

Contents lists available at [ScienceDirect](http://www.sciencedirect.com)

Journal of Fluency Disorders

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

Stuttering generalization self-measure: Preliminary development of a self-measuring tool



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ARTICLE INFO

Keywords:

Stuttering severity
Speech-anxiety
Self-perception
Assessment
Generalization

ABSTRACT

Introduction: Generalization of treatment is considered a difficult task for clinicians and people who stutter (PWS), and can constitute a barrier to long-term treatment success. To our knowledge, there are no standardized tests that collect measurement of the behavioral and cognitive aspects alongside the client's self-perception in real-life speaking situations.

Purpose: This paper describes the preliminary development of a Stuttering Generalization Self-Measure (SGSM). The purpose of SGSM is to assess 1) stuttering severity and 2) speech-anxiety level during real-life situations as perceived by PWS. Additionally, this measurement aims to 3) investigate correlations between stuttering severity and speech-anxiety level within the same real-life situation.

Method: The SGSM initially reported includes nine speaking situations designed that are developed to cover a variety of frequent speaking scenario situations. However, two of these were less commonly encountered by participants and subsequently not included in the final analyses. Items were created according to five listener categories (family and close friends, acquaintances, strangers, persons of authority, and giving a short speech to small audience). Forty-three participants (22 PWS, and 21 control) aged 18 to 53 years were asked to complete the assessment in real-life situations.

Results: Analyses indicated that test-retest reliability was high for both groups. Discriminant validity was also achieved as the SGSM scores significantly differed between the controls and PWS two groups for stuttering and speech-anxiety. Convergent validity was confirmed by significant correlations between the SGSM and other speech-related anxiety measures.

1. Introduction

Stuttering is associated with both motoric and psychological symptoms. The motoric symptoms may include disrupted airflow while speaking (e.g., Peters, Hietkamp, & Boves, 1993), disrupted laryngeal function especially while initiating voice (e.g., Logan, 2003; Viswanath & Rosenfield, 2000), and disrupted oral muscles used to articulate speech sounds (e.g., McClean & Runyan, 2000). Stuttering is also associated with speech or social anxiety (Menzies et al., 2008). Some studies suggest that fear from speaking is associated with the listener's reactions and evaluations of the speaker (e.g., Blumgart, Tran, & Craig, 2010; Klein & Hood, 2004). Numerous studies highlight that PWS demonstrate anxiety however this anxiety is generally restricted to social performance-based speaking situations (Craig & Tran, 2006; Iverach, Menzies, O'Brian, Packman, & Onslow, 2011; Menzies, Onslow, & Packman, 1999;

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<http://dx.doi.org/10.1016/j.jfludis.2017.04.001>

Received 20 June 2016; Received in revised form 11 March 2017; Accepted 26 April 2017

Available online 29 May 2017

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St. Clare et al., 2009; Menzies et al., 2008). Such symptoms can also be found in fluent speakers, but with different rates. According to Wingate (2002) and Van Riper (1982), speakers who do not stutter can present with speech dysfluencies, which may be exacerbated in more stressful speaking situations.

Existing stuttering measures tend to target both the motoric and the psychological components of stuttering. However, these measures collect data pertaining to stuttering in controlled or structured settings (such as in the clinic). Finn (2003) and St Louis (2006) suggested that such procedures may inhibit individuals from exhibiting their real behavior since highly controlled settings abstract them from their natural environments. Hence, it is crucial to observe stuttering and its related behaviors in speaking situations that occur beyond the clinical environment.

Guitar (2014) postulated that standard assessment must occur on both the subjective and objective levels. A subjective assessment includes gathering information, interviewing, and administering some general questionnaires. Here, the clinician can closely observe both speech and attitudes toward stuttering as well as gather qualitative information about the participant's environment. Additionally, this initial assessment serves to establish rapport. An objective assessment, on the other hand, takes place to measure both stuttering and any speech-related anxiety. The outcome from these measures is used to set a baseline and then track the progress during the treatment phase and follow up stages. Assessment targets several aspects of speech, such as frequency, type, duration, and severity of stuttering behavior (e.g., Stuttering Severity Instrument-4, SSI-4, Riley, 2009). Additionally, assessments can target speech naturalness, speech rate, and physical concomitant behaviors (Riley, 2009).

1.1. Incorporating functional measures with treatment

The term *personally significant* has been recently introduced by Bothe and Richardson (2011) to highlight the outcomes that are demonstrably of value to the client undergoing treatment. The authors asserted that it should be up to the client to judge whether or not a treatment can help in reaching desired outcomes. Ingham, Ingham, and Bothe (2012) added that the value of the term centers on the distinction between the clinician's judgment and the client's self-evaluation of the treatment outcome. However, this requires valid and reliable assessment procedures of the treatment outcomes. Kazdin (2011) also raised the issue of clinical significance, and stated:

“The usual way of measuring validity is showing that the scores on a measure correlate with performance elsewhere, but this does not address the matter.. clearly [reflect] a difference that is important in the lives of the clients? How does one know? For some of the measures, such as subjective evaluation, perceiving that there is a difference defines an important change. For other measures, very little assessment work has been completed to show that huge changes on a measure or being closer to a normative sample and further away from a dysfunctional sample has palpably improved the client's everyday functioning” (pp. 319-320).

To date, most stuttering measures do not satisfy Kazdin's (2011) point of view (Ingham et al., 2012). Most existing measures, for both speech and non-speech (attitude) behaviors, are used to reflect treatment outcomes without looking at the connection between the measure itself with treatment from a more functional perspective. Hence, Ingham et al. (2012) emphasized three important elements that should be included in stuttering assessment: functional self-measures, within- and beyond-clinic speaking tasks, and repeated assessments that occur before, during and after treatment.

1.1.1. Functional self-measures

Some studies indicate that PWS can achieve greater fluency after using self-measuring treatment strategies (Finn, 1997; Finn, Howard, & Kubala, 2005). Hence, self-measurement can be an additional component in treatment that can alter the motoric and psychological aspects in stuttering (Cullinan & Prather, 1968; Eve, Onslow, Andrews, & Adams, 1995; Martin & Haroldson, 1992; Onslow, Andrews, & Costa, 1990). For the client, such self-evaluation measures can include stuttering severity, speech naturalness and anxiety level, most commonly evaluated via Likert scales. Ingham et al. (2012) added that self-measurement can be more powerful when both the client and clinician select the targets within treatments. Additionally, it is important to mention the power of self-modeling, which involves the recording and subsequent review of successful (problem-free) performance. Bandura (1997) suggested that self-modeling can improve self-believe, and this in turn can lead to improved fluency outcomes. For example, video self-modeling after speech restructuring treatment was linked with improvements in self-reporting outcomes (Cream et al., 2010; Harasym, Langevin, & Kully, 2015).

1.2. Functional within-clinic and beyond-clinic tasks

A number of studies pertaining to stuttering treatments include both within-clinic and beyond-clinic measures (e.g., Bothe, Davidow, Bramlett, Franic, & Ingham, 2006; Bothe & Richardson, 2011; Curlee, 1993; Ingham & Cordes, 1999; Ingham & Costello, 1984; Ingham & Costello, 1985; Ingham et al., 2012; James, 1981; Jones et al., 2005; Onslow, Costa, & Rue, 1990). However, most of these studies do not provide justification for the selection of the speaking tasks since they assume that collecting samples from random within-clinic and beyond-clinic speaking situations genuinely reflects clinical significance. Hence, Bothe and Richardson (2011) argued that in order to achieve a personally significant outcome, the selection of these tasks should come from the client, rather than being purely researcher – or clinician – driven. The combination of self-measuring and self-selection can provide changes in both dysfluency and related attitudes. Moreover, a number of researchers (e.g., Ingham & Costello, 1984; Ingham & Costello, 1985; Curlee, 1993; Ingham & Cordes, 1999) emphasized the importance of beyond-clinic measurements, as PWS can be more fluent in-clinic, but not beyond-clinic. Other studies found reduced stuttering when treatment techniques were used in beyond-clinical

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