Contents lists available at ScienceDirect

# Journal of Fluency Disorders

journal homepage: www.elsevier.com/locate/jfludis

## The Satisfaction with Communication in Everyday Speaking Situations (SCESS) scale: An overarching outcome measure of treatment effect

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#### ARTICLE INFO

Keywords: Stuttering Outcome measure Satisfaction with communication Self-report

## ABSTRACT

*Purpose*: The Consolidated Standards of Reporting Trials (CONSORT) statement strongly suggests one primary outcome for clinical trials, yet the outcomes of stuttering treatments span numerous behavioral and psychosocial domains. That presents a roadblock to eventual meta-analysis of clinical trials for adults who stutter.

*Method:* We propose a simple and convenient outcome measure for clinical trials of stuttering treatment for adults that spans whatever behavioral and psychosocial factors might impel clients to seek treatment: a nine-point scale of Satisfaction with Communication in Everyday Speaking Situations (SCESS). The scale consists of one question which is simple, brief, easy to administer, cost-free, and translatable into many languages. The present report develops the SCESS scale by determining its reliability, content validity, and construct validity.

*Results*: Reliability, content validity, and construct validity of the SCESS were confirmed with statistically significant and substantive correlations with speech-related and anxiety-related measures. However, the SCESS did not correlate well with percentage syllables stuttered. Three behavioral and psychosocial measures had the highest correlation with the SCESS: total Overall Assessment of the Speaker's Experience of Stuttering, self-reported stuttering severity, and Unhelpful Thoughts and Beliefs about Stuttering.

*Conclusion:* The SCESS measure has potential to be applied as an overarching clinical trial outcome measure of stuttering treatment effect. This study provides some preliminary evidence for including it as a primary or secondary outcome in clinical trials of adult stuttering treatments. However, further studies are needed to establish the SCESS responsiveness to different stuttering treatments.

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https://doi.org/10.1016/j.jfludis.2018.10.002

Received 29 November 2017; Received in revised form 29 June 2018; Accepted 10 October 2018 Available online 15 October 2018 0094-730X/ © 2018 Elsevier Inc. All rights reserved.







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## 1. Introduction

#### 1.1. The Consolidated Standards of Reporting Trials (CONSORT) statement

International health care policies universally specify that randomized controlled trials are the gold standard of health care evidence, with the highest attainable level of evidence coming from a systematic meta-analytic review of many such trials (Centre for Evidence Based Medicine, 2009; Cochrane, n.d.; National Health & Medical Research Council, 1999). There is an increasing acceptance of the CONSORT statement as a universal reporting standard for stuttering treatment, as shown in recent comparative trials of stuttering treatment (Arnott et al., 2014; De Sonneville-Koedoot, Stolk, Rietveld, & Franken, 2015; Mallick, Kathard, Thabane, & Pillay, 2018; Murza & Nye, 2009; Onslow, Jones, O'Brian, Menzies, & Packman, 2008).

It is pertinent to stuttering treatment research that the CONSORT statement (CONSORT, 2010) strongly suggests only one primary outcome in a randomized trial, defined as "the pre-specified outcome considered to be of greatest importance to relevant stakeholders such as patients, policy makers, clinicians, and funders". To have more than one primary outcome "incurs the problems of interpretation associated with multiplicity of analyses and is not recommended" and might lead to "selective outcome reporting". The issue that this presents for stuttering treatment research is that outcomes of interest span a range of behavioral and nonbehavioral (psychosocial) domains. However, in addition to one outcome measure, the CONSORT statement states that researchers can use as many secondary outcome measures as needed for the study purpose.

#### 1.2. Behavioral and nonbehavioral stuttering outcome measures

It is well known that adults who stutter can often have complex psychosocial experiences as a result of stuttering, (Craig & Tran, 2014; Iverach et al., 2009; Stein, Baird, & Walker, 1996). Consequently, treatment targets for those clients will be behavioral or nonbehavioral targets, or both. It is possible to do a systematic review of a set of different treatments for adults who stutter, each of which has a different primary outcome dealing with a different treatment altogether. But meta-analysis, which provides an estimate of clinical effect size that is more powerful than those of the individual trials included in the analysis, would not be possible. Tables 1 and 2 demonstrate some examples of the most-frequently used stuttering-related outcome measures that have been used in treatment studies during the last two decades.

#### 1.3. Developing a single overarching stuttering outcome measure

To compare effects sizes obtained with stuttering treatments that have disparate behavioral and nonbehavioral treatment goals, a single overarching measure of outcome is needed. The need for doing so was expressed by Baxter et al. (2015) in a review of stuttering treatment:

The review summarizes evidence from a substantial body of work and indicates the potential for positive outcomes from a range of interventions. It highlights the need to identify key agreed outcomes that should be used both to evaluate and to compare the effectiveness of interventions ... (p. 677).

Ideally, any such outcome measure needs to take account of client needs and to document how the treatment has dealt with the concerns that prompted the client to seek professional help (Baer, 1988). In other words, a measure of what is personally significant to the client (Bothe & Richardson, 2011; Ingham, Ingham, & Bothe, 2012).

Bothe and Richardson (2011) make the point that such information needs to be elicited from clients by questioning and raises the prospect of surveying client satisfaction for that purpose. This notion has been incorporated within stuttering outcome measures to date. Section Four of the Overall Assessment of the Speaker's Experience of Stuttering (OASES) scale (Yaruss & Quesal, 2006) includes four specific items pertaining to "how much does stuttering interfere with your satisfaction with communication ... in general ... at work ... in social situations ...at home". Within the self-report section of the Stuttering Severity Instrument (SSI-4; Riley, 2009) but not included within the composite numerical index is the question "how satisfied are you with the treatment you have received?" with responses from 1 = very satisfied to 9 = very dissatisfied. Huinck and Rietveld (2007) reported a treatment outcome scale that incorporates a measure of speech satisfaction on a 10-point scale from 1 = very bad to 10 = excellent. In addition to including the notion of client satisfaction, an overarching outcome index for chronic stuttering would have additional features that enhance its utility. In order to facilitate its use by clinical researchers who conduct clinical trials, it needs to be brief and easy to administer, with no requisite training or equipment. Its brevity would allow it to be freely available without cost. An issue with commercially available

#### Table 1

Behavioral outcome measures for stuttering.

Percentage syllables stuttered Self ratings of stuttering severity Syllables spoken per minute Speech naturalness	Cream et al., 2010; Erickson et al., 2016; Fry, Botterill, & Pring, 2009; Langevin et al., 2006 Blomgren, Roy, Callister, & Merrill, 2005; Carey et al., 2010; Erickson et al., 2012; O'Brian, Packman, & Onslow, 2008 Carey et al., 2010; Cream et al., 2010; Langevin & Kully, 2012; O'Brian et al., 2008 Block, Onslow, Packman, Gray, & Dacakis, 2005; Cocomazzo et al., 2012 O'Brian et al., 2008; O'Brian et al., 2013
Percentage of words stuttered	Blomgren et al., 2005
Duration of longest stuttering	Fry et al., 2009
Clinically meaningful maintenance	Langevin et al., 2006

#### Table 2

Nonbehavioral	measures	for	stuttering.	

Overall Assessment of the Speaker's Experience with Stuttering	Cream et al., 2010; Erickson et al., 2012; Erickson et al., 2016
Wright and Ayre Stuttering Self-Rating Profile	Fry et al., 2009; Fry, Millard, & Botterill, 2014; Wright & Ayre, 2000
S24 scale	Langevin et al., 2006; Langevin & Kully, 2012
Locus of Control of Behavior	Blomgren et al., 2005; Fry et al., 2014
Perceptions of Stuttering Inventory	Blomgren et al., 2005; Langevin et al., 2006
Situation avoidance	Cream et al., 2010; Erickson et al., 2012
Self Efficacy Scale for Adolescents	Fry et al., 2009; Fry et al., 2014
Beck Depression Inventory	Blomgren et al., 2005; Menzies et al., 2008
Multicomponent Anxiety Inventory	Blomgren et al., 2005; Helgadottir, Menzies, Onslow, Packman, & O'Brian, 2014
State-Trait Anxiety Inventory	Blomgren et al., 2005; Helgadottir et al., 2014
Social Phobia Anxiety Inventory	Helgadottir, Menzies, Onslow, Packman, & O'Brian, 2009
Fear of Negative Evaluation Scale	Helgadottir et al., 2008
Beck Anxiety Inventory	Helgadottir et al., 2014; Menzies et al., 2008
Unhelpful Thoughts and Beliefs About Stuttering,	Helgadottir et al., 2008
Social Evaluation Scale	Helgadottir et al., 2009; Helgadottir et al., 2014
Depression, Anxiety and Stress Scales	Helgadottir et al., 2009

test materials such as the OASES, Wright and Ayre Stuttering Self-Rating Profile (WASSP; Wright & Ayre, 2000) and SSI-4 is that their cost can be seen as an impediment to clinical trials, and their commercial status impedes their widespread use because their translation to many other languages is not commercially viable. Translation to many languages would enable an outcome measure to be used internationally so that treatment effect sizes could be compared for not only different styles of treatments, but treatments conducted within different cultures and health care settings. The time required to administer these measures is another consideration. The WASSP has 26 items, the OASES-A has 100 items, and the SSI-4 takes considerable time to administer because it involves speech transcription and analysis.<sup>3</sup> Another issue with the above measures is that they have not been validated for use as overarching primary measures to compare effect sizes of different stuttering treatments. They have been developed and their content and construct validity have been tested for different purposes such as measuring the impact of stuttering on personal life or assessing behavioral aspects of stuttering. Theoretically, a measure might be valid and relevant to a construct but not for every purpose. For example, a measure that is suitable for screening for a disorder might be unsuitable for use in research settings. Therefore, no such an overarching primary outcome measure has yet been reported to compare effects of different stuttering treatment programs, although some valid and reliable stuttering-related measures are available for other purposes.

## 1.4. The concept of life satisfaction

Life satisfaction has been assumed to be one of the main three components of well-being (Arthaud-Day, Rode, Mooney, & Near, 2005) and also the most appropriate and adequate concept associated with quality of life (Moons, Budts, & De Geest, 2006). Life satisfaction reflects overall evaluation of life (Pavot & Diener, 2008), while domain satisfaction deals with judgment about specific aspects of life, such as occupation (Stubbe, Posthuma, Boomsma, & De Geus, 2005). The relationship between life satisfaction and domain satisfaction is not clearly understood. However, Schimmack and Oishi (2005), comparing different top-down and bottom-up models of satisfaction, concluded that '... domain satisfaction is the most proximal determinants of life satisfaction, and examining the determinants of domain satisfaction can provide important information about the determinants of life satisfaction '(p. 404). Therefore, it seems that measuring satisfaction with communication with those who stutter will provide valuable information about quality of life, and even about their general well-being.

During the last three decades, patient satisfaction measures have been widely reported in diverse fields of health care, including speech-language therapy (Keilmann, Braun, & Napiontek, 2004; Pershey & Reese, 2003).

No generally accepted hypothesis is currently available that describes the underlying process by which people might feel more or less satisfied with treatment in health care settings (Hudak, Hogg-Johnson, Bombardier, McKeever, & Wright, 2004). However, the "overall clinical outcome" hypothesis attributes better clinical outcomes to greater patient satisfaction. "Foresight expectation" and "hindsight expectation" hypotheses attribute satisfaction to fulfilling predicted expectations and receiving better than expected outcomes, respectively (Hudak et al., 2004). Therefore, the client's satisfaction seems highly related to the outcomes that they expected.

## 1.5. The Satisfaction with Communication in Everyday Speaking Situations (SCESS) scale

We propose a nine-point scale where respondents answer a single, simple question: "considering all the issues associated with your stuttering, how satisfied are you with your communication in everyday speaking situations at the present time?" The SCESS scale has 1 = extremely satisfied as the most positive response and 9 = extremely dissatisfied as the most negative response and there

<sup>&</sup>lt;sup>3</sup> We thank an anonymous reviewer for the point made in this sentence.



Considering all the issues associated with your stuttering, how satisfied are you with your communication in everyday speaking situations at the present time?"

Fig. 1. The Satisfaction with Communication in Everyday Speaking Situations (SCESS) scale.

are no descriptors of other scale scores. The scale is presented in Fig. 1 and can be reproduced for use during clinical trial outcome assessment.

The present report develops the SCESS scale by determining its content and construct validity and reliability.

## 2. Method

#### 2.1. SCESS content validity

Content validity is defined as "the degree to which elements of an assessment instrument are relevant to and representative of the targeted construct for a particular assessment purpose" (Haynes, Richard, & Kubany, 1995, p. 238). Therefore, several steps were taken to establish the content validity of the SCESS. First, a comprehensive review of literature published in English was conducted for interventions reporting developmental stuttering interventions, outcome measures of developmental stuttering, as well as reports of people who stutter of opinions on their pervious treatment experiences and their met and unmet expectations. Searches were conducted using the following databases: Web of Science, Elsevier, PubMed, GoogleScholar, and SpeechBITE. Search terms used all relevant combinations of the following terms: stuttering, adults who stutter, treatment, therapy, outcome measure, measurement, evaluation, assessment, questionnaire, scale, inventory, experience, expectation, and need assessment. Potentially relevant articles were screened based on title and abstract, and then relevant information about: (a) advantages and disadvantages of stuttering-related outcome measures, (b) frequently used outcome measures in stuttering reports, and (c) qualitative studies of experience with treatment programs, was obtained. Results were summarized by the first author and sent to the test developers for discussion.

Then, based on the literature review and the experience of the test developers, different editions of the SCESS were developed over almost 6 months and were tested in two pilot studies on a total of 15 adults who stutter (AWS) until the last agreed outcome measure was formulated. The test developers included four speech-language pathologists (SLPs), a clinical psychologist and a biostatistician. Then, the SCESS was sent to a panel of 14 SLPs and clinical psychologists from different universities and clinics, along with a description of its purpose. They were all experts in the field of stuttering. The respondents read an overview of the purpose of the scale and completed six Likert scales dealing with a range of issues about it, including the SCESS's relevance and representativeness to the target construct, its value as a clinical and research measure, the merits of a 9-point scale, and the clarity of the wording. The respondents then had the opportunity to write comments.

Subsequently we conducted a 1-hour group interview with eight of the panel members. That process established that the SCESS question, with some minor revisions,: (1) is relevant to the target construct of satisfaction with communication in everyday speaking situations, (2) is useful for clinic and research settings as an outcome measure, (3) has a viable response format with the nine-point scale, and (4) is worded clearly, accurately, and is easy to understand. We then asked five people affected by stuttering to apply the scale to themselves. Likert scale questioning established that adults who stutter found the wording of the measure to be clear and easy to understand and that they could easily select a number on the scale that pertained to themselves. They also expressed that they had a clear understanding of the wording of the scale, "considering all the issues associated with your stuttering", and they considered all behavioral and nonbehavioral aspects of stuttering while assigning a number for themselves in this scale. One of the present authors and one of the professionals among the independent panel members stuttered and their opinions provided extra evidence from the target population.

#### 2.2. Participants

The study was approved by the Human Ethics Committee of the University of Sydney, and all participants signed a consent form before participation. Participants were 87 adults who stuttered, recruited from Australian university clinics, private speech-language pathology clinics, and self-help groups in order to test the construct validity and reliability of the SCESS. Adults who stutter from all states of Australia were invited and took part in this study. Australian clinicians who worked with AWS were informed about the project and were asked to invite their clients to participate. They were 67 men and 20 women, ages 20–79 years (M = 32, SD = 14), diagnosed as stuttering by self-report and during assessments with their SLPs. This sample size is sufficient to detect an effect size as low as r = .25 with 80% power and  $\alpha = .05$  (Faul, Erdfelder, Lang, & Buchner, 2007). All participants were observed to stutter during this assessment. At the time of the study, 40 of the participants were not seeking professional help for their stuttering and 47 were. From these 47 participants who received treatment for their stuttering at the time of this study, five took part in a smooth speech treatment program, eight received cognitive behavior therapy (CBT), and 14 had concomitant speech restructuring and CBT programs. We could not establish the exact nature of the treatment programs of the other 20 participants who were recruited from different private clinics across Australia. Forty-seven participants were members of a stuttering support group and 40 were not.

## 2.3. SCESS reliability

The 40 participants who had not received any treatment for their stuttering during the present study were approached to complete the SCESS scale again after 2–4 weeks, and 37 participants repeated their assessments. The SCESS scale was embedded in a booklet that contained many other behavioral and nonbehavioral stuttering-related questionnaires on the first occasion; therefore, participants were unlikely to remember their previous ratings on the SCESS at retest time. Both relative and absolute reliability measures were applied to assess test-retest reliability of the SCESS. Test-retest relative reliability was determined with Spearman correlations between the first and second SCESS scores obtained from these 37 participants. Test-retest absolute reliability (also known as agreement) was determined with standard error of measurement (*SEM*), which indicates the maximum likely difference between a hypothetical true measurement and the obtained measurement for 95% of individuals (Atkinson, 2003). Lower *SEM* scores indicate better absolute reliability. The following formula was used to assess *SEM* in this study (Atkinson & Nevill, 1998):

 $SEM = SDpooled \sqrt{(1 - ICC)}$ 

#### 2.4. SCESS construct validity: convergent and divergent validity

Convergent validity was assessed by determining whether moderate to high correlations existed between the SCESS scale and measures appearing to have some overlap with dimensions pertinent to it. Divergent validity was assessed by determining whether no such correlations existed between the SCESS and measures dealing with dimensions apparently unrelated to it. Measures which assess those aspects that have been reported to be conceptually related to stuttering in the previous studies were applied to assess convergent validity. The SCESS scale and various stuttering-related and psychological measures were presented to the 87 participants in a single booklet. The participants received the booklet along with a prepaid envelope and were asked to complete the questionnaires at their convenience and return it to the Research Centre within a week.

Convergent validity was anticipated intuitively with correlations between SCESS scores and the following stuttering-related measures contained in the booklet:

- (1) Mean participant typical and worst self-rated stuttering severity scores, using a 1–9 scale, for eight speaking situations: family member, familiar person, group, stranger, authority figure, telephone, ordering food or drink, and giving a name and address.
- (2) Mean avoidance scores for the above eight speaking situations, using a three-point scale of never, sometimes, and usually.
- (3) OASES-A (Yaruss & Quesal, 2006).
- (4) Unhelpful Thoughts and Beliefs about Stuttering (UTBAS) (Iverach et al., 2011). The UTBAS is a valid and reliable measure used for people who stutter to record the frequency of their unhelpful thoughts and beliefs about stuttering.
- (5) An additional measure to determine convergent validity was:
- (6) Percentage syllables stuttered (%SS) scores from a 10-minute unscheduled telephone call obtained from each participant, based on findings that such measures are representative of %SS scores for an entire day (Karimi et al., 2013). The unscheduled telephone calls occurred around the time that participants completed the booklet. Convergent validity was anticipated intuitively for correlations between SCESS scores and the following psychological measures contained in the booklet:
- (7) Social Phobia Anxiety Inventory (SPAI; Turner, Beidel, & Dancu, 1996). The SPAI is a reliable and valid self-reported measure of social phobia (Rodebaugh, Chambless, Terrill, Floyd, & Uhde, 2000) that considers its somatic, cognitive and behavioral aspects.
- (8) Stait-Trait Anxiety Inventory (STAI; Spielberger, Gorssuch, Lushene, Vagg, & Jacobs, 1983). The STAI is a valid and reliable widely-used self-reported measure of trait anxiety (Spielberger, Reheiser, Owen, & Sydenham, 2004).
- (9) Brief Fear of Negative Evaluation (BFNE; Leary, 1983). The BFNE is a valid and reliable self-reported questionnaire (Oei, Kenna, & Evans, 1991) that indicates the expectation and fear of negative evaluation from others and it has been used in assessment of social anxiety (Turner, McCanna, & Beidel, 1987).
- (10) International Personality Disorder Examination Questionnaire (IPDEQ; Slade, Peters, Schneiden, & Andrews, 1998): Anxious Personality Disorder. The IPDEQ is a screening test for personality disorders.
- (11) Divergent validity, reflected with lower correlations, was anticipated intuitively for SCESS scores and the following psychological measures in the booklet:
- (12) IPDEQ (Slade et al., 1998) other personality disorders besides Anxious Personality Disorder.
- (13) Beck Depression Inventory (BDI-II; Beck, 1996). The BDI aims to assess depression for clients aged between 13-80 years of age.
- (14) University of Rhode Island Change Assessment (URICA; McConnaughy, Prochaska, & Velicer, 1983). The URICA is a screening tool that calculates a readiness to change score by assessing opinions about the need to change.

## 3. Results

#### 3.1. Participants stuttering severity

A Kolmogrov-Smirnov test showed that stuttering severity distribution of the participants was non-normal for %SS (p = .001) and self-rated severity scores (p = .02). This result is similar to what has usually been reported for stuttering populations; stuttering severity distribution is positively skewed, with more speakers with lower %SS and severity rating scores than with higher ones as



Fig. 2. Stuttering severity distribution of the participants.

shown in Fig. 2 (O'Brian, Packman, Onslow, & O'Brian, 2004). The mean %SS score was 4.6 (SD = 5.8, range 0.03–42.3). The mean self-rated severity score was 3.5 (SD = 2.0, range 1–9).

#### 3.2. SCESS reliability

Relative test-retest reliability for the SCESS was Spearman r = .77 (p < .001). Absolute reliability for the SCESS was SEM = 1.75.

#### 3.3. SCESS construct validity

Anticipated convergent validity was found for measures (1)–(9), with moderate to high correlation with SCESS scores, as shown in Table 3, with the exception of a low correlation of .25 for %SS. The Holm–Bonferroni correction method (Holm, 1979) was used to counteract the problem of multiple comparisons and to control the family-wise error rate. The family-wise error rate was stopped at  $\alpha = 0.05$ ; however, all correlations still were found significant. Anticipated divergent validity was found for measures (10)–(12) with low correlations (shown in Table 4), with the exception of a moderate correlation for BDI.

#### 4. Discussion

During randomized controlled trials one primary outcome is desirable (CONSORT, 2010). We argue that a systematic metaanalytic review of many trials can occur if this primary outcome reflects a fundamental treatment gain that overarches all stuttering treatments, supplemented with secondary outcomes reflecting the intended positive behavioral or non-behavioural changes. This paper proposes and evaluates the SCESS as a single overarching measure of treatment effect for adult stuttering treatment that can be incorporated into future meta-analyses of randomized trials. The measure consists of one question which is simple, brief, easy to administer, cost-free, and translatable into many languages. Data were reported for reliability, content validity, and construct validity of the SCESS scores. Content validity of the SCESS was confirmed by both SLPs and those who stutter. The phrase "considering all the issues associated with your stuttering" provides an overarching dimension of satisfaction. We argue that this dimension of clients' lives is their driving clinical complaint (Franic, Bothe, & Bramlett, 2012) and that it is the issue of personal significance to them that propels them to speech clinics for help (Bothe & Richardson, 2011). Those notions transcend whatever behavioral or nonbehavioral issues may underlie stuttering clients seeking treatment, as confirmed by a panel of 14 professional independent SLPs and clinical psychologists, and also five adults who stuttered in this study.

Test-retest relative reliability was found to be acceptable (Paiva et al., 2014), although absolute reliability data showed that it is possible to find up to 1.75 SCESS scale score differences between test and retest scores. Therefore, the SCESS might be reliably used for measurement of group changes, while clinicians might use it more cautiously for detecting small changes within individuals.

Table	3
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Correlations between	SCESS and	measures with	anticipated	convergent validity.
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Mean Typical SR <sup>a</sup>	Mean Worst SR <sup>a</sup>	Avoidance	OASES	UTBAS	%SS	SPAI	STAI	BFNE	IPDEQ Anxious
.65 (p < .001) N=83	.59 (p < .001) N=81	.52 (p < .001) N= 83	.71 (p < .001) N = 84	.63 (p < .001) N = 84	.25 (p = .01) N=87	.63 (p < .001) N = 84	.51 (p < .001) N=83	.47 (p < .001) N=79	.50 (p < .001) N = 82

*Note.* <sup>a</sup> Self-rated stuttering severity scores, using a 1–9 scale, for eight speaking situations: family member, familiar person, group, stranger, authority figure, telephone, ordering food or drink, and giving a name and address.

## Table 4

Correlations	between SCES	S and	measures	with	anticipated	divergent validity	<i>.</i>

IPDEQ Anankastic	IPDEQ Dependent	IPDEQ Paranoid	IPDEQ Schizoid	IPDEQ Dissocial	IPDEQ Impulsive	IPDEQ Borderline	IPDEQ Histrionic	BDI	URICA
.11	.19	.34	.14	.12	.21	.38	.03	.50	.24
(p = .11)	(p = .04)	(p = .001)	(p = .01)	(p = .16)	(p = .03)	(p < .001)	(p = .40)	(p < .001)	(p = .01)
N = 82	N = 82	N = 82	N = 82	N = 82	N = 82	N = 82	N = 82	N=83	N = 84

Consequently, this measure might be more beneficial in research settings rather than in clinic settings. It should be mentioned that the same issue of low absolute reliability has been also previously reported for other frequently used measures of %SS and Severity Rating (Karimi, O'Brian, Onslow, & Jones, 2014) and it is not just pertinent only to the SCESS.

Results of convergent and divergent validity were as anticipated, with the exception of low correlation between SCESS scores and %SS scores during a 10-minute unscheduled conversation. This is consistent with a report by Manning and Beck (2013). They reported that %SS is not significantly associated with anxiety related psychological variables that are known to be involved with stuttering. Similarly, Pollard, Ellis, Finan, & Ramig, 2009) reported that although SpeechEasy did not lessen the frequency of stuttered syllables in their clients, it did reduce their negative experience of stuttering. Results of correlation between self reported stuttering severity and psychosocial measures are intuitive, and consistent with a report by Hum, Rietveld, Wiedijk, and van Lieshout, (2017). On balance, then, using %SS scores as an outcome measure during clinical trials of stuttering treatment is contraindicated by the present results. The present results suggest that self-severity scores are more justifiable as outcomes, because of their convergent validity with the SCESS. That being said, it is essential to acknowledge that there are many contexts in which %SS scores are fundamental to the research question and therefore are essential as a primary or secondary outcome in the case of a clinical trial and as a dependent measure in the case of basic research.

Another unexpected finding was a moderate correlation between BDI and SCESS. Depression and anxiety are commonly comorbid (Barlow, 2002); therefore, it is not surprising that SCESS scores of stuttering participants correlate not only with anxiety scores but also with a measure of depression (Iverach, Menzies, & Menzies, 2014; Iverach et al., 2011; Smith, Iverach, O'Brian, Kefalianos, & Reilly, 2014).

In summary, considering the utility and simplicity of the SCESS measure, this study provides some preliminary evidence for continuing to research it as a primary or secondary outcome in clinical trials of adult stuttering treatments. When used as a primary outcome, the SCESS could be used to compare treatments against no-treatment control groups, to compare treatments against each other, and for experimental clinical research that attempts to identify treatment components that contribute most to satisfaction with communication. If a treatment does not produce positive change on such a scale, regardless of whether its targets are behavioral or nonbehavioral, or both, it would be difficult to assert that it has any value at all. Moreover, we argue that without satisfaction with communication in everyday speaking situations, clients would be unlikely to sustain the results of treatment.

Additionally, the SCESS scale could be used to explore the vexing and well-known issue of post-treatment relapse after speech restructuring treatment for stuttering (Craig, 1998; Cream, O'Brian, Onslow, Packman, & Menzies, 2009). Indeed, it is intuitive that there would be some connection between such failure and SCESS scores. However, further studies are needed to establish the SCESS responsiveness to different stuttering treatments. In particular, research is needed to determine if changes in SCESS from pre-treatment to post-treatment correlate with changes during that period for the behavioral and nonbehavioral measures studied in the present report.

#### Acknowledgements

This research was supported by the National Health and Medical Research Council (Program Grant #633007).

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