Validity and Reliability of Persian version of WASSP test for adults with stutter

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Abstract

Objectives: An essential need in Iran for the application of stuttering self-rating tools for the people who stutter (PWS) and its conversion into Persian language has encouraged this research to examine the validity and reliability of Wright and Ayre Stuttering Self-Rating Profile (WASSP) test to the benefits of adult Persian-speaking individuals who stutter. WASSP is an excellent tool for assessment and measuring outcomes and a beneficial tool for clinicians and clients as well. So, the purpose of this study is to examine the content validity by some speech and language pathologists in Iran, then to evaluate the reliability of the WASSP test for adult Persian-speaking people with stutter.

Methods and Procedure: The participants were 24 (20 males and 4 females) stutterers who were Persian speaking, 18-30 years old (mean 24 years) with no medical or behavioral problems. 20 skilled Speech-Language pathologists (SLPs) who were independent of the research, participated in the study to evaluate translation and content validity of the test. Cronbach’s alpha coefficients were used to assess internal consistency of items and reliability assessed by estimating Intraclass Correlation Coefficients (ICC) in test-retest study.

Results: Results indicate that ICC for all sub-scales were in 0.76-0.99 and all correlation coefficients among total sub-scales scores at each time of testing in 0.87-0.97 range. Internal consistency coefficients for items of sub-scales at each time of testing were above 0.78 (0.78-0.96).

Conclusions: The Persian version of WASSP test provides a valid and reliable tool to assess the self-rating of stuttering in Persian language and overt and covert aspects of stuttering. SLPs will be able to determine PWS test scores to manage their accurate treatment and future planning.

Key words: Stuttering; Self-rating; WASSP; PWS; Validity Reliability
1. Introduction

Stuttering is one of the most controversial communicative diseases among other disorders. Thus, treatment for such disorder varies according to the therapists’ beliefs (Kotby et al, 2003). The incidence of stuttering is estimated at approximately 4-5% within and a 1% prevalence rate in all cultures (Bloodstein & Bernstein, 2008, Onslow, 2000) with a male to female ratio of 4:1 in adulthood (Ratner et al, 2008). Stuttering typically occurs between the ages of two and five years (Yairi, Ambrose, & Cox, 1996). Stuttering is frequently associated with negative consequences across the lifespan (Blood, 1995, Blood & Blood, 2007). The research shows that stuttering has negative effects on the stuttering adults’ educational life and career. By using a questionnaire Hayhow (2002), for instance, examined the 332 opinions of stuttering adults about the effect of stuttering on their lives, speech therapy and other common treatments and their hopes of speech therapy in future. The results show that the stuttering has had the most negative effect on their lives. It has often been reported that stuttering adults view their speaking as negative, stressful and even terrifying.

One of the most important issues in stuttering is the attitude of stuttering adults toward the stuttering and their way of speech. According to Alport (1935), attitude is the most necessary structure in social psychology. Nevertheless, when the question of attitude is considered in the stuttering adults, we should know that the stuttering is a complex and multidimensional disorder which emerges due to the complex and dynamic interaction of several factors including genetic preparation, ability of motor speech, mood and attitude, language skills, cognition, and other numerous environmental factors. Aspects of this impairment include involuntary speech disruption and associated problems such as embarrassment, frustration, fear, anxiety, shyness, sensitive and social avoidance (Craig et al, 2003). Also, stuttering typically worsens when a stutterer begins to speak to strangers or addresses large audiences or those felt to be his/her superior (Van Riper, 1984). The stuttering problem has been considered as having a different variety of implications (physiological, physical, social, and psychological).

Evidence shows that efficacious speech pathology treatment is available in early childhood (Jones et al, 2005), but, stuttering in adults is much less responsive to an interdisciplinary speech therapy (Craig & Hancock, 2003). A Clinician’s definition of stuttering is extremely important because it provides a basis for the goals of treatment and outcome criteria (Van Riper and Emerick, 1984). Clinicians who treat people who stutter (PWS) often employ formal or informal self-reporting to measure selected aspects of stuttering and track changes during treatment. However, there is an increased interest in self-reporting as a basic measure for the stuttering treatment outcome (Ingham, and Cordes, 1999). Overall, PWS often need to receive more clinical services from the speech and language pathologist side, for they achieve successful results through reliance and trust on clinicians’ knowledge and guidance. The confirmation and supervision of the clinicians’ function is in ASHS’ responsibility. Self-reporting protocols have been used in treatment and research with PWS. Manning (2001) described 51 tests or protocols used to evaluate various aspects of stuttering since 1944. 28 tests out of the whole involved self-reports of teenagers or adults. More recent studies have found self-reporting could be an evaluating source of information with regards to stuttering severity (O’Braim, Packman, & Onslow, 2004). Most of the instruments were multi-dimensional, but some targeted a single factor such as speaking situations related to avoidance (Cooper, 1996). The features which are evaluated are as follows:

- Speaker’s attitudes and feeling, fear/anxiety, avoidance, concealment devices, reaction to stuttering, etc.
- The stuttering measurement which is based on a theoretical structure is of great importance both in clinical intervention and research. Thus, the measurement tools provide some information about the individuals’ stuttering in different places and times. Naturally, the discords in how the stuttering happens, leads to how the measurement takes place. Therefore, Stuttering measurements are paramount in both clinical interventions and research, and include: (1) tools for observable features, for example, University of IOWA Scale for rating severity of stuttering (Johnson and Spriestersbach, 1963), Sherman-Lewis Scale (D. Lewis and Sherman, 1951, Sherman, 1963), Stuttering Severity Instrument (SSI-3 & SSI-4) (Riley, 1972, 2009), etc. (2) tools for intrinsic features, for example, Perception Stuttering Inventory (PSI)( Woold, 1967), S-24 Scale (Andrews & Cutler, 1974; Erickson, 1969), State-Trait Anxiety Inventory(STAI) (Spielberger, 1983), Endler Multidimensional Anxiety State-Trait (EMAS-T) (Edward, & Vitelli, 1989), WASSP (Wright & Ayre, 2000), Unhelpful Thoughts and Beliefs about Stuttering (UTABS) (St Clare, 2009), Communication Attitude Test-Revised (CAT-R) (Brutten, DeNl, 1991) and Overall Assessment of the Speaker’s Experience of Stuttering (OASES) (Yaruss & Quesal, 2006). Also the Wright & Ayre Stuttering Self-Rating Profile (WASSP) is a client-completed, standardized instrument. It is said to be the first instrument to attempt to describe aspects of the whole disorder (Ayre & Wright, 2000). WASSP addresses the overt, covert and social dimensions of stuttering, resulting in changes which are specific to each individual client. It consists of five reliable sub-scales:

- **Stuttering behaviours**: Frequency of stutters, physical struggle during stutters, duration of stutter, uncontrollable stutters, urgency/fast speech rate, associated facial/body movements, general level of physical tension, loss of eye contact;

- **Thoughts about stuttering**: Negative thoughts before speaking, negative thoughts during speaking, negative thoughts after speaking;
Feelings about stuttering: Frustration, embarrassment, fear, anger, helplessness;
Avoidance due to stuttering: Of words, of situations, of talking about stuttering with others, of admitting the problem to yourself;
Disadvantage due to stuttering: At home, socially, educationally, at work. This instrument was designed to measure change over time and to facilitate the setting of clinical goals. The purpose of this study is to examine the content validity by some speech and language pathologists in Iran, then to evaluate the reliability of the WASSP test for adult Persian-speaking people with stutter.

2. Methods
2.1. Translation process
First, the text of the WASSP was translated into Persian by the researcher. Translation validity was evaluated by 20 expert speech therapists twice for adaptation with original text. Finally, after receiving experts’ comments, the Persian version of WASSP was finalized and was used for the study.

2.2. Participants
The participants were 24 (20 males and 4 females) stutterers who were Persian speaking, and they were 18-30 years old (mean 24 years) with no medical or behavioral problem. Also, 20 skilled Speech - Language pathologists (SLP?) who were independent of the research, participated in this study as judges.

2.3. Procedure
The WASSP test was used for the assessment of all subjects. The WASSP uses a 7-point Likert scale (1) indicates: none and (7) indicates: very severe, for 24 items (plus two optional items) in the domains of: Stuttering behaviors (8 items), thoughts about stuttering (3 items), feeling about stuttering (5 items), avoidance due to stuttering (4 items), and disadvantages due to stuttering (4 items). The client completes a rating sheet with a highlighter pen. All subjects were assessed three times: after personal interview, after 10 days, and after 1 month interval. So, the self-rating sheet identifies the following: stuttering behaviours, thoughts about stuttering, feelings about stuttering, avoidance due to stuttering and disadvantage due to stuttering.

2.4. Statistical analysis
Internal consistency of items were assessed by Cronbach’s alpha coefficient. Reliability was assessed by estimating Intraclass Correlation Coefficient (ICC) in test-retest study.

2.5 Content validity
Content validity assessment was based on judgment of experts. Lawshe’s content validity ratio (CVR,1975) that includes a three-point scale (essential, useful, not necessary) was used. To ensure content validity of Persian version of WASSP, 20 speech therapists who were working in medical sciences universities and clinical centers were involved. Content validity was established through responses of speech therapists to items of sub-scales of test,twice. Finally, the CVR’s score for WASSP test was computed resulting 1. According to Lawshe’s recommendations, this result demonstrates extremely good content validity of scoring.

2.6 Reliability
Issues of reliability are important in treating efficacy of studies. Assessment of test-retest reliability was conducted to ensure the stability of responses to WASSP test on 24 adults who were suffering stutter. They completed the WASSP test three times: after personal interview, after 10 days, and after 1 month. Intraclass Correlation Coefficients (ICC) were estimated to determine the relationship among taken participants’ scores. Reliability of subscales were evaluated by Pearson’s correlation coefficient among total scores of subscales among the three repeats. Cronbach’s alpha coefficient was used to assess internal consistency of items.

3. Results and Outcomes
Test-retest reliability results showed high reliability in sub scales. All Intraclass Correlation Coefficients (ICC) of total subscales were in range 0.76-0.99, with most of them above 0. 94 (p<0.032) (Table1 - next page). All correlations of total subscales between Time 1 - Time 2, Time 2 - Time 3 and Time 1 - Time 3 were in the range (0.87-0.97) with most of them above 0.87, for example in sub-scale of stuttering behaviours were 0.97, 0.95 and 0.92 respectively (Table 2). Cronbach’s alpha coefficients were calculated for assessing internal consistency of items in each of the testing times separately. All alpha coefficients were in the range 0.78-0.96; the majority were above 0.89, demonstrating high levels of internal consistency of items in sub-scales indicating that items in each sub-scale are measuring related aspects of stuttering (Table3).

4. Conclusions and Implications
This study was conducted with the purpose of providing an instrument for both client and therapist to gain greater insight into what has changed and any implications in stuttering therapy, as illustrated in Tables 1- 4 (ICC, internal consistency and item analysis). Therefore, the results of this measure were considered in terms of the clinical significance for adults who stutter. It is one way of measuring change and planning future management. Hence, the present Persian version of WASSP test can also be conducted at the beginning, in the process, and the end of treatment protocols for stuttering. On the other hand, it is likely that Persia’s WASSP test will be useful in diagnosis and treatment for adult Persian-speakers with stutter. Therefore, these results show extremely acceptable scoring reliability. Participants scoring also demonstrated that each sub-scale
Table 1: Intraclass correlation coefficients (ICC) for subscales

<table>
<thead>
<tr>
<th>Sub-scale</th>
<th>ICC</th>
<th>P-value</th>
<th>CI 95% Lower</th>
<th>CI 95% Upper</th>
</tr>
</thead>
<tbody>
<tr>
<td>Behaviours</td>
<td>0.97</td>
<td>&lt;0.001</td>
<td>0.94</td>
<td>0.98</td>
</tr>
<tr>
<td>Thoughts</td>
<td>0.88</td>
<td>&lt;0.023</td>
<td>0.76</td>
<td>0.94</td>
</tr>
<tr>
<td>Feeling</td>
<td>0.97</td>
<td>&lt;0.001</td>
<td>0.94</td>
<td>0.98</td>
</tr>
<tr>
<td>Avoidance</td>
<td>0.97</td>
<td>&lt;0.001</td>
<td>0.95</td>
<td>0.99</td>
</tr>
<tr>
<td>Disadvantage</td>
<td>0.89</td>
<td>&lt;0.032</td>
<td>0.72</td>
<td>0.92</td>
</tr>
<tr>
<td>Total</td>
<td>0.93</td>
<td>&lt;0.018</td>
<td>&lt;0.011</td>
<td>&lt;0.14</td>
</tr>
</tbody>
</table>

(all significant at p<0.05)

Table 2: Correlations between scores at each time of testing

<table>
<thead>
<tr>
<th>Sub-Scale</th>
<th>Time 1-time2</th>
<th>Time 2-time3</th>
<th>Time1-time3</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Behaviours</td>
<td>0.97</td>
<td>0.95</td>
<td>0.92</td>
<td>P&lt;0.001</td>
</tr>
<tr>
<td>Thoughts</td>
<td>0.97</td>
<td>0.88</td>
<td>0.87</td>
<td>P&lt;0.025</td>
</tr>
<tr>
<td>Feelings</td>
<td>0.97</td>
<td>0.96</td>
<td>0.92</td>
<td>P&lt;0.001</td>
</tr>
<tr>
<td>Avoidance</td>
<td>0.94</td>
<td>0.95</td>
<td>0.94</td>
<td>P&lt;0.001</td>
</tr>
<tr>
<td>Disadvantage</td>
<td>0.93</td>
<td>0.90</td>
<td>0.88</td>
<td>P&lt;0.042</td>
</tr>
</tbody>
</table>

Table 3: Cronbach’s Alpha coefficients of sub-scales for each time of testing

Table 4: Range of correlations in item analysis for each sub-scale

<table>
<thead>
<tr>
<th>Sub-Scale</th>
<th>Time1*</th>
<th>Time2*</th>
<th>Time3*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Behaviours</td>
<td>0.71-0.91</td>
<td>0.63-0.91</td>
<td>0.61-0.90</td>
</tr>
<tr>
<td>Thoughts</td>
<td>0.94-0.97</td>
<td>0.95-0.96</td>
<td>0.75-0.86</td>
</tr>
<tr>
<td>Feelings</td>
<td>0.77-0.94</td>
<td>0.87-0.97</td>
<td>0.73-0.95</td>
</tr>
<tr>
<td>Avoidance</td>
<td>0.64-0.95</td>
<td>0.61-0.94</td>
<td>0.72-0.93</td>
</tr>
<tr>
<td>Disadvantage</td>
<td>0.62-0.97</td>
<td>0.61-0.90</td>
<td>0.62-0.86</td>
</tr>
</tbody>
</table>

*all significant at 0.05 level

5. Discussion

As it has been mentioned earlier, there are different tools for stuttering measurement particularly in examining the intrinsic features, though this study has been only done in WASSP test domain. The main purpose of this study is to investigate the validity and reliability of the WASSP test for adult Persian-speakers with stutter. WASSP consists of five internally reliable sub-scales that together address the overt, covert and social dimensions of stuttering (Wright & Ayre, 2000). Results of Wright & Ayre’s (2000) study described in the self-rating on stuttering measurement, supports our findings that imply high reliability of the Persian version of WASSP. It seems likely that WASSP could be considered as a highly acceptable tool for the assessment and measuring in persons with stutter. Such values could be considered highly beneficial for speech and language therapists in their clinical practices. Since the range of correlation in the item analysis confirms findings the item analysis for each sub-scale, such values could be considered highly beneficial for speech and language therapists in their clinical practices. Naturally, it is predicted that the successive evaluations of the patients’ stuttering should have the following cases:
It should explore an organized continuation and strengthen the patients’ motivation toward the treatment continuance. It causes the patient to adopt a rational attitude toward the stuttering (acceptance of stuttering) and consider it as a big deal. It causes the decreasing of the verbal and non-verbal associated behaviors while speaking. It causes the patient to adopt a positive attitude and satisfaction in the developing changes. It causes the enhancing of interactions and communicative skills with others. Therefore, it is suggested that from now on Iranian clinicians use the WASSP test in the preliminary and final stages of stuttering treatment in their evaluation and treatment of the stuttering adults, with full seriousness.

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References


