hearing Research, 60*(5), 1246-1253. doi:10.1044/2016\_JSLHR-S-16-0055
- Manea, L., Gilbody, S., & McMillan, D. (2015). A diagnostic meta-analysis of the Patient Health Questionnaire-9 (PHQ-9) algorithm scoring method as a screen for depression. *General Hospital Psychiatry, 37*(1), 67-75. doi:<http://dx.doi.org/10.1016/j.genhosppsy.2014.09.009>
- Manning, W. H. (2010a). *Clinical decision making in fluency disorders* (3rd ed. ed.). Clifton Park, NY: Delmar.
- Manning, W. H. (2010b). Evidence of clinically significant change: the therapeutic alliance and the possibilities of outcomes-informed care. *Seminar Speech and Language, 31*(4), 207-216. doi:10.1055/s-0030-1265754
- Manning, W. H. (2010c). Evidence of clinically significant change: the therapeutic alliance and the possibilities of outcomes-informed care. *Semin Speech Lang, 31*(4), 207-216. doi:10.1055/s-0030-1265754
- Manning, W. H., & Beck, J. G. (2013a). Personality dysfunction in adults who stutter: Another look. *Journal of Fluency Disorders, 38*(2), 184-192. doi:10.1016/j.jfludis.2013.02.001
- Manning, W. H., & Beck, J. G. (2013b). The role of psychological processes in estimates of stuttering severity. *Journal of Fluency Disorders, 38*(4), 356-367. doi:<http://doi.org/10.1016/j.jfludis.2013.08.002>
- McCauley, R. J., & Guitar, B. (2010). *Treatment of stuttering: Established and emerging interventions*. Philadelphia: Lippincott Williams & Wilkins.
- McGuire, D. (2008). *Beyond stammering : the MCGuire programme for getting good at the sport of speaking* (rev.ed. ed.). London: Souvenir Press.
- McHugh, M. L. (2012). Interrater reliability: the kappa statistic. *Biochemia Medica, 22*(3), 276-282.
- McLeod, J. (2018). *Pluralistic therapy : Distinctive features*. Psychotherapy & counselling distinctive features series, T. F. Group (Ed.)
- Menzies, R. G., O'Brian, S., Onslow, M., Packman, A., St Clare, T., & Block, S. (2008). An Experimental Clinical Trial of a Cognitive-Behavior Therapy Package for Chronic Stuttering. *Journal of Speech, Language, and Hearing Research, 51*(6), 1451-1464. doi:10.1044/1092-4388(2008/07-0070)
- Menzies, R. G., O'Brian, S., Onslow, M., Packman, A., St Clare, T., & Block, S. (2008). An Experimental Clinical Trial of a Cognitive-Behavior Therapy Package for Chronic Stuttering. *Journal of*

- Speech, Language, and Hearing Research*, 51(6), 1451-1464. doi:10.1044/1092-4388(2008/07-0070)
- Menzies, R. G., O'Brian, S., Packman, A., Jones, M., Helgadóttir, F. D., & Onslow, M. (2019). Supplementing stuttering treatment with online cognitive behavior therapy: An experimental trial. *Journal of Communication Disorders*, 80, 81-91. doi:<https://doi.org/10.1016/j.jcomdis.2019.04.003>
- Messenger, M., Onslow, M., Packman, A., & Menzies, R. (2004). Social Anxiety in Stuttering: Measuring Negative Social Expectancies. *Journal of Fluency Disorders: Official Journal of the International Fluency Association*, 29(3), 201-212. doi:10.1016/j.jfludis.2004.06.002
- Miciak, M., Mayan, M., Brown, C., Joyce, A. S., & Gross, D. P. (2018). The necessary conditions of engagement for the therapeutic relationship in physiotherapy: an interpretive description study. *Archives of Physiotherapy*, 8, 3. doi:10.1186/s40945-018-0044-1
- Miller, S. D., Hubble, M. A., Duncan, B. L., & Wampold, B. E. (2010). *Delivering what works*: American Psychological Association.
- Mumford, S. (2011). *Getting causes from powers*. Oxford: Oxford University Press.
- Munder, T., Wilmers, F., Leonhart, R., Linster, H. W., & Barth, J. (2010). Working Alliance Inventory-Short Revised (WAI-SR): psychometric properties in outpatients and inpatients. *Clinical Psychology & Psychotherapy*, 17(3), 231-239. doi:10.1002/cpp.658
- Muus, E. (2018). Lingvistiske faktorer i stamming hos norske talere.
- Neumann, K., Euler, H. A., Zens, R., Piskernik, B., Packman, A., St. Louis, K. O., . . . Finn, P. (2019). "Spontaneous" late recovery from stuttering: Dimensions of reported techniques and causal attributions. *Journal of Communication Disorders*, 105915. doi:<https://doi.org/10.1016/j.jcomdis.2019.105915>
- Nippold, M. (2012). When a School-Age Child Stutters, Let's Focus on the Primary Problem. *Language, Speech & Hearing Services in Schools (Online)*, 43(4), 549-551. doi:10.1044/0161-1461(2012/12-0054)
- Nissen-Lie, H. A., Havik, O. E., Høglend, P. A., Monsen, J. T., Rønnestad, M. H., & Tracey, T. J. G. (2013). The Contribution of the Quality of Therapists' Personal Lives to the Development of the Working Alliance. *Journal of Counseling Psychology*, 60(4), 483-495. doi:10.1037/a0033643
- Nissen-Lie, H. A., Monsen, J. T., & Rønnestad, M. H. (2010). Therapist predictors of early patient-rated working alliance: A multilevel approach. *Psychotherapy Research*, 20(6), 627-646. doi:10.1080/10503307.2010.497633
- Nissen-Lie, H. A., Havik, O. E., Høglend, P. A., Rønnestad, M. H., & Monsen, J. T. (2015). Patient and Therapist Perspectives on Alliance Development: Therapists' Practice Experiences as Predictors. *Clinical Psychology & Psychotherapy*, 22(4), 317-327. doi:10.1002/cpp.1891
- Nola, R., & Sankey, H. (2006). *Theories of Scientific Method : An Introduction*. London, UNITED KINGDOM: Routledge.
- Nordbø, B., Sønsterud, H., & Kirmess, M. (2018). Norske normer for OASES-A -et kartleggingsverktøy for voksne som stammer. *Norsk Tidsskrift for Logopedi*, 64(3), 12-19.
- Nordhassel, A. K. (2017). Overføring av behandlingselementer for personer som stammer - Fra logopedkontoret til personens hverdag.
- Nye, C., Vanryckeghem, M., Schwartz, J. B., Herder, C., Turner, H. M., & Howard, C. (2013). Behavioral Stuttering Interventions for Children and Adolescents: A Systematic Review and Meta-Analysis. *Journal of Speech Language and Hearing Research*, 56(3), 921. doi:10.1044/1092-4388(2012/12-0036)
- O'Brian, S., Jones, M., Packman, A., Menzies, R., & Onslow, M. (2011). Stuttering severity and educational attainment. *Journal of Fluency Disorders*, 36(2), 86-92. doi:10.1016/j.jfludis.2011.02.006
- O'Brian, S., Onslow, M., Cream, A., & Packman, A. (2003). The Camperdown Program: outcomes of a new prolonged-speech treatment model. *Journal of Speech, Language, and Hearing Research*, 46(4), 933.

- O'Brian, S., Packman, A., Onslow, M., & Menzies, R. (2012). Measuring Outcomes Following the Camperdown Program for Stuttering: A Response to Dr. Ingham. *Journal of Speech, Language and Hearing Research (Online)*, 55(1), 310-312.
- Oddli, H. W., & Halvorsen, M. S. (2014). Experienced psychotherapists' reports of their assessments, predictions, and decision making in the early phase of psychotherapy. *Psychotherapy (Chic)*, 51(2), 295-307. doi:10.1037/a0029843
- Oddli, H. W., & McLeod, J. (2016). Knowing-in-Relation: How Experienced Therapists Integrate Different Sources of Knowledge in Actual Clinical Practice. *Journal of Psychotherapy Integration*, 27(1). doi:10.1037/int0000045
- Oddli, H. W., McLeod, J., Reichelt, S., & Rønnestad, M. H. (2014). Strategies used by experienced therapists to explore client goals in early sessions of psychotherapy. *European Journal of Psychotherapy & Counselling*, 16(3), 1-22. doi:10.1080/13642537.2014.927380
- Oddli, H. W., Nissen-Lie, H. A., & Halvorsen, M. S. (2016). Common therapeutic change principles as "sensitizing concepts": A key perspective in psychotherapy integration and clinical research. *Journal of Psychotherapy Integration*, 26(2), 160-171. doi:10.1037/int0000033
- Olssøn, I., Mykletun, A., & Dahl, A. A. (2005). The hospital anxiety and depression rating scale: A cross-sectional study of psychometrics and case finding abilities in general practice. *BMC Psychiatry*, 14(5), 46. doi:<http://dx.doi.org/10.1186/1471-244X-5-46>
- Packman, A., & Kuhn, L. (2009). Looking at stuttering through the lens of complexity. *International Journal of Speech-Language Pathology*, 11(1), 77-82. doi:10.1080/17549500802630039
- Plexico, L., Manning, W. H., & Dilollo, A. (2005). A phenomenological understanding of successful stuttering management. *Journal of Fluency Disorders*, 30(1), 1-22. doi:10.1016/j.jfludis.2004.12.001
- Plexico, L., Manning, W. H., & Dilollo, A. (2010). Client perceptions of effective and ineffective therapeutic alliances during treatment for stuttering. *Journal of Fluency Disorders*, 35(4), 333-354. doi:10.1016/j.jfludis.2010.07.001
- Ramnerö, J., & Törneke, N. (2008). *The ABCs of human behavior : behavioral principles for the practicing clinician* ebrary, N. Törneke (Ed.)
- Richardson, J. T. E. (2011). Eta squared and partial eta squared as measures of effect size in educational research. *Educational Research Review*, 6(2), 135-147. doi:10.1016/j.edurev.2010.12.001
- Riley, G. D. (2009). *SSI-4: Stuttering Severity Instrument. Examiners's Manual and Picture Plates* (Fourth ed.). Austin, Texas: Pro-Ed, Inc.
- Riley, J., Riley, G., & Maguire, G. (2004). Subjective Screening of Stuttering severity, locus of control and avoidance: research edition. *Journal of Fluency Disorders*, 29(1), 51-62. doi:<https://doi.org/10.1016/j.jfludis.2003.12.001>
- Rønnestad, M. H. (2008). Evidensbasert praksis i psykologi. *Tidsskrift for Norsk psykologforening*, 45(4), 444-454.
- Schwartz, D., & Webster, L. M. (1977). More on the efficacy of a protracted precision fluency shaping program. *Journal of Fluency Disorders*, 2(3), 205-215. doi:10.1016/0094-730X(77)90024-9
- Sedgwick, P. (2012). The Hawthorne effect. *BMJ (Online)*, 344(8262), 1-2. doi:10.1136/bmj.d8262
- Seo, M. G., Barrett, L., & Bartunek, J. (2004). The role of affective experience in work motivation. *Acad. Manage. Rev.* (Vol. 29, pp. 423-439).
- Seo, M. G., Bartunek, J. M., & Barrett, L. F. (2010). The role of affective experience in work motivation: Test of a conceptual model. *Journal of Organizational Behavior*, 31(7), 951-968. doi:10.1002/job.655
- Shapiro, D. A. (2011). *Stuttering intervention: A collaborative journey to fluency freedom* (2nd ed. ed.). Austin, Tex: PRO-ED.
- Shewell, C. (2009). *Voice work : art and science in changing voices*. Chichester: John Wiley and Sons Ltd.



- Siew, C. S. Q., Pelczarski, K. M., Yaruss, J. S., & Vitevitch, M. S. (2017). Using the OASES-A to illustrate how network analysis can be applied to understand the experience of stuttering. *Journal of Communication Disorders*, 65, 1-9. doi:10.1016/j.jcomdis.2016.11.001
- Simmons, B. M. (2011). The Complexity of Evidence-Based Practice: A Case Study. *Smith College Studies in Social Work*, 81(2-3), 252-267. doi:10.1080/00377317.2011.589352
- Spitzer, R. L., Kroenke, K., Williams, J. B. W., & Löwe, B. (2006). A Brief Measure for Assessing Generalized Anxiety Disorder: The GAD-7. *Archives of Internal Medicine*, 166(10), 1092-1097. doi:10.1001/archinte.166.10.1092
- St. Louis, K. O. (2001). *Living with stuttering: Stories, basics, resources, and hope*. Morgantown, W. Va: Populore.
- St. Louis, K. O., Irani, F., Gabel, R. M., Hughes, S., Langevin, M., Rodriguez, M., . . . Weidner, M. E. (2017). Evidence-based guidelines for being supportive of people who stutter in North America. *Journal of Fluency Disorders*, 53, 1-13. doi:<https://doi.org/10.1016/j.jfludis.2017.05.002>
- St. Louis, K. O., & Tellis, G. (2015). *Stuttering Meets Stereotype, Stigma, and Discrimination : An Overview of Attitude Research*. Morgantown: West Virginia University Press.
- Steine, A.-K., & Inglingstad, K. N. (2013). *Å leve med stamming : En analyse av hvordan voksne mennesker som stammer opplever sin livssituasjon*. University of Oslo Oslo.
- Swift, M. C., Langevin, M., & Clark, A. (2017). Using critical realistic evaluation to support translation of research into clinical practice. *International Journal of Speech-Language Pathology*, 19(3), 335-343. doi:10.1080/17549507.2017.1309067
- Sønsterud, H. (2015). PhD-project presentation: Individualized stuttering treatment -what works for whom? *Norsk Tidsskrift for Logopedi*, 3(63), 39.
- Sønsterud, H., Howells, K., & Baluyot, C. (2017). Individuelle ønsker for oppfølging av stamming: Et kartleggingsskjema i det logopediske samarbeidet. *Statped's læringsressurser, Oslo, Norge*.
- Sønsterud, H., Kirmess, M., Howells, K., Ward, D., Feragen, K. B., & Halvorsen, M. S. (2019). The working alliance in stuttering treatment: A neglected variable? . *International journal of language & communication disorders*, 54(4), 606-619. doi:<https://onlinelibrary.wiley.com/doi/10.1111/1460-6984.12465>
- Sønsterud, H., & Løvbakk, J. (2012). Aktiv talepust - et nyttig verktøy i vår stammelogopediske verktøykasse? [Breathing management - a useful tool in the stuttering toolbox for speech-language therapists]. *Norsk Tidsskrift for Logopedi*, 1, 22-24.
- Tate, R. L., Perdices, M., Rosenkoetter, U., Shadish, W., Vohra, S., Barlow, D. H., . . . Wilson, B. (2016). The Single-Case Reporting Guideline In BEhavioural Interventions (SCRIBE) 2016 Statement. *Physical therapy*, 96(7), e1. doi:10.2522/ptj.2016.96.7.e1
- Teasdale, J. D., Segal, Z. V., & Williams, J. M. G. (2003). Mindfulness Training and Problem Formulation. *Clinical Psychology: Science and Practice*, 10(2), 157-160. doi:10.1093/clipsy.bpg017
- Tomaiuoli, D., Del Gado, F., Spinetti, M. G., Capparelli, E., & Venuti, B. (2015). Profiling People who Stutter: A Comparison Between Adolescents and Adults. *Procedia - Social and Behavioral Sciences*, 193, 266-273. doi:<https://doi.org/10.1016/j.sbspro.2015.03.270>
- Torres-Prioris, M. J., López-Barroso, D., Paredes-Pacheco, J., Roé-Vellvé, N., Dawid-Milner, M. S., & Berthier, M. L. (2019). Language as a Threat: Multimodal Evaluation and Interventions for Overwhelming Linguistic Anxiety in Severe Aphasia. *Frontiers in psychology*, 10, 678. doi:10.3389/fpsyg.2019.00678
- Van Lieshout, P., Ben-David, B., Lipski, M., & Namasivayam, A. (2014). The impact of threat and cognitive stress on speech motor control in people who stutter. *Journal of Fluency Disorders*, 40, 93. doi:10.1016/j.jfludis.2014.02.003
- Van Riper, C. (1973). *The treatment of stuttering*. Englewood Cliffs, N.J: Prentice-Hall.
- Venkatagiri, H. S. (2009). What Do People Who Stutter Want-Fluency or Freedom? *Journal of Speech, Language, and Hearing Research*, 52(2), 500-515. doi:10.1044/1092-4388(2008/07-0019)

- Wampold, B. E. (2015). *The Great Psychotherapy Debate : The Evidence for What Makes Psychotherapy Work* (Second ed.). Hoboken: Taylor and Francis.
- Ward, D. (2018). *Stuttering and Cluttering: Frameworks for Understanding and Treatment* (Second ed.). Oxon, New York: Routledge.
- Waterloo, K. K., & Götestam, G. (1988). The regulated-breathing method for stuttering: An experimental evaluation. *Journal of Behavior Therapy and Experimental Psychiatry*, 19(1), 11-19. doi:10.1016/0005-7916(88)90005-5
- Weiner, A. E. (1978). Vocal control therapy for stutterers: A trial program. *Journal of Fluency Disorders*, 3(2), 115-126. doi:10.1016/0094-730X(78)90011-6
- Weiner, A. E. (1984). Patterns of vocal fold movement during stuttering. *Journal of Fluency Disorders*, 9(1), 31-49. doi:10.1016/0094-730X(84)90006-8
- Wetherell, J. L., Liu, L., Patterson, T. L., Afari, N., Ayers, C. R., Thorp, S. R., . . . Petkus, A. J. (2011). Acceptance and Commitment Therapy for Generalized Anxiety Disorder in Older Adults: A Preliminary Report. *Behavior Therapy*, 42(1), 127-134. doi:<https://doi.org/10.1016/j.beth.2010.07.002>
- Wieten, S. (2018). 'What the patient wants': an investigation of the methods of ascertaining patient values in evidence-based medicine and values-based practice. *Journal of Evaluation in Clinical Practice*, 24(1), 8-12. doi:10.1111/jep.12471
- Woods, D. W., Twohig, M. P., Fuqua, R. W., & Hanley, J. M. (2000). Treatment of stuttering with regulated breathing: Strengths, limitations, and future directions. *Behavior Therapy*, 31(3), 547-568. doi:10.1016/S0005-7894(00)80030-1
- World Health Organization. (2001). Geneva: World Health Organization.
- Wright, L., & Ayre, A. (2000). WASSP: Wright and Ayre Stuttering Self-Rating Profile. (Vol. 25). Bicester, UK: Winslow Press.
- Yairi, E., & Seery, C. H. (2015). *Stuttering: foundations and clinical applications* (2nd ed. ed.). Boston: Pearson.
- Yaruss, J. S. (2010). Assessing quality of life in stuttering treatment outcomes research. *Journal of Fluency Disorders*, 35(3), 190-202. doi:10.1016/j.jfludis.2010.05.010
- Yaruss, J. S., Coleman, C., & Quesal, R. W. (2012). Stuttering in School-Age Children: A Comprehensive Approach to Treatment. *Language, Speech & Hearing Services in Schools (Online)*, 43(4), 536-548. doi:10.1044/0161-1461(2012/11-0044)
- Yaruss, J. S., & Quesal, R. W. (2004). Stuttering and the International Classification of Functioning, Disability, and Health (ICF): An update. *Journal of Communication Disorders*, 37(1), 35-52. doi:10.1016/S0021-9924(03)00052-2
- 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*, 31(2), 90-115. doi:<http://doi.org/10.1016/j.jfludis.2006.02.002>
- Yaruss, J. S., & Quesal, R. W. (2010). *OASES Manual: Overall Assessment of the Speaker's Experience of Stuttering*. United States of America: NCS Pearson, Inc.
- Zebrowski, P. M., & Kelly, E. M. (2002). *Manual of stuttering intervention*. Clifton Park, N.Y: Singular.
- Zigmond, A. S., & Snaith, R. P. (1983). The Hospital Anxiety and Depression Scale. *Acta Psychiatrica Scandinavica*, 67(6), 361-370. doi:10.1111/j.1600-0447.1983.tb09716.x

## Papers I-III

## What do people search for in stuttering therapy: Personal goal-setting as a gold standard?

### Abstract

#### Purpose

Stuttering affects people in individual ways, and there are multiple factors which may influence a person's goals when seeking therapy. Even though there is a common consensus that speech-language pathologists should discuss the individual's goals and expectations for stuttering therapy and outcomes, few studies have systematically investigated this issue.

The aims of the present study were to investigate individual motivations and goal-setting related factors in stuttering therapy. The associations between self-reported impact of stuttering and the participants' perceptions of stuttering interference in communication, speaking abilities, and relationships with other people were also investigated.

#### Method

This study is part of a wider-ranging treatment study of individualized stuttering management tailored to the participants' personal goals and preferences. A mixed method, multiple case study design was used to address the research questions. Twenty-one adults, age 21-61 years, took part in a pretherapy interview, which also included two quantitative measures: the Client Preferences for Stuttering Therapy-Extended version (CPST-E) and the Overall Assessment of Speakers' Experience of Stuttering-Adult version (OASES-A). Findings from the study sample was compared with a Norwegian reference group, in order to check for the representativeness of the study sample.



## Results

Quantitative data showed that most participants wanted to focus on both physical and psychological aspects of therapy, and that 95% considered the goal ‘to gain a sense of control over the stuttering’ as important. Participants’ perspectives on their speaking ability and stuttering interference in communication were identified as central factors, particularly in social and professional settings. These outcomes aligned well with the finding of avoidance behaviors, such as avoiding words and speaking situations. Qualitative data identified four main areas that the participants wanted to improve: speech fluency, emotional functioning, activity and participation, and understanding of their stuttering.

## Conclusion

The study confirms that multiple and individual factors may influence the person’s goals for therapy. Goals were mainly anchored in participants’ wish of better coping in real world settings. A high degree of avoidance behavior was reported, suggesting that anxiety, and in particular linguistic-related anxiety needs to be taken into account when addressing social anxiety in fluency disorders.

## Keywords:

Stuttering; individualized therapy; personal goals; motivation; agreed therapy outcomes; mixed-method research

## 1. Introduction

For many individuals who stutter, stuttering can significantly affect social experiences and hence potentially affect psychosocial and psychological adjustment (Boyle & Fearon, 2017; Manning & Beck, 2013b). Although varying individually and contextually, stuttering can have a negative impact on education, career, and social life, which can significantly impact on both communication and quality of life (Bricker-Katz et al., 2013; Bricker-Katz,

Lincoln, & McCabe, 2009; Craig et al., 2009; Erickson & Block, 2013; S. O'Brian et al., 2011; St. Louis & Tellis, 2015). Many persons who stutter experience their stuttering as a loss of control, or fear of impending loss of control, with following frustration and negative thoughts. Loss of control and loss of the belief that one can speak in social situations can further lead to avoidance behaviors and social withdrawal (Craig & Andrews, 1985; De Nil & Kroll, 1995; J. Riley, Riley, & Maguire, 2004).

There is considerable evidence that links stuttering with social anxiety (Craig & Tran, 2014; Iverach & Rapee, 2014; Menzies, O'Brian, et al., 2008; Menzies et al., 2019; Messenger et al., 2004). According to Iverach et al. (2018), social anxiety in adults who stutter leads to greater emotional challenges, less satisfaction with speech, and increased avoidance of speaking situations. How anxiety levels may affect linguistic performance and interfere with speaking abilities and social activities has not, as far as we are aware of, been investigated in stuttering research. For people with aphasia, the use of 'linguistic anxiety' has been created to describe stress reactions induced by language testing and everyday situations that require the use of language (Cahana-Amitay et al., 2015; Torres-Prioris et al., 2019). We believe it would be worthwhile considering whether linguistic-related anxiety might influence speaking abilities, communication and social involvement in people with stuttering.

The stuttering literature often divides stuttering therapy into two main traditions which are based upon seemingly different theoretical foundations, and further distinguished on the basis of behavioral or affective therapy goals, procedures and structure (Guitar, 2014; Shapiro, 2011). At the same time, integrated approaches highlight the principle that stuttering therapy should be tailored to each person's needs (Ward, 2018). Despite this, we still find examples in the literature where clinicians take a more polarized perspective; following either fluency shaping or stuttering modification approaches (Venkatagiri, 2009). The present study

questions whether this binary distinction is still valid in today's clinical contexts and explores to what extent such an approach reflects a consensus within the field of fluency disorders.

### 1.1. People have diverse goals

Bothe and Richardson (2011) use the term *personal significance* to refer to goals, measures and changes that are of high value to the individual. They recommend the introduction of this concept as an addition to the known and well established measures of statistical, practical, and clinical significance for the interpretation of therapy outcomes (Bothe & Richardson, 2011; Ingham, Ingham, et al., 2012). According to Ingham et al. (2012), this distinction lies in between the clinician or researcher's judgments and the client's own personal perceptions as to the worth of an achieved therapy outcome. The authors suggest that therapies may require changes that are designed to deal with what is especially significant for the individual. Using the person's self-judgment in therapy is part of an essential constituent in evidence-based practice and is also echoed in stuttering therapy (Bernstein Ratner, 2005; Bothe & Richardson, 2011; Ingham, Ingham, et al., 2012). According to Karimi et al., the person's satisfaction with communication in everyday speaking situations is a primary outcome which reflects '*a fundamental treatment gain that overarches all stuttering treatments*' (2018, p. 82). Hence, the SLP needs to explore areas of communication in everyday speaking that matter the most to the client, in order to be able to address these issues as part of the treatment.

The discrepancy between desired and realistic outcomes is often a common issue in stuttering therapy, especially regarding adults with chronic stuttering. According to Ward, it is essential that the client is very aware of the goals of therapy, '*and of the likelihood of these goals being completely achieved*' (Ward, 2018, p. 301). Goal-directed work and pretherapy reflections are integrated in the working alliance philosophy (Flückiger et al., 2018). The goals a client may be seeking in stuttering therapy will vary dependent on a wide range of

factors, including the type of available therapies, the individual's previous experiences in therapy, phase-related aspects in life, and the subjective severity of physical and psychological distress associated with stuttering. We acknowledge that participants may not come for therapy with a full understanding of the range of options available. They might well desire a certain outcome without knowing whether this is achievable or not, and in the absence of any knowledge they may or may not have about therapy approaches.

The World Health Organization's (WHO) classification system, the International Classification of Functioning, Disability and Health (ICF), is often used as a framework of stuttering (St. Louis & Tellis, 2015). It considers the effect of function, disability and health across a wide range of factors and different aspects in life, including, a) impairment in body function, b) activity limitation and participation restriction, and c) environmental factors (World Health Organization, 2001). The ICF has provided a framework for understanding and assessing stuttering and stuttering therapy in a contextual setting. The contextual setting includes quality of life, overall well-being, self-stigma, and social aspects which may be regarded as particularly important for people who stutter (Boyle & Fearon, 2017; St. Louis et al., 2017; Yaruss, 2010). Stuttering identity, stuttering acceptance and avoidance-behavior can be regarded as three important concepts in the field of stuttering, and may influence the clients' priorities regarding goals and wishes for therapy. We believe that an individualized goal-setting approach in many ways mirrors the client's optimal level of functioning, and fits well with the ICF framework regarding personal and environmental factors as discussed by for example Yaruss and Quesal (2004) and Logan (2015).

## 1.2. Collaborative 'working together' aspects of the relationship

The collaboration between the person who stutters and the speech-language pathologist (SLP) should be based on an agreed consideration of the individual's hopes and goals. According to Logan (2015, p. 469), people "*function most effectively when their daily*

*activities are aligned with the goals or destinations that they hope to reach*". McLeod (2018) claims that the persons' goals can be stated, but cannot always be easily evaluated. The goals or tasks may therefore need to be broken down further into specific, meaningful and measurable sub goals or tasks.

The concept of the working alliance is commonly used in psychotherapy, where it is defined as the healthy, trusting aspect of the client-clinician relationship (Bordin, 1979; Flückiger et al., 2018; Flückiger et al., 2019; Wampold, 2015). The potential impact of the client-clinician relationship is also acknowledged within speech-language pathology in general (Berg et al., 2017; Lawton, Haddock, et al., 2018; Lawton, Sage, et al., 2018) and in communities of people who stutter (Hayhow et al., 2002; Manning, 2010c; Plexico et al., 2005, 2010; Shapiro, 2011; Sønsterud, Kirmess, et al., 2019; Van Riper, 1973; Zebrowski & Kelly, 2002). The establishment of agreed core outcomes is of importance and relevance to people who stutter and *'needs to be prioritized highly'* (Baxter et al., 2015, p. 690). Needs and goals may differ between individuals, and according to Hayhow et al. (2002) controlling stuttering and developing coping strategies were regarded as important in their survey. They also highlighted a need for clinicians and clients to collaborate on therapy aims and procedures that are more specified, and to match the stuttering therapy *'with the needs of each individual'* (Hayhow et al., 2002, p. 13). This view is in accordance with several authors, who highlight the importance of clinicians adopting the individual's own goals, needs and ideas about stuttering, as well as recognizing their personal values and aims in life (Cheasman et al., 2013; Cooke & Millard, 2018; Manning, 2010c; Shapiro, 2011; Zebrowski & Kelly, 2002). Acknowledging both the individual's experiences within their own process of change and the conscious decision to address their own challenge with stuttering are central to successful goal-setting (Manning, 2010c). Shapiro (2011) emphasizes that such a decision belongs to the individual and should not be made by anyone else. Furthermore, the motivation for change

and/or amount of effort the person is willing to invest in the process may also be an important factor.

### 1.3. Clients' motivational readiness of change

Psychologists have proposed different theories to explain motivation (Cox & Klinger, 2004). Based on Seo et al.'s work motivation model (Seo et al., 2010), an individual's feelings may play an important role in motivation. This model includes three core components of motivation: generative-defensive orientation, effort and persistence. *Generative-defensive orientation* is characterized by active engagement to achieve anticipated positive outcomes, or it can indicate the opposite; defensiveness. The generative orientation might be reflected in behaviors such as exploring, innovating and risk-taking. *Effort* refers to how much time and energy a person devotes to complete a given task, and *persistence* refers to maintaining an initially chosen course of action over time (Seo et al., 2010). People who stutter need to be ready for stuttering management. In this study, motivation was regarded as comprising both psychological and social factors. The broader usage of the term motivation refers to all goal-related processes (Cox & Klinger, 2004).

In a study which took a network approach to the analyses of the OASES-A assessment, Siew et al. (2017) explored participants' knowledge and feelings about stuttering interference with personal relationships, quality of life, self-esteem, emotional and physical reactions to stuttering, and difficulties speaking in various daily situations. Several central nodes (key items) were identified that described shared experiences related to stuttering. The study detected four areas which were regarded as particularly important: 1) knowledge and feelings about speech techniques, 2) the extent to which stuttering interferes with personal relationships, quality of life, and self-esteem, 3) the emotional and physical reactions one has to stuttering and how they may interfere with professional performances, and 4) how difficult it is to speak in various daily situations, and strategies one might employ to avoid those

situations (Siew et al., 2017). According to the authors, investigating key nodes may improve clinicians' understanding about how stuttering is experienced by the clients, and provide insights for therapy. Nevertheless, even though there is a common consensus that SLPs should openly and honestly discuss the individual's goals and expectations of stuttering therapy, few studies have investigated clients' personal motivation for therapy or their priorities regarding therapy outcomes.

#### 1.4. Summary and aims

In order to provide more individually tailored therapies for stuttering, '*we need to be prepared for a number of outcomes*' (Bernstein Ratner, 2005, p. 265), and a broader definition of progress and goals is therefore required. In particular, we need to be clear when defining exactly what an 'improvement' really entails. For some people, improvements may well be a reduction in stuttering frequency, whereas for others, improvement may be realized through a reduction in struggle during stuttered moments or changes in approach and avoidance-related behavior. Hence, goals will be individual and person-specific, and depend on the individual's personality and style of communication. The literature on stuttering therapy has not always been systematically and scientifically attentive to the investigation of the elements outlined above (Ward, 2018). Therefore, the purpose of the present study was to contribute further knowledge regarding client motivation for therapy, and to shed light on how individual variations regarding goal-setting in people who stutter may influence outcome goals. In order to evaluate the adverse impact of stuttering on quality of life, associations between self-reported overall impact of stuttering and the participants' speaking abilities, perceptions of stuttering interference in communication, and relationships with other people were investigated.

## 2. Material and methods

## 2.1. Research design

The study is part of an A-B-A multiple case study design (Gast & Ledford, 2014) that investigated individualized stuttering therapy (Sønsterud, 2015; Sønsterud, Kirmess, et al., 2019). Ethical approval for the study was received in June 2015 from the Regional Committee for Medical Research Ethics (2015/1275). All participants provided written consent before participating in the study. All participants have been given pseudonyms to preserve anonymity.

In order to investigate motivational and goal-setting factors, a convergent parallel mixed method design which combines both qualitative and quantitative data (Fetters et al., 2013) was used. Qualitative data were analyzed according to thematic analysis outlined by Braun and Clarke (2006).

## 2.2. Recruitment and relevant backgrounds about participants

Participants were recruited through the Facebook pages of the Norwegian Association of Stuttering and Cluttering, via the public webpages of the Statped's<sup>4</sup> department of speech and language disorders and via student and professional networks at the University of Oslo. The final cohort comprised 21 adults who stuttered, all of who expressed a proactive interest in having therapy and participating in the study. Sixteen participants were male, five participants were female, ranging from 21 to 61 years ( $M = 34.9$ ,  $SD = 12.2$ ). Seventeen participants indicated no history of speech or language disorders, while two of the participants reported mild to moderate dyslexia, and two disclosed an anxiety-related disorder prior to therapy. Demographics and other relevant background variables are presented in Table 1.

Table 1. Client demographics for the 21 participants.

<i>Background variables</i>	<i>%</i>	<i>n</i>
<i>Male gender</i>	<b>76.2</b>	<b>16</b>
<i>Stuttering in family</i>	<b>47.6</b>	<b>10*</b>
<i>Higher academic education <math>\geq 3</math> years</i>	<b>38.1</b>	<b>8</b>
<i>Vocational rehabilitation</i>	<b>9.5</b>	<b>2</b>
<i>Received SLP treatment as children</i>	<b>57.1</b>	<b>12</b>
<i>Received SLP treatment as adults</i>	<b>13.3</b>	<b>3</b>

---

<sup>4</sup> Statped is a national service for special needs education, defined for different core areas, including services for speech and language disorders.



Participants were further invited to categorize their stuttering within one of four profiles based on the work of Tomaiuolo et al. (2015): a) Mild overt and mild covert components, b) Mild overt and moderate/severe covert components, c) Moderate/severe overt and mild covert components, and d) Moderate/severe overt and moderate/severe covert components. Two participants self-identified as having mild overt and mild covert stuttering, eight with mild overt and moderate/severe covert components, seven with moderate/severe covert and mild overt, and lastly, four participants described themselves as having both moderate/severe overt and moderate/severe covert components.

### 2.3. Data collection procedures

To obtain insight into the participants' motivation and goals for stuttering therapy, quantitative and qualitative data were collected for each person, pretherapy. Data were initially collected at the beginning of the first meeting, 6 weeks pre-therapy. The questionnaire included an open-ended text unit, designed specifically to elicit responses regarding personal goals for therapy.

### 2.4. Measures and instruments

All participants were assessed using the same measurement procedures.

#### 2.4.1. Assessment of therapy goals and personal characteristics (CPST-E)

The participants completed an extended version of the 'Client Preferences for Stuttering Therapy' (CPST) during a pre-therapy session (McCauley & Guitar, 2010). The original CPST covers a brief overview of therapy goals, the participants' own considerations

regarding fluency, ease of participation in different speaking situations, and being in-control. Items are rated on a Likert scale ranging from 1-5 (not at all important - very important).

Previous clinical and research experience with the CPST has indicated the need for a broader perspective on goals and motivation for therapy. An extended version has therefore recently been developed, the Client Preferences for Stuttering Therapy - Extended version (CPST-E) (Sønsterud et al., 2017). The extended version includes an additional item in the section 'Goals of treatment': 'To have more positive feelings associated with stuttering'. The extended version also includes two additional sections measuring motivation and expectations for therapy in more detail than the original version. The section 'Motivation and expectations' addressed five questions regarding personal characteristics, including aspects related to the participants' motivation and was based on Seo et al.'s (2010) 'work motivation model', comprising questions probing: a) A person's persistence (the maintenance of an initially chosen course of action over time), b) how motivated they are to work actively with their stuttering, c) the amount of time a client is willing to set aside for independent training, d) how much help and support they expect during the therapy period, and e) their anticipations of the outcome. All items were measured on Likert scales, ranging from 1-5 (not at all or nothing - very much or completely). Internal consistency was good to excellent for the section 'Goals of treatment' ( $\alpha = .81$ ), 'Motivation and expectations' ( $\alpha = .92$ ), and for the summarized sections ( $\alpha = .89$ ) (Sønsterud et al., 2017).

The CPST-E also includes open text units where participants can specify their own goals and wishes for therapy, their need in order to achieve their goals, and other factors they consider important in the collaboration with the SLP, headed by the following specific question: '*Describe, using your own words, your goals and wishes for the therapy*'. The qualitative data included in the present study are based on those data.

#### 2.4.2. Assessment of stuttering severity, communication and quality of life (OASES-A)

The Speakers' Experience of Stuttering-Adult version (OASES-A) is a measure designed for examining the impact of stuttering from the perspective of the individual who stutters, and is built upon the framework of the ICF (Yaruss & Quesal, 2006; Yaruss & Quesal, 2010). The participants completed the CPST-E, including the open-text units, before the completion of the OASES-A.

The OASES-A consists of 100 items organized into four sections: 1) General information: the person's perceptions of his or her speech, stuttering behaviors, knowledge of treatment options and overall speaking ability, 2) Reactions to Stuttering: affective, behavioral and cognitive reactions as a result of stuttering, 3) Communication in Daily Situations: for example, at work, in social settings, or at home, and 4) Quality of Life: the degree to which stuttering interferes with the person's relationships with others and the ability to participate in everyday life. Each item is scored on a 5-point Likert scale, with higher scores indicating greater negative impact associated with stuttering. The OASES-A has demonstrated good test-retest reliability ( $r = 0.90-0.97$ ) and concurrent validity ( $r = 0.68-0.93$ ). Each of the four sections of the instrument has also revealed very strong internal reliability ( $r = 0.92-0.97$ ) (Yaruss & Quesal, 2010).

## 2.5. Quantitative and qualitative analyses: A convergent mixed methods design

Qualitative methods highlight individual variations, nuances and processes that are difficult to capture quantitatively, whereas a quantitative approach enables comparisons within and across samples, using a statistical approach (Dures, Rumsey, Morris, & Gleeson, 2011). In the present study, the qualitative data provide a detailed and individual picture of goals for therapy, while the quantitative data examine priorities regarding goals, perceptions of stuttering, speaking abilities, and difficulties in performing daily activities involving communication.

### 2.5.1. Quantitative analyses

Quantitative data were analyzed using the IBM SPSS Statistic, version 25. In order to assess whether to use parametric or non-parametric statistical tests, normality was assessed by obtaining skewness and kurtosis values. A normal distribution was found on the OASES-A, while two items on the subscale ‘Motivation and expectations’ of the CPST-E did not show a normal distribution. Results are therefore presented as means with standard deviations (SD), where assumptions of normality were fulfilled, and as medians with 25<sup>th</sup> and 75<sup>th</sup> percentiles (interquartile range [IQR]) when data were skewed. Results are also presented as percentages (%), and frequencies (*n*).

In order to compare the study sample (*n* = 21) to the Norwegian general population of people who stutter (*n* = 62), so that the reader can assess its representativeness (Nordbø et al., 2018), independent samples *t*-tests were conducted. The level of significance was set to  $p < .050$ .

Scores from the subscale ‘Goals of treatment’ (CPST-E) were analysed for comparative purposes. The responses ‘important’ and ‘very important’ on the 5-point Likert scale were combined when presenting frequencies. In addition, frequencies are also presented for participants who reported the highest score (very important). The subscale ‘Motivation and expectations’ (CPST-E) was used to calculate the participants’ degree of motivation for therapy, and to evaluate their degree of expectation of support and a positive therapy outcome. As with the subscale ‘Goals of treatment’, the responses ‘a lot’ and ‘very much’ on the 5-point Likert scale were combined when presenting frequencies.

In order to explore personal aspects potentially affecting motivation for therapy, the concepts of stuttering identity (items 17 and 18), stuttering acceptance (item 49), and avoidance-behavior (items 35-38 and 40) were described in more details. Furthermore, the 5-

point Likert scale of the OASES-A was transformed into 3 categories: positive, neutral, or negative, and disagreeing, neutral, or agreeing.

Investigating key items from the OASES-A may provide clinicians with insights about clients' motivation for therapy. Hence, items from the OASES-A identified as central nodes (key items) in Siew et al.'s (2017) study, were examined also in the present study. The OASES-A and the CPST-E were further used to investigate participants' evaluations regarding certain speaking- and communicative settings (socially, work-related and/or home-based settings), and to what degree speaking more effortlessly in such speaking situations was important to them.

Correlational analyses between the Total Impact score (OASES-A) and individual items of the OASES-A were performed in order to investigate which items were most important for participants' self-perceptions of the impact of stuttering. Correlation analyses also calculated associations between the Total Impact Score (OASES-A) and the participants' perceptions of stuttering interference, speaking abilities, stuttering control, and relationships with other people (all sub scores from the OASES-A). Further, correlations between experienced quality of life (OASES-A) and the extent to which stuttering interfered with communicating in certain situations (OASES-A) were also calculated. Only associations larger than Pearson's  $r = .50$  are presented in the Results, as suggested by Siew et al. (2017).

### 2.5.2. Qualitative analyses

Interviews were analyzed according to principles for thematic analyses outlined by Braun and Clarke (2006). Thematic analysis provides a flexible tool that can be used to identify patterns within and across data in relation to participants' lived experience and provides a framework from which to unpick participants' thoughts and perceptions. The data were analyzed at a semantic level, following Braun and Clarke's six phases of analysis

(2006). During the phase where initial codes were generated, codes were applied to concepts that were similar throughout the orthographical transcripts. Data were categorized according to semantic similarity. In order to secure reliability, two of the authors were involved in this first stage of analysis. At a semantic level and according to Braun and Clarke, themes should be identified within the explicit or surface meanings of the data (2006). Therefore, the researchers were not looking for anything beyond what the participant had written. Following initial coding, thematic units were then compared to initial concepts and across participants. Subsequently, data were summarized into broader themes and concepts (Braun & Clarke, 2006; Dures et al., 2011). All authors had access to the anonymized qualitative data set. Except for the first author, no authors had contact or involvement with the center where the therapy was conducted.

### 3. Results

#### 3.1. Personal goal-setting: Quantitative analyses

According to the CPST-E, three participants (14.5%) rated physical factors as the most relevant aspect of their therapy. Two participants (9.5%) rated the emotional aspect of therapy as most important. The majority, 16 participants (76%), wanted to focus on both the physical/behavioral and emotional/psychological aspects of therapy.

##### 3.1.1. Impact of stuttering (OASES-A)

The distribution of the stuttering Impact Rating (IR) scores on the OASES-A were as follows: No participants categorized their stuttering as mild (range 1.00-1.49), four as mild/moderate (range 1.50-2.24), eight as moderate (range 2.25-2.99), eight as moderate/severe (range 3.00-3.74), and one as severe (range 3.75-5).

Mean scores of self-reported stuttering (overall impact and subscales) for the study sample and for the reference group (Nordbø et al., 2018) are presented in Table 2.

Table 2. Overall Assessment of Speakers' Experience of Stuttering-Adult version (OASES-A): Overall impact- and sub-scores for the study sample prior to therapy compared with Norwegian norms.

Sections OASES-A	Study sample		Reference group		<i>p</i>
	Mean	SD	Mean	SD	
Overall stuttering impact	2.80	0.61	2.61	0.61	.220
General information	3.04	0.42	2.66	0.51	.003*
Reactions	2.91	0.65	2.77	0.63	.393
Communication	2.75	0.79	2.66	0.73	.643
Quality of life	2.54	0.80	2.31	0.82	.266

Mean, Standard Deviation (SD) and p-value (Note: \* $p < .050$ ).

As can be seen in Table 2, the only statistically significant difference between the two groups was for the subscale 'General information', indicating that participants from the study sample had a more negative perception of their speech and overall speaking abilities than the reference group.

### 3.1.2. Therapy goals (CPST-E)

As can be seen in Table 3, analyses revealed item means ranging from 4.14 to 4.67, indicating that all four therapy goals were of importance for the participants. The highest mean score was found for 'to gain a sense of control over the stuttering'.

Table 3. Client Preferences for Stuttering Therapy (CPST-E): The degree of importance regarding goals.

Goals in therapy	% *	n	Mean	SD
To gain a sense of control over the stuttering	95.2	20	4.67	0.58
To participate easily in most or all speaking situations	85.7	18	4.43	0.75
To have fluent speech	76.2	16	4.14	0.91
To have more positive feelings associated with stuttering	76.2	16	4.14	1.15

Percent (%), Frequency (n), Mean, and Standard Deviation (SD). \*Note: Frequencies consist of the summarised responses of 'important' and 'very important'.

In order to further investigate individual variations regarding motivation for therapy, participants' grading of which specific goal's they rated as of highest importance ('very important') was explored. Nine participants (43%) rated the significance of gaining fluent speech as 'very important', while 15 (71%<sup>5</sup>) considered 'to gain a sense of control over stuttering' as 'very important'. Further, 11 participants (52%) found it highly important 'to have more positive feelings associated with stuttering' and 12 participants (57%) 'to participate easily in most or all speaking situations'.

As can be seen in Table 4, the majority of the participants rated themselves as highly motivated for stuttering therapy.

Table 4. Subscale 'Motivation and expectations' (CPST-E). Participants' considerations regarding motivation for therapy and expectations of positive outcomes and support.

Subscale 'Motivation and Expectation'	%*	n	Median	IQR	Mean	SD
Persistent (maintaining action over time)	90.5	19	4.0	4.0 - 5.0	4.19	0.93
Motivated	90.5	19	5.0	4.0 - 5.0	4.52	0.98
Time set aside for training	71.4	15	4.0	3.0 - 4.0	3.86	0.96
Anticipation of positive outcome	57.1	12	4.0	3.0 - 4.0	3.57	0.87
Expectations support or help	42.9	9	3.0	3.0 - 4.0	3.38	0.81

Percent (%), Frequency (n), Median and interquartile range (IQR), Mean, and Standard Deviation (SD). \*Note: Frequencies consist of the summarised responses of 'a lot' and 'very much'.

### 3.1.3. Stuttering identity, stuttering acceptance and avoidance behavior (OASES-A).

Individual variations concerning self-reported stuttering identity, self- acceptance, and avoidance behaviors were measured through the OASES-A. Regarding participants' consideration as being a person who stutter, two participants perceived this as positive (9%),

<sup>5</sup> Participants could provide multiple answers to the questions. Hence, frequencies do not add up to 100%.



five as neutral (24%), and 14 as negative (67%). ‘Being identified by others as a person who stutters’ was considered as positive by four participants (19%), as neutral by 10 participants (48%), and as negative by seven (33%). Further, nine participants (43%) disagreed with the statement: ‘I cannot accept the fact that I stutter’, three participants (14%) gave a neutral response to this statement, and nine agreed (43%).

Five items of the OASES-A (items 35-38 and 40) measuring avoidance behaviors are presented in Table 5.

Table 5. Self-reported avoidance-behaviors (OASES-A).

Items in the OASES-A	Mean	SD
Use ‘filler words’ or starters to be more fluent	3.5	1.12
Not say what you want to say	3.4	1.07
Avoid speaking in certain situations or to certain people	3.1	0.89
Leave a situation because you think you might stutter	2.9	0.94
Let somebody else speak for you	2.1	0.97
<b>Mean, and Standard Deviation (SD)</b>		

#### 3.1.4. Challenges in communication and the desire to speak more easily (OASES-A/CPST-E)

Several of the participants perceived their speech as disfluent ( $M = 3.19$ ,  $SD = 1.03$ ) and ‘unnatural’- sounding ( $M = 3.14$ ,  $SD = 0.91$ ). According to the OASES-A, participants reported that talking while under time pressure ( $M = 3.29$ ,  $SD = 0.90$ ), introducing themselves ( $M = 3.33$ ,  $SD=1.11$ ), and talking on the telephone ( $M = 3.00$ ,  $SD=1.09$ ) were the most challenging communication settings. Conversation with friends ( $M = 2.10$ ,  $SD = 1.05$ ) and family members ( $M = 2.24$ ,  $SD = 1.04$ ) led to lower mean scores than conversations with strangers ( $M = 2.76$ ,  $SD = 0.89$ ). Communication was regarded as especially difficult in social settings where ‘small talk’ ( $M = 2.95$ ,  $SD = 1.28$ ) and telling stories or making jokes ( $M = 3.57$ ,  $SD = 1.29$ ) were expected.

A similar tendency was found in the CPST-E: communication situations that were rated as challenging in the OASES-A, were also situations participants rated as important in the CPST-E. For example, participants considered ‘Telephone conversations’ ( $M = 3.71$ ,  $SD = 1.15$ ), ‘Introducing yourself to others’ ( $M = 4.10$ ,  $SD = 1.14$ ), and ‘Conversations with strangers’ ( $M = 4.05$ ,  $SD = 0.97$ ) as very important situations in which they wished for an improved sense of control in their stuttering, while ‘Conversation with family members’ ( $M = 2.67$ ,  $SD = 1.35$ ) and friends ( $M = 3.05$ ,  $SD = 1.28$ ) were considered as less important in comparison.

### 3.1.5. Stuttering interference in communication and quality of life (OASES-A)

Key items from Siew et al.’s study (2017) were also investigated in the present study. Associations were calculated between the Total Impact Score and other subscores (OASES-A). The relationship between the Total Impact Score and the participants’ own considerations regarding how consistently they were able to maintain fluent speech ( $r(19) = 0.69$ ,  $p < .001$ ), and perceived ability to communicate ( $r(19) = 0.74$ ,  $p < .001$ ), both showed strong correlations. Further, the Total impact score correlated moderately with the participants’ overall feeling about their speaking ability ( $r(19) = 0.59$ ,  $p < .001$ ), and with the participants’ overall feeling about the way they sounded when speaking ( $r(19) = 0.57$ ,  $p < .001$ ).

The relationship between the Total Impact Score and the persons’ overall sense of control over life was also investigated, and was found to be strong ( $r(19) = 0.70$ ,  $p < .001$ ). The strongest relationship was found between the Total Impact Score (OASES-A) and Item 85 ‘Overall, how much does stuttering interfere with your relationships with other people’: ( $r(19) = 0.91$ ,  $p < .001$ ) and Item 94 ‘Overall, how much does stuttering interfere with your overall outlook on life’ ( $r(19) = 0.85$ ,  $p < .001$ ).

Associations were found between participants' quality of life and stuttering interference in communicative settings. More specifically, moderately strong associations were found between quality of life and self-reported negative stuttering impact ( $r(19) = 0.71$ ,  $p < .001$ ), their own reactions to stuttering ( $r(19) = 0.69$ ,  $p < .001$ ), and other people's reactions to their stuttering ( $r(19) = 0.63$ ,  $p < .001$ ).

### 3.2. Personal goal-setting: Qualitative analyses

Qualitative analyses led to four main themes: a) improving speech fluency, b) improving emotional functioning, c) improving activity and participation, and d) improving participants' understanding of their stuttering. Some examples of some central statements are included in Table 6.

Table 6. Examples of some central statements representing the four main themes.

Improving speech fluency	Improving emotional functioning	Improving activity and participation	Improving understanding of stuttering
"I want to achieve fluent speech and a sense of control."	"Less anxiety associated with socialising. Feel better, lighter in myself, even though I stutter."	"Defuse situations where stuttering occurs and manage to speak to people, I'm not confident with."	"Learn more about the mechanics of stuttering, physical and psychological, so that I develop a better understanding."
"Learn techniques that suit me and that can either reduce the stuttering or help me in 'acute' situations."	"I want to increase my competence in handling my stuttering, in order to improve my quality of life."	"I want conversations with colleagues to feel easier."	"Together with the speech-language pathologist, identify what is real stuttering and what is 'old habit'."

Several participants expressed multiple goals. Participants' responses are presented below, in more detail.

#### 3.2.1. Improving speech fluency

Eighteen participants described 'reducing stuttering' or 'improving fluency' as one of their main therapy goals, as exemplified by Jake (32 years): "*I want to reduce stuttering and*

*improve fluency. This project can be a start, and a good kick in the butt*". Patrick (24 years) highlighted the social aspects of stuttering, *"talk fluently and calmly in social situations"*, whereas Sander (34 years) focused on his voice when stuttering: *"Less stuttering, more relaxed and without a wavering/nervous voice, and to lose the feeling that I'm being strangled"*. Celine (25 years) wanted her stuttering to disappear totally: *"My personal goal is to get rid of the stuttering. I'm planning to put in a lot of effort, and I am expecting the collaboration to work well"*.

Concepts such as 'tools', 'methods' or 'techniques' were explicitly used by more than half of the participants, when describing therapy goals. As an example, Frank (27 years) expressed his goal this way: *"My goal is to get some different tools that can help me achieve more fluency. Guidance, stuttering therapy, and follow-up is needed so that I will have an antidote to stuttering when it occurs and action I can take when I am in the middle of a stuttering situation"*. Similarly, Glenda (39 years) said: *"See if we can find some exercises that can hit the spot and lead to improved fluency. Help to identify exercises that can lead to less variation in the stuttering, and increased fluency over longer periods"*. Adam (42 years), expressed the wish to learn techniques that would be useful for him in particular: *"Learn techniques that suit me [...] I want to find out what feels right for me, physically, and in terms of my personality. What I learned earlier was too general"*.

### 3.2.2. Improving emotional functioning

Seven participants explicitly mentioned obtaining control over their stuttering. Some participants used the word 'control' in relation to emotional and/or social aspects, such as Ken (48 years) who expressed a twofold goal: *"Get help to [...] prevent stuttering from affecting social life. Reduce the fear of showing others that I stutter"*. Marcus (26 years) had experienced the negative impact of stuttering in his professional life and wanted help to reduce emotional reactions associated with these challenges: *"I have developed a kind of*

*anxious feeling which makes me nervous about my future, work and meeting colleagues. I want to reduce the anxiety.*” Some participants hoped that therapy could increase general well-being and quality of life: *”Less anxiety associated with socialising. Feel better, even though I stutter”* (Tim, 33 years), and *”I want to increase my competence in handling my stuttering, in order to improve my quality of life”* (Jacob, 29 years). Jacob hoped that therapy would decrease the emotionally demanding aspects of stuttering *”I want to challenge my own stuttering, I want, quite simply, to become more comfortable and get to the stage where I never again need to use any energy on stuttering. I don’t want stuttering to limit me in any way or to rob me of energy anymore [...] to have a better life with or without stuttering”*. For Mitch (24 years), emotional support was hoped for in the relationship with the SLP: *”In the short term, just to have someone to talk with, and to feel secure. It’s incredibly good to get to speak with someone else about stuttering, I haven’t done that before and there aren’t many people who know what stuttering is. In the longer term – stutter less, become aware of techniques I can use”*.

### 3.2.3. Improving activity and participation

More than half of the participants specifically expressed goals related to improving communication at work or in academic situations, like for example Adam (42 years): *”I want conversations with colleagues to feel easier”* or Sandy (21 years): *”Stuttering has stopped me since high school”*. Further, a high number of participants wanted to improve social activity in general: *”I want greater self-confidence in terms of taking the initiative in conversations/social activities and in relation to stuttering more generally”* (Frank, 27 years), or *”Dare to take the initiative in new social groups. Chat in groups. Feel more secure about talking in meetings. Stand up for myself in general”* (Patrick, 24 years). Marcus (26 years) found introducing himself to others particularly challenging: *”Introducing myself is a big challenge”*.

### 3.2.4. Improving participants' understanding of their stuttering

Some participants expressed the wish to understand their stuttering better, and mentioned the wish for help to identify underlying components of stuttering: *“Document the stuttering: The hard and the easier stuttering. Together with the speech-language pathologist, identify what is real stuttering and what is ‘old habit’. Grab hold of it and work hard, first in safe environments and later in all situations. I’ve developed some negative patterns; the stuttering has become a habit”* (Kelly, 56 years), or *“Learn more about the mechanics of stuttering, physical and psychological, so that I develop a better understanding”* (Barbara, 46 years). A few participants' goal was to support the current study, hoping that the study would increase awareness about stuttering in the general population: *“The reason I want to join the project is that I want to contribute to stuttering being better understood, and that others – who struggle even more than I do – can get the help they need”* (Stefan, 34 years).

## 4. Discussion

The purpose of this study was to gain an improved understanding of client-reported goals in stuttering therapy. The majority of the participants reported that both physical and psychological aspects were important for them when seeking stuttering therapy. Therapy goals were related to the participants' personal contexts in daily life and the hope to cope better with daily communication settings, at work, and in other social settings. Several confirmed that stuttering was a challenge that limited their activity or participation in life. Consistent with findings from Hayhow et al. (2002), improving a sense of control in speech and communication was a major focus for the majority of the participants in this study.

Quantitative and qualitative data from the present study offer interesting insights into the individual's goal-setting and motivation for stuttering therapy. As presented in the results, the thematic analysis of the qualitative dataset resulted in the identification of four main themes. Based on the present study's qualitative and quantitative data (Dures et al., 2011),

results are summarized and discussed according to five sub-themes: 1) The centrality of physical and psychological aspects, 2) Therapy goals related to daily life and communication settings, 3) Finding a sense of control in life, 4) Self-acceptance and improving speech as a complementary process, and 5) The importance of support and a strong working alliance. The five sub-themes and the implications of these findings are discussed in more detail below.

#### 4.1. The centrality of physical and psychological aspects

The majority of the participants in the present study expressed goals related to the importance of including both physical and psychological aspects of stuttering, suggesting that both aspects were experienced as challenging in everyday life. Although the main question regarding goals for therapy was open ended and designed specifically to elicit personal responses, most of the participants expressed, in one way or another, a desire to reduce stuttering, improve fluency and/or improve feelings associated with stuttering.

It may sometimes be difficult to differentiate physical and psychological aspects of stuttering (Bloodstein & Bernstein Ratner, 2008). Based on clinical experience, both aspects may lead to increased muscle tension in body and speech. For individuals who stutter, the physical and psychological aspects of stuttering might be intertwined, and therefore, difficult to separate. Stuttering or holding back words can cause tension in the body, specifically in muscles involved in vocal control, an experience that was confirmed in this study, and frequently has been described in the personal narratives of other adults who stutter (Albrigtsen, Stauri, & Wright, 2017; Cheasman et al., 2013; St. Louis, 2001). Anxiety and stress can trigger the fight or flight response of the autonomic nervous system. This system can also work in the other direction: high lung-volume and fast breathing can send signals to the body that one is anxious or in danger, irrespective of the actual danger (DeVore & Cookman, 2009; Shewell, 2009).

Interestingly, the ICF combines physical and psychological aspects in the first section describing ‘Impairments of body function’. In other words, speech, voice, and respiratory functions are categorized into the same section as mental and emotional functions. Similarly, the subscale ‘Reactions to stuttering’ from the OASES-A includes items measuring both physical and emotional symptoms (Yaruss & Quesal, 2006).

#### 4.2. Therapy goals related to daily life and communication settings

The participants’ desire to improve their knowledge about stuttering seemed to be related to specific speech challenges in their own communication and social settings. This was very closely associated with an eagerness to learn better strategies for dealing with stuttering, and/or to cope with stressful feelings associated with social, academic or work-related settings. Participants’ perspectives on speaking ability and stuttering interference in communication were identified as central factors, as described in the previous literature (Karimi et al., 2018; Siew et al., 2017). As a consequence of communication difficulties, people who stutter may experience that social activity is challenged (Bricker-Katz et al., 2013; Craig et al., 2009; Erickson & Block, 2013; S. O’Brian et al., 2011), as confirmed by the present study’s participants. As seen in both the qualitative and quantitative datasets, avoidance behavior was found to be very common among the participants regardless of whether their stuttering was associated with overall overt or overall covert stuttering, suggesting a close relationship between the experience of limitations in social activities. Helgadottir et al. (2014) consider that if a behavior is used to prevent negative outcomes from a specific speaking situation, it can be regarded as a safety behavior. However, and according to the authors, safety behaviors may occur alongside feared events, and may affect individuals with increased fear or anxiety. The authors (ibid.) highlight a need to establish a classification system of what should be considered as safety behaviors, in contrast to healthy adaptive behaviors.



In the present study, communication was regarded as especially difficult in social settings where ‘small talk’ was expected. Most of the participants were concerned about how stuttering interfered with their relationship with other people. Several participants experienced negative emotional reactions such as frustration, embarrassment, and helplessness, and avoided speaking in certain situations or to certain people. Avoiding certain words and experiencing restrictions in what they wanted to say was reported by several participants. The quantitative data suggest that participants found avoiding words challenging, indicating that clinically significant levels of linguistic-related anxiety needs to be taken into account in addition to the more commonly accepted social anxiety (Craig & Tran, 2014; Iverach & Rapee, 2014; Menzies, O'Brian, et al., 2008; Messenger et al., 2004). Fear of negative evaluation and social anxiety are recognized as common for many adults who stutter (Menzies et al., 2008). Therefore, screening individuals seeking stuttering treatment for social anxiety has been suggested (Menzies et al., 2019). Social anxiety can in many ways influence stuttering specifically, and (speech) behavior in general. Clinicians need to be aware of this and to consider whether the anxiety is related to speech (speech-related anxiety), word avoidance (linguistic-related anxiety), situations (situation-specific anxiety), and/or general or social anxiety. Menzies et al. (2008) indicate that up to 60% of adults seeking treatment for stuttering have clinically significant levels of social anxiety (Menzies, O'Brian, et al., 2008) or social-evaluative fear (Menzies et al., 2019). We believe that this number is likely to include adults with clinically significant levels of linguistic-related anxiety. Anxiety in speaking-related or social settings can be considered as a negative communication consequence experienced by many people who stutter, and management may differ depending on the type of fear or anxiety involved. We therefore suggest it is important to consider whether linguistic anxiety potentially might be a significant factor in some of the cases

disclosed as social anxiety. Differentiation would potentially help develop a more individual and context-sensitive treatment for individuals seeking stuttering treatment in the future.

Most participants found it easier to talk with family members or familiar people, indicating that settings where they felt safe and secure were easier than communication settings involving strangers. Participants' desire to improve communication and reduce avoidance behaviors seemed to be very much associated with social, educational and/or professional communication settings outside home, both in the quantitative and the qualitative datasets. These findings are consistent with those by Hearne, Packman, Onslow, and Quine (2008), who suggest that concerns about education and starting work might be reasons for seeking stuttering therapy, settings which usually brings the need to interact with new people. Hence, the impact of stuttering in professional and educational settings could bring up the question of whether stuttering may interfere with the likelihood of developing a successful career (Klein & Hood, 2004), an issue that should be explored by future research.

The qualitative and quantitative data showed that the majority of the participants considered therapy goals in close relation to their real contextual everyday life situations, describing specific scenarios, in which communication was challenging. The participants' perceived ability to communicate was found to be personally significant, mirroring Logan's (2015) statement that people function more effectively when their daily activities are associated with the goals that they hope to reach. Many participants wanted to acquire or develop specific strategies, methods or techniques for coping with their stuttering in challenging situations, particularly in social, educational and/or work-related settings. Hence, our findings support one of the statements in Hearne et al.'s study (2008), that stuttering may not necessarily be considered a challenge in itself, but rather when the stuttering is interfering with the person's activities and communication in daily life settings. The participants shared highly specific aims or goals for their therapy, and concepts such as 'tools', 'techniques' or

'method' were frequently used in association with those targets. Furthermore, the participants included an individual content into these concepts, such as 'speech fluency', 'stuttering reduction', 'decreasing mental effort' or 'improving the feeling in control in speech or communication'. Results from the present study suggest that such considerations should be integrated into pretherapy, hence strengthening the collaborative work between clients and clinicians by focusing more on tasks and goals that have been identified as central by each client.

The qualitative data revealed that two participants expressed a wish for the stuttering to disappear. This aspect is well-known by SLPs working with adults who stutter. The issue of managing clients with probable unrealistic goals can be difficult; to what degree should clinicians adhere to potentially unrealistic goals, and to what extent can such goals be discussed openly and honestly in the context of the client-clinician collaboration? Since research and clinical experience suggests that complete fluency is difficult to achieve for a significant number of adults who stutter, especially in the long-term, we consider this issue important to investigate and discuss further.

#### 4.3. Finding a sense of control in life

Participants expressed a relationship between stuttering and interference with the participants' overall sense of control in life. This finding is in accordance with the study by Hayhow et al. (2002), in which obtaining a sense of control was highly valued by most of the participants. Lack of control has often been associated with stuttering in the literature (Craig & Andrews, 1985; De Nil & Kroll, 1995; Helgadottir et al., 2014; J. Riley et al., 2004; Swift et al., 2017; Van Lieshout, Ben-David, Lipski, & Namasivayam, 2014). Obtaining control has implications for the extent to which a person considers various life-events to be either self-determined or a result of external factors (e.g. luck or due to other's actions). Some research has investigated locus of control within the field of stuttering (Craig & Andrews, 1985; De

Nil & Kroll, 1995; J. Riley et al., 2004). Internal perceptions of control can be regarded as an indication that a person bases their success on their own contributions and the belief that he/she may control his/her life. Riley et al. (2004) proposed that self-perceptions of stuttering severity is significantly associated with the concept of control. Their study also indicated a significant association between increased external locus of control and avoidance behaviors. Further, De Nil and Kroll (1995) suggest that the locus of control might be predictive of the change in self-evaluations of stuttering, although the trend observed in their study was not statistically significant. There is some evidence to support the hypothesis that internal locus of control can be a significant predictor for a positive therapy outcome (Craig & Andrews, 1985).

The participants' overall sense of control over life events may influence their mastery over stuttering management (De Nil & Kroll, 1995). As described by some participants, individual aspects of speech resulted in emotional reactions, so that stuttering interfered with their sense of control in life. The quantitative data mirror in many ways the qualitative data. Some participants aimed for an increased control in speech and communication, others for complete control in stuttering, whereas others used the word 'control' in a wider sense to include both cognitive and physical aspects. Both the quantitative and qualitative data demonstrated that a desire for improved control was highly valued as a specific goal for therapy. Even though feelings of control were valued very highly, control could also potentially lead to negative implications. For some individuals with an impact of covert speech-, and stuttering behavior, the need for speech control may limit the freedom of communication. There is also a need to define, exactly, how each individual defines 'control' (and/or 'acceptable levels of control'). Interventions may be better tailored to individual needs if clinicians could discuss how clients define control, and which aspects of lack of control

they experience as distressing in everyday life. Findings in the present study indicate a need to further investigate the relationship between the locus of control and stuttering.

#### 4.4. Self-acceptance and improving speech as a complementary process

Although several participants reported neutral or accepting feelings towards their stuttering, the majority still expressed the wish to improve speech fluency or reduce stuttering. In Venkatagiri's (2009) study, participants were categorized according to whether their wish for therapy was 'fluency focused' or 'freedom-focused'. Findings from the present study suggest that this categorization may be too simple, in line with Alm and Dahlin (2015) who question if such a dichotomy really exists. Participants expressed a wish to improve speech fluency regardless of whether they identified themselves positively, neutrally or negatively as a person who stutters or whether they had a high degree of stuttering acceptance or not, in accordance with the study of Siew et al. (2017). Our study demonstrates a strong congruence between the communicative challenges faced by participants and their desire to improve ease of participation in communicative settings. We therefore believe that improving acceptance of stuttering while at the same time working to improve effortless speech may not be contradictory concepts, but rather complementary, as stated by Beilby et al. (2012). Thus, both 'freedom-focus' and/or 'fluency-focus' therapies (Venkatagiri, 2009) could be considered as one integrative approach, as is already the case in some stuttering programs, such as the ISTAR Comprehensive Stuttering Program (Langevin et al., 2010) or the Acceptance and Commitment Therapy group intervention program (Beilby et al., 2012). In other words, improved acceptance and improvements in speech fluency and/or speech control could be a realistic therapy goal for the same individual as well as for different individuals within the same therapy program. Nevertheless, letting the client define individual single or multiple goals requires a high degree of clinical competence and calls for a need for more flexible therapy procedures.

#### 4.5. The importance of support and a strong working alliance

The challenge for SLPs to incorporate the clients' wishes and goals into the assessment and the therapy process is of high importance. In many ways, goal-led therapy requires a high degree of clinical flexibility and competence. Elements that are introduced and explored in therapy have to be integrated in such a way that they are meaningful for the person him-/herself. The construction of an intervention that is meaningful should be a shared task, through a dialogue between the client and the SLP, in accordance with the collaborative perspective in pluralistic therapy, articulated by for example McLeod (2018). The therapy should mirror the client's goals and values in life, and should, therefore, incorporate an evaluation of the working alliance, particularly from the perspective of the person who stutters. Incorporating considerations regarding bond (the emotional bond between the client and the clinician), goals (agreement regarding therapeutic goals), and relevant tasks (a consensus on tasks to be utilized within therapy) at an early stage in the therapeutic process may help ensure that goals are context-sensitive and tasks meaningful for the client (Bordin, 1979; Flückiger et al., 2019).

To our knowledge, only one study, by Sønsterud, Kirmess, et al. (2019), has investigated the working alliance in relation to a *stuttering* management trial. The study indicated that specifying and defining *goals* and *tasks* were particularly important for the development of a positive working alliance. The degree of support and help a person who stutters experiences in the working relationship may also influence the outcome, as supported by previous research (Manning, 2010c; Plexico et al., 2005). Participants in the present study also highlighted the importance of help and support, which could be associated with the belief in positive outcomes and motivation for therapy. In the qualitative dataset, some participants explicitly mentioned the role of the SLP as important in identifying and defining their stuttering, improving their fluency and/or developing coping skills. We believe that

clinicians are a significant factor in the client-clinician relationship, by building a trustful and supportive working alliance during the therapy process. This could be of considerable importance to achieve successful therapy outcomes (Flückiger et al., 2018; Sønsterud, Kirmess, et al., 2019; Wampold, 2015). We therefore suggest that future research should continue to explore the relationship between the working alliance and therapy outcomes in the research field of stuttering.

Almost half of the participants in the present study had low expectations regarding the support or help they could expect during the therapy period. The present study did not investigate the reasons for these low expectations. Tentatively, this could be explained by previous negative experiences or lack of trust regarding collaboration, varying levels of stuttering severity, low positive expectations in general, previous experiences of non-helpful stuttering therapy, or lack of support in their daily or home-based settings. Future research is needed in order to shed light on whether low expectations of support from the SLP could impact on the work alliance and the outcomes of stuttering therapy.

## 5. Clinical implications

The SLP's competence and the degree of professional trust play a big part within the frame of goal-directed therapy, at least where adults who stutter are concerned. Goal-directed therapy requires high levels of clinical competence and calls for a need for more individualized and flexible therapy procedures (Baxter et al., 2015; Packman & Kuhn, 2009). As has been discussed in the study, assessments need to be sensitive to the individual's needs, goals, responses, and motivation. By including more sensitive and multi-dimensional qualitative and quantitative assessments in stuttering therapy, clinicians would be better equipped to evaluate symptoms, processes and therapy outcomes. Concepts mentioned by clients as central goals need to be defined and described in detail and within the context the term is being used. As in other areas of research, the principles of evidence-based-practice are

required, and we therefore believe that treatment efficacy research should be based on multi-factor measures and should include client perspectives and functional outcomes (Baxter et al., 2015; Bernstein Ratner, 2005; Bothe & Richardson, 2011; Ingham, Ingham, et al., 2012). Relevant and specific assessments for measuring the working alliance, particularly from the clients' perspective, should also be considered. Instruments should assess: a) the *bond* between the client and clinician, b) the extent to which the client and clinician agree on the *goals* of treatment, and c) the extent to which the client and clinician regard the treatment *tasks* as relevant (Bordin, 1979; Flückiger et al., 2019; Horvath & Greenberg, 1989; Wampold, 2015). Including a combined set of qualitative and quantitative measurements may also enhance our understanding of the clients' individualized and context-sensitive goals and wishes. Obviously, the individual's needs and goals in therapy may change over time, as could the readiness for therapy. Thus, therapy should also include the investigation of clients' motivation, expectations and goals during the collaborative process in treatment and throughout different phases in life.

## 6. Strengths and limitations

The current study was based on a convergent mixed method design (Fetters et al., 2013), where the qualitative and the quantitative data were collected and analyzed during the same timeframe in order to be able to compare both datasets. By including a mixed method design which combined qualitative and quantitative information, we have been able to consider interactions between intra-individual factors and contexts in which the participants operate.

The current study's sample size, although large for a multiple case study design, could be seen as a limitation for the quantitative analyses. The participants made the initial contact and can therefore be seen as self-selected and assumed to be motivated for therapy. The present findings may therefore not be representative of the experiences of people who stutter



in general. Nevertheless, the sample included a diverse group of participants, and may therefore still reflect those of the wider population of adults who stutter. Another limitation is that the current study is limited by reliance on self-report measures only. Further, even though participants were asked to report on other speech and language disorders during the first pretherapy session, participants were not systematically assessed for dyslexia or any other reading or writing disorders beforehand, which could potentially influence the validity of the answers. On the other hand, using written material could hold some advantages, since some of the participants clearly found it easier to express themselves in a written format.

Last, correlational analyses cannot shed light on the directionality of the relationship between variable, and longitudinal research is needed in order to disentangle associations between the multiple factors that could influence clients' motivation and/or therapy goals.

## 7. Conclusion

Results indicate that the participants' descriptions of goals for therapy were mainly based on a wish for better coping in real life settings. The individual's expectations and goals need to be investigated and expressed explicitly and in detail, in order to identify mutually agreed goals prior to therapy. This study demonstrates that people who stutter struggle with the negative emotional and social impact of stuttering and develop a myriad of social and linguistic-related avoidance behaviors. SLPs and researchers need to remain aware of this important aspect when considering stuttering and the proposed therapy outcomes in order to design more tailored individual treatment plans for people who stutter in the future. Anxiety, and in particular the concept of linguistic-related anxiety, needs to be explored further.

## Acknowledgements

We thank the 21 participants for their engagement by sharing their thoughts and considerations in this study. The authors would also like to thank anonymous reviewers, Associate Editor and Editor in Chief for their helpful comments in improving this manuscript.

### Funding

This study was supported by Stiftelsen Dam, the Norwegian Extra Foundation for Health and Rehabilitation.

### Conflict of interest

The authors declare no conflict of interest.

### References

- Albrigtsen, A., Stauri, T., & Wright, M. A. (2017). *Ord til besvær: Livet med stamming*. Oslo: Abstrakt forlag.
- Alm, P., & Dahlin, K. (2015). Hög eller låg evidens, vad betyder det? Tankar om riktlinjer för logopediskt arbete inom stamning och andra diagnoser. *Tidskriften Logopeden*, 4, 20-23.
- Baxter, S., Johnson, M., Blank, L., Cantrell, A., Brumfitt, S., Enderby, P., & Goyder, E. (2015). The state of the art in non-pharmacological interventions for developmental stuttering. Part 1: a systematic review of effectiveness. *International Journal of Language and Communication Disorders*, 50(5), 676-718. doi:10.1111/1460-6984.12171
- Beilby, J. M., Byrnes, M. L., & Yaruss, J. S. (2012). Acceptance and Commitment Therapy for adults who stutter: Psychosocial adjustment and speech fluency. *Journal of Fluency Disorders*, 37(4), 289-299. doi:10.1016/j.jfludis.2012.05.003
- Berg, K., Askim, T., Balandin, S., Armstrong, E., & Rise, M. B. (2017). Experiences of participation in goal setting for people with stroke-induced aphasia in Norway. A qualitative study. *Disability and Rehabilitation*, 39(11), 1122-1130. doi:10.1080/09638288.2016.1185167
- Bernstein Ratner, N. (2005). Evidence-based practice in stuttering: Some questions to consider. *Journal of Fluency Disorders*, 30(3), 163-188. doi:10.1016/j.jfludis.2005.04.002
- Bloodstein, O., & Bernstein Ratner, N. (2008). *A handbook on stuttering* (sixth edition. ed.). Clifton Park NY: Delmar.
- Bordin, E. S. (1979). The generalizability of the psychoanalytic concept of the working alliance. *Psychotherapy: Theory, Research and Practice*, 16(3), 252-260.
- Bothe, A. K., & Richardson, J. D. (2011). Statistical, practical, clinical, and personal significance: definitions and applications in speech-language pathology. *American Journal of Speech-Language Pathology*, 20(3), 233-242. doi:10.1044/1058-0360(2011/10-0034)
- Boyle, M. P., & Fearon, A. N. (2017). Self-stigma and its associations with stress, physical health, and health care satisfaction in adults who stutter. *Journal of Fluency Disorders*. doi:<https://doi.org/10.1016/j.jfludis.2017.10.002>
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77-101. doi:10.1191/1478088706qp063oa

- Bricker-Katz, G., Lincoln, M., & Cumming, S. (2013). Stuttering and work life: An interpretative phenomenological analysis. *Journal of Fluency Disorders*, 38(4), 342-355. doi:<https://doi.org/10.1016/j.jfludis.2013.08.001>
- Bricker-Katz, G., Lincoln, M., & McCabe, P. (2009). A life-time of stuttering: how emotional reactions to stuttering impact activities and participation in older people. *Disability and Rehabilitation*, 31(21), 1742-1752. doi:10.1080/09638280902738672
- Cahana-Amitay, D., Oveis, A. C., Sayers, J. T., Pineles, S. L., Spiro, A., & Albert, M. L. (2015). Biomarkers of "Linguistic Anxiety" in aphasia: A proof-of-concept case study. *Clinical Linguistics & Phonetics*, 29(5), 401-413. doi:10.3109/02699206.2015.1014572
- Cheasman, C., Simpson, S., & Everard, R. (2013). *Stammering therapy from the inside : new perspectives on working with young people and adults*. Guildford: J & R Press.
- Cooke, K., & Millard, S. K. (2018). The Most Important Therapy Outcomes for School-Aged Children Who Stutter: An Exploratory Study. *American Journal of Speech-Language Pathology*, 27(3s), 1152-1163. doi:10.1044/2018\_ajslp-odc11-17-0195
- Cox, W. M., & Klinger, E. (2004). *Handbook of Motivational Counseling: Concepts, Approaches, and Assessment*: John Wiley & Sons, Ltd.
- Craig, A., & Andrews, G. (1985). The Prediction and Prevention of Relapse in Stuttering: The Value of Self-Control Techniques and Locus of Control Measures. *Behavior Modification*, 9(4), 427-442. doi:10.1177/01454455850094002
- Craig, A., Blumgart, E., & Tran, Y. (2009). The impact of stuttering on the quality of life in adults who stutter. *Journal of Fluency Disorders*, 34(2), 61-71. doi:10.1016/j.jfludis.2009.05.002
- Craig, A., & Tran, Y. (2014). Trait and social anxiety in adults with chronic stuttering: conclusions following meta-analysis. *Journal of Fluency Disorders*, 40, 35-43. doi:10.1016/j.jfludis.2014.01.001
- De Nil, L. F., & Kroll, R. M. (1995). The relationship between locus of control and long-term stuttering treatment outcome in adult stutterers. *Journal of Fluency Disorders*, 20(4), 345-364. doi:[https://doi.org/10.1016/0094-730X\(95\)00024-2](https://doi.org/10.1016/0094-730X(95)00024-2)
- DeVore, K., & Cookman, S. (2009). *The Voice Book. Caring for Protecting, and Improving Your Voice* (1st Ed. ed.). United States of America: Chicago Review Press, Incorporated
- Dures, E., Rumsey, N., Morris, M., & Gleeson, K. (2011). Mixed Methods in Health Psychology: Theoretical and Practical Considerations of the Third Paradigm. *Journal of Health Psychology*, 16(2), 332-341. doi:10.1177/1359105310377537
- Erickson, S., & Block, S. (2013). The Social and Communication Impact of Stuttering on Adolescents and Their Families. *Journal of Fluency Disorders*, 38(4), 311-324.
- Fetters, M. D., Curry, L. A., & Creswell, J. W. (2013). Achieving Integration in Mixed Methods Designs-Principles and Practices. *Health Services Research*, 48(6 Pt 2). doi:10.1111/1475-6773.12117
- Flückiger, C., Del Re, A. C., Wampold, B. E., & Horvath, A. O. (2018). The Alliance in Adult Psychotherapy: A Meta-Analytic Synthesis. *Psychotherapy*, 55(4), 316-340. doi:10.1037/pst0000172
- Flückiger, C., Hilpert, P., Goldberg, S., Caspar, F., Wolfer, C., Held, J., & Vöslä, A. (2019). Investigating the Impact of Early Alliance on Predicting Subjective Change at Posttreatment: An Evidence-Based Souvenir of Overlooked Clinical Perspectives. *Journal of Counseling Psychology*, *Advanced online* doi:10.1037/cou0000336
- Gast, D. L., & Ledford, J. R. (2014). *Single case research methodology : applications in special education and behavioral sciences* (2nd ed. ed.). New York: Routledge.
- Guitar, B. (2014). *Stuttering: An integrated approach to its nature and treatment* (4th ed. ed.). Philadelphia, Pa: Lippincott Williams & Wilkins.
- Hayhow, R., Cray, A. M., & Enderby, P. (2002). Stammering and therapy views of people who stammer. *Journal of Fluency Disorders*, 27(1), 1-17. doi:[https://doi.org/10.1016/S0094-730X\(01\)00102-4](https://doi.org/10.1016/S0094-730X(01)00102-4)

- Hearne, A., Packman, A., Onslow, M., & Quine, S. (2008). Stuttering and its treatment in adolescence: The perceptions of people who stutter. *Journal of Fluency Disorders, 33*(2), 81-98. doi:<https://doi.org/10.1016/j.jfludis.2008.01.001>
- Helgadottir, F. D., Menzies, R. G., Onslow, M., Packman, A., & O'Brian, S. (2014). Safety Behaviors and Speech Treatment for Adults Who Stutter. *Journal of Speech, Language, and Hearing Research, 57*(4), 1308-1313. doi:10.1044/2014\_JSLHR-S-13-0041
- Horvath, A., & Greenberg, L. (1989). Development and Validation of the Working Alliance Inventory. *Journal of Counseling Psychology, 36*(2), 223-230.
- Ingham, R. J., Ingham, J. C., & Bothe, A. K. (2012). Integrating functional measures with treatment: A tactic for enhancing personally significant change in the treatment of adults and adolescents who stutter. *American Journal of Speech-Language Pathology, 21*(3), 264-277. doi:10.1044/1058-0360(2012/11-0068)
- Iverach, L., Jones, M., Lowe, R., O'Brian, S., Menzies, R. G., Packman, A., & Onslow, M. (2018). Comparison of adults who stutter with and without social anxiety disorder. *Journal of Fluency Disorders, 56*, 55-68. doi:<https://doi.org/10.1016/j.jfludis.2018.03.001>
- Iverach, L., & Rapee, R. M. (2014). Social anxiety disorder and stuttering: current status and future directions. *Journal of Fluency Disorders, 40*, 69-82. doi:10.1016/j.jfludis.2013.08.003
- Karimi, H., Onslow, M., Jones, M., O'Brian, S., Packman, A., Menzies, R., . . . Jelčić-Jakšić, S. (2018). The Satisfaction with Communication in Everyday Speaking Situations (SCESS) scale: An overarching outcome measure of treatment effect. *Journal of Fluency Disorders, 58*, 77-85. doi:<https://doi.org/10.1016/j.jfludis.2018.10.002>
- Klein, J. F., & Hood, S. B. (2004). The impact of stuttering on employment opportunities and job performance. *Journal of Fluency Disorders, 29*(4), 255-273. doi:<https://doi.org/10.1016/j.jfludis.2004.08.001>
- Langevin, M., Kully, D., Teshima, S., Hagler, P., & Narasimha Prasad, N. G. (2010). Five-Year Longitudinal Treatment Outcomes of the ISTAR Comprehensive Stuttering Program. *Journal of Fluency Disorders, 35*(2), 123-140. doi:10.1016/j.jfludis.2010.04.002
- Lawton, M., Haddock, G., Conroy, P., Serrant, L., & Sage, K. (2018). People with aphasia's perception of the therapeutic alliance in aphasia rehabilitation post stroke: a thematic analysis. *Aphasiology, 32*(12), 1397-1417. doi:10.1080/02687038.2018.1441365
- Lawton, M., Sage, K., Haddock, G., Conroy, P., & Serrant, L. (2018). Speech and language therapists' perspectives of therapeutic alliance construction and maintenance in aphasia rehabilitation post-stroke. *International Journal of Language and Communication Disorders, 53*(3), 550-563. doi:10.1111/1460-6984.12368
- Logan, K. J. (2015). *Fluency disorders*. San Diego, CA: Plural Publishing.
- Manning, W. H. (2010). Evidence of clinically significant change: the therapeutic alliance and the possibilities of outcomes-informed care. *Seminars in Speech and Language, 31*(4), 207-216. doi:10.1055/s-0030-1265754
- Manning, W. H., & Beck, J. G. (2013). The role of psychological processes in estimates of stuttering severity. *Journal of Fluency Disorders, 38*(4), 356-367. doi:<http://doi.org/10.1016/j.jfludis.2013.08.002>
- McCauley, R. J., & Guitar, B. (2010). *Treatment of stuttering: Established and emerging interventions*. Philadelphia: Lippincott Williams & Wilkins.
- McLeod, J. (2018). *Pluralistic therapy : Distinctive features*. Psychotherapy & counselling distinctive features series, T. F. Group (Ed.)
- Menzies, R. G., O'Brian, S., Onslow, M., Packman, A., St Clare, T., & Block, S. (2008). An Experimental Clinical Trial of a Cognitive-Behavior Therapy Package for Chronic Stuttering. *Journal of Speech, Language, and Hearing Research, 51*(6), 1451-1464. doi:10.1044/1092-4388(2008/07-0070)
- Menzies, R. G., O'Brian, S., Onslow, M., Packman, A., St Clare, T., & Block, S. (2008). An Experimental Clinical Trial of a Cognitive-Behavior Therapy Package for Chronic Stuttering. *Journal of*

- Speech, Language, and Hearing Research*, 51(6), 1451-1464. doi:10.1044/1092-4388(2008/07-0070)
- Menzies, R. G., O'Brian, S., Packman, A., Jones, M., Helgadóttir, F. D., & Onslow, M. (2019). Supplementing stuttering treatment with online cognitive behavior therapy: An experimental trial. *Journal of Communication Disorders*, 80, 81-91. doi:<https://doi.org/10.1016/j.jcomdis.2019.04.003>
- Messenger, M., Onslow, M., Packman, A., & Menzies, R. (2004). Social Anxiety in Stuttering: Measuring Negative Social Expectancies. *Journal of Fluency Disorders: Official Journal of the International Fluency Association*, 29(3), 201-212. doi:10.1016/j.jfludis.2004.06.002
- Nordbø, B., Sønsterud, H., & Kirmess, M. (2018). Norske normer for OASES-A -et kartleggingsverktøy for voksne som stammer. *Norsk Tidsskrift for Logopedi*, 64(3), 12-19.
- O'Brian, S., Jones, M., Packman, A., Menzies, R., & Onslow, M. (2011). Stuttering severity and educational attainment. *Journal of Fluency Disorders*, 36(2), 86-92. doi:10.1016/j.jfludis.2011.02.006
- Packman, A., & Kuhn, L. (2009). Looking at stuttering through the lens of complexity. *International Journal of Speech-Language Pathology*, 11(1), 77-82. doi:10.1080/17549500802630039
- Plexico, L., Manning, W. H., & Dilollo, A. (2005). A phenomenological understanding of successful stuttering management. *Journal of Fluency Disorders*, 30(1), 1-22. doi:10.1016/j.jfludis.2004.12.001
- Plexico, L., Manning, W. H., & Dilollo, A. (2010). Client perceptions of effective and ineffective therapeutic alliances during treatment for stuttering. *Journal of Fluency Disorders*, 35(4), 333-354. doi:10.1016/j.jfludis.2010.07.001
- Riley, J., Riley, G., & Maguire, G. (2004). Subjective Screening of Stuttering severity, locus of control and avoidance: research edition. *Journal of Fluency Disorders*, 29(1), 51-62. doi:<https://doi.org/10.1016/j.jfludis.2003.12.001>
- Seo, M. G., Bartunek, J. M., & Barrett, L. F. (2010). The role of affective experience in work motivation: Test of a conceptual model. *Journal of Organizational Behavior*, 31(7), 951-968. doi:10.1002/job.655
- Shapiro, D. A. (2011). *Stuttering intervention: A collaborative journey to fluency freedom* (2nd ed. ed.). Austin, Tex: PRO-ED.
- Shewell, C. (2009). *Voice work : art and science in changing voices*. Chichester: John Wiley and Sons Ltd.
- Siew, C. S. Q., Pelczarski, K. M., Yaruss, J. S., & Vitevitch, M. S. (2017). Using the OASES-A to illustrate how network analysis can be applied to understand the experience of stuttering. *Journal of Communication Disorders*, 65, 1-9. doi:10.1016/j.jcomdis.2016.11.001
- St. Louis, K. O. (2001). *Living with stuttering: Stories, basics, resources, and hope*. Morgantown, W. Va: Populore.
- St. Louis, K. O., Irani, F., Gabel, R. M., Hughes, S., Langevin, M., Rodriguez, M., . . . Weidner, M. E. (2017). Evidence-based guidelines for being supportive of people who stutter in North America. *Journal of Fluency Disorders*, 53, 1-13. doi:<https://doi.org/10.1016/j.jfludis.2017.05.002>
- St. Louis, K. O., & Tellis, G. (2015). *Stuttering Meets Stereotype, Stigma, and Discrimination : An Overview of Attitude Research*. Morgantown: West Virginia University Press.
- Swift, M. C., Langevin, M., & Clark, A. (2017). Using critical realistic evaluation to support translation of research into clinical practice. *International Journal of Speech-Language Pathology*, 19(3), 335-343. doi:10.1080/17549507.2017.1309067
- Sønsterud, H. (2015). PhD-project presentation: Individualized stuttering treatment -what works for whom? *Norsk Tidsskrift for Logopedi*, 3(63), 39.
- Sønsterud, H., Howells, K., & Baluyot, C. (2017). Individuelle ønsker for oppfølging av stamming: Et kartleggings skjema i det logopediske samarbeidet. *Statped's læringsressurser, Oslo, Norge*.
- Sønsterud, H., Kirmess, M., Howells, K., Ward, D., Feragen, K. B., & Halvorsen, M. S. (2019). The working alliance in stuttering treatment: A neglected variable? . *International journal of*

- language & communication disorders*, 54(4), 606-619.  
doi:<https://onlinelibrary.wiley.com/doi/10.1111/1460-6984.12465>
- Tomaiuolo, D., Del Gado, F., Spinetti, M. G., Capparelli, E., & Venuti, B. (2015). Profiling People who Stutter: A Comparison Between Adolescents and Adults. *Procedia - Social and Behavioral Sciences*, 193, 266-273. doi:10.1016/j.sbspro.2015.03.270
- Torres-Prioris, M. J., López-Barroso, D., Paredes-Pacheco, J., Roé-Vellvé, N., Dawid-Milner, M. S., & Berthier, M. L. (2019). Language as a Threat: Multimodal Evaluation and Interventions for Overwhelming Linguistic Anxiety in Severe Aphasia. *Frontiers in psychology*, 10, 678. doi:10.3389/fpsyg.2019.00678
- Van Lieshout, P., Ben-David, B., Lipski, M., & Namasivayam, A. (2014). The impact of threat and cognitive stress on speech motor control in people who stutter. *Journal of Fluency Disorders*, 40, 93. doi:10.1016/j.jfludis.2014.02.003
- Van Riper, C. (1973). *The treatment of stuttering*. Englewood Cliffs, N.J.: Prentice-Hall.
- Venkatagiri, H. S. (2009). What Do People Who Stutter Want-Fluency or Freedom? *Journal of Speech, Language, and Hearing Research*, 52(2), 500-515. doi:10.1044/1092-4388(2008/07-0019)
- Wampold, B. E. (2015). *The Great Psychotherapy Debate : The Evidence for What Makes Psychotherapy Work* (Second ed.). Hoboken: Taylor and Francis.
- Ward, D. (2018). *Stuttering and Cluttering: Frameworks for Understanding and Treatment* (Second ed.). Oxon, New York: Routledge.
- World Health Organization. (2001). Geneva: World Health Organization.
- Yaruss, J. S. (2010). Assessing quality of life in stuttering treatment outcomes research. *Journal of Fluency Disorders*, 35(3), 190-202. doi:10.1016/j.jfludis.2010.05.010
- Yaruss, J. S., & Quesal, R. W. (2004). Stuttering and the International Classification of Functioning, Disability, and Health (ICF): An update. *Journal of Communication Disorders*, 37(1), 35-52. doi:10.1016/S0021-9924(03)00052-2
- 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*, 31(2), 90-115. doi:<http://doi.org/10.1016/j.jfludis.2006.02.002>
- Yaruss, J. S., & Quesal, R. W. (2010). *OASES Manual: Overall Assessment of the Speaker's Experience of Stuttering*. United States of America: NCS Pearson, Inc.
- Zebrowski, P. M., & Kelly, E. M. (2002). *Manual of stuttering intervention*. Clifton Park, N.Y.: Singular.

## **The working alliance in stuttering treatment: A neglected variable?**

### **Abstract**

#### **Background**

There are multiple factors which may influence the working alliance and treatment outcome in speech and language therapy. The ‘working alliance’ is an important concept in treatment and can be described as the degree to which a treatment dyad is engaged in collaborative, purposive work. To date, relatively little attention has been paid to this concept within speech and language treatment in general, and within stuttering treatment research in particular.

#### **Aims**

The aim of the present study was to investigate the role of the working alliance within stuttering treatment, and to evaluate whether the quality of the working alliance correlated with clients’ concept of motivation and treatment outcomes six months post-therapy.

#### **Methods & Procedures**

Eighteen adults (21-61 years) participated in this multiple case treatment study, with treatment facilitated by an experienced speech and language therapist. The working alliance

was investigated using the Working Alliance Inventory -short version revised (WAI-SR), an Extended version of the Client Preferences for Stuttering Treatment (CPST-E), the Overall Assessment of Speakers' Experience of Stuttering-Adult version (OASES-A), the Wright & Ayre Stuttering Self-Rating Profile (WASSP), and the Hospital Anxiety and Depression Scale (HADS).

### Outcomes & Results

Analyses demonstrated significant associations between the working alliance and client motivation, ( $r = 0.781$ ), and treatment outcomes ( $r = 0.644$ ) six months post-treatment.

The association between client led goals and therapy tasks appeared particularly important.

### Conclusions & Implications

The working alliance between SLTs and persons who stutter matters. Within the alliance, the level of client-clinician agreement on treatment goals and therapy tasks may be of greater importance than the bond between client and clinician. Further research with greater numbers of participants is warranted.

Keywords: stuttering, stuttering treatment, client-clinician relationship, working-alliance, motivation, treatment outcome



### **What is already known on this subject.**

The concept of the working alliance has its roots in psychodynamic theory, and this concept represents a proactive collaboration of clients and therapists across treatment sessions (Flückiger et al., 2018). Within that literature, it has been demonstrated that a client's opinion of treatment as effective or ineffective is influenced by their experience of the collaborative process in clinic. Treatment evaluations should therefore incorporate evaluation of the clinician-client relationship, particularly from the perspective of the client. There has been some related work within the speech and language therapy literature but, to date, relatively little attention has been paid to the working alliance within clinical work and research associated with management for stuttering.

### **What this study adds.**

As far as we are aware, this is the first published study which has investigated the working alliance in relation to a stuttering management trial. Results indicate that the working alliance is highly relevant in the evaluation of treatment outcomes. The study indicates that the working alliance between a speech and language therapist (SLT) and a person who stutters matters, providing support for similar findings within other fields of speech and language therapy. Based on Bordin's (1979) model of the working alliance which includes the dimensions of therapy goals, therapy tasks, and the bond between client and clinician, our findings indicate that the dimensions of goals and tasks were particularly relevant. The clients' motivation for treatment, and agreement regarding meaningful tasks for achieving change may become important predictors of successful treatment outcomes.

### **Clinical implications of this study.**

The study indicates that SLTs should be aware of the importance of the working alliance within treatment. Relevant and specific quantitative and qualitative assessments for measuring the therapeutic alliance, particularly from the client's perspective, are needed to explore this concept in more detail. The Working Alliance Inventory - Short Revised version (WAI-SR) is one such tool which can be used to evaluate elements of this relationship. The working alliance includes elements such as a shared understanding of treatments goals, agreement regarding treatment tasks, and the bond between the client and clinician.

## **Background**

Stuttering's variability and unpredictability suggest that it can be regarded as a complex disorder (Packman & Kuhn, 2009; Ward, 2018), and flexible therapeutic approaches are needed to deal with this complexity (Baxter et al., 2015).

*Causal Complexity in clinical practice – a non-linear interaction*

There are several models for explaining different factors which might lead to therapeutic change, and some are outlined in this paper (Cartwright & Hardie, 2012; Lambert, 2013; Wampold, 2015). When an intervention is implemented, outcomes will therefore be affected not only by the intervention itself, but also by other factors. In the field of psychology, Lambert (2013) has summarized outcome research and grouped the factors of successful therapy into four areas and based on the literature roughly estimated percentages of change in clients as a function of therapeutic factors. The relative influence of these factors was estimated as follows: Client/life 40% (qualities of the client or the environment), common factors 30% (empathy and the therapeutic relationships), expectancy 15% (client's expectation of help or belief in the therapy), and techniques 15% (factors unique to specific therapies and tailored to management of specific problems) respectively. Based on his valuations, client factors exert the greatest influence, followed by common factors, the techniques employed and expectations regarding outcome. Other models, such as the Common Therapeutic Change Principles (Goldfried, 1980), and the Contextual Model

(Wampold, 2015) seem to parallel to some extent the Lambert's pie chart, and are models presented in the work of for example Manning (2010c), and Plexico et al. (2010).

The Contextual Model described by Wampold, is grounded in the social sciences and takes into account social healing aspects of psychotherapy: '*The basic premise of the model is that the benefits of psychotherapy accrue through social processes and that the relationship, broadly defined, is the bedrock of psychotherapy effectiveness*' (Wampold, 2015, p. 50). The model explicates three main pathways that engender change through therapy: 1) a real relationship between the client and clinician, 2) the creation of expectation through treatment rationale, and 3) therapeutic tasks and actions that correspond with that treatment rationale. According to Wampold, the clinician and client have to establish an initial bond '*before the three pathways can be employed*' (2015, p. 53/54).

In contrast to Lambert's Pie Chart (2013) which estimates the degree of influence exerted by different factors on treatment outcomes, the Contextual Model (Wampold, 2015) does not indicate the extent of the influence exerted by different factors. This provides a more flexible framework, as it allows for the possibility that the relative influence of different factors may vary dependent on several elements. Such elements include among other elements, the disorder, the contextual variables, and the within and between variables of both the clinician and the client (Low, 2017; Mumford, 2011).

### *The concept of the working alliance*

The concept of the clinical alliance has its roots in psychodynamic theory, and commands considerable attention in the psychotherapy literature (Bordin, 1979; Flückiger et al., 2018; Horvath et al., 2011; Wampold, 2015). Treatment outcomes and an individual's experience of treatment as effective or ineffective may incorporate evaluation of the clinician-client relationship. It was Bordin (1979) who first named this relationship the 'working alliance', describing it as the degree to which the therapy dyad is engaged in collaborative, purposive work. The working alliance is further described as the healthy, trusting aspect of the client-clinician relationship (Bordin, 1979; Hatcher & Gillaspy, 2006; Horvath & Greenberg, 1989) and may be influenced by factors such as the individual's faith in the treatment process, and their expectations regarding a positive or negative outcome (Manning, 2010c; Plexico et al., 2005, 2010). According to Flückiger and colleagues '*The alliance represents a proactive collaboration of clients and therapists across sessions and in moment-to-moment interactions*' (Flückiger et al., 2018, p. 330). Bordin and others suggest that the working alliance has its foundation in the following three processes: a) the emotional *bond* between the client and clinician, b) the extent to which the client and clinician agree on the *goal* of treatment, and c) the extent to which the client and clinician consider the treatment tasks as relevant (*task*) (Bordin, 1979; Hatcher & Gillaspy, 2006; Horvath et al., 2011).

The potential impact of the client-clinician relationship is also acknowledged within communities of people who stutter. For example, the podcast and online community StutterTalk© recently published a position statement, which includes the paragraph: *‘As the therapeutic relationship is built upon trust and understanding, let yourself “shop around.” If you don’t feel comfortable with the first therapist you meet, visit with another.’* (<http://stuttertalk.com/stuttertalk-position-statement-on-self-help-and-speech-therapy-for-people-who-stutter/>, February 21<sup>st</sup> 2018).

Although the relationship between the working alliance and treatment outcomes has received consistent support across studies within psychotherapy (Del Re, Flückiger, Horvath, Symonds, & Wampold, 2012; Flückiger et al., 2018; Wampold, 2015), the literature regarding the role of the working alliance within speech and language therapy is relatively limited to date (Bright et al., 2011; Caughter & Dunsmuir, 2017; Fourie, 2009; Lawton, Haddock, et al., 2018; Lawton, Sage, et al., 2018). As with the field of physiotherapy (Kayes & McPherson, 2012; Miciak et al., 2018), speech and language therapy has borrowed theory from psychotherapy to inform the research and practice. Within stuttering treatment research, the relationship between the working alliance and treatment outcomes have received little attention, with the exception of the work of Manning (2010c) and Plexico et al. (2010). In summary, although many SLTs agree that the client-clinician relationship matters in clinical practice and research (Manning, 2010a; Shapiro, 2011; Van Riper, 1973;

Ward, 2018; Zebrowski & Kelly, 2002), there are, as far as we are aware, few studies investigating the working alliance within the field of fluency disorders, and in particular from the client's perspective. Clinical experiences suggest this may in part be due to a lack of time and awareness amongst SLTs regarding relevant quantitative and qualitative assessments for measuring the client-clinician relationship.

We assume that, as with what is evidenced in psychotherapeutic or physiotherapeutic practice, clinical judgments and a stable and positive working alliance contribute to successful outcomes also in speech and language therapy. The correlation between working alliance and treatment outcomes has been examined meta-analytically in psychotherapy several times, with overall correlations varying only slightly ( $r = .21 - .29$ ) (Baldwin, Wampold, & Imel, 2007; Flückiger et al., 2018; Horvath et al., 2011). The research confirms that the working alliance is an important contributor to treatment outcomes, but it also indicates that other factors are influential.

Based on meta-analysis (Del Re et al., 2012; Flückiger et al., 2018), it appears that therapist variability in the working alliance potentially has a greater influence on treatment outcomes than the clients' variability. According to the researchers, these results suggest that some therapists develop stronger alliances with their clients irrespective of diagnosis, and as a result; their clients '*do better at the conclusion of therapy*' (2012, p. 648).

We believe there is a need to consider the working alliance as an evidence-based component within stuttering therapy, including the extent to which the alliance alters or remains stable during the treatment period. This is, perhaps, particularly relevant to adults who stutter, where goal-directed management requires high levels of clinical competence, and calls for more individualized treatment procedures (Manning, 2010c; Plexico et al., 2010; Ward, 2018).

### *The working alliance in stuttering treatment*

To our knowledge, previous stuttering therapy studies have not fully considered the range of factors that may influence treatment outcomes. Our study aims to address this by considering the interaction between the client's concept of motivation, the working alliance, the rationale for individualized cognitive restructuring-, and physical adjustments, and the subjective experience of how the resulting changes influence the nuances of the person's life. In this way, we intend to incorporate various elements of the Contextual Model into our evaluations.

Consistent with the work of Manning and colleagues, (Manning, 2010a, 2010c; Plexico et al., 2010), we contend that the Common Therapeutic Change Principles and the Contextual Model can be transferred to, and consciously utilized in, speech therapy in general, and stuttering treatment in particular. In the study of Plexico and colleagues

(2010), they highlighted three aspects as essential components of an effective stuttering treatment for adults: 1) clinician's understanding of stuttering, 2) a positive client-clinician alliance, and 3) the clinician being knowledgeable about stuttering and its treatment.

Some researchers working within the discipline of psychotherapy have found that the clinician's interpersonal style influences both the quality of the alliance and the therapeutic process (Anderson, Ogles, Patterson, Lambert, & Vermeersch, 2009; Nissen-Lie et al., 2013; Oddli & Halvorsen, 2014). We would also include the clinician's interpersonal style and the continued relevance of the flexibility, honesty, respect, trustworthiness, confidence, warmth, interest, and openness, highlighted by authors such as Ackerman and Hilsenroth (2003), or Van Riper (1973), for SLTs working with individuals who stutter. Those aspects mirror for example the work of Miciak and colleagues (2018), who identified four main conditions necessary for establishing a therapeutic relationship: being present, receptive, genuine and committed. According to the authors, these conditions in conjunction with applying communication skills, represent the intentions and attitudes of both the clinician and client.

Herder, Howard, Nye, Vanryckeghem, and Herder (2006) speculate that the critical element(s) for successful stuttering intervention might not lie within the intervention itself, but rather on two major conditions; the intervention strategy and the specific or combined characteristics of individuals who stutter. In this way, Herder and colleagues (2006) emphasize the influence of client characteristics rather than clinician characteristics in



relation to treatment. Several authors have drawn attention to client features in relation to stuttering treatment, including psychological distress in general, and anxiety in particular (Craig & Tran, 2014; Iverach et al., 2017; Iverach & Rapee, 2014).

In line with the work of Baxter et al. (2015), when questioning why particular interventions appear to work better with particular clients, Manning states *'[...] regardless of the particular treatment approach, factors such as the working alliance between the client and the clinician, and clinician allegiance to the treatment protocol are important'* (Manning, 2010c, p. 314). The working alliance includes a shared understanding of treatment goals and the relevance of the therapeutic tasks to these goals. Although these specific elements will be investigated in more detail in this study, we regard the various perspectives outlined as relevant, contending that multifactorial and contextual understanding, including understanding and acknowledgement of individual preferences and goals defined prior to treatment, facilitate successful stuttering therapy (Manning, 2010a; Plexico et al., 2010; Ward, 2018). Within the present study, we apply Bordin's (1979) model of the working alliance. This model is easy to administer, and it allows researchers to study the relationship between the alliance and outcome within a number of therapies (Baldwin et al., 2007; Munder, Wilmers, Leonhart, Linster, & Barth, 2010).

#### *The clients' concept of motivation*

The concept of motivation give people actions a direction for achieving a goal. Different theories have been proposed to explain motivation, and the degree of motivation is considered as one important reason that inspires a person to ‘move forward’ and may influence the treatment process and outcome (Cox & Klinger, 2004). In this study, motivation was regarded broadly, in which the term motivation was referring to goal-related processes comprising both psychological and social factors. Particularly, we recognize the range of client and clinician characteristics which interact in the client-clinician alliance. One characteristic which has the potential to influence the treatment process and outcome, is the client’s degree of motivation. We base our concept of motivation on Seo et al.’s ‘work motivation’ model (Seo, Barrett, & Bartunek, 2004; Seo et al., 2010). Briefly, Seo et al. identify the following three components to motivation: generative orientation (characterized by active engagement to achieve anticipated positive outcomes), effort (which refers to how much time and energy a person devotes to selecting and executing action to complete a given task), and persistence (maintaining an initially chosen course of action over time).

### **Aims**

As part of a wider-ranging study of individualized stuttering management tailored to the participants’ personal goals and preferences (Sønsterud, 2015), the present study aimed to investigate the roles of the working alliance more closely. This aim was to investigate the role of the working alliance within stuttering treatment, and to evaluate whether the quality

of the working alliance correlated with clients' motivation and treatment outcome six months post-therapy.

## **Methods and Procedures**

### *Research design - Multiple Single Case Design (MSCD)*

In this study, an ABA, multiple single-case design methodology (Tate et al., 2016) was used to collect data on each participant pre-therapy, during the therapy sessions, and at six-months post-therapy. Within this framework, we were able to evaluate the working alliance, as well as behavioural-, social-, and emotional aspects related to stuttering over time. This design facilitates consideration of the participants' subjective experience of the working alliance, the concept of motivation, and stuttering management outcome.

### *Participants and recruitment*

Twenty-nine adults who stutter were initially recruited. Due to practical challenges related to long distance travel in conjunction with treatment and testing commitments, eight responders were excluded, leaving 21 adults for the pre-treatment phase. Of these, one participant (participant 8) was excluded by the SLT due to a co-diagnosis of cluttering, and two further participants withdrew during the pre-treatment phase due to challenging work and health circumstances. This left a total of 18 adult participants ( $n = 18$ ), with the final treatment cohort thus comprising 15 males and 3 females, aged 21-61 years, with a mean age of 35.8

years. Based on the participants' responses on OASES-A (Yaruss & Quesal, 2006), an experienced speech and language therapist diagnosed all participants with moderate to severe stuttering prior to enrollment in the study. Mean total impact stuttering score was 2.80 (SD = 0.61), indicating a moderate to moderate-severe impact rating. Demographics and other relevant background variables are presented in table 1.

Table 1. Baseline characteristics of the 18 participants.

Background variables	%	(n)
Male gender	83.3	(15)
Stuttering in family	44.4	(8)
Higher academic education $\geq$ 3 years	33.3	(6)
Vocational rehabilitation	11.1	(2)
Received SLT treatment as children	61.1	(11)
Received SLT treatment as adults	16.7	(3)
No previous stuttering treatment at all	22.2	(4)

Data are presented as percentage (%) and frequency (n).

The participants' self-reported severity rating scores included the mean score of the overall impact of stuttering, and the four subscales, presented in table 2. The Norwegian reference group (n = 62) was used (Nordbø et al., 2018) to compare means on the five impact scores (overall score and four sub-scores) with results from the present study. As seen in table 2, the Norwegian norms are generally lower than the mean scores for the participants in this study. This suggests that the participants from the present study, on a group-level at pre-treatment, had a slightly greater degree of negative impact associated with stuttering when compared with the reference group.

Table 2. Results of OASES-A: Impact- and subscale scores prior to treatment, compared with the Norwegian norms.

Sections OASES A	Study sample (n = 18)		Reference group (n = 62)	
	M	SD	M	SD
Overall stuttering impact	2.83	0.62	2.61	0.61
General information	3.06	0.45	2.66	0.51
Reactions	2.95	0.68	2.77	0.63
Communication	2.76	0.80	2.66	0.73
Quality of life	2.61	0.76	2.31	0.82

Data are presented as Mean (M) and Standard Deviation (SD).

### *Clinical setting and data collection procedures*

The clinical setting was Statped<sup>6</sup>, department of speech and language disorders, in Oslo, Norway. The participants underwent a six weeks pre-treatment phase, in which the first evaluation took place during the first week within the clinic setting and was facilitated by the SLT. Evaluation included validated and internationally-recognized measurements, examining stuttering, reactions to stuttering, communication and quality of life. With the aim of measuring stuttering variance over time, each participant was instructed to evaluate their own stuttering severity on a weekly basis outside the clinic visits. After six weeks, the participants' stuttering was measured again within the clinic setting. The intervention started immediately after the pre-treatment phase and consisted of an eight-week treatment period

<sup>6</sup> Statped is a national service for special needs education, defined for different core areas, including services for speech and language disorders.

of four treatment sessions (scheduled during weeks 1, 2, 4 and 8 of the treatment phase).

The average duration of each treatment session was two and a half hours.

The intervention entitled ‘Multidimensional Individualized Stuttering Therapy’- approach was carried out by an experienced SLT and based on individualized treatment goals developed in consultation with each participant. The intervention was holistic, client-centered, and was based around five areas of focus: (1) awareness of *body* tension and posture, (2) awareness of *breath support* in speech production, (3) awareness in speech production to promote *easier voicing*, (4) awareness of *acceptance, and mindfulness-based* strategies, and (5) awareness of *presentation skills*. The relative prominence of the specific elements within each of the five areas of focus was adjusted according to the needs of each individual. Participants were expected to work independently between management sessions. Evaluations of stuttering, reactions to stuttering, communication and quality of life were repeated six months post-intervention. Note that the wider treatment study employed a greater range of assessments, encompassing both physical and psychological factors, with outcomes for social, emotional and behavioural characteristics. In the present study, only a sub-set of these measurements were included.

After the third (T1, second treatment session), fifth (T2, fourth treatment session), and sixth (T3, one-month post-treatment) face-to-face meeting, paper and pen versions of the WAI-SR were handed out. The participants received brief information regarding the WAI-

SR, stating that the questions contained therein related to their view of the collaboration with the SLT, and that the purpose of including the WAI-SR in this study was to evaluate its use within speech and language therapy. All participants completed the three evaluations of the working alliance during a period of three months (second and fourth treatment session, and at one-month follow-up). As this evaluation was part of a stuttering management study, the clinician was blinded to the participants' responses which were submitted in sealed envelopes, and all participants were assured that the SLT would not see their responses until six months after the treatment period was complete. After the end of treatment, and when the 6 months-follow-up was completed, a professional (a qualified lawyer and SLT) witnessed the opening of the envelopes by the SLT (researcher).

### *Measures and materials*

A view that has gained wide support, is that the client is best-placed to evaluate many aspects of clinical change; alongside clinic-based measures, treatment outcomes therefore include self-evaluation by the client (Bothe & Richardson, 2011; Ingham, Ingham, et al., 2012; Manning, 2010c). Our aim was to employ relevant measures, considering the participants' aims and including reliable and valid measures of speech behaviour, cognition and emotional state, as well as the ability to communicate in a variety of social and professional situations in daily life. To evaluate the working alliance, the study incorporated measures of the value the participants placed on the therapy goals, therapeutic bond, and

therapy tasks. In addition, an Extended version of the form ‘Client Preferences for Stuttering Treatment’ (CPST-E) (McCauley & Guitar, 2010) was included, collecting both qualitative and quantitative data, and requiring the participants to describe their personal goals and priorities prior to treatment.

#### *Assessment of the working alliance (WAI-SR)*

The Working Alliance Inventory (WAI) is a self-report instrument that is used to measure the strength and quality of the relationship between client and clinician (the participant and the SLT). The original version of the WAI (Horvath & Greenberg, 1989) has 36 items spread across three subscales: bond, goal, and task. In the present study, the quality of these elements of the working alliance was evaluated using the short version of the Working Alliance Inventory - Clients’ ratings (WAI-SR) (Hatcher & Gillaspay, 2006).

This short version includes 12 items scored on a 7-point Likert scale, with high values indicating a strong therapeutic alliance. The available scores for each of the three subscales (*bond*, *goal* and *task*) range from a minimum 4 (4 items x 1 point) to a maximum of 28 (4 items x 7 points), giving a maximum total score of 84 (3 subscales x 28 points).

The WAI-SR correlates strongly with the WAI as well as with other measures of alliance, and is consistent with Bordin’s model (1979) of the working alliance. The WAI-SR has demonstrated good internal consistency and adequate convergent and predictive validity



(Hatcher & Gillaspy, 2006), and it has been demonstrated to have a clinically significant association with various measures of therapeutic outcome (Horvath et al., 2011; Munder et al., 2010).

*Assessment of stuttering severity, communication and quality of life (WASSP, OASES-A)*

The impact of stuttering severity, and stuttering-related variables was measured using the Overall Assessment of the Speaker's Experience of Stuttering (OASES-A) (Yaruss & Quesal, 2006) and the Wright & Ayre Stuttering Self-Rating Profile (WASSP) (Wright & Ayre, 2000). In the WASSP, 26 questions are posed across 5 domains: 1) stuttering behaviours, 2) thoughts, 3) feelings about stuttering, 4) avoidance, and 5) disadvantages due to stuttering. Internal reliability has been reported to be satisfactory (Wright & Ayre, 2000). The OASES-A consists of 100 items organized into four sections: a) general information about stuttering and self-awareness of stuttering behaviours, b) affective, behavioural and cognitive reactions to stuttering, c) communication difficulties in daily situations, and d) impact of stuttering on quality of life (Yaruss, 2010; Yaruss & Quesal, 2006). Each item is scored on a Likert scale ranging from 1 to 5, with higher scores indicating a greater degree of negative impact associated with stuttering. OASES-A has demonstrated good test-retest reliability ( $r = 0.90-0.97$ ) and concurrent validity ( $r = 0.68-0.93$ ). Cronbach's alpha coefficient, calculated independently for each of the four sections of the instrument, revealed

very strong internal reliability ( $r = 0.92\text{--}0.97$ ) (Yaruss & Quesal, 2006). The Norwegian norms of the OASES-A (Nordbø, Sønsterud & Kirmess, 2018), were included to allow comparison of the five impact scores (overall score and four sub-scores) with the scores from the present study.

#### *Assessment of the concept of motivation (CPST-E)*

In this study, an Extended version of the Client Preferences for Stuttering Treatment (CPST-E) (McCauley & Guitar, 2010) was completed by participants during the first pre-treatment session only. The original CPST includes brief items regarding therapy goals, the individual's priorities with regard to stuttering, ease of participation in different speaking situations, and a sense of control. Items are rated on a Likert scale rating from 1 (not at all important) up to 5 (very important).

The CPST-E adds two further sections. One section includes questions regarding personal characteristics, including those related to the client's motivation based on Seo et al.'s 'work motivation' model (2010): How persistent the client is in general, how motivated they are to work actively with their stuttering, how much time they are willing to set aside for independent training, how much help and support they expect during the therapy period, and their anticipations of the outcome. All the quantitative items are measured on a Likert scale, ranging from 1 (not at all) to 5 (completely). The second part is based on qualitative information and contains open text units where clients are required to write down their own

goals and wishes for the therapy. The dataset in the present study utilises only the quantitative measures from the CPST-E.

### *Assessment of anxiety and depression (HADS)*

A number of instruments are available to assess aspects related to fear of negative evaluation and anxiety. The Hospital Anxiety and Depression Scale (HADS) is a screening tool for screening both anxiety (HADS-A) and depression (HADS-D) (Zigmond & Snaith, 1983).

The internal consistency of the HADS-A and the HADS-D showed coefficient alpha of 0.89 and 0.86 respectively, and has been found to be excellent in samples from general practice (Olsson et al., 2005). The HADS is a self-administered scale consisting of 14 items split across anxiety and depression subscales, each with a four-point ordinal response format (e.g. 'not at all', 'occasionally', 'quite often', or 'very often'). For this study, the first line in the introduction to the form was removed as it included the word 'hospital', which was inappropriate for our setting.

### *Statistical analyses*

The current study used a multiple single case design, with quantitative data collected at different time points: pre-treatment (CPST-E, OASES-A, WASSP, HADS), after the second treatment session (WAI-SR, T1), the fourth treatment session (WAI-SR, T2), and at one- (WAI-SR, T3), and six months post-treatment (OASES-A, WASSP, HADS). Quantitative data were analysed using IBM SPSS Statistics, version 25. Clinical and demographic data

are presented as percentage (%), and frequency (n). Norms of the OASES-A, and sub-scores of the WAI-SR (bond, goal, and task) are presented as means (M) with corresponding standard deviations (SD).

The means (M) and standard deviations (SD) of the WAI-SR were examined. Normality was assessed by obtaining skewness and kurtosis values, and descriptive statistics were calculated. Associations were calculated using Pearson's correlation coefficient ( $r$ ), exploring the strength of the relationships between subscales and total scores of the WAI-SR, and pre- and post-intervention results of the OASES-A, the WASSP, and the HADS. Associations were also calculated between the WAI-SR and the section of the CPST-E which covers aspects related to the client's motivation for treatment, and expectations regarding support and treatment outcome. Treatment outcomes were measured using the relative delta scores ( $\Delta$ ) on OASES-A, WASSP and HADS. The delta scores indicate change between two scores, given as a percentage ( $(A-B)/Ax100$ ). Level of significance was set to  $p < 0.05$ .

Multiple linear regression analyses were used to assess whether levels of motivation and willingness to set aside time for self-training could predict perceived strength and quality of the relationship between client and clinician (WAI-SR subscale task) and treatment outcome (OASES-A). We wanted to control for the possible effect of initial stuttering and general distress, which could be associated with coping and treatment

outcome, and test whether levels of anxiety (HADS-A) and total impact scores (OASES-A) were influencing the variables. The regression procedure consisted of two steps in order to control for the effect of each included variable, using forced entry. Preliminary analyses were conducted to test assumptions of normality, linearity, and multicollinearity. Statistical assumptions for the linear regression models were adequately met.

In order to compare subgroups with lower and higher scores on the measure of working alliance, the variable was dichotomized according to the WAI-SR total score median value (50 Percentiles), i.e.  $\geq 25$  and  $< 25$ , leaving 9 participants in each group. The criteria for cut off was set as median value because of the small sample size. For between-groups comparisons the Mann-Whitney Test was used. Associations were calculated using correlation analyses (Spearman's *rho*), exploring the strength of the relationships between high or low WAI-SR mean subscale scores (goal at T1 and task at T1), and delta total scores on OASES-A, WASSP, and HADS (total- and subscales).

#### *Ethical considerations*

Ethical approval was gained from the Regional Committee for Medical Research Ethics (2015/1275), and all participants provided written consent before participating in the study.

All data were de-identified.

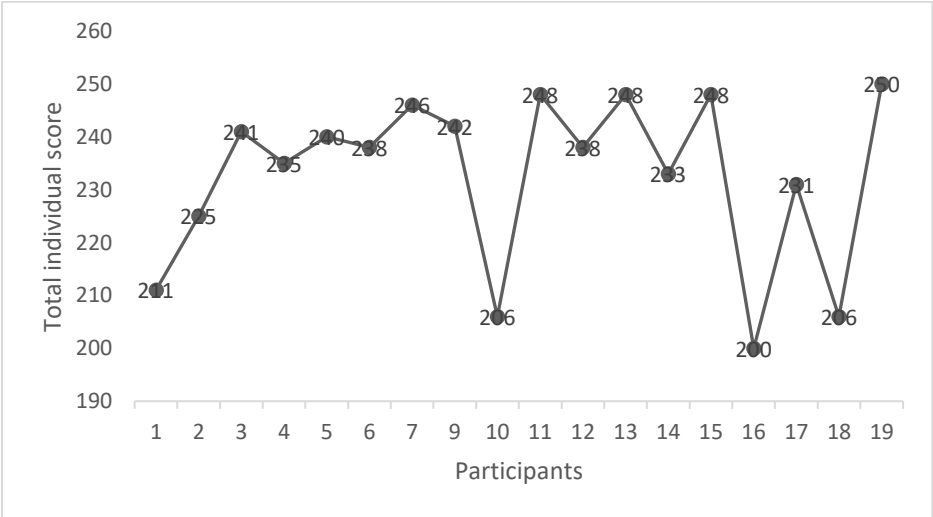
#### **Outcomes & Results**

Based on the WAI-SR, we examined whether the therapeutic alliance correlated across the goal, task, and bond subscales, and whether the working alliance was decreasing or increasing in quality throughout the treatment period. Thereafter, the relationship between the working alliance (as measured by the WAI-SR), the motivation and willingness to set aside time for training (measured by the CPST-E), and perceived improvements in communication, social activity, emotional restructuring, and life-quality (measured by the OASES-A, the WASSP, and the HADS) were explored.

*Goal, task and bond -total and mean scores on the WAI-SR*

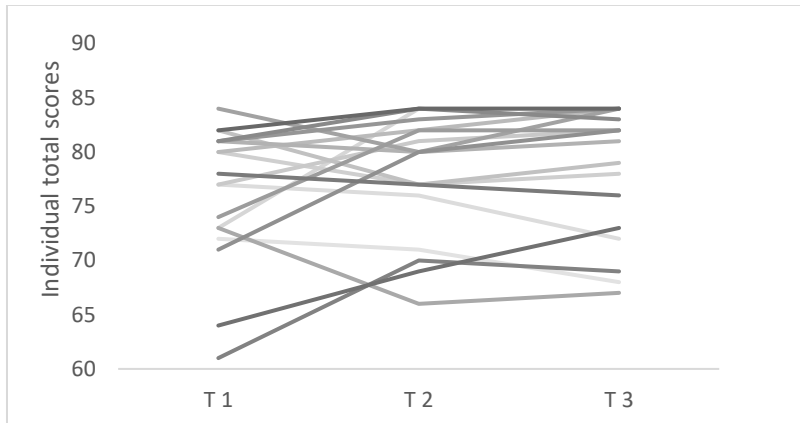
At an individual level, the variance of the total score in the present study ranges from 200 to 250 (T1 + T2 + T3 summarized), see figure 1.

Figure 1. Summary of WAI-SR -total individual scores on Goal, Task and Bond.



The variance between the individual total scores (goal, task and bond combined), ranged from 61 to 84 throughout T1, T2 and T3, as shown in figure 2.

Figure 2. Results WAI-SR individual total scores throughout T1, T2 and T3.



The mean subscale scores ranged from 24.5 ( $24.5/4 = 6.13$ ) at the lowest (subscale task at T1), to 26.7 ( $26.7/4 = 6.68$ ) at the highest (subscale bond at both T2 and T3). As seen in table 3, the quality of the working alliance seemed to be high throughout the study period. This may indicate an initial strong therapeutic alliance between the participants and the SLT, maintained throughout the treatment period at both the individual and group level. On a group-level the quality of the alliance increased during the period of treatment, but not significantly.

The highest variability between minimum and maximum mean scores was at the first evaluation (T1), and the greatest variability throughout the three data points T1, T2 and T3

is seen on the *task* subscale. Furthermore, aspects related to the *task* subscale in the WAI-SR show the lowest scores, indicating that task-related items may be the most sensitive elements in the working alliance, as seen in table 3 in Paper II. Of the three subscales, the bond subscale had the most stable scores.

#### *Associations between the WAI-SR, and the concept of motivation*

Associations between the working alliance and the concept of motivation were identified.

The relationships between variables related to the clients' concept of motivation, measured by the CPST-E and the working alliance evaluated at T1, demonstrated a strong correlation, especially between the WAI-SR task subscale and motivation ( $r(16) = 0.71, p = .001$ ), time self-training ( $r(16) = 0.76, p = .000$ ), persistence ( $r(16) = 0.63, p = .005$ ), expectation outcome ( $r(16) = 0.51, p = .031$ ), and expectation support ( $r(16) = 0.60, p = .008$ ), respectively.

Inspired by the work of Seo et al. (2004), the three variables motivation, willingness to set aside time for training, and the person's persistence were then combined into a single concept of motivation. The association between the WAI-SR subscale task and the concept of clients' motivation remained strong ( $r(16) = 0.781, p = .000$ ).

To further examine the influence of motivation on the continuous WAI-SR task subscale, a regression analysis was carried out to investigate the potential impact of motivation, and the presence of background variables (general distress and impact of



stuttering). In order to control for the effect of each included variable, the regression procedure consisted of two steps. In step one, the participants' level of anxiety (HADS-A) was entered. In step two, self-reported total impact score on the OASES-A was entered. As can be seen in table 4, the influence of motivation was found to be statistically significant ( $F(3, 14) = 0.785, p = .002$ ).

Table 4. Regression Analysis evaluating the impact of motivation on the strength and quality of the relationship between client and clinician (WAI-SR, subscale task), while controlling for initial levels of anxiety (HADS-A) and stuttering impact (OASES-A).

	B	(SE B)	Beta	t	<i>p</i>
HADS-A (Anxiety)	-.014	(.158)	-.018	-.087	.932
Total impact score OASES-A	-.009	(.012)	-.172	-.748	.467
Motivation	2.356	(.628)	.785	3.749	<b>.002</b>

Data are presented as unstandardized coefficients (B), standard error of the unstandardized coefficient (SE B), standardized coefficient (Beta), t-value (t) and p-value (*p*).

*Associations between the concept of motivation and the treatment outcome*

The same combined concept of motivation was associated with delta scores on the OASES-A total scores, and showed a significant association:  $r(16) = 0.508, p = .031$ . The associations

were also significant on the delta scores on two OASES-A subscales: ‘Quality of Life’:

$r(16) = 0.539, p = .021$  and ‘Communication in Daily Situations’:  $r(16) = 0.576, p = .012$ .

The relationships between the variable ‘Time set aside for training’ and the treatment outcome, measured by the relative delta scores on the WASSP and the OASES-A, demonstrated significant correlations (WASSP:  $r(16) = 0.510, p = .031$ ; OASES-A:  $r(16) = 0.578, p = .012$ ). The associations were also significant on three OASES-A’s subscales: ‘Your reactions to stuttering’,  $r(16) = 0.484, p = .042$ ; ‘Communication in Daily Situations’:  $r(16) = 0.534, p = .023$ ; and ‘Quality of Life’:  $r(16) = 0.578, p = .012$ .

To further explore the influence of ‘Time set aside for training’ on the outcome variable OASES-A, we performed another regression analysis, following a similar procedure to that described above. In step one, perceived anxiety (HADS-A) was entered in order to control for this variable. In step two, self-reported total impact scores on the OASES-A were entered. The results indicated that time set aside for training significantly explained treatment outcomes ( $F(3, 14) = 0.660, p = .011$ ).

Table 5. Regression analysis evaluating the impact of ‘Time set aside for training’, while controlling for initial levels of anxiety (HADS-A) and stuttering impact (OASES-A) on treatment outcomes.

	B	(SE B)	Beta	t	p
HADS-A (Anxiety)	.406	(.590)	.166	.688	.503
Total impact score OASES-A	-.042	(.040)	-.254	-1.046	.313
Time set aside for training	6.671	(2.266)	.660	2.944	.011

Data are presented as unstandardized coefficients (B), standard error of the unstandardized coefficient (SE B), standardized coefficient (Beta), t-value (t) and p-value (p).

#### *Associations between the WAI-SR and treatment outcome*

Relationships were identified between the task and goal subscales (WAI-SR), and the reduction of stuttering severity and anxiety. At a group level, results indicated a strong correlation between the quality of the working alliance (total score), and several outcome variables. Only one significant relation between the *bond* subscale and treatment outcome (WASSP- Disadvantages) was found ( $r(16) = 0.507, p = .032$ ). Significant correlations were found most notably on WAI-SR items related to either *task* or *goal*. Based on the relative delta scores, several significant correlation between the *task* subscale and some relevant outcome variables (measured by the OASES-A, the WASSP and the HADS) were found: HADS-Anxiety:  $r(16) = 0.515, p = .041$ ; OASES-A-total scores:  $r(16) = 0.541, p = .020$ ; and WASSP-total scores:  $r(16) = 0.495, p = .037$ . A few significant relationships between the subscale *goal* and outcome variables were also found: OASES-A ‘Communication in Daily Situations’:  $r(16) = 0.608, p = .007$ ; and WASSP-Disadvantages:  $r(16) = 0.618, p = .006$ .

At a group level, all the presented relationships between the WAI-SR and the outcome variables demonstrated a linear trend; the higher quality of the working alliance, the higher delta scores measured by the OASES-A, WASSP and the HADS-A.

*Associations between 'lower'- or 'higher' WAI-SR, and treatment outcome*

Finally, we selected one more variable that seemed clinically interesting in association between working alliance and outcomes. Several significant associations were noted between the quality of the working alliance and treatment outcome, when the working alliance was classified as 'lower' or 'higher' according to the WAI-SR median values. Similar to other analyses in this study, the treatment outcome was measured based on relative delta scores on the OASES-A, the WASSP, and the HADS. The variables in the relationship between the working alliance and treatment outcomes demonstrated a similar trend. Thus, when the values related to the quality of the working alliance were considered as high, significant scores associated with positive treatment outcomes in terms of improved communication, reductions in anxiety, stuttering severity and avoidance behaviour were found, as presented in table 6.

Table 6. Correlations ‘lower’- or ‘higher’ WAI-SR scores on the subscales Goal and Task, and treatment outcome.

	WAI-SR subscale Goal		<i>p</i>	WAI-SR subscale Task		<i>p</i>
	≤ 25	> 25		≤ 25	> 25	
Δ OASES-A (Total)	7.4(3.2-13.9)	16.6(12.0-31.8)	.024*	10.9(3.2-13.1)	17.1(12.6-31.8)	.012*
Δ OASES-A (Communication)	2.1(-9.1-8.3)	13.0(4.1-22.5)	.031*	2.6(-5.7-9.0)	13.0(0.6-22.5)	.102
Δ WASSP-Stuttering	13.0(9.0-23.8)	26.4(18.2-44.6)	.047*	17.6(7.2-23.8)	30.1(14.9-44.6)	.021*
Δ WASSP-Thoughts	0.0(0.0-21.0)	25.0(12.8-39.4)	.031*	13.3(0.0-34.1)	20.0(0.0-29.2)	.653
Δ WASSP-Avoidance	15.4(5.6-26.1)	36.4(0.0-46.8)	.248	12.5(0.0-26.1)	40.9(13.2-46.8)	.037*
Δ HADS-Anxiety	14.3(-9.1-22.2)	40.0(11.1-70.8)	.039*	7.1(-8.6-22.2)	42.2(21.1-72.9)	.010*

Data are presented as median, interquartile range, and *p*-value (\**p* < .05).

## Discussion

Although the present study forms part of a larger treatment study which takes stuttering *management* as its primary focus, we acknowledge that other factors may also influence treatment outcomes. The aim of this study was to investigate the quality of the working alliance between PWS and their SLT, and to investigate possible correlations between the working alliance, the concept of client motivation and management outcomes. Although causal relationships cannot easily be determined, we have succeeded in measuring the working alliance and relevant variables related to client motivation and management outcomes. The study confirms that the working alliance between a SLT and a PWS is important and is providing support for other studies in this field (Manning, 2010c; Plexico et al., 2005, 2010). Based on Bordin’s model which identifies three dimensions contributing to

the working alliance, our findings indicate that the dimensions of *task* and *goal* in the working alliance were particularly relevant.

*The importance of the working alliance and mutual agreement of tasks and goals*

The results described above indicate that the quality of the working alliance and, in particular, variables related to mutual agreement of therapy tasks and goals, are relevant for treatment outcomes in stuttering treatment. As highlighted by, among others, Manning (2010a) and Ward (2018), goal-directed treatment requires high clinical competence and flexible treatment procedures. Referring to the common factors model, Manning also points out that *'a therapeutic change is likely to be more successful if the clients and clinicians experience a therapeutic alliance that reflects a similar theoretical and practical perspective about the nature of the journey'* (2010a, p. 314). However, although clinical decision making involving mutual agreement of goals and tasks demonstrated the strongest correlations and may be the most important factors, the role that may be played by the bond between the client and clinician should be acknowledged. In the present study, although only one significant relation between bond and outcome was found, the scores on the bond subscale remained stable throughout the treatment period. It is possible that this stable, underlying bond, perhaps associated with clinician and client's characteristics such as being present, receptive, genuine and committed, in which, according to Miciak et al. (2018), represent the intentions and attitudes in the clinical interaction and are needed for the physiotherapist and

client to ‘*be*’ in a therapeutic relationship. To some extent, the bond may provide the foundation for mutual agreement of tasks and goals, which is in accordance with Wampold’s Contextual model (2015). This would correspond well with the work of multiple researchers who have highlighted the importance of clinician interpersonal style or quality in therapy (Ackerman & Hilsenroth, 2003; Manning, 2010a, 2010c; Nissen-Lie et al., 2013; Oddli & Halvorsen, 2014; Van Riper, 1973), suggesting that these characteristics contribute to a bond between the SLT and the client, and which needs to be created initially in the therapy process (Wampold, 2015).

All the ingredients in the working alliance are of importance. Nevertheless, based on the findings of the present study, it seems that the specific clinician characteristics that may contribute to the ‘bond’ are not as great an influence on the ‘principles of change’ as those related to mutual agreement regarding tasks and goals in therapy for adults who stutter. It is interesting to consider whether stuttering therapy may differ from psychotherapy in this respect. The psychotherapy research indicates that the effects of psychotherapy are primarily due to common factors in therapy, with factors common to many treatments explaining a larger percentage of the variance in treatment outcome than the specific ingredients associated with different treatment protocols (Wampold, 2015). Due to the nature of speech and language therapy, it is possible that it may typically be more task-based than psychotherapy and, therefore, as Wampold consider (personal communication with 1<sup>st</sup>

author, e-mail August 13<sup>th</sup>, 2018), ‘[...] *it makes sense that in the context of speech therapy, the bond would be less important than in psychotherapy, where the focus is often on an ‘inner’ experience*’.

#### *The relationship between the working alliance and the client’s motivation*

The client’s personal characteristics include, among others, features such as motivation, persistence, the willingness to set aside time for training, the individual’s expectation of a positive outcome, and the individual’s expectations of support during the therapeutic process. In the present study, each of these variables, and particularly the client’s self-reported motivation and willingness to set aside time for training, was associated with the working alliance. The strongest correlations were with the *task* subscale, measured using the WAI-SR. Within our study, we defined the concept of motivation as a combination of subjective motivation, willingness to set aside time for training and expectation of a positive outcome (Seo et al., 2010). This concept of motivation was subsequently identified as a significant predictor for a positive outcome. These findings confirm those of Herder et al. (2006) who found significant associations ( $p < .01$ ) between the *task* subscale and the clients motivation. This highlights the potential interaction of meaningful tasks and client motivation for achieving positive change. Our finding that the client’s expectations of support are relevant corroborates the work of Manning (2010c) and Plexico et al. (2005,



2010), who state that the degree of support and help a person who stutters can expect may influence treatment outcomes.

*Significant relationship between the working alliance and treatment outcomes*

The relationship between the quality of the working alliance as perceived by the client early in the treatment (T1), and treatment outcomes was investigated. Several variables in this relationship demonstrated a linear, positive trend or tendency. Thus, when the values reflecting the quality of the working alliance were high (indicating a positive working alliance), scores reflecting treatment outcomes associated with communication and social activity indicated positive change. In more detail, a significant positive relationship was identified between the *goals* and *tasks* subscales of the WAI-SR and reductions in anxiety, stuttering severity and avoidance behaviour.

Based on these findings, it was considered clinically meaningful to categorize the participants into two different groups; those with relatively lower scores ( $\leq 25$ ) on the *task* and *goals* subscales, and those with higher scores ( $> 25$ ). It is important to point out that the scores are relative and, although scores below 25 do not indicate a poor working alliance, these fairly subtle differences in the experience of the working alliance appeared to have a measurable impact on treatment outcomes. By analysing these two groups, we were able to demonstrate the tendency for those regarding the working alliance most positively early in

treatment (at T1) to experience the most positive outcomes six months post-therapy. As recommended by Wampold (2015) and Del Re et al. (2012), among others, this suggests there is considerable therapeutic potential in clinicians devoting time to developing a positive working alliance. This finding also suggests the direction of the ‘collaborative journey’, and the idea that the client’s experience of the working alliance at an early stage in the therapy process is associated with treatment outcomes. A key question is whether a client who regards the quality of the working alliance as very high at the beginning of the treatment process is, therefore, better able to accurately predict a more successful treatment outcome. Or the converse; if a client perceives the working alliance to be ineffective or does not trust or feel confident with the SLT, this may directly influence the treatment outcome. If this is the case, such concerns might suggest that the client would benefit from reconsidering the choice of clinician.

The present study has highlighted associations between variables related to the working alliance and treatment outcomes and demonstrated that the working alliance is a critical component for successful treatment for adults who stutter. These findings provide support for the position of StutterTalk©, who advise individuals who stutter to consider trying multiple clinicians in order to find a positive therapeutic relationship. Although access to speech and language therapists (SLTs) may be limited by the individual’s location, local provision of services, and access to such services, we strongly support the basic tenet that

the working alliance matters, and that a stable and trusting clinician-client relationship is a central factor within treatment for stuttering.

### **Strengths and limitations**

The multiple single case design together with combining the WAI-SR with stuttering measures, has allowed the consideration of interactions both between and within individual factors. As with many case studies, the greatest limitation of our study remains the small size of the sample. Bearing this in mind together with the fact that the sample is taken from a treatment study rather than day-to-day working alliances within a clinic setting, the preliminary results should be interpreted within this specific context.

We report only on subjective measures in this study. Although such measures and evaluations can be regarded as very useful in the evaluation process, we highlight the need for researchers and clinicians to be aware of the variability and differing reliability in clients' awareness and perspectives, and that validated measurements should therefore be used in a careful and transparent manner. We suggest that a combination of subjective self-evaluation, plus objective professional measurement might represent the optimal client-centered, outcome-focused result in clinical research.

A potential weakness of the study is the risk of conflating causation with correlation. The working alliance constructs are particularly relevant here, as it is not clear whether a better outcome in treatment leads to a stronger working alliance or vice versa. In other

words, even though we have implicated a possible direction in some relationships, the causality of the relationship underpinning the change in direction remains unclear. The client's satisfaction with the alliance would need to be measured for an extended period in order to draw more certain conclusions.

A further potential weakness is the participants' relationship with the researching clinician (lead author) who implemented the treatment. Although the clinician was blinded to the evaluations during the treatment period, there is a risk that participants may have underreported negative experiences and over-reported positive experiences to protect their relationship with the clinician. However, measures were taken to reduce this risk (see method section) and, to our knowledge, participants' evaluations were honest, authentic and representative. Despite these caveats, we hope, that the results presented will encourage others to replicate and expand the research with larger and more heterogenous samples to establish the robustness of the present findings.

### **Conclusions & Implications**

SLTs need to be aware of the importance of the working alliance in stuttering treatment. Our findings support the use of the WAI-SR as a useful tool for evaluating elements of this relationship, specifically shared understanding of treatments goals, agreement regarding treatment tasks, and the bond between the parties. It is possible that the working alliance, in particular, the shared understanding of goals and agreement on tasks, training and activities

relevant to these goals, might be among the most critical elements for successful treatment.

Clinicians have previously recommended the use of measurements to examine the quality of the therapeutic alliance as an essential component of clinical work and research.

Incorporating such evaluations at an early stage of treatment could permit SLTs and clients to identify and repair challenges should they arise.

Pre-existing evidence suggests that clinicians who are better able to form alliances with clients, have better outcomes with their clients than other clinicians. Clients may influence the alliance and outcomes in many ways, including through their own motivation, but the present research suggests that clinician characteristics are important, too, and that SLTs who are more responsive to their clients' individual characteristics, facilitate positive treatment outcomes.

The client's motivation for treatment, and mutual agreement regarding meaningful tasks for achieving the desired goals or changes, may become important predictors for successful therapy outcome. This multiplicity of factors associated with treatment outcomes corresponds well with several of the models described in the introduction, including the Common Change Principles, and the Contextual Model. Interestingly, they do not correspond as well with the estimations of Lambert's Pie Chart, as it seems that tasks or techniques may play a larger role within stuttering therapy outcomes than Lambert's model predicts. Future research inspired by these findings could include further investigation of the

contribution of clinician characteristics to the working alliance and to treatment outcomes in stuttering therapy.

#### Funding:

This study was supported by Stiftelsen Dam, the Norwegian ExtraFoundation for Health and Rehabilitation.

#### Conflict of interest:

The authors report no conflict of interest.

#### References

- Ackerman, S. J., & Hilsenroth, M. J. (2003). A review of therapist characteristics and techniques positively impacting the therapeutic alliance. *Clinical Psychology Review, 23*(1), 1-33. doi:10.1016/S0272-7358(02)00146-0
- Aderka, I. M., Hofmann, S. G., Nickerson, A., Hermesh, H., Gilboa-Schechtman, E., & Marom, S. (2012). Functional impairment in social anxiety disorder. *Journal of Anxiety Disorders, 26*(3), 393-400. doi:<http://dx.doi.org/10.1016/j.janxdis.2012.01.003>
- Albrigtsen, A., Stauri, T., & Wright, M. A. (2017). *Ord til besvær: Livet med stamming*. Oslo: Abstrakt forlag.
- Alm, P., & Dahlin, K. (2015). Hög eller låg evidens, vad betyder det? Tankar om riktlinjer för logopediskt arbete inom stamning och andra diagnoser. *Tidskriften Logopeden, 4*, 20-23.
- Anderson, T., Ogles, B. M., Patterson, C. L., Lambert, M. J., & Vermeersch, D. A. (2009). Therapist effects: facilitative interpersonal skills as a predictor of therapist success. *Journal of Clinical Psychology, 65*(7), 755-768. doi:10.1002/jclp.20583
- Baldwin, S. A., Wampold, B. E., & Imel, Z. E. (2007). Untangling the alliance-outcome correlation: exploring the relative importance of therapist and patient variability in the alliance. *J Consult Clin Psychol, 75*(6), 842-852. doi:10.1037/0022-006X.75.6.842
- Baxter, S., Johnson, M., Blank, L., Cantrell, A., Brumfitt, S., Enderby, P., & Goyder, E. (2015). The state of the art in non-pharmacological interventions for developmental stuttering. Part 1: a systematic review of effectiveness. *International Journal of Language and Communication Disorders, 50*(5), 676-718. doi:10.1111/1460-6984.12171
- Beilby, J. M., Byrnes, M. L., & Yaruss, J. S. (2012). Acceptance and Commitment Therapy for adults who stutter: Psychosocial adjustment and speech fluency. *Journal of Fluency Disorders, 37*(4), 289-299. doi:10.1016/j.jfludis.2012.05.003
- Benton, T. (2011). *Philosophy of social science : the philosophical foundations of social thought* (2nd ed. ed.). Basingstoke: Palgrave Macmillan.
- Benum, K., Axelsen, E. D., & Hartmann, E. (2013). *God psykoterapi : et integrativt perspektiv*. Oslo: Pax.
- Berg, K., Askim, T., Balandin, S., Armstrong, E., & Rise, M. B. (2017). Experiences of participation in goal setting for people with stroke-induced aphasia in Norway. A qualitative study. *Disability and Rehabilitation, 39*(11), 1122-1130. doi:10.1080/09638288.2016.1185167
- Bernstein Ratner, N. (2005). Evidence-based practice in stuttering: Some questions to consider. *Journal of Fluency Disorders, 30*(3), 163-188. doi:10.1016/j.jfludis.2005.04.002

- Binder, P.-E., Holgersen, H., & Nielsen, G. H. (2010). What is a “good outcome” in psychotherapy? A qualitative exploration of former patients' point of view. *Psychotherapy Research, 20*(3), 285-294. doi:10.1080/10503300903376338
- Bishop, S. R., Lau, M., Shapiro, S., Carlson, L., Anderson, N. D., Carmody, J., . . . Devins, G. (2004). Mindfulness: A Proposed Operational Definition. *Clinical Psychology: Science and Practice, 11*(3), 230-241. doi:10.1093/clipsy.bph077
- Bjelland, I., Dahl, A. A., Haug, T. T., & Neckelmann, D. (2002). The validity of the Hospital Anxiety and Depression Scale: An updated literature review. *Journal of Psychosomatic Research, 52*(2), 69-77. doi:10.1016/S0022-3999(01)00296-3
- Bloodstein, O., & Bernstein Ratner, N. (2008). *A handbook on stuttering* (sixth edition. ed.). Clifton Park NY: Delmar.
- Bordin, E. S. (1979). The generalizability of the psychoanalytic concept of the working alliance. *Psychotherapy: Theory, Research and Practice, 16*(3), 252-260.
- Bosshardt, H.-G., Packman, A., Blomgren, M., & Kretschmann, J. (2016). Measuring Stuttering in Preschool-Aged Children across Different Languages: An International Study. *Folia Phoniatrica et Logopaedica, 67*(5), 221-230. doi:10.1159/000440720
- Bothe, A. K., Davidow, J. H., Bramlett, R. E., & Ingham, R. J. (2006). Stuttering Treatment Research 1970–2005: I. Systematic Review Incorporating Trial Quality Assessment of Behavioral, Cognitive, and Related Approaches. *American Journal of Speech-Language Pathology, 15*(4), 321-341. doi:10.1044/1058-0360(2006/031)
- Bothe, A. K., & Richardson, J. D. (2011). Statistical, practical, clinical, and personal significance: definitions and applications in speech-language pathology. *American Journal of Speech-Language Pathology, 20*(3), 233-242. doi:10.1044/1058-0360(2011/10-0034)
- Boyle, M. P. (2011). Mindfulness training in stuttering therapy: A tutorial for speech-language pathologists. *Journal of Fluency Disorders, 36*(2), 122-129. doi:10.1016/j.jfludis.2011.04.005
- Boyle, M. P., & Fearon, A. N. (2017). Self-stigma and its associations with stress, physical health, and health care satisfaction in adults who stutter. *Journal of Fluency Disorders*. doi:<https://doi.org/10.1016/j.jfludis.2017.10.002>
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology, 3*(2), 77-101. doi:10.1191/1478088706qp063oa
- Bricker-Katz, G., Lincoln, M., & Cumming, S. (2013). Stuttering and work life: An interpretative phenomenological analysis. *Journal of Fluency Disorders, 38*(4), 342-355. doi:<https://doi.org/10.1016/j.jfludis.2013.08.001>
- Bricker-Katz, G., Lincoln, M., & McCabe, P. (2009). A life-time of stuttering: how emotional reactions to stuttering impact activities and participation in older people. *Disability and Rehabilitation, 31*(21), 1742-1752. doi:10.1080/09638280902738672
- Bright, F. A. S., Kayes, N., McCann, C. M., & McPherson, K. (2011). Understanding Hope After Stroke: A Systematic Review of the Literature Using Concept Analysis (Vol. 18, pp. 490-508). Abington: Taylor & Francis Ltd.
- Cahana-Amitay, D., Oveis, A. C., Sayers, J. T., Pineles, S. L., Spiro, A., & Albert, M. L. (2015). Biomarkers of “Linguistic Anxiety” in aphasia: A proof-of-concept case study. *Clinical Linguistics & Phonetics, 29*(5), 401-413. doi:10.3109/02699206.2015.1014572
- Carter, A., Breen, L., Yaruss, J. S., & Beilby, J. (2017). Self-efficacy and quality of life in adults who stutter. *Journal of Fluency Disorders, 54*, 14-23. doi:<https://doi.org/10.1016/j.jfludis.2017.09.004>
- Cartwright, N., & Hardie, J. (2012). *Evidence-based policy: a practical guide to doing it better*. Oxford: Oxford University Press.
- Caughter, S., & Dunsmuir, S. (2017). An exploration of the mechanisms of change following an integrated group intervention for stuttering, as perceived by school-aged children who stutter (CWS). *Journal of Fluency Disorders, 51*, 8-23. doi:<https://doi.org/10.1016/j.jfludis.2016.10.003>

- Chang, S.-E., Zhu, D. C., Choo, A. L., & Angstadt, M. (2015). White matter neuroanatomical differences in young children who stutter. *Brain*, *138*(3), 694-711. doi:10.1093/brain/awu400
- Cheasman, C., Simpson, S., & Everard, R. (2013). *Stammering therapy from the inside : new perspectives on working with young people and adults*. Guildford: J & R Press.
- Cheasman, C., Simpson, S., & Everard, R. (2015). Acceptance and Speech Work: The Challenge. *Procedia - Social and Behavioral Sciences*, *193*, 72-81. doi:<https://doi.org/10.1016/j.sbspro.2015.03.246>
- Clarke, V., & Braun, V. (2016). Thematic analysis. *The Journal of Positive Psychology*, *1*-2. doi:10.1080/17439760.2016.1262613
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed. ed.). Hillsdale, N. J: Laurence Erlbaum.
- Collier-Meek, M. A., Fallon, L. M., & Gould, K. (2018). How Are Treatment Integrity Data Assessed? Reviewing the Performance Feedback Literature. *School Psychology Quarterly*, *33*(4), 517-526. doi:10.1037/spq0000239
- Connally, E. L., Ward, D., Howell, P., & Watkins, K. E. (2014). Disrupted white matter in language and motor tracts in developmental stuttering.(Author abstract). *Brain and Language*, *131*, 25.
- Constantino, C. D., Manning, W. H., & Nordstrom, S. N. (2017). Rethinking covert stuttering. *Journal of Fluency Disorders*, *53*, 26-40. doi:10.1016/j.jfludis.2017.06.001
- Cooke, K., & Millard, S. K. (2018). The Most Important Therapy Outcomes for School-Aged Children Who Stutter: An Exploratory Study. *American Journal of Speech-Language Pathology*, *27*(3s), 1152-1163. doi:10.1044/2018\_ajslp-odc11-17-0195
- Cox, W. M., & Klinger, E. (2004). *Handbook of Motivational Counseling: Concepts, Approaches, and Assessment*: John Wiley & Sons, Ltd.
- Craig, A. (2014). Major controversies in Fluency Disorders: Clarifying the relationship between anxiety and stuttering (Vol. 40, pp. 1-3).
- Craig, A., & Andrews, G. (1985). The Prediction and Prevention of Relapse in Stuttering: The Value of Self-Control Techniques and Locus of Control Measures. *Behavior Modification*, *9*(4), 427-442. doi:10.1177/01454455850094002
- Craig, A., Blumgart, E., & Tran, Y. (2009). The impact of stuttering on the quality of life in adults who stutter. *Journal of Fluency Disorders*, *34*(2), 61-71. doi:10.1016/j.jfludis.2009.05.002
- Craig, A., Blumgart, E., & Tran, Y. (2011). Resilience and Stuttering: Factors that Protect People from the Adversity of Chronic Stuttering. *Journal of Speech, Language, and Hearing Research*, *54*(6), 1485-1496. doi:10.1044/1092-4388(2011/10-0304)
- Craig, A., Hancock, K., Tran, Y., & Craig, M. (2003). Anxiety levels in people who stutter: a randomized population study. *Journal of Speech, Language, and Hearing Research*, *46*(5), 1197.
- Craig, A., & Tran, Y. (2014). Trait and social anxiety in adults with chronic stuttering: conclusions following meta-analysis. *Journal of Fluency Disorders*, *40*, 35-43. doi:10.1016/j.jfludis.2014.01.001
- Curlee, R. F., & Siegel, G. M. (1997). *Nature and treatment of stuttering: New directions* (2nd ed. ed.). Boston, Mass: Allyn and Bacon.
- Davidow, H. D., & Scott, K. A. (2017). Intrajudge and Interjudge Reliability of the Stuttering Severity Instrument-Fourth Edition *American Journal of Speech-Language Pathology*, *April 2017*, 1-15.
- Davies, C. D., Niles, A. N., Pittig, A., Arch, J. J., & Craske, M. G. (2015). Physiological and behavioral indices of emotion dysregulation as predictors of outcome from cognitive behavioral therapy and acceptance and commitment therapy for anxiety. *Journal of Behavior Therapy and Experimental Psychiatry*, *46*, 35-43. doi:<https://doi.org/10.1016/j.jbtep.2014.08.002>
- De Nil, L. F., & Kroll, R. M. (1995). The relationship between locus of control and long-term stuttering treatment outcome in adult stutterers. *Journal of Fluency Disorders*, *20*(4), 345-364. doi:[https://doi.org/10.1016/0094-730X\(95\)00024-2](https://doi.org/10.1016/0094-730X(95)00024-2)
- Del Re, A. C., Flückiger, C., Horvath, A. O., Symonds, D., & Wampold, B. E. (2012). Therapist effects in the therapeutic alliance–outcome relationship: A restricted-maximum likelihood meta-



- analysis. *Clinical Psychology Review*, 32(7), 642-649.  
doi:<https://doi.org/10.1016/j.cpr.2012.07.002>
- DeVore, K., & Cookman, S. (2009). *The Voice Book. Caring for Protecting, and Improving Your Voice* (1st Ed. ed.). United States of America: Chicago Review Press, Incorporated
- Duncan, B. L., Miller, S. D., Wampold, B. E., & Hubble, M. A. (2010). *The heart and soul of change: Delivering what works in therapy*: American Psychological Association.
- Dures, E. (2012). *Mixed Methods: the Best of Both Worlds?* : Oxford University Press.
- Dures, E., Rumsey, N., Morris, M., & Gleeson, K. (2011). Mixed Methods in Health Psychology: Theoretical and Practical Considerations of the Third Paradigm. *Journal of Health Psychology*, 16(2), 332-341. doi:10.1177/1359105310377537
- Egan, G. (2014). *The skilled helper : a client-centred approach* (10th edition. ed.). Hampshire: Cengage Learning.
- Erickson, S., & Block, S. (2013). The Social and Communication Impact of Stuttering on Adolescents and Their Families. *Journal of Fluency Disorders.*, 38(4), 311-324.
- Euler, H. A., Lange, B. P., Schroeder, S., & Neumann, K. (2014). The effectiveness of stuttering treatments in Germany. *Journal of Fluency Disorders*, 39, 1-11.
- Eustis, E. H., Hayes-Skelton, S. A., Roemer, L., & Orsillo, S. M. (2016). Reductions in experiential avoidance as a mediator of change in symptom outcome and quality of life in acceptance-based behavior therapy and applied relaxation for generalized anxiety disorder.(Report). *Behaviour Research and Therapy*, 87, 188. doi:10.1016/j.brat.2016.09.012
- Fetters, M. D., Curry, L. A., & Creswell, J. W. (2013). Achieving Integration in Mixed Methods Designs- Principles and Practices. *Health Services Research*, 48(6 Pt 2). doi:10.1111/1475-6773.12117
- Field, A. (2018). *Discovering statistics using IBM SPSS Statistics* (5th edition. ed.). Los Angeles: SAGE.
- Flückiger, C., Del Re, A. C., Wampold, B. E., & Horvath, A. O. (2018). The Alliance in Adult Psychotherapy: A Meta-Analytic Synthesis. *Psychotherapy*, 55(4), 316-340. doi:10.1037/pst0000172
- Flückiger, C., Hilpert, P., Goldberg, S., Caspar, F., Wolfer, C., Held, J., & Vīslā, A. (2019). Investigating the Impact of Early Alliance on Predicting Subjective Change at Posttreatment: An Evidence-Based Souvenir of Overlooked Clinical Perspectives. *Journal of Counseling Psychology*, *Advanced online* doi:10.1037/cou0000336
- Flückiger, C., Horvath, A. O., Del Re, A. C., Symonds, D., & Holzer, C. (2015). Importance of working alliance in psychotherapy. *Psychotherapeut*, 60(3), 187-192. doi:10.1007/s00278-015-0020-0
- Fourie, R. J. (2009). Qualitative study of the therapeutic relationship in speech and language therapy perspectives of adults with acquired communication and swallowing disorders. *International Journal of Language and Communication Disorders*, 44(6), 979-999. doi:10.3109/13682820802535285
- Furusetth, A., & Bolstad, M. (2017). *Den terskelen som er størst, det er å øve på å gi faen:En kvalitativ undersøkelse av erfaringer med stammebehandling sett i lys av kontroll og aksept.* . Master thesis
- Institutt for spesialpedagogikk, UiO. Oslo.
- Gast, D. L., & Ledford, J. R. (2014). *Single case research methodology : applications in special education and behavioral sciences* (2nd ed. ed.). New York: Routledge.
- Goldfried, M. R. (1980). Toward the delineation of therapeutic change principles. *American Psychologist*, 35(11), 991-999. doi:10.1037/0003-066X.35.11.991
- Gough, P. M., Connally, E. L., Howell, P., Ward, D., Chesters, J., & Watkins, K. E. (2018). Planum temporale asymmetry in people who stutter. *Journal of Fluency Disorders*, 55, 94-105. doi:<https://doi.org/10.1016/j.jfludis.2017.06.003>
- Greenhalgh, T., Howick, J., & Maskrey, N. (2014). Evidence based medicine: a movement in crisis? *BMJ*, 348, g3725. doi:10.1136/bmj.g3725
- Guitar, B. (2014). *Stuttering: An integrated approach to its nature and treatment* (4th ed. ed.). Philadelphia, Pa: Lippincott Williams & Wilkins.

- Haaland-Johansen, L. (2007). Evidensbasert praksis - av interesse for norsk logopedi? *Norsk Tidsskrift for Logopedi*, 53(2), 5-9.
- Halvorsen, M. S., McLeod, J., Benum, K., & Haavind, H. (2016). Conceptualizing the Complexity of Change in Psychotherapy: The Case of "Cora". *Pragmatic Case Studies in Psychotherapy*, 12(3), 224. doi:10.14713/pcsp.v12i3.1979
- Harley, J. (2015). Bridging the Gap between Cognitive Therapy and Acceptance and Commitment Therapy (ACT). *Procedia - Social and Behavioral Sciences*, 193, 131-140. doi:<https://doi.org/10.1016/j.sbspro.2015.03.252>
- Harris, R. (2013). *Getting unstuck in ACT : a clinician's guide to overcoming common obstacles in acceptance and commitment therapy* Getting unstuck in acceptance and commitment therapy
- Harris, R. (2019). *ACT made simple: An easy-to-read primer on acceptance and commitment therapy* (Second ed.). Oakland, California: New Harbinger Publications.
- Hatcher, R. L., & Gillaspay, J. A. (2006). Development and validation of a revised short version of the Working Alliance Inventory. *Psychotherapy Research*, 16(1), 12-25. doi:10.1080/10503300500352500
- Hayes, S. C. (2005). *Get out of your mind & into your life: The new acceptance & commitment therapy*. Oakland, Calif: New Harbinger Publications.
- Hayes, S. C., Barnes-Holmes, D., & Wilson, K. G. (2012). Contextual Behavioral Science: Creating a science more adequate to the challenge of the human condition. *Journal of Contextual Behavioral Science*, 1(1-2), 1-16. doi:<http://dx.doi.org/10.1016/j.jcbs.2012.09.004>
- Hayes, S. C., Strosahl, K. D., & Wilson, K. G. (2012). *Acceptance and commitment therapy: The process and practice of mindful change* (2nd ed. ed.). New York: Guilford Press.
- Hayhow, R., Cray, A. M., & Enderby, P. (2002). Stammering and therapy views of people who stammer. *Journal of Fluency Disorders*, 27(1), 1-17. doi:[https://doi.org/10.1016/S0094-730X\(01\)00102-4](https://doi.org/10.1016/S0094-730X(01)00102-4)
- Hearne, A., Packman, A., Onslow, M., & Quine, S. (2008). Stuttering and its treatment in adolescence: The perceptions of people who stutter. *Journal of Fluency Disorders*, 33(2), 81-98. doi:<https://doi.org/10.1016/j.jfludis.2008.01.001>
- Helgadottir, F. D., Menzies, R. G., Onslow, M., Packman, A., & O'Brian, S. (2014). Safety Behaviors and Speech Treatment for Adults Who Stutter. *Journal of Speech, Language, and Hearing Research*, 57(4), 1308-1313. doi:10.1044/2014\_JSLHR-S-13-0041
- Herder, C., Howard, C., Nye, C., Vanryckeghem, M., & Herder, C. (2006). Effectiveness of Behavioral Stuttering Treatment: A Systemic Review and Meta-Analysis. *Contemporary Issues in Communication Science and Disorders*, 33(1), 61-73.
- Hoft, R. (2017). *Overføring av behandlingselementer for personer som stammer - Fra logopedkontoret til personens hverdag*. UiO, Oslo.
- Horvath, A., Del Re, A. C., Fluckiger, C., & Symonds, D. (2011). Alliance in individual psychotherapy. *Psychotherapy*, 48(1), 9-16. doi:10.1037/a0022186
- Horvath, A., & Greenberg, L. (1989). Development and Validation of the Working Alliance Inventory. *Journal of Counseling Psychology*, 36(2), 223-230.
- Howells, K., Baluyot, C., & Sønsterud, H. (2018, July 13th to 16th ). *Exploring the relationship between subjective and objective measures of stuttering: OASES-A and SSI-4*. Paper presented at the The Joint World Conference on stuttering and cluttering (IFA, ICA and ISA), Hiroshima, Japan.
- Huinck, W., & Rietveld, T. (2007). The Validity of a Simple Outcome Measure to Assess Stuttering Therapy. *Folia Phoniatrica et Logopaedica*, 59(2), 91-99. doi:10.1159/000098342
- Ingham, R. J., Bothe, A. K., Wang, Y., Purkhiser, K., & New, A. (2012). Phonation interval modification and speech performance quality during fluency-inducing conditions by adults who stutter. *Journal of Communication Disorder*, 45(3), 198-211. doi:10.1016/j.jcomdis.2012.01.004
- Ingham, R. J., Ingham, J. C., & Bothe, A. K. (2012). Integrating functional measures with treatment: A tactic for enhancing personally significant change in the treatment of adults and adolescents

- who stutter. *American Journal of Speech-Language Pathology*, 21(3), 264-277.  
doi:10.1044/1058-0360(2012/11-0068)
- Ingham, R. J., Ingham, J. C., Euler, H. A., & Neumann, K. (2018). Stuttering treatment and brain research in adults: A still unfolding relationship. *Journal of Fluency Disorders*, 55, 106-119.  
doi:10.1016/j.jfludis.2017.02.003
- Iverach, L., Jones, M., Lowe, R., O'Brian, S., Menzies, R. G., Packman, A., & Onslow, M. (2018). Comparison of adults who stutter with and without social anxiety disorder. *Journal of Fluency Disorders*, 56, 55-68. doi:<https://doi.org/10.1016/j.jfludis.2018.03.001>
- Iverach, L., Lowe, R., Jones, M., O'brian, S., Menzies, R. G., Packman, A., & Onslow, M. (2017). A speech and psychological profile of treatment-seeking adolescents who stutter. *Journal of Fluency Disorders*, 51, 24-38. doi:10.1016/j.jfludis.2016.11.001
- Iverach, L., Menzies, R. G., O'Brian, S., Packman, A., & Onslow, M. (2011). Anxiety and Stuttering: Continuing to Explore a Complex Relationship. *American Journal of Speech-Language Pathology*, 20(3), 221-Language Pathology, 2011, Vol.2020(2013), p.2221-2232.  
doi:10.1044/1058-0360(2011/10-0091)
- Iverach, L., & Rapee, R. M. (2014). Social anxiety disorder and stuttering: current status and future directions. *Journal of Fluency Disorders*, 40, 69-82. doi:10.1016/j.jfludis.2013.08.003
- Jørgensen, M., Sønsterud, H., & Reitz, L. (2008). Å bygge bro mellom McGuire-programmet og den logopediske stammebehandlingen. Paper presented at the Nordic Conference on stuttering and cluttering, Nyhavn, Danmark
- Kabat-Zinn, J. (2003). Mindfulness-Based Interventions in Context: Past, Present, and Future. *Clinical Psychology: Science and Practice*, 10(2), 144.
- Karimi, H., Onslow, M., Jones, M., O'Brian, S., Packman, A., Menzies, R., . . . Jelčić-Jakšić, S. (2018). The Satisfaction with Communication in Everyday Speaking Situations (SCCESS) scale: An overarching outcome measure of treatment effect. *Journal of Fluency Disorders*, 58, 77-85.  
doi:<https://doi.org/10.1016/j.jfludis.2018.10.002>
- Kayes, N. M., & McPherson, K. M. (2012). Human technologies in rehabilitation: Who and How we are with our clients. *Disability and Rehabilitation*, 2012, Vol.34(22), p.1907-1911, 34(22), 1907-1911. doi:10.3109/09638288.2012.670044
- Kelly, M. P., Heath, I., Howick, J., & Greenhalgh, T. (2015). The importance of values in evidence-based medicine. *BMC Med Ethics*, 16(1), 69. doi:10.1186/s12910-015-0063-3
- Kerry, R., Eriksen, T. E., Lie, S. A. N., Mumford, S. D., & Anjum, R. L. (2012). Causation and evidence-based practice: an ontological review. *Journal of Evaluation in Clinical Practice*, 18(5), 1006-1012. doi:10.1111/j.1365-2753.2012.01908.x
- Klein, J. F., & Hood, S. B. (2004). The impact of stuttering on employment opportunities and job performance. *Journal of Fluency Disorders*, 29(4), 255-273.  
doi:<https://doi.org/10.1016/j.jfludis.2004.08.001>
- Kroenke, K., Spitzer, R., & Williams, J. (2000). A new measure of depression severity: The PHQ-9. *J. Gen. Intern. Med.*, 15, 78-78.
- Lambert, M. J. (2013). *Bergin and Garfield's handbook of psychotherapy and behavior change* (6th ed. ed.). Hoboken, N.J: Wiley.
- Lambert, M. J., Whipple, J. L., & Kleinstäuber, M. (2018). Collecting and Delivering Progress Feedback: A Meta-Analysis of Routine Outcome Monitoring. *Psychotherapy*, 55(4), 520-537.  
doi:10.1037/pst0000167
- Langevin, M., Kully, D., Teshima, S., Hagler, P., & Narasimha Prasad, N. G. (2010). Five-Year Longitudinal Treatment Outcomes of the ISTAR Comprehensive Stuttering Program. *Journal of Fluency Disorders*, 35(2), 123-140. doi:10.1016/j.jfludis.2010.04.002
- Lawton, M., Haddock, G., Conroy, P., Serrant, L., & Sage, K. (2018). People with aphasia's perception of the therapeutic alliance in aphasia rehabilitation post stroke: a thematic analysis. *Aphasiology*, 32(12), 1397-1417. doi:10.1080/02687038.2018.1441365
- Lawton, M., Sage, K., Haddock, G., Conroy, P., & Serrant, L. (2018). Speech and language therapists' perspectives of therapeutic alliance construction and maintenance in aphasia rehabilitation

- post-stroke. *International Journal of Language and Communication Disorders*, 53(3), 550-563. doi:10.1111/1460-6984.12368
- Levant, R. F., & Hasan, N. T. (2008). Evidence-based practice in psychology.(Author abstract)(Report). *Professional Psychology, Research and Practice*, 39(6), 658. doi:10.1037/0735-7028.39.6.658
- Logan, K. J. (2015). *Fluency disorders*. San Diego, CA: Plural Publishing.
- Low, M. (2017). A novel clinical framework: The use of dispositions in clinical practice. A person centred approach. *Journal of Evaluation in Clinical Practice*, 23(5), 1062-1070. doi:10.1111/jep.12713
- Manea, L., Gilbody, S., & McMillan, D. (2015). A diagnostic meta-analysis of the Patient Health Questionnaire-9 (PHQ-9) algorithm scoring method as a screen for depression. *General Hospital Psychiatry*, 37(1), 67-75. doi:<http://dx.doi.org/10.1016/j.genhosppsy.2014.09.009>
- Manning, W. H. (2010a). *Clinical decision making in fluency disorders* (3rd ed. ed.). Clifton Park, NY: Delmar.
- Manning, W. H. (2010b). Evidence of clinically significant change: the therapeutic alliance and the possibilities of outcomes-informed care. *Semin Speech Lang*, 31(4), 207-216. doi:10.1055/s-0030-1265754
- Manning, W. H. (2010c). Evidence of clinically significant change: the therapeutic alliance and the possibilities of outcomes-informed care. *Semin Speech and Language*, 31(4), 207-216. doi:10.1055/s-0030-1265754
- Manning, W. H., & Beck, J. G. (2013a). Personality dysfunction in adults who stutter: Another look. *Journal of Fluency Disorders*, 38(2), 184-192. doi:10.1016/j.jfludis.2013.02.001
- Manning, W. H., & Beck, J. G. (2013b). The role of psychological processes in estimates of stuttering severity. *Journal of Fluency Disorders*, 38(4), 356-367. doi:<http://doi.org/10.1016/j.jfludis.2013.08.002>
- McCauley, R. J., & Guitar, B. (2010). *Treatment of stuttering: Established and emerging interventions*. Philadelphia: Lippincott Williams & Wilkins.
- McHugh, M. L. (2012). Interrater reliability: the kappa statistic. *Biochemia Medica*, 22(3), 276-282.
- McLeod, J. (2018). *Pluralistic therapy : Distinctive features*. Psychotherapy & counselling distinctive features series, T. F. Group (Ed.)
- Menzies, R. G., O'Brian, S., Onslow, M., Packman, A., St Clare, T., & Block, S. (2008). An Experimental Clinical Trial of a Cognitive-Behavior Therapy Package for Chronic Stuttering. *Journal of Speech, Language, and Hearing Research*, 51(6), 1451-1464. doi:10.1044/1092-4388(2008/07-0070)
- Menzies, R. G., O'Brian, S., Onslow, M., Packman, A., St Clare, T., & Block, S. (2008). An Experimental Clinical Trial of a Cognitive-Behavior Therapy Package for Chronic Stuttering. *Journal of Speech, Language, and Hearing Research*, 51(6), 1451-1464. doi:10.1044/1092-4388(2008/07-0070)
- Menzies, R. G., O'Brian, S., Packman, A., Jones, M., Helgadóttir, F. D., & Onslow, M. (2019). Supplementing stuttering treatment with online cognitive behavior therapy: An experimental trial. *Journal of Communication Disorders*, 80, 81-91. doi:<https://doi.org/10.1016/j.jcomdis.2019.04.003>
- Messenger, M., Onslow, M., Packman, A., & Menzies, R. (2004). Social Anxiety in Stuttering: Measuring Negative Social Expectancies. *Journal of Fluency Disorders: Official Journal of the International Fluency Association*, 29(3), 201-212. doi:10.1016/j.jfludis.2004.06.002
- Miciak, M., Mayan, M., Brown, C., Joyce, A. S., & Gross, D. P. (2018). The necessary conditions of engagement for the therapeutic relationship in physiotherapy: an interpretive description study. *Archives of Physiotherapy*, 8, 3. doi:10.1186/s40945-018-0044-1
- Miller, S. D., Hubble, M. A., Duncan, B. L., & Wampold, B. E. (2010). *Delivering what works: American Psychological Association*.
- Mumford, S. (2011). *Getting causes from powers*. Oxford: Oxford University Press.



- Munder, T., Wilmers, F., Leonhart, R., Linster, H. W., & Barth, J. (2010). Working Alliance Inventory-Short Revised (WAI-SR): psychometric properties in outpatients and inpatients. *Clinical Psychology & Psychotherapy*, 17(3), 231-239. doi:10.1002/cpp.658
- Muus, E. (2018). Lingvistiske faktorer i stamming hos norske talere.
- Neumann, K., Euler, H. A., Zens, R., Piskernik, B., Packman, A., St. Louis, K. O., . . . Finn, P. (2019). "Spontaneous" late recovery from stuttering: Dimensions of reported techniques and causal attributions. *Journal of Communication Disorders*, 105915. doi:<https://doi.org/10.1016/j.jcomdis.2019.105915>
- Nippold, M. (2012). When a School-Age Child Stutters, Let's Focus on the Primary Problem. *Language, Speech & Hearing Services in Schools (Online)*, 43(4), 549-551. doi:10.1044/0161-1461(2012/12-0054)
- Nissen-Lie, H. A., Havik, O. E., Høglend, P. A., Monsen, J. T., Rønnestad, M. H., & Tracey, T. J. G. (2013). The Contribution of the Quality of Therapists' Personal Lives to the Development of the Working Alliance. *Journal of Counseling Psychology*, 60(4), 483-495. doi:10.1037/a0033643
- Nissen-Lie, H. A., Monsen, J. T., & Rønnestad, M. H. (2010). Therapist predictors of early patient-rated working alliance: A multilevel approach. *Psychotherapy Research*, 20(6), 627-646. doi:10.1080/10503307.2010.497633
- Nissen-Lie, H. A., Havik, O. E., Høglend, P. A., Rønnestad, M. H., & Monsen, J. T. (2015). Patient and Therapist Perspectives on Alliance Development: Therapists' Practice Experiences as Predictors. *Clinical Psychology & Psychotherapy*, 22(4), 317-327. doi:10.1002/cpp.1891
- Nola, R., & Sankey, H. (2006). *Theories of Scientific Method : An Introduction*. London, UNITED KINGDOM: Routledge.
- Nordbø, B., Sønsterud, H., & Kirmess, M. (2018). Norske normer for OASES-A -et kartleggingsverktøy for voksne som stammer. *Norsk Tidsskrift for Logopedi*, 64(3), 12-19.
- Nordhassel, A. K. (2017). Overføring av behandlingselementer for personer som stammer - Fra logopedkontoret til personens hverdag.
- Nye, C., Vanryckeghem, M., Schwartz, J. B., Herder, C., Turner, H. M., & Howard, C. (2013). Behavioral Stuttering Interventions for Children and Adolescents: A Systematic Review and Meta-Analysis. *Journal of Speech Language and Hearing Research*, 56(3), 921. doi:10.1044/1092-4388(2012/12-0036)
- O'Brian, S., Jones, M., Packman, A., Menzies, R., & Onslow, M. (2011). Stuttering severity and educational attainment. *Journal of Fluency Disorders*, 36(2), 86-92. doi:10.1016/j.jfludis.2011.02.006
- O'Brian, S., Onslow, M., Cream, A., & Packman, A. (2003). The Camperdown Program: outcomes of a new prolonged-speech treatment model. *Journal of Speech, Language, and Hearing Research*, 46(4), 933.
- O'Brian, S., Packman, A., Onslow, M., & Menzies, R. (2012). Measuring Outcomes Following the Camperdown Program for Stuttering: A Response to Dr. Ingham. *Journal of Speech, Language and Hearing Research (Online)*, 55(1), 310-312.
- Oddli, H. W., & Halvorsen, M. S. (2014). Experienced psychotherapists' reports of their assessments, predictions, and decision making in the early phase of psychotherapy. *Psychotherapy (Chic)*, 51(2), 295-307. doi:10.1037/a0029843
- Oddli, H. W., & McLeod, J. (2016). Knowing-in-Relation: How Experienced Therapists Integrate Different Sources of Knowledge in Actual Clinical Practice. *Journal of Psychotherapy Integration*, 27(1). doi:10.1037/int0000045
- Oddli, H. W., McLeod, J., Reichelt, S., & Rønnestad, M. H. (2014). Strategies used by experienced therapists to explore client goals in early sessions of psychotherapy. *European Journal of Psychotherapy & Counselling*, 16(3), 1-22. doi:10.1080/13642537.2014.927380
- Oddli, H. W., Nissen-Lie, H. A., & Halvorsen, M. S. (2016). Common therapeutic change principles as "sensitizing concepts": A key perspective in psychotherapy integration and clinical research. *Journal of Psychotherapy Integration*, 26(2), 160-171. doi:10.1037/int0000033

- Olsson, I., Mykletun, A., & Dahl, A. A. (2005). The hospital anxiety and depression rating scale: A cross-sectional study of psychometrics and case finding abilities in general practice. *BMC Psychiatry*, 14(5), 46. doi:<http://dx.doi.org/10.1186/1471-244X-5-46>
- Packman, A., & Kuhn, L. (2009). Looking at stuttering through the lens of complexity. *International Journal of Speech-Language Pathology*, 11(1), 77-82. doi:10.1080/17549500802630039
- Plexico, L., Manning, W. H., & Dilollo, A. (2005). A phenomenological understanding of successful stuttering management. *Journal of Fluency Disorders*, 30(1), 1-22. doi:10.1016/j.jfludis.2004.12.001
- Plexico, L., Manning, W. H., & Dilollo, A. (2010). Client perceptions of effective and ineffective therapeutic alliances during treatment for stuttering. *Journal of Fluency Disorders*, 35(4), 333-354. doi:10.1016/j.jfludis.2010.07.001
- Ramnerö, J., & Törneke, N. (2008). *The ABCs of human behavior : behavioral principles for the practicing clinician* ebrary, N. Törneke (Ed.)
- Richardson, J. T. E. (2011). Eta squared and partial eta squared as measures of effect size in educational research. *Educational Research Review*, 6(2), 135-147. doi:10.1016/j.edurev.2010.12.001
- Riley, G. D. (2009). *SSI-4: Stuttering Severity Instrument. Examiners's Manual and Picture Plates* (Fourth ed.). Austin, Texas: Pro-Ed, Inc.
- Riley, J., Riley, G., & Maguire, G. (2004). Subjective Screening of Stuttering severity, locus of control and avoidance: research edition. *Journal of Fluency Disorders*, 29(1), 51-62. doi:<https://doi.org/10.1016/j.jfludis.2003.12.001>
- Rønnestad, M. H. (2008). Evidensbasert praksis i psykologi. *Tidsskrift for Norsk psykologforening*, 45(4), 444-454.
- Sedgwick, P. (2012). The Hawthorne effect. *BMJ (Online)*, 344(8262), 1-2. doi:10.1136/bmj.d8262
- Seo, M. G., Barrett, L., & Bartunek, J. (2004). The role of affective experience in work motivation *Acad. Manage. Rev.* (Vol. 29, pp. 423-439).
- Seo, M. G., Bartunek, J. M., & Barrett, L. F. (2010). The role of affective experience in work motivation: Test of a conceptual model. *Journal of Organizational Behavior*, 31(7), 951-968. doi:10.1002/job.655
- Shapiro, D. A. (2011). *Stuttering intervention: A collaborative journey to fluency freedom* (2nd ed. ed.). Austin, Tex: PRO-ED.
- Shewell, C. (2009). *Voice work : art and science in changing voices*. Chichester: John Wiley and Sons Ltd.
- Siew, C. S. Q., Pelczarski, K. M., Yaruss, J. S., & Vitevitch, M. S. (2017). Using the OASES-A to illustrate how network analysis can be applied to understand the experience of stuttering. *Journal of Communication Disorders*, 65, 1-9. doi:10.1016/j.jcomdis.2016.11.001
- Simmons, B. M. (2011). The Complexity of Evidence-Based Practice: A Case Study. *Smith College Studies in Social Work*, 81(2-3), 252-267. doi:10.1080/00377317.2011.589352
- Spitzer, R. L., Kroenke, K., Williams, J. B. W., & Löwe, B. (2006). A Brief Measure for Assessing Generalized Anxiety Disorder: The GAD-7. *Archives of Internal Medicine*, 166(10), 1092-1097. doi:10.1001/archinte.166.10.1092
- St. Louis, K. O. (2001). *Living with stuttering: Stories, basics, resources, and hope*. Morgantown, W. Va: Populore.
- St. Louis, K. O., Irani, F., Gabel, R. M., Hughes, S., Langevin, M., Rodriguez, M., . . . Weidner, M. E. (2017). Evidence-based guidelines for being supportive of people who stutter in North America. *Journal of Fluency Disorders*, 53, 1-13. doi:<https://doi.org/10.1016/j.jfludis.2017.05.002>
- St. Louis, K. O., & Tellis, G. (2015). *Stuttering Meets Stereotype, Stigma, and Discrimination : An Overview of Attitude Research*. Morgantown: West Virginia University Press.
- Steine, A.-K., & Inglingstad, K. N. (2013). *Å leve med stamming : En analyse av hvordan voksne mennesker som stammer opplever sin livssituasjon*. University of Oslo Oslo.

- Swift, M. C., Langevin, M., & Clark, A. (2017). Using critical realistic evaluation to support translation of research into clinical practice. *International Journal of Speech-Language Pathology*, 19(3), 335-343. doi:10.1080/17549507.2017.1309067
- Sønsterud, H. (2015). PhD-project presentation: Individualized stuttering treatment -what works for whom? *Norsk Tidsskrift for Logopedi*, 3(63), 39.
- Sønsterud, H., Feragen, K. B., Kirmess, M., Halvorsen, M. S., & Ward, D. (2019). What do people search for in stuttering therapy: Personal goal-setting as a gold standard? *Journal of Communication Disorders*, 105944. doi:10.1016/j.jcomdis.2019.105944
- Sønsterud, H., Howells, K., & Baluyot, C. (2017). Individuelle ønsker for oppfølging av stamming: Et kartleggingskjema i det logopediske samarbeidet. *Statped's læringsressurser, Oslo, Norge*.
- Sønsterud, H., Kirmess, M., Howells, K., Ward, D., Feragen, K. B., & Halvorsen, M. S. (2019). The working alliance in stuttering treatment: A neglected variable? . *International journal of language & communication disorders*, 54(4), 606-619. doi:<https://onlinelibrary.wiley.com/doi/10.1111/1460-6984.12465>
- Sønsterud, H., & Løvbakk, J. (2012). Aktiv talepust - et nyttig verktøy i vår stammelogopediske verktøykasse? [Breathing management - a useful tool in the stuttering toolbox for speech-language therapists]. *Norsk Tidsskrift for Logopedi*, 1, 22-24.
- Tate, R. L., Perdices, M., Rosenkoetter, U., Shadish, W., Vohra, S., Barlow, D. H., . . . Wilson, B. (2016). The Single-Case Reporting Guideline In BEhavioural Interventions (SCRIBE) 2016 Statement. *Physical therapy*, 96(7), e1. doi:10.2522/ptj.2016.96.7.e1
- Teasdale, J. D., Segal, Z. V., & Williams, J. M. G. (2003). Mindfulness Training and Problem Formulation. *Clinical Psychology: Science and Practice*, 10(2), 157-160. doi:10.1093/clipsy.bpg017
- Tomaiuolo, D., Del Gado, F., Spinetti, M. G., Capparelli, E., & Venuti, B. (2015). Profiling People who Stutter: A Comparison Between Adolescents and Adults. *Procedia - Social and Behavioral Sciences*, 193, 266-273. doi:10.1016/j.sbspro.2015.03.270
- Torres-Prioris, M. J., López-Barroso, D., Paredes-Pacheco, J., Roé-Vellvé, N., Dawid-Milner, M. S., & Berthier, M. L. (2019). Language as a Threat: Multimodal Evaluation and Interventions for Overwhelming Linguistic Anxiety in Severe Aphasia. *Frontiers in psychology*, 10, 678. doi:10.3389/fpsyg.2019.00678
- Van Lieshout, P., Ben-David, B., Lipski, M., & Namasivayam, A. (2014). The impact of threat and cognitive stress on speech motor control in people who stutter. *Journal of Fluency Disorders*, 40, 93. doi:10.1016/j.jfludis.2014.02.003
- Van Riper, C. (1973). *The treatment of stuttering*. Englewood Cliffs, N.J.: Prentice-Hall.
- Venkatagiri, H. S. (2009). What Do People Who Stutter Want-Fluency or Freedom? *Journal of Speech, Language, and Hearing Research*, 52(2), 500-515. doi:10.1044/1092-4388(2008/07-0019)
- Wampold, B. E. (2015). *The Great Psychotherapy Debate : The Evidence for What Makes Psychotherapy Work* (Second ed.). Hoboken: Taylor and Francis.
- Ward, D. (2018). *Stuttering and Cluttering: Frameworks for Understanding and Treatment* (Second ed.). Oxon, New York: Routledge.
- Wetherell, J. L., Liu, L., Patterson, T. L., Afari, N., Ayers, C. R., Thorp, S. R., . . . Petkus, A. J. (2011). Acceptance and Commitment Therapy for Generalized Anxiety Disorder in Older Adults: A Preliminary Report. *Behavior Therapy*, 42(1), 127-134. doi:<https://doi.org/10.1016/j.beth.2010.07.002>
- Wieten, S. (2018). 'What the patient wants': an investigation of the methods of ascertaining patient values in evidence-based medicine and values-based practice. *Journal of Evaluation in Clinical Practice*, 24(1), 8-12. doi:10.1111/jep.12471
- World Health Organization. (2001). Geneva: World Health Organization.
- Wright, L., & Ayre, A. (2000). WASSP: Wright and Ayre Stuttering Self-Rating Profile. (Vol. 25). Bicester, UK: Winslow Press.
- Yairi, E., & Seery, C. H. (2015). *Stuttering: foundations and clinical applications* (2nd ed. ed.). Boston: Pearson.

- Yaruss, J. S. (2010). Assessing quality of life in stuttering treatment outcomes research. *Journal of Fluency Disorders*, 35(3), 190-202. doi:10.1016/j.jfludis.2010.05.010
- Yaruss, J. S., Coleman, C., & Quesal, R. W. (2012). Stuttering in School-Age Children: A Comprehensive Approach to Treatment. *Language, Speech & Hearing Services in Schools (Online)*, 43(4), 536-548. doi:10.1044/0161-1461(2012/11-0044)
- Yaruss, J. S., & Quesal, R. W. (2004). Stuttering and the International Classification of Functioning, Disability, and Health (ICF): An update. *Journal of Communication Disorders*, 37(1), 35-52. doi:10.1016/S0021-9924(03)00052-2
- 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*, 31(2), 90-115. doi:<http://doi.org/10.1016/j.jfludis.2006.02.002>
- Yaruss, J. S., & Quesal, R. W. (2010). *OASES Manual: Overall Assessment of the Speaker's Experience of Stuttering*. United States of America: NCS Pearson, Inc.
- Zebrowski, P. M., & Kelly, E. M. (2002). *Manual of stuttering intervention*. Clifton Park, N.Y: Singular.
- Zigmond, A. S., & Snaith, R. P. (1983). The Hospital Anxiety and Depression Scale. *Acta Psychiatrica Scandinavica*, 67(6), 361-370. doi:10.1111/j.1600-0447.1983.tb09716.x



## What works for whom? Multidimensional Individualized Stuttering Therapy.

Abstract:

Introduction:

Stuttering can affect individuals in different ways. This study reports outcomes from a stuttering therapy approach that combines value- and awareness-based elements from Acceptance and Commitment Therapy (ACT) with those of stuttering and speech modification interventions. The approach, entitled the *Multidimensional Individualized Stuttering Therapy* (the ‘MIST’-approach), works through the combined clinician and client selection of range of factors across five areas: 1) general breathing patterns and body tension, 2) breathing patterns during speech production, 3) vocal features in speech production, 4) affective and mindfulness-based strategies, and 5) general communication and/or presentation skills.

The aims of this study were to evaluate whether the approach: a) reduces the impact of stuttering and stuttering severity, and b) has a positive impact on overall speaking ability, confidence in communication, avoidance-behavior, and quality of life.

Method:

Eighteen adults, age 21-61 years took part in an A-B-A multiple case study design. Participants underwent a pre-clinic assessment phase, followed by 10 hours of therapy over four therapy sessions administered by an experienced speech-language therapist. Outcome measures that examined both psychological and behavioral aspects of therapy were taken at three-, six- and twelve-months post-therapy.

Results:

The majority of the participants chose elements from at least four of the five areas of focus. There was a significant reduction in the impact of stuttering at both 6- and 12 months post-therapy. At 12 months post-therapy, Cohen’s *d* indicated moderate to very large effect sizes when calculating changes over time. A strong association was found between overall satisfaction with the Multidimensional Individualized Stuttering Therapy and improved

speaking abilities at 6- and 12 months post therapy. Moderate to strong associations were found between the participants' enhanced speaking abilities, confidence in communication, reduction in avoidance behaviors and improved quality of life.

#### Discussion:

Findings indicate that the Multidimensional Individualized Stuttering Therapy can be useful for managing adult stuttering. The findings highlight the importance of personal considerations through flexible therapy approaches that integrate stuttering and speech modification interventions with value- and awareness-based skills. The nature of the multi-dimensional, individualized approach, as shown in this study, means that the relative weighting between the different subcomponents needed to vary from individual to individual.

Keywords: Stuttering, individualized stuttering therapy, stuttering- and speech modification interventions, Acceptance and Commitment Therapy (ACT), therapy outcome

#### Learning outcomes:

- Understand the importance of individually oriented therapy and how this approach can be applied flexibly from client to client.
- Understand the basis of combining stuttering- and speech modification therapy.
- Identify the potential for combining elements from ACT and speech-related approaches.
- Identify the improvements participants experienced based on the Multidimensional Individualized Stuttering Therapy-approach.

Appendix A:

Participants' areas of focus in stuttering management:

Participants	<i>General breathing patterns and body tension</i>	<i>Breathing patterns during speech production</i>	<i>Vocal features in speech production</i>	<i>Affective and mindfulness-based strategies</i>	<i>General communication and/or presentation skill</i>
1	x	x	x	x	x
2	x		x	x	x
3	x	x	x	x	
4	x	x		x	x
5	x	x	x	x	x
6		x	x	x	x
7	x	x	x	x	x
9	x	x	x	x	x
10	x	x			
11	x	x	x	x	x
12	x	x	x	x	x
13	x	x	x	x	
14				x	
15	x	x	x	x	x
16	x	x	x		x
17	x	x	x	x	x
18	x	x	x	x	x
19	x	x	x	x	x

Appendix B:

Stuttering severity ratings (SSI-4, SS% and Total Score) at pre-therapy, immediately post first therapy session, and at 6-, and 12 months post-therapy.

Participants	Pre-therapy		Immediately post first session		6 months post-therapy		12 months post-therapy	
	SS%	Total Score	SS%	Total Score	SS%	Total Score	SS%	Total Score
1	38,8	34,5	4,9	16	6,8	21	28,2	35
2*	18,5	30,5	1,0	4	5,5	17	3,0	18
3	3,8	16	2,1	11	3,8	4	5,3	14
4*	4,4	16	1,9	10	1,6	11	1,8	8
5	18,1	28	10,4	23	16,5	17	11,4	19
6*	1,2	9,5	0,6	4	1,7	9	2,0	8
7*	8,0	25,5	3,1	14	8,8	17	3,2	17
9*	2,9	18	4,2	12	4,2	14	4,0	12
10	26,6	37,5	11,7	34	25,2	37	12,0	35
11	1,3	7,5	0	1	1,2	6	1,0	3
12*	13,5	31,5	9,1	24	12,2	22	5,3	20
13*	2,9	16	0	3	1,2	7	0	4
14	1,2	7	1,1	9	0,7	0	0,5	2
15*	11,8	30,5	3,4	23	2,6	21	0,6	8
16	1,9	11	1,4	5	2,6	4	1,7	7
17	2,8	15,5	0,4	4	2,0	19	1,0	5
18*	1,9	17	4,2	22	4,9	14	4,2	17
19*	3,4	13	0,7	7	2,1	9	1,6	10

\* Participants reporting intensive home-based training.

## Appendix C:

Individual total scores on the WASSP and the OASES-A at pre-therapy, and at follow-ups at 6-, and 12 months post-therapy.

Participants	Pre-therapy		6 months post-therapy		12 months post-therapy	
	WASSP	OASES-A	WASSP	OASES-A	WASSP	OASES-A
1	117	3,58	123	3,35	123	3,37
2*	99	3,14	44	2,02	59	2,31
3	124	3,54	108	2,93	105	3,23
4*	103	3,15	72	2,89	61	2,42
5	72	1,86	53	1,64	80	2,05
6*	109	2,52	60	1,76	73	1,76
7*	71	2,52	55	2,08	62	2,27
9*	113	3,21	91	2,59	77	2,55
10	123	3,41	107	3,22	110	3,32
11	95	2,76	79	2,37	78	2,40
12*	119	2,9	98	2,62	113	2,58
13*	146	3,89	133	3,51	131	3,64
14	82	2,53	63	2,53	74	2,48
15*	99	2,59	63	2,14	63	2,14
16	55	1,63	52	1,71	34	1,40
17	98	2,71	74	2,34	87	2,63
18*	88	3,13	77	2,49	63	2,55
19*	70	1,95	39	1,26	38	1,23

\* Participants reporting intensive home-based training.