

How Parental Reactions Differ Toward Early Stuttering: A Turkish Validation Study of the Responses to Speech Disfluency Scale

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Cite this article as: Yaşar Ö, Özdemir Ş. How parental reactions differ toward early stuttering: A Turkish validation study of the responses to speech disfluency scale. *Arch Health Sci Res.* 2023;10(2):77-80.

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ABSTRACT

Objective: The identification of parental reactions toward stuttering is significant in the assessment and intervention process of fluency disorders. Despite a growing body of research including parents of children who stutter, there is still a lack of instruments that assess parental reactions. This study aims to adapt the Responses to Speech Disfluency Scale into Turkish to make it available for use among clinicians including speech and language therapists, psychiatrists, and allied health professionals working with children who stutter.

Methods: The sample included 49 mothers and 51 fathers (100 in total) who had children who stutter. The mean age values of mothers and fathers were 35.14 (standard deviation = 5.33) and 38.64 (standard deviation = 5.50) years, and their children who stutter were 67.46 months (standard deviation = 16.91). In the adaptation process of Responses to Speech Disfluency Scale, various validity and reliability analyses were conducted. The data were analyzed through Statistical Package for the Social Sciences.

Results: The findings showed that the reactions in the emotional domain were significantly greater among mothers than fathers ($P < .05$). There was a positive and significant correlation between domain and total scale scores ($P < .001$ for all domains). The Cronbach alpha and test-retest reliability values of the total scale demonstrated excellent reliability.

Conclusion: The psychometric properties of the Turkish version of the scale show that it is linguistically and culturally appropriate to be used within clinical practice.


Keywords: Stuttering, parental reactions, adaptation, RtoSDS, Turkish

Introduction

Stuttering is defined as a speech disorder primarily characterized by involuntary dysfluencies including repetitions, prolongations, and/or blocks. The prevalence of stuttering is estimated to be 1% in the population, and the onset could be as early as 2 years. It is a multifactorial disorder encompassing physical, cognitive, linguistic, emotional, and social components. The emotional and social components of stuttering extend beyond the children who stutter (CWS), including parental members and siblings.¹⁻³ More specifically, parents might hold negative emotions against stuttering such as anger, sadness, anxiety, frustration, and self-accusation.⁴⁻⁹ The anxiety levels of parents might show a significant increase in later periods as they are concerned about their children's success at school, future life, social relationships, and self-confidence.¹⁰ They might experience difficulties in managing the emotional reactions of their CWS.⁶ These difficulties persist in the school-age period where CWS report that their parents are less attached to them, show less affection, and interrupt more during their moments of stuttering.¹¹

As reported by parents, CWS might experience frustration related to dysfluencies, withdraw from situations where they are expected to interact with individuals and show avoidance, and decrease their number of utterances.⁷ As CWS spend most of their time with their parents (especially during pre-school years), both maternal and paternal reactions might potentially affect the child's psychosocial well-being as indicated by the adults who stutter themselves.¹² In a similar vein, Simić-Ruzić and Jovanović¹³ reveal that CWS experience distressing emotional environment due to a lack of familial management.

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Received: July 31, 2022
Accepted: November 30, 2022
Publication Date: June 26, 2023

Despite a growing body of research on parents in fluency disorders, there are only 3 studies conducted so far including Turkish-speaking parental members with CWS.^{4,14,15} Using various instruments (such as State-Trait Anxiety Inventory, Parental Attitude Research Instrument, and others), these studies report that the parents of CWS have higher anxiety levels compared to those of the control group,⁴ mothers of CWS exhibit greater control over their CWS, and also expect obedience from them when compared to parents with children who do not stutter,¹⁴ the parents of CWS have high levels of resilience together with moderate levels of perceived social support and anxiety.¹⁵

All of these studies indicate that parents are predominantly concerned about stuttering. Therefore, especially during the assessment, it is suggested that parents need to be informed about stuttering and involved in the intervention process. In this direction, they need to be desensitized, their anxiety to be diminished, and their awareness to be raised in terms of embracing the idea that stuttering should not be avoided.^{3,16} This is especially relevant for the identification of various reactions toward stuttering among parents.^{10,16} Responses to Speech Disfluency Scale (RtoSDS) was developed to address this need of assessing parental reactions to stuttering. The RtoSDS examines these reactions within 3 domains including cognitive, behavioral, and emotional. It is a self-report scale developed in Polish¹⁷ and adapted to Persian.¹⁸ Regarding the Polish version, the Cronbach alpha (CA) coefficient was reported to be high ($\alpha = 0.74$).¹⁷ Following the Persian adaptation, the content validity ratio was calculated, indicating that the adapted version was linguistically and culturally appropriate. The CA coefficient was excellent ($\alpha = 0.94$). The intra-class correlation coefficient was computed to examine the test-retest reliability which indicated excellent reliability (0.98). The mean values of maternal reactions in the emotional domain were significantly higher than those of fathers. Considering the total scale scores and those in the emotional domain, the scores of the parents with girls who stuttered were statistically higher than those with males.¹⁸

Considering previous literature, this study aims to adapt the RtoSDS into Turkish by determining its psychometric properties and examining whether maternal and paternal reactions to stuttering differ or not. It also aims to make this scale available to Turkish-speaking speech and language therapists (SLTs) working with CWS.

METHODS

Participant Information

The RtoSDS was adapted for Turkish-speaking population. Purposive sampling was utilized in the participant selection. G*Power (version 3.1.9.6) was used to calculate the optimal sample size ($d=0.94$, $CI=0.90$). The sample included 49 mothers and 51 fathers (100 in total) who had CWS. The inclusion criteria for the parents were (i) being over 18 years of age, (ii) speaking Turkish as their native language, and (iii) being volunteer to take part in the study. The inclusion criteria for the CWS were (i) being between 3 and 7 years old, (ii) having the diagnosis of stuttering by the SLT through a dysfluency rate higher than 3%,¹⁹ and (iii) lack of any concomitant behaviors accompanying stuttering. Regarding the identification of dysfluency rates, the number of stuttered syllables was obtained during spontaneous speech and reading. The following formula was used to calculate the dysfluency rate: $\text{Dysfluent syllables (\%)} = ((\text{number of dysfluent syllables}) / (\text{number of all syllables})) \times 100$. The diagnosis of stuttering was given by SLTs working in the Center of Speech and Language Disorders at Ondokuz Mayıs University. The administration of the scale took place in this Center.

The mean age values of mothers and fathers were 35.14 (standard deviation (SD)=5.33; range=27-50 years old) and 38.64 (SD=5.50;

range=28-53 years old), respectively. The mean education values of the participants were 11.71 years (SD=3.95) for mothers, 12.27 years (SD=3.65) for fathers. Table 1 reports the demographic information of the participants and their CWS.

Prior to the administration of the scale, ethical approval was granted by the Institutional Review Board of the Ondokuz Mayıs University (Date: April 16, 2021, Protocol no. 2021-188). The original authors of the scale gave permission to adapt the test through e-mail correspondence. The paper version of the scale was used in the administration. The participants were individually informed about the study, including its content, expectations from the participants, and their potential contributions by filling out the scale. In the following, they gave informed consent to take part in the study. The participants did not receive any financial compensation following the administration.

Instrument

Responses to Speech Disfluency Scale

The scale is a self-report instrument and includes 30 three-point Likert items. There is an additional item requesting the parental members to assess the stuttering severity of their CWS (including "mild, moderate, severe, and very severe"); however, it is not included in the scoring. The RtoSDS assesses parental reactions to stuttering under 3 domains: cognitive, behavioral, and emotional. Item numbers 1, 4, 7, 10, 13, 16, 19, 22, 25, and 28 belong to the cognitive domain; 2, 5, 8, 11, 14, 17, 20, 23, 26, and 29 are part of behavioral domain; and the rest of the items (including 3, 6, 9, 12, 15, 18, 21, 24, 27, and 30) refer to the emotional domain. Three responses are given to the items: Yes, Not Sure, and No. Each response to Yes, Not Sure, and No is scored as 2, 1, and 0, respectively. The maximum score derived out of each domain is 20 (60 in total). As the score rises, the reactions to stuttering become more negative.¹⁷

Statistical Analysis

In the Turkish validation of RtoSDS, validity (content and construct) and reliability (internal consistency and test-retest reliability) of the scale were explored. As part of the construct validity, the correlation between the total test and 3 domain scores was examined, and the Pearson correlation coefficient was calculated. The internal consistency of the scale was examined by calculating the CA coefficients. Also, the test was administered twice to the same participants ($n=20$) at a 2-week interval. Then, the Spearman correlation coefficient values between these administrations were calculated. Finally, the mean scale scores of the parental members were compared through independent sample *t*-tests by considering the gender of the parental member (mother and father) and the child (girl and boy who stuttered). The skewness and kurtosis values of the data showed that the data exhibited normal distribution. Except for test-retest reliability (where a nonparametric Spearman's rank correlation coefficient was used), parametric tests were utilized in data analysis through IBM Statistical Package for the Social Sciences 26.0 version. The statistical level of .05 was accepted while testing significance.

Table 1. Demographic Characteristics of CWS and Their Parental Members

Participants	Gender	N	Age (SD)	Education (Years)		
				5-8	12	14-18
Parental members	Mother	49	35.14 years (5.33)	14	17	18
	Father	51	38.64 years (5.50)	11	20	20
	Total	100	36.93 years (5.67)			
CWS	Male	68	70.26 months (15.96)			
	Female	32	61.50 months (17.59)			
	Total	100	67.46 months (16.91)			

CWS, children who stutter; SD, standard deviation.

RESULTS

During the examination of content validity, the procedures on scale adaptation presented by World Health Organization were adopted.²⁰ Initially, the scale was translated into Turkish (English to Turkish) by an expert translator who was proficient in both languages. The items translated into Turkish were examined carefully by 8 SLTs who rated each item between 1 and 4 to report to what extent they agreed on the linguistic and cultural equivalence of the items (1=the item is inappropriate; 2=the item needs major revision; 3=the item needs minor revision; 4=the item is appropriate). The content validity index (CVI) was calculated out of the scoring on the translated items. The CVI value was 1.00 as all the SLTs reported that the items were appropriate. The scale was then sent out to another expert translator both proficient in English and Turkish for back-translation (Turkish to English). In the initial and final translation phases of the scale, the expert translators were not informed and aware of the Turkish and English versions of the scale. Then, the final version of the scale was prepared and administered to 10 parents as a pilot study. These participants reported that the scale was clear and comprehensible, stating that they filled out the scale without any difficulty.

As part of the construct validity, the correlation between domain and total scores was observed to be positive and statistically significant among all the domains ($r=0.850$, $P < .001$ for cognitive; $r=0.904$, $P < .001$ for behavioral; $r=0.699$, $P < .001$ for emotional).

Regarding the reliability analyses, the CA coefficient value of the scale was 0.909. The CA values of the domains were the following: 0.854 (cognitive), 0.852 (behavioral), and 0.809 (emotional). Also, the Spearman correlation coefficient values of administering the scale twice at a 2-week interval were positive and statistically significant ($r_s=0.736$, $P < .001$ for cognitive, $r_s=.846$, $P < .001$ for behavioral, $r_s=.811$, $P < .001$ for emotional, and $r_s=0.942$, $P < .001$ for total score).

The reactions in the emotional domain were significantly greater among mothers than fathers ($t_{(98)}=2.059$; $P < .05$) (Table 2). In addition, the scores of the parental reactions did not differ significantly according to the gender of the CWS (Table 3).

DISCUSSION

This study reported the psychometric properties of the RtoSDS-TR. Regarding validity analyses, the content validity findings showed that the adapted version was linguistically and culturally appropriate to be administered to Turkish-speaking parents with CWS. This was also confirmed by the feedback of the participants in the pilot study. Second, the construct validity findings showed that correlation values between domain and total scores were positive and statistically significant. This showed that the domains were an integral part of the scale, which served its intended purpose of use. Moreover, the findings of reliability

Table 2. RtoSDS Scores of Mothers and Fathers

RtoSDS	Participants (Parents)	N	Mean (SD)	df	t	P
Cognitive	Mothers	49	8.53 (5.41)	98	0.055	.956
	Fathers	51	8.47 (5.45)			
Behavioral	Mothers	49	10.95 (5.49)	98	0.548	.585
	Fathers	51	10.37 (5.19)			
Emotional	Mothers	49	11.71 (5.17)	98	2.059	.042*
	Fathers	51	9.70 (4.57)			
Total	Mothers	49	31.20 (14.53)	98	1.031	.305
	Fathers	51	28.54 (11.04)			

RtoSDS, Responses to Speech Disfluency Scale; SD, standard deviation.

* $P < .05$.

Table 3. RtoSDS Score Comparisons of Parents According to the Gender of the CWS

RtoSDS	Participants (CWS)	N	Mean (SD)	df	t	P
Cognitive	Male	68	7.86 (4.85)	98	-1.722	.088
	Female	32	9.84 (6.29)			
Behavioral	Male	68	10.14 (4.90)	98	-1.410	.162
	Female	32	11.75 (6.06)			
Emotional	Male	68	10.32 (4.36)	98	-1.079	.283
	Female	32	11.46 (6.02)			
Total	Male	68	28.33 (11.40)	98	-1.729	.087
	Female	32	33.06 (15.24)			

CWS, children who stutter; RtoSDS, Responses to Speech Disfluency Scale; SD, standard deviation.

analyses were consistent with previous studies. The CA coefficient of the Turkish version was 0.909, while the value was 0.74 for Polish and 0.94 for Persian.^{17,18} The test-retest reliability showed that the correlation coefficient value of the Turkish version was 0.942, while this value was 0.98 for Persian, indicating excellent reliability.¹⁸

In addition to validity and reliability analyses, the study compared the domain and total scores of mothers and fathers of CWS by also considering these scores according to the gender of CWS. Regarding parental reactions according to the gender of CWS, the parents of the boys and girls who stuttered showed emotional and behavioral reactions to stuttering most. However, the comparisons between the parents of girls and boys who stuttered did not yield statistically significant findings. The emotional domain and total scores among parents of girls who stuttered were significantly higher than those of boys in the Persian version.¹⁸ As cautioned by the authors of the Persian version who included 17 girls who stuttered, it might be more appropriate to increase the number of these participants while making such comparisons. It may also be challenging for researchers to reach a higher number of girls who stutter given the ratio of stuttering prevalence among girls and boys (1 : 4).¹⁹

The mean values of parents demonstrated that the order of reactions the mothers of CWS showed was within emotional, behavioral, and cognitive domains. The order of paternal reactions was within behavioral, emotional, and cognitive domains. These orders were different compared to the Polish and Persian versions where cognitive domain scores were highest both among mothers and fathers. However, this was not statistically significant. The Persian and Polish versions reported statistically significant differences only in the emotional domain score which was higher among mothers than fathers.^{17,18} This aligned with the finding of the current study. As reported by the authors of the Polish version, high scores in the emotional domain could reveal that mothers have intense emotions toward stuttering, are anxious about the future of their CWS, and show anger or frustration in the moment of stuttering.¹⁸

This finding is also consistent with those of previous studies reporting negative emotions against stuttering by the parents.^{4,9} However, the parental reactions may not be limited to stuttering itself, as previous literature examining the effects of parent-implemented treatment programs (such as Lidcombe) documents that parents could be anxious about delivering treatment themselves at their homes. Moreover, they might show frustration in case of slow progress out of the intervention.^{5,21,22}

A recent review examining parental perceptions of stuttering among children reports that parents hold a lack of knowledge about stuttering,²³ which leads to their inability to help their CWS cope with stuttering and avoidance behaviors including reluctance to speak, waiting

for other people to speak instead, withdrawing from play activities, etc.^{7,8} Therefore, the affective responses of parents might be relevant to their level of understanding about the nature of stuttering and how it unfolds throughout the course of its development.²⁴ If they receive information about stuttering and its treatment, they might better make sense of their reactions toward stuttering, especially emotional ones as documented by this study. This could in turn help them provide emotional support to their CWS and actively participate in the treatment process.²⁵ Manning and DiLollo³ and Rocha et al⁸ also stress the importance of identifying and addressing any negative reactions of parents toward stuttering on an individual basis, ideally before the treatment so that clinicians will be informed of this issue. Additional remarks might be beyond the scope of this study. Therefore, readers should refer to 3 important tutorials on equipping SLTs with counseling skills to include parents of CWS actively during the course of treatment, especially to address the emotional responses related to stuttering both by parents and CWS.²⁴⁻²⁶

It is also important to note that focusing on a single component (in this case, emotional reactions) during the assessment and intervention process might not be appropriate. This is because parental reactions have cognitive and behavioral extensions. Moreover, the exploration of these reactions should foster strong collaboration between SLTs and family member(s) with CWS. This is also essential for “facilitating the progress from the therapy beyond the clinic” as stated by Plexico and Burrus.¹⁶

This study validated a scale that aimed to identify cognitive, emotional, and behavioral reactions toward stuttering by parents in Turkish. The scale was originally developed in Polish and adapted to Persian. The Turkish validation study is a significant step in identifying various reactions of parents with CWS, which will hold clinical implications in the assessment and treatment of fluency disorders in the childhood population.

Ethics Committee Approval: Ethics committee approval was received for this study from the ethics committee of Ondokuz Mayıs University (Date: April 16, 2021, Protocol No: 2021-188).

Informed Consent: Informed consent was obtained from all the participants in the study.

Peer-review: Externally peer-reviewed.

Author Contributions: Concept – Ö.Y., Ş.Ö.; Design – Ö.Y., Ş.Ö.; Data Collection and/or Processing – Ö.Y., Ş.Ö.; Analysis and/or Interpretation – Ö.Y., Ş.Ö.; Literature Search – Ö.Y., Ş.Ö.; Writing Manuscript – Ö.Y., Ş.Ö.; Critical Review – Ö.Y., Ş.Ö.

Acknowledgments: The authors thank Ewa Humeniuk for her permission to adapt the scale into Turkish. They also thank all the individuals in the study for their participation.

Declaration of Interests: The authors declare that they have no competing interest.

Funding: The authors did not receive support from any organization for the submitted work.

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